



YORK Commercial and Industrial HVAC 2023



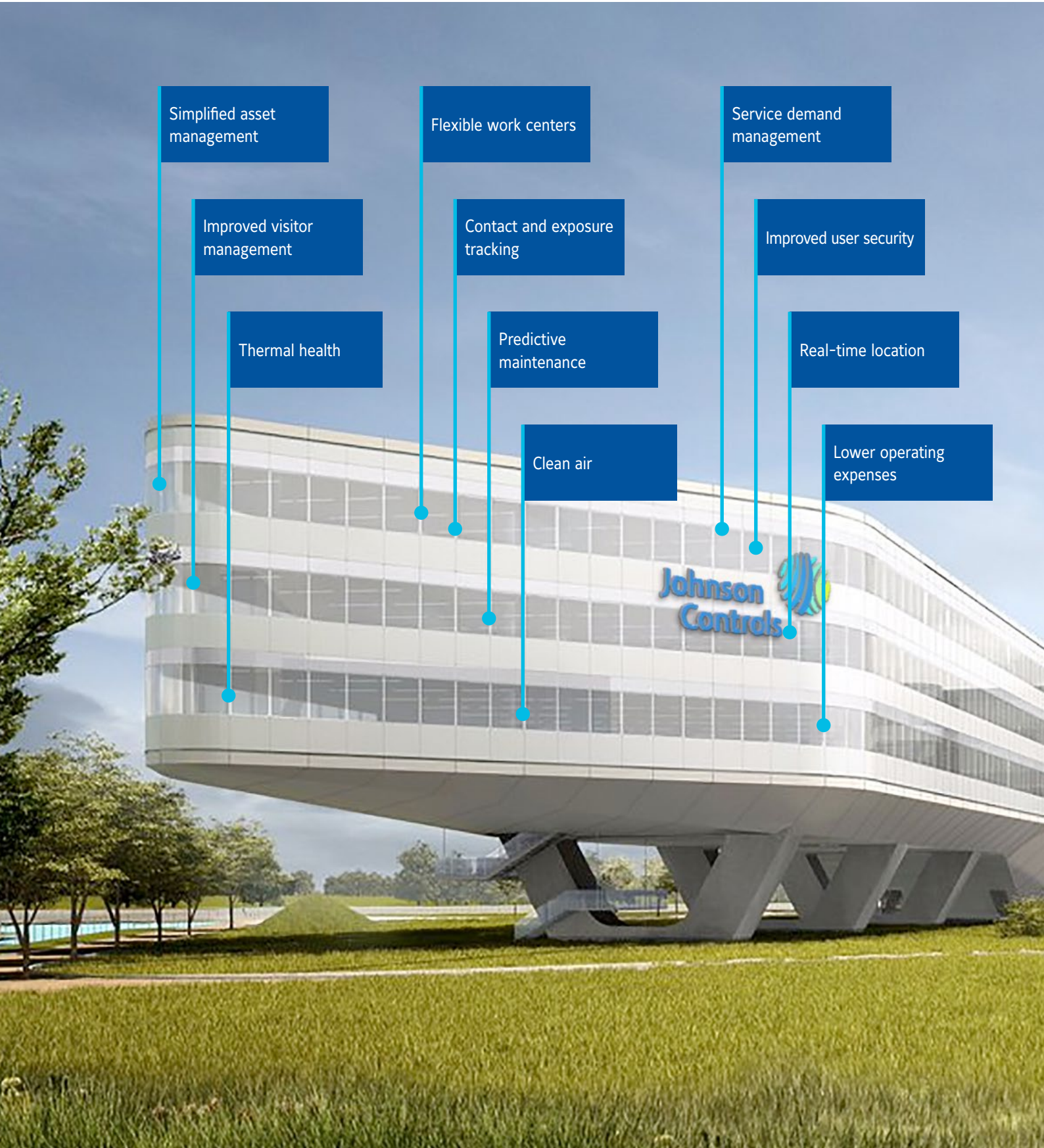
The power behind **your mission**





A more comfortable,
safe and sustainable world

Open Blue



Simplified asset management

Improved visitor management

Thermal health

Flexible work centers

Contact and exposure tracking

Predictive maintenance

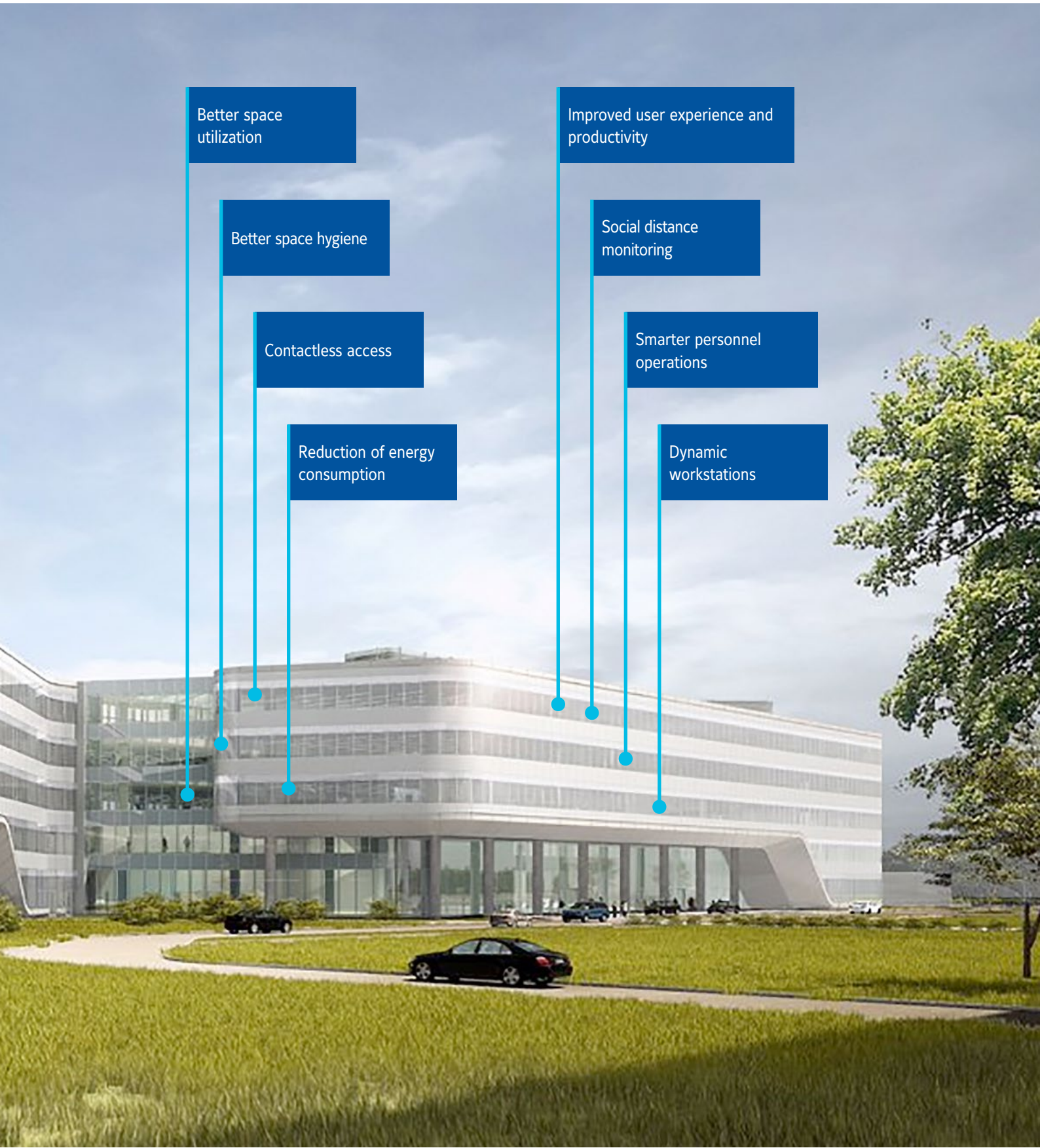
Clean air

Service demand management

Improved user security

Real-time location

Lower operating expenses



Better space utilization

Improved user experience and productivity

Better space hygiene

Social distance monitoring

Contactless access

Smarter personnel operations

Reduction of energy consumption

Dynamic workstations

Take advantage of a broader range of capabilities

Johnson Controls provides a wide spectrum of innovative products, expert installation and services, and systems integration to help improve operational and energy outcomes and power its customers' mission worldwide.



HVAC equipment

Draw on the most comprehensive HVAC portfolio for commercial and residential buildings of all types, ages and sizes to enhance sustainability, energy use and the indoor environment.

- Chillers: Air-Cooled, Water-Cooled, Heat Pumps and Absorption; Cloud connected chillers
- Condensers and condensing units
- Dedicated outdoor air systems (DOAS)
- Duct-free mini-split systems
- Indoor packaged equipment and Rooftop units
- Variable refrigerant flow (VRF) systems

Security

Help protect and enhance working and living environments today and tomorrow with integrated, customer-specific solutions from the world's leading security company.

- 24/7 remote monitoring
- Access control
- Advanced video surveillance systems and content analytics
- Intrusion detection
- Managed services

Controls

Equip facilities with intelligent HVAC controls to keep occupants comfortable, run equipment efficiently and optimize operating budgets.

- Actuators
- Control panels
- Control sensors
- Current sensors and transducers
- Thermostats
- Valves
- Variable speed drives

Fire, life-safety and hazard protection

Help keep people and assets safe with comprehensive solutions, design, installation, service and monitoring from a world leading fire and life-safety systems provider.

- Fire alarm systems
- Fire sprinkler systems
- Fire suppression systems (stationary and mobile)
- Mass notification systems
- Special hazard solutions

Optimization and retrofit services

Make the most of existing building and financial assets through cost-effective upgrades, central plant strategies, and financing solutions.

- Central chiller plant optimization
- Clean energy assessments
- Energy performance contracts
- Energy retrofits
- Equipment financing
- Healthcare environment optimization
- Public/private partnerships
- Technology refresh services
- Turnkey upgrades and retrofits
- Chiller Rental Solutions

Lighting controls and retrofit

Save energy, minimize costs and meet organizational goals with a range of services, from business remodels, to new construction lighting design, to municipal street lights.

- Lighting retrofits
- Street and roadway lighting
- Turnkey lighting upgrades

Energy storage

Rely on our innovative distributed energy storage products to better manage energy use, cut costs and ensure electrical back-up for a building, campus or enterprise.

- In-building distributed energy storage system
- Modular distributed energy storage system

Retail solutions

Gain real-time insights into retail facilities, inventories, employees & customers to achieve maximum business performance in a digitally driven shopping world.

- Loss Prevention
- Inventory Intelligence
- Traffic Insights

Operational intelligence and loss prevention

Helps minimize costs, maximize operational performance and enhance return on investment in security programs with business intelligence solutions.

- Information management solutions
- Real-time location systems (RTLS) for asset management
- Video and traffic analytics

Building services and parts

Tap into resources of the industry's largest service network for HVAC, security and life-safety system installation and product support. More than 12,000 technicians working out of nearly 500 local offices can provide 24x7x365 proactive monitoring, remote and on-site service and repair, and replacement parts.

- Aftermarket parts
- Building remote monitoring
- Building system and HVAC repair
- Planned and preventive maintenance
- Predictive and diagnostic services
- Security and life-safety system repair

Building automation systems

Connect commercial HVAC, lighting, security and protection systems on one platform. Vital data and insights improve efficiency, productivity, and occupants' comfort and safety.

- Metasys building automation system
- Metasys Enterprise Optimization applications
- Metasys Room Automation Solution
- Hotels Guest Room Management Solution

Air systems

Use efficient air flow building-wide to create healthy, comfortable and visually appealing environments that increase work productivity and occupant satisfaction.

- Air handling units
- Air measuring
- Chilled beams
- Dampers
- EcoAdvance™ HVAC load reduction (HLR) module
- Energy recovery ventilators
- Fan and blower
- Fans
- Filtration
- Grilles and diffusers
- Heating coils and cooling coils
- Louvers
- Under floor air distribution
- Unit ventilators
- Variable air volume (VAV) terminals
- Variable speed drives

Building wide systems integration

Construct a smarter building by converging building, business/IT and specialty systems on an intelligent infrastructure. Let us streamline the process to measurably improve initial and lifecycle costs, enhance function, ensure connectivity and create an innovative, optimized, sustainable environment.

Reference sites

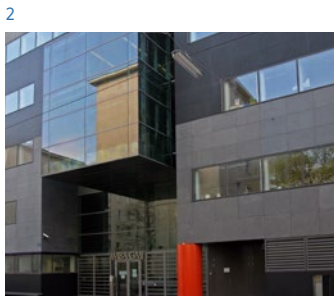
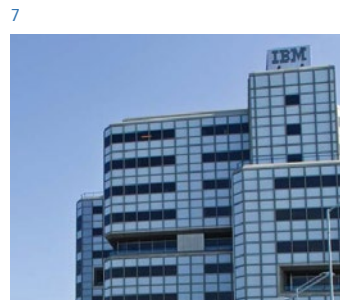
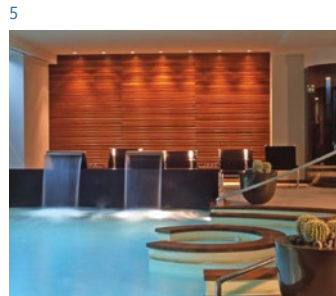
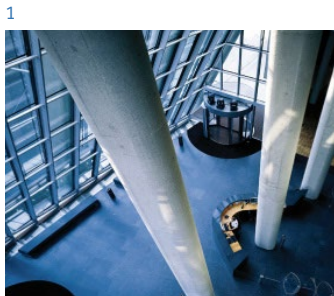
Our commitment to sustainability and energy efficiency dates back to 1885, with Warren Johnson's invention of the first electric room thermostat. Since then our focus has always been to increase a building's efficiency and operational performance.

The following sites represent building solutions we have developed for our customers based on wide-ranging cross industrial experience in HVAC&R equipment, controls, fire and security systems, and services for commercial and industrial buildings.

Oceanogràfic Valencia

Absorption chiller solution to save energy costs and improves performance.





1
First building in Austria to be awarded a Green Building Certificate
 Johnson Controls Metasys Building Automation System helps UNIQA Towers in Vienna achieve a Green Building Certificate for energy efficiency.

3
Cisco. UK
 Smart+Connected Communities installation designed to save energy costs and improves performance.

5
THI GROUP
 Solutions for the hospitality industry.

7
IBM Headquarters
 Adding value and conserving energy from the inside out.

2
The Gregor Mendel Institute
 State-of-the-art technologies for world-class research.

4
Fiserv (Europe) Ltd
 Utilising latest developments in chiller's technology delivers energy savings and ongoing cost reductions for Fiserv.

6
British Embassy. Berlin
 Full Lifecycle Solution for British Government's first Private Finance Initiative outside the UK.

8
Cologne Convention Center
 The centrifugal chillers and the building automation system are indispensable in creating and managing an optimal indoor environment.

A complete range of HVAC-R solutions for your facilities

METASYS BUILDING MANAGEMENT SYSTEM

METASYS SERVER
Support of IT standards and technologies, Multi-platform web-based user interface, long-term storage

OPEN APPLICATION SERVER (OAS)
Metasys system that combines supervisory server and engine capabilities in a single software offering, with optional, add-on features

SUPERVISORY NETWORK ENGINE
Family of IP connected Supervisory Network Engines for all sizes of building management systems

SUPERVISORY NETWORK CONTROLLER
Family of IP connected Supervisory Network Controllers with onboard Input/Output (IO) points and optional integral display

GENERAL PURPOSE CONTROLLER NEW
BACnet IP and MS/TP general purpose field controllers with optional integral or remote display

INPUT/OUTPUT MODULES
Scalable family of configurable Input/Output (IO) modules

VAV CONTROLLERS
Complete family of BACnet IP and MS/TP VAV controllers with optional damper position feedback. Support standard applications of fully programmable

FIELD USER INTERFACES
Self configuring local touch screen display or web server user interface options allowing simplified access to equipment or controls

GATEWAYS, ADAPTERS & REPEATER NEW
A range of gateways and adapters for enhanced integrations on Metasys SNE and SNC. Supporting communication standards such as MBus, LON and others. Range also includes a repeater for RS485 networks

INTEGRATION SOLUTIONS
Interfaces Metasys with legacy systems, fire and security systems and systems with proprietary and standard protocols

CRITICAL ENVIRONMENTS SOLUTION

CRITICAL ENVIRONMENT CONTROLLER & MONITOR
Complete line of controllers and monitors for room pressure and fume hoods

VENTURI VALVE SERIES
Constant Volume Venturi air valves & fast-acting actuators with Universal Valve Modules (UVM)

PENN REFRIGERATION PRODUCTS

PRESSURE SWITCHES & THERMOSTATS

ELECTRONIC CONTROLS & TRANSDUCERS

WATER VALVES & FLOW CONTROLS

HVAC CONTROL PRODUCTS

PEAK CONTROLLERS
Family of controllers and accessories specifically designed for Original Equipment Manufacturers (OEMs)

TERMINAL UNIT VALVES AND ACTUATORS
Complete offering of valves and actuators for terminal unit applications

CONTROL VALVES AND ACTUATORS
Ball, globe and butterfly valves with pneumatic and electric actuators

DAMPER ACTUATORS
Spring and non-spring return rotary actuators for air, fire and smoke dampers

PLANT SENSORS
Plant Temperature, Humidity, CO₂, VOC, Dew point and Delta pressure, with Passive, Analog, Modbus & BACnet communication

ROOM SENSORS
Room Temperature, Humidity, CO₂, VOC, with Passive, Analog, Modbus & BACnet communication

ALL IN ONE NETWORK SENSOR
Temperature, Humidity CO₂, presence and color display

THERMOSTATS NEW
Line powered Fan Coils thermostats stand alone, Modbus, BACnet and KNX communicating

SMART EQUIPMENT THERMOSTAT
24VAC color screen thermostat with proportional/ On-Off/multistage controls with seamless Metasys integration over BACnet MSTP

VERASYS SMART CONTROL SYSTEM

SMART BUILDING HUB
Web based control system that provides a mobile user interface to smart equipment branded controllers and thermostats

SMART EQUIPMENT CONTROLLERS
Family of controllers and accessories specifically designed for HVAC/R equipment optimization

VERASYS APPLICATION CONTROLLERS
Runs pre-engineered applications for control of HVAC equipment

TERMINAL UNIT CONTROLLER PLUS
Designed for local complete control of unitary equipment with BACnet supervisory communication

ROOM AUTOMATION SOLUTION

ROOM AUTOMATION SOLUTION
Complete range of KNX devices for lighting, sunblinds, heating and building controls

YORK FAN COIL UNITS

YFCN / YFCN-ECM E
Cooling capacity: 0.7 – 7.4 kW
Exposed and concealed, horizontal or vertical mounting, EC variable speed motor option

YFTS-ECM E
Cooling capacity: 0.4 – 3.8 kW
Exposed and concealed, vertical mounting, tangential fan, EC variable speed motor

LASER & LOW BODY / LASER & LOW BODY- ECM E
Cooling capacity: 0.6 – 9.7 kW
Exposed and concealed, horizontal or vertical mounting, EC variable speed motor option

YHVP / YHVP-ECM E
Cooling capacity: 1.17 – 3.81 kW
Residential wall mounted, infrared remote option, EC variable speed motor option

High static pressure blower YHPL / YHPL-ECM RFHP-O / RFHP-O-ECM E
Cooling capacity: 1.4 – 30.6 kW up to 250 Pa ESP maximum, ducted unit horizontal mounting without case, EC variable speed motor option

YGFC E EcoSense SCOP
Cooling capacity: 1.5 – 8.5 kW up to 60Pa ESP maximum, ducted horizontal

YDFC E EcoSense SCOP
Cooling capacity: 6.2 – 16.2 kW up to 100Pa ESP maximum, ducted horizontal

YEFB / YEFB-ECM E
Cooling capacity: 4.2 – 27.5 kW up to 250Pa ESP
Horizontal mounting without case, EC variable speed motor option

YKEY / YKEY-ECM E
Cooling capacity: 1.1 – 10.2 kW
Ceiling mounted, coanda effect, 2 and 4 pipe versions available, EC variable speed motor option

YHK / YHK-ECM E
Cooling capacity: 1.3 – 15.1 kW
Ceiling mounted cassette, 2 and 4 pipe versions available, EC variable speed motor option

AIR DISTRIBUTION PRODUCTS

DAMPERS & LOUVERS
Air Control, Pressure Relief, Backdraft, Fire, Smoke Dampers and Louvers

VAV TERMINAL UNITS
Shut-off Single and dual duct and Fan Powered Variable Air Boxes

GRILLES AND DIFFUSERS
Louvered, Square, Perforated, Slotted, Under Floor Diffusers, Specialized, Security Grilles

ELECTRONIC AIR PURIFIERS
HVAC Electronic Air Cleaner, Indoor Air Purifiers, Kitchen Exhaust Units

FAN FILTERED UNITS
Fan Filtered Diffusers with HEPA Filters

YORK CLOSE CONTROL AC UNITS

YC-P / YC-G / YC-R SERIES
Cooling capacity: 8.0 – 170.2 kW
Brushless DC compressors with inverter technology ad brushless EC motor fans. Upflow, downflow and horizontal supply options, R410A

YC-H SERIES E E
Cooling capacity: 32.3 – 141 kW
Brushless DC compressors with inverter technology and brushless EC motor fans, R410A

YORK ABSORPTION CHILLERS R718 (Natural-Water)

SINGLE EFFECT HOT WATER OR STEAM DRIVEN E
WFC SC / YHAU-CL/CH / YHAU-C
Cooling capacity: 18 – 7,033 kW

SINGLE EFFECT DOUBLE LIFT HOT WATER DRIVEN E
YHAU-CL-DXS
Hot Water Leaving down to 40°C
Cooling capacity: 176 – 2,500 kW

DOUBLE EFFECT STEAM OR HOT WATER DRIVEN E
YHAU-CW / YHAU-CHW
Cooling capacity: 422 – 14,065 kW

DOUBLE EFFECT DIRECT FIRED E
YHAU-CXR / YHAU-CG
Cooling capacity: 105 – 5,600 kW

DOUBLE EFFECT EXHAUST GAS DRIVEN E
YHAU-CE
Cooling capacity: 527 – 3,516 kW

MULTI ENERGY E
Hot water & Steam & Exhaust gas
YHAU-CE-J / YHAU-CW-J
Cooling capacity: 527 – 5,064 kW

SINGLE OR DOUBLE EFFECT LOW LEAVING (0° or -5°C) E
Hot water & Steam driven
YHAU-L / YHAU-LL
Cooling capacity: 176 – 2,500kW

YORK AIR HANDLING UNITS & INDOOR AIR QUALITY OPTIONS

YMA E
Customized
Airflow range: 1,000-200,000 m³/h

YMB
Modular
Airflow range: 700-100,000 m³/h

YKR NEW
Compact
Rotary Heat Exchanger
Airflow range: 600-10,600 m³/h

YKC NEW
Compact
Counter-flow Plate Heat Exchanger
Airflow range: 1,500-7,360 m³/h

YKL NEW
Compact - Low profile
Counter-flow Plate Heat Exchanger
Airflow range: 250-2,550 m³/h

YKH NEW
Residential
Counter-flow Plate Heat Exchanger
Airflow range: 65-620 m³/h

YORK Mobile HEPA Filter Unit
Indoor Air Quality Options
Filtration Units
Airflow range: 800-1,600 m³/h

YORK ROOFTOP EQUIPMENT

ACTIVA ROOFTOP E E
Cooling capacity: 18.3 – 38.5 kW
Cooling only, Heat pump, Cooling only + Gas heat, Heat pump + Gas heat, R410A

ACTIVA ASR ROOFTOP E E
Cooling capacity R410A: 50 – 219 kW
Cooling capacity R32: 95 – 140 kW
Cooling only, Heat pump, scroll compressors, R410A, R32

LARGE ACTIVA ROOFTOP
Cooling capacity: 108 – 169 kW
Cooling only, Heat pump, Scroll compressors, R410A

YORK CHILLERS

AIR-COOLED

- 

AMICHI-S YVAG
Cooling capacity: 11.2 – 17.8 kW
DC Inverter technology,
Scroll compressor, R410A
- 

AMICHI YMPA
Cooling capacity: 41 – 254 kW
DC Inverter technology, Scroll compressor, hydro kit, R454B and R410A
- 

TEMPO YLAA NEW
Cooling capacity: 195 – 636 kW
Scroll compressors, hydro kit, R454B
- 

YGT
Cooling capacity: 401 – 983 kW
Variable-speed screw compressor with HFO, Heat recovery, Hydro kit, R1234ze
- 

YVAA NEW
New Generation
Cooling capacity: 500 – 2,000 kW
Variable-speed screw compressor, R513A
- 

YVFA
Cooling capacity: 577 – 1,664 kW
Air-Cooled VSD Screw Free Cooling, R513A
- 

YAS
Cooling capacity: 31.8 – 353 kW
Reciprocating compressor, R290 (Propane)
- WATER-COOLED**
- 

YMWAYMRA
Cooling capacity: 21 – 193 kW
Scroll compressor, R410A
- 

YCSE/YCRE
Cooling capacity: 140 – 240 kW
Screw compressor, R513A and R134a
- 

YRW
Cooling capacity: 151 – 321 kW
Screw compressor, R513A
- 

YCWLYCRL
Cooling capacity: 178 – 595 kW
Scroll compressor, R410A
- 

YVWH
Cooling cap.: 313 – 1,189 kW
Variable-speed screw compressor, R1234ze
- 

YZ
Cooling capacity: 580 – 5,500 kW
Variable Speed Centrifugal, Magnetic Bearings, R1233zd(E)
- 

YZD (Dual) NEW
Cooling capacity: 550 – 7,000 kW
Variable Speed Centrifugal, Magnetic Bearings, R1233zd(E)
- 

YMC2
Cooling capacity: 800 – 3,500 kW
Variable Speed Centrifugal, Magnetic Bearings, R513A
- 

YK
Cooling capacity: 800 – 11,250 kW
Centrifugal compressor, R1234ze and R513A

SERVICE OFFERINGS

- 

CHILLER DIAGNOSTIC TOOL
Proactive parts replacements recommendations to maintain efficiency, boost uptime and provide savings on unplanned repair costs. Available for: YMAA/ YMPA, YVAA, YZ, YMC2, YK, YHAU
- 

YORK CHILLER ACCESS MANAGER
Provides owners with control and visibility over who is operating, maintaining and servicing their chiller, ensuring the protection of an asset critical to facility operation. Available for: YK, YZ, YMC2
- 

OPENBLUE CONNECTED CHILLERS
Cloud-hosted analytical tool that cut costs, maximize uptime, and provide targeted maintenance to keep your chiller running compliant, efficient and reliable. Available for: YLAA, YLPB, YVAA, YVFA, YCWLYCRL, YVWH, YVWA, YZ, YMC2, YK, YHAU. Other chillers on request.


YORK HEAT PUMPS

AIR-COOLED (2 pipes)

- 


AMICHI-S YVAG
Reversible, water up to 52°C
Cooling capacity: 11.2 – 17.8 kW
Heating capacity: 10.9 – 18.4 kW
DC Inverter technology,
Scroll compressor, R410A
- 


AMICHI YMPA
Reversible, water up to 55°C
Cooling capacity: 41 – 254 kW
Heating capacity: 45 – 256 kW
DC Inverter technology, Scroll compressor, hydro kit, R454B and R410A
- 

YLPB
Reversible, water up to 55°C
Cooling capacity: 336 – 629 kW
Heating capacity: 344 – 653 kW
Scroll compressors, hydro kit, R410A
- 

YAS/RC-WP
Reversible, water up to 55°C
Cooling capacity: 90.9 – 296.8 kW
Heating capacity: 103.3 – 333.8 kW
Reciprocating compressors, R290 (Propane)

AIR-COOLED (4 pipes)

- 

YHA
Reversible, water up to 60°C
Cooling capacity: 18.1 – 416 kW
Heating capacity: 22.2 – 463.7 kW
Scroll compressor, R410A
- 

YLZ
Reversible, water up to 65°C
Cooling capacity: 20.9 – 180.1 kW
Heating capacity: 24 – 209.6 kW
E.V.I. scroll compressors, ductable option, R410A

WATER-COOLED

- 

YMWAYMRA
Reversible, water up to 55°C
Cooling capacity: 21 – 186 kW
Heating capacity: 24 – 215 kW
Scroll compressor, R410A
- 

YCSE HP
Water up to 50°C
Heating capacity: 170 – 300 kW
Screw compressor, R513A and R134
- 

YWH
Water up to 78°C
Heating capacity: 37.6 – 301.2 kW
Scroll compressor, R134a
- 

YCWLYCRL
Water up to 50°C
Heating capacity: 200 – 700 kW
Scroll compressor, R410A
- 

YLCS
Water up to 65°C
Heating capacity: 469 – 1,300 kW
Screw compressor, R134a
- 

YVWH
Water up to 50°C
Heating cap.: 800 – 1,250 kW
Variable-speed screw compressor, R1234ze
- 

YVWH High Head HP
Water up to 80°C
Heating cap.: 800 – 1,600 kW
Variable-speed screw compressor, R1234ze
- 

YVWA
Water up to 60°C
Heating capacity: 600 – 1,000 kW
Variable-speed screw compressor, R513A
- 


YZ NEW
Water up to 45°C
Heating capacity: 1,000 – 6,800 kW
Variable Speed Centrifugal, Magnetic Bearings, R1233zd(E)
- 


YMC2
Water up to 65°C
Heating capacity: 1,600 – 3,000 kW
Variable Speed Centrifugal, Magnetic Bearings, R513A
- 


YK
Water up to 50°C (Std) / 70°C (HP)
Heating capacity: 1,000 – 9,000 kW
Centrifugal compressor, R513A
- 

ABSORPTION HEAT PUMPS
TYPE I - R718 (Natural Water)
YHAP-CL/CH / YHAP-C / YHAP-CW
Hot Water Leaving up to 95°C
Heating capacity: 900 – 40,000 kW
Hot Water, Steam, Natural Gas or Exhaust Gas driven

SABROE HEAT PUMPS


- 


HeatPAC recip
Water up to 90°C
Heating capacity: 300 – 2,700 kW
Recip compressor, variable speed only, Ammonia (R717) (<50 kg charge)
- 


DualPAC
Water up to 90°C
Heating capacity: 400 – 2,900 kW
Variable speed, Ammonia (R717)
- 


HicaHP NEW
Water up to 95°C
Heating capacity: up to 7,000 kW
Screw compressor, fixed or variable speed, Ammonia (R717)


SABROE INDUSTRIAL REFRIGERATION


- RECIPROCATING COMPRESSOR**
- 


CMO
Capacity: 100 – 270 kW
Fixed or variable speed, Ammonia (R717), hydrocarbons (HCs), common HFCs and derived blends
- 


SMC
Capacity: 270 – 1,430 kW
Fixed or variable speed, Ammonia (R717), hydrocarbons (HCs), common HFCs and derived blends
- 


HPO/HPC/HPX
Heating capacity: 330 – 3,200 kW
Fixed or variable speed, Ammonia (R717), carbon dioxide (R744), hydrocarbons (HC), common HFCs and derived blends
- SCREW COMPRESSOR**
- 


SAB, small / SAB, large
Capacity: 180 – 7,000 kW
Fixed or variable speed, Ammonia (R717), carbon dioxide (R744), hydrocarbons (HCs), common HFCs and derived blends
- AIR-COOLED CHILLER**
- 


ChillPAC Air
Cooling capacity: 260 – 1,400 kW
Recip compressor, fixed or variable speed, Ammonia (R717)
- WATER-COOLED CHILLERS**
- 


ChillPAC
Cooling capacity: 100 – 1,400 kW
Recip compressor, fixed or variable speed, Ammonia (R717) (<50 kg charge)
- 


ComPAC
Cooling capacity: 200 – 2,300 kW
Screw compressor, fixed or variable speed, Ammonia (R717) (low charge)
- 


PAC screw or recip
Cooling capacity: 100 – 7,000 kW
Screw or Recip compressor, fixed or variable speed, Ammonia (R717)
- 

CAFP low-temperature chiller
Capacity: 85 – 790 kW
Fixed or variable speed, Ammonia/CO2 (R717/R744)
- VESSEL AND EXCHANGER VESSEL PROGRAM**
- 

Separators, Intercoolers, Receivers and Air Purgers. Standard product range. Inhouse design and engineering department. PED, EAC, DNV, LRS, BV, ABS, MOM, DOSH, KGS, KR
- EXCHANGER PROGRAM**
- 

Shell and tube design
Condensers, Evaporators and Cascade Units. Capacity range from 50kW to 5000kW
- CONTROLS**
- 

UnisAB 4 NEW
Integrated systems controller for chillers and heat pumps
- 

Chiller and Heat Pump Plant Controller
Plug-and-play control panel for plant integration of chillers and heat pumps
- 

ISAC
Monitoring and control interface configuration system for refrigeration installations



*** AHRI CERTIFICATION PROGRAM**

YORK chillers have been tested and certified by Air-Conditioning, Heating and Refrigeration Institute (AHRI) in accordance with the latest edition of AHRI Standard 551/591 (S-I). Under this Certification Program, chillers are regularly tested in strict compliance with this Standard. This provides an independent, third-party verification of chiller performance. Refer to the following AHRI sites at <https://www.ahrinet.org/accl> or <https://www.ahrinet.org/wccl> for air-cooled and water-cooled Program Scope, Inclusions, and Exclusions as some options listed herein fall outside the scope of the AHRI certification program. For verification of certification, go to the AHRI Directory at www.ahridirectory.org

Catalogue content

Chillers and Heat Pumps

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YLAA Air-cooled scroll compressor chiller	34
YGT Air-cooled VSD screw chiller with HFO	38
New generation YVAA Air-cooled VSD screw chiller NEW	40
YVFA Air-cooled VSD screw chiller with integrated Free-cooling	48
YAS / Rc-MC Air-cooled liquid chiller with reciprocating compressor, axial fans and refrigerant R290 (Propane)	60
YAS / Rc-WP Air-cooled heat pump with reciprocating compressor, axial fans and refrigerant R290 (Propane)	70
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YRW Water-cooled screw compressor chiller	78
YCSE / YCRE Style C Water-cooled screw compressor chiller	80
YWH Super-high temperature water to water scroll heat pumps	82
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Comprehensive Solutions

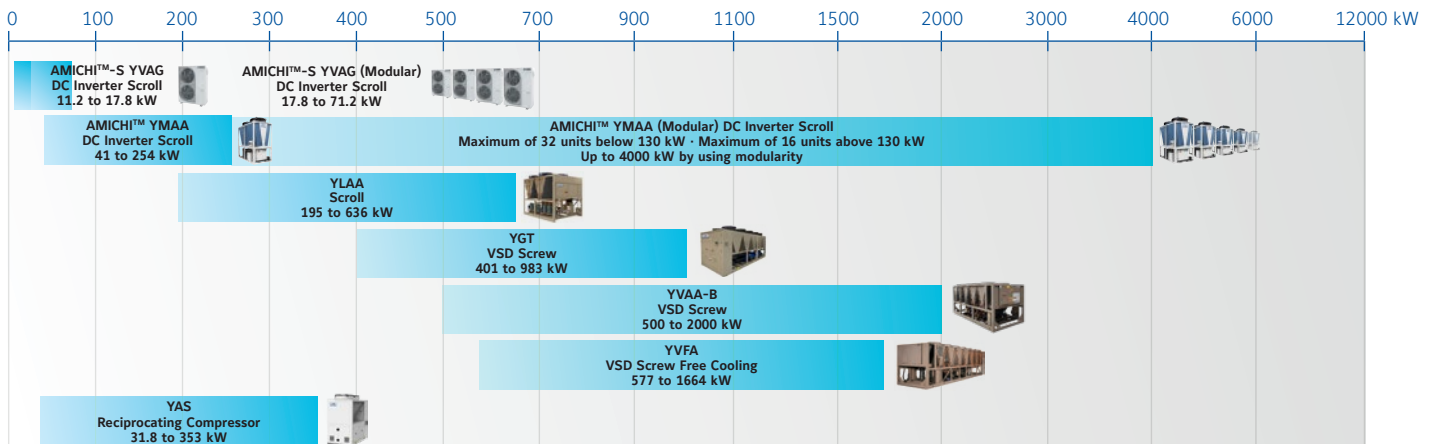
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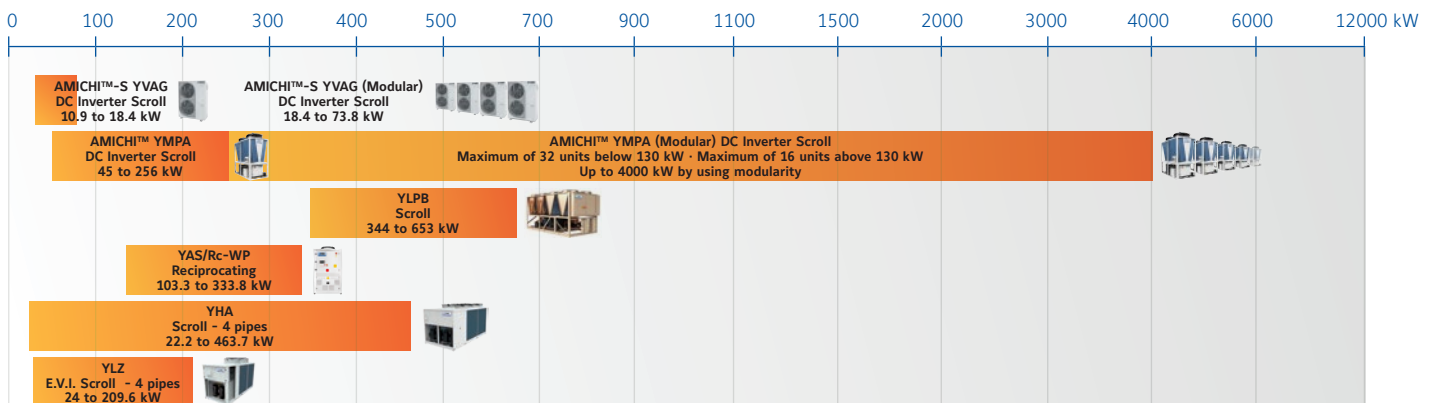
Air-Cooled Chillers and Heat Pumps

YORK offers a complete range of air-cooled chiller and heat pumps within **11 kW to 4000 kW capacities**, to cover all customer needs, maintaining the highest efficiency levels and operative performances.

YORK Chillers Units



YORK Heat Pump Units



Three different compressor technologies for to meet the most challenging requirements

Scroll compressor

YVAG, YMPA, YLAA, YLPB, YHA, YLZ

A **scroll compressor** is typically used in small-medium size HVAC applications for residential and commercial buildings. It offers a good compromise between a compact footprint and wide operating envelope. A typical application is a multi-compressor system, often with one inverter compressor for more flexible regulation and improved efficiency.

Screw compressor

YGT, YVAA, YVFA

A **rotary-screw compressor** uses a rotary-type positive-displacement mechanism. Screws are commonly used for medium size comfort or process cooling applications where high compression ratios and lift are required, such as for glycol or dry cooler operation.

Variable compression ratio (Vi) and slide valve can provide the best efficiency while matching the different operating conditions required by each application.

Reciprocating compressor

YAS, YAS-WP

A **reciprocating compressor** type optimized to operate with the hydrocarbons and realized in compliance with the safety regulation in force. The electrical motor, arranged for starts with low inrush current (PW option), is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump.

Amichi-S Series

Air cooled Scroll DC Inverter reversible heat pump

YVAG 012 to 018

A complete range from 11.2 kW up to 17.8 kW



High Efficiency

Providing the lowest possible operating costs

Our new **YORK® Amichi-S** is designed for real world efficiency. Part load performances meet the highest efficiency values and delivers performance beyond typical heat pump efficiency levels in cooling and heating. The new reversible heat pumps exceed the requirements for the Ecodesign regulations for Heat Pumps through an optimized combination of YORK efficiency-enhancing technologies.

YORK® Amichi-S uses high efficiency DC inverter compressor together with advanced variable frequency drive technology which ensures stable operation across the entire operating range. Compressor frequency range goes from 15 ~ 120%, to quickly and efficiently meet the needs of residential load changes. **YORK® Amichi-S** units not only uses a high efficiency DC inverter compressor, but also dual fans equipped with high efficiency, low noise DC inverter motor which adjusts the air flow to exactly match the capacity in a more accurate and efficient way.

Low Sound Optimized

Thanks to the **YORK® Amichi-S** component design, the unit sound emissions are as low as 54 dB(A) Sound Pressure at full load, reducing to as low as 40 dB(A) at part load operation.

YORK® Amichi-S also has Silent Mode available, which reduces the sound level emissions by 5 dB(A) below full load levels.

Perfect Comfort in a Wide Operating Range

Wide operating envelope

With the wide operating range, **YORK® Amichi-S** is perfect for all climates. It does not matter if the ambient temperature in summer is 48°C or if in winter is -20°C, as the unit will maintain the efficiency in stable operation, to provide users with the most comfortable air conditioning experience. With the heating outlet water temperatures up to 52°C, the unit is perfect for radiant panels. The unit contains a 2 liters expansion tank as a standard built-in component.

Easy Installation and Operation

Modular concept

The small packaged **YORK® Amichi-S** heat pump comes as standards with a hydronic loop circulating pump, water flow switch, safety valve, fill valve and wye-strainer, saving space in the room and making installations easy and fast. The pumps can provide up to 150 kPa available static pressure.

The units are designed for modular installations (up to 4 module combinations among all the models) to meet the needs of different residential and light commercial building demands. This permits installed capacities from 11.2-72 kW.



Exactly control at real time

YORK® Amichi-S unit comes with RS485 interface, through the Modbus protocol, together with easy access and user-friendly real-time control. New control solution has been developed for a quick and easy installation in a domestic application.

Air cooled Scroll DC Inverter reversible heat pump

YVAG 012 to 018



Technical features

Model		YVAG012	YVAG014	YVAG016	YVAG018	
Performance	Nominal Cooling Capacity	kW	11.18	14.26	15.95	17.80
	Cooling Power Input	kW	4.01	5.28	5.74	6.95
	EER		2.80	2.70	2.81	2.58
	SEER		4.05	4.32	4.52	4.42
	$\eta_{s,c}$		159	170	178	174
	Nominal Heating Capacity	kW	10.94	13.11	15.41	18.46
	Heating Power Input	kW	3.65	4.28	4.68	6.28
	COP		2.95	3.05	3.28	2.94
	SCOP		3.51	3.58	4.07	3.94
	$\eta_{s,h}$		136	139	158	153
	Energy Class at 35°C		A+	A+	A++	A++
Sound Power Level	dB(A)	68	70	70	74	
Refrigerant	Refrigerant charge R410A	kg	2.8	3.3	4.0	4.0
Compressor	Type	Scroll DC Inverter				
	Quantity	#	1	1	1	1
Air side heat exchanger	Fan motor type	Brushless DC Fan Motor				
	Fans quantity	#	2	2	2	2
	Airflow	m ³ /h	2500 ~ 6600	2500 ~ 6600	2500 ~ 6600	2500 ~ 6600
	Working ambient temperature cooling mode		-5 ~ 48°C			
	Working ambient temperature heating mode		-20 ~ 25°C			
Water side heat exchanger	Type	Braze Plate Heat Exchanger				
	Pump Type	Multiple-stage centrifugal pump				
	Nominal water flow	m ³ /h	1.9	2.4	2.7	3.1
	Unit external head	kPa	150	130	120	110
	Working range water leaving temp. cooling		-10 ~ 15°C			
	Working range water leaving temp. heating		30 ~ 52°C			
	Expansion tank	l	2 (for all models)			
Dimensions and weight	Height	mm	1320			
	Width	mm	995			
	Depth	mm	360			
	Operating weight	kg	126	128	141	141
Electrical	Power supply	V/ph/Hz	230V/1ph/50Hz (3-Phase kit available)			

Net values at Eurovent nominal conditions:

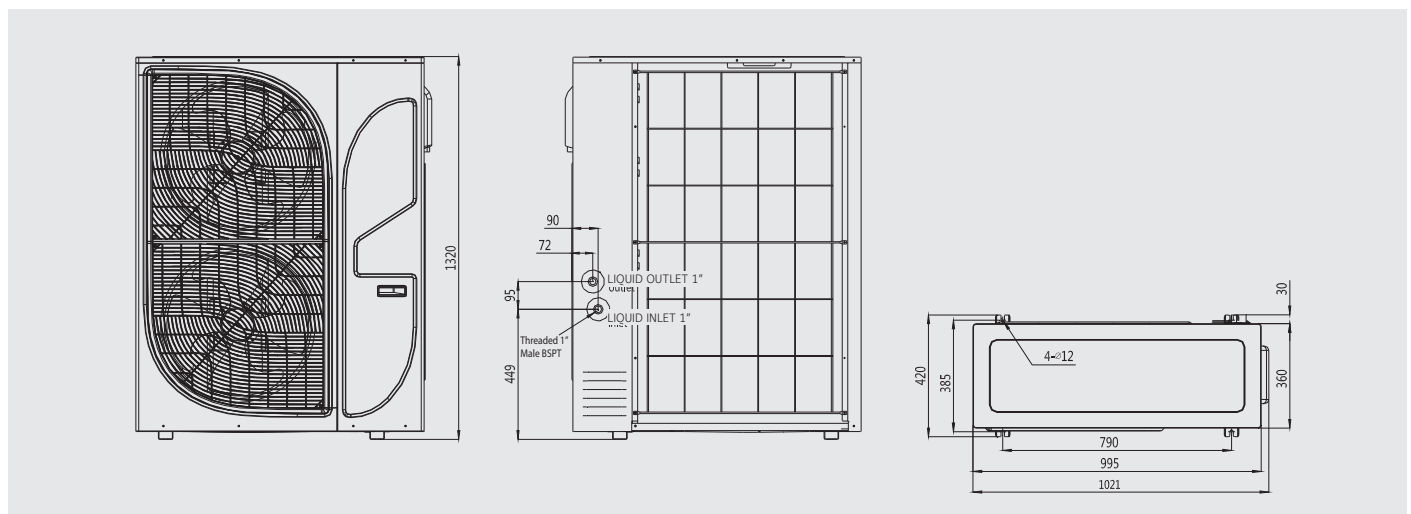
Cooling capacities in kW given for 12/7°C water leaving temperature Δt 5°C and 35°C ambient temperature.

Heating capacities in kW given for 40/45°C water leaving temperature and 7°C ambient temperature.

Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.

Dimensions and hydraulic connections

YVAG 012 to 018



All dimensions in mm. Drawings not in scale.



Manufacturer reserves the rights to change specifications without prior notice.

Amichi Series

Air cooled Scroll DC Inverter reversible heat pump

YMPA 045 to 260

A complete range from 40 kW up to 254 kW



Heat Pump Product of the Year
WINNER ACR AWARDS 2021

Exceeding Efficiency Standards

The YORK® Amichi Series Air-Cooled DC Inverter Scroll Chillers and Heat Pumps have been designed to meet tomorrow's efficiency standards today. Delivering performance beyond typical chiller and heat pump efficiency levels, the YORK® Amichi Series meets or exceeds stringent regulatory requirements (see chart below) through an optimized combination of efficiency-enhancing technologies from YORK®.

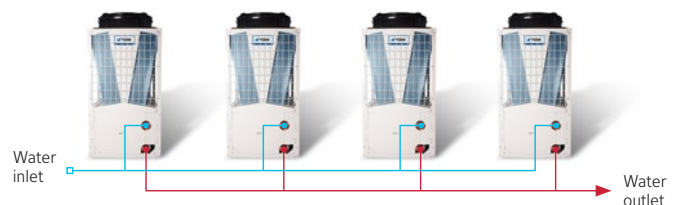
ECODESIGN REGULATIONS CATEGORY:	EFFICIENCY METRIC:	TOMORROW'S STANDARDS MET TODAY:
Comfort Heating	SCOP/ηsh	Amichi Heat Pump: Sept. 2017 Compliant (Tier 2)
Comfort Cooling	SEER/ηsc	Amichi Chiller: Jan. 2021 Compliant (Tier 2)
Process Cooling (Med. Temp.)	SEPR	Amichi Chiller: July 2018 Compliant (Tier 2)
Process Cooling (High Temp.)	SEPR	Amichi Chiller: Jan. 2021 Compliant (Tier 2)

Performance Without Compromise

The YORK® Amichi Series is a no-compromise solution for a variety of climates and locations. It can maintain efficiency in a variety of conditions without kits or add-ons (down to -18°C ambient in cooling mode and -15°C ambient in heating mode). With the smallest footprint across the widest capacity range on the market, the YORK® Amichi Series is also the perfect solution for high performance in smaller spaces. Our systems offer two levels of sound performance. If requirements call for sound attenuation beyond our standard low-noise levels, an optional Ultra Quiet Kit can further reduce sound power by 6 dBA, providing one of the quietest units available.

Modular system - Greater design flexibility

- 9 package models or modular combinations
- Controls can be parent/child controller if application requires
- Maximum of 32 units below 130 kW
- Maximum of 16 units above 130 kW



Air cooled Scroll DC Inverter reversible heat pump

YMPA 045 to 260



YMPA 45 to 260 PJ - technical features for R454B unit

Model			YMPA								
			45	65	80	100	130	160	200	230	260
Performance	Cooling capacity h/p units w/o LN	kW	43	58	76	96	119	155	184	216	248
	Cooling capacity h/p units w/ LN	kW	40	57	72	91	111	152	183	208	240
	EER w/ LN		3.03	3.25	3.18	3.20	3.02	3.20	3.10	3.15	3.11
	SEER w/ LN		4.72	4.65	4.23	4.81	4.30	4.47	4.41	4.74	4.89
	η _{s,c} w/ LN		186	183	166	190	169	176	174	187	193
	Heating capacity h/p units w/o LN	kW	49	60	87	98	131	160	189	229	254
	Heating capacity h/p units w/ LN	kW	45	55	83	91	124	155	180	222	243
	COP w/ LN		3.17	3.21	3.35	3.27	3.04	3.3	3.29	3.27	3.29
	SCOP w/ LN		3.61	3.64	3.58	3.55	3.56	3.73	3.72	3.58	3.50
	η _{s,h} w/ LN		142	143	140	139	140	146	146	140	137
Sound power level STD / LN (cooling)	dB(A)	79/73	81/76	80/76	82/77	83/79	85/80	86/81	86/81	87/82	
Refrigerant	Refrigerant circuits	#	1	1	2	2	2	3	3	4	4
	Refrigerant charge (R454B)	kg	8	10.8	16	18	20	26.3	28.7	38	40
Compressor	Type		DC Scroll Inverter + Scroll								
	Capacity steps	%	Stepless (Inverter)								
	Quantity		2	2	3	3	4	5	6	7	8
Air side heat exchanger	Fan motor type		EC motor								
	Fans quantity		1	1	2	2	2	3	3	4	4
	Working ambient temp. cooling mode		-18 ~ 48°C								
	Working ambient temp. heat. mode		-15 ~ 25°C								
Water side heat exchanger	Type		Plate Heat Exchanger								
	Unit water volume (w/o pump kit)	l	9	10	11	14	15	27	29	32	34
	Pump Type		Fixed / Variable Speed Drive Pump				Variable Speed Drive Pump				
	Nominal water flow	l/s	1.9	2.6	3.5	4.3	5.5	7.4	8.4	10.0	11.4
	Pressure drop (cooling)	kPa	27	21	24	25	32	23	29	37	34
	Working range water leaving temp. cooling		-12 ~ 20°C								
	Working range water leaving temp. heating		25 ~ 55°C								
	Water connections type		Victaulic								
Dimensions and weight	Height (w/o pump kit)	mm	2440								
	Width (w/o pump kit)	mm	1200				3050				
	Depth (w/o pump kit)	mm	1500			2250					
	Operating weight (w/o pump kit)	kg	587	610	893	920	999	1922	2003	2235	2316
	Voltage/Phases/Frequency	V/ph/hz	400/3/50+E								

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.

Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature.

SEER and SCOP calculated according to EN14511 and EN14825.

η_s calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281).

Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.

All the values are for a standard YMPA with low noise (w/ LN) kits except the cooling capacity, heating capacity and sound power data show both with (w/) and without (w/o) LN kits.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.



Manufacturer reserves the rights to change specifications without prior notice.

Air cooled Scroll DC Inverter reversible heat pump

YMPA 045 to 260



YMPA 45 to 260 PE - technical features for R410A unit

Model			YMPA									
			45	65	80	100	130	160	200	230	260	
Performance	Cooling capacity h/p units w/o LN	kW	44	60	78	99	122	159	188	221	254	
	Cooling capacity h/p units w/ LN	kW	41	56	75	92	117	157	180	214	245	
	EER w/ LN		2.87	2.84	3.06	3.00	2.90	2.99	2.92	2.92	2.92	
	SEER w/ LN		4.61	4.71	4.24	4.43	4.37	4.06	4.39	4.39	4.68	
	$\eta_{s,c}$ w/ LN		182	185	166	174	172	159	173	172	184	
	Heating capacity h/p units w/o LN	kW	50	61	87	99	132	161	191	231	256	
	Heating capacity h/p units w/ LN	kW	46	55	84	91	126	156	182	224	245	
	COP w/ LN		2.96	2.99	3.12	3.05	2.83	3.08	3.06	3.05	3.07	
	SCOP w/ LN		3.43	3.45	3.40	3.37	3.39	3.54	3.53	3.40	3.32	
	$\eta_{s,h}$ w/ LN		134	135	133	132	133	139	138	133	130	
Sound power level STD / LN (cooling)	dB(A)	79/73	81/76	80/76	82/77	83/79	85/80	86/81	86/81	87/82		
Refrigerant	Refrigerant circuits	#	1	1	2	2	2	3	3	4	4	
	Refrigerant charge (R410A)	kg	9.5	12.3	17.6	20.5	22.8	29.5	32	43.3	46	
Compressor	Type		DC Scroll Inverter + Scroll									
	Capacity steps	%	Stepless (Inverter)									
	Quantity		2	2	3	3	4	5	6	7	8	
Air side heat exchanger	Fan motor type		EC motor									
	Fans quantity		1	1	2	2	2	3	3	4	4	
	Working ambient temp. cooling mode		-18 ~ 48°C									
	Working ambient temp. heat. mode		-15 ~ 25°C									
Water side heat exchanger	Type		Plate Heat Exchanger									
	Unit water volume (w/o pump kit)	l	9	10	11	14	15	27	29	32	34	
	Pump Type		Fixed / Variable Speed Drive Pump				Variable Speed Drive Pump					
	Nominal water flow	l/s	2.0	2.7	3.6	4.4	5.6	7.5	8.6	10.2	11.7	
	Pressure drop (cooling)	kPa	28	22	25	26	34	24	30	38	36	
	Working range water leaving temp. cooling		-12 ~ 20°C									
	Working range water leaving temp. heating		25 ~ 55°C									
	Water connections type		Victaulic									
Dimensions and weight	Height (w/o pump kit)	mm	2440					2500				
	Width (w/o pump kit)	mm	1200					3050				
	Depth (w/o pump kit)	mm	1500			2240						
	Operating weight (w/o pump kit)	kg	587	610	893	920	999	1922	2003	2235	2316	
Electrical	Voltage/Phases/Frequency	V/ph/hz	400/3/50+E									

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.

Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature.

SEER and SCOP calculated according to EN14511 and EN14825.

η_s calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281).

Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.

All the values are for a standard YMPA with low noise (w/ LN) kits except the cooling capacity, heating capacity and sound power data show both with (w/) and without (w/o) LN kits.

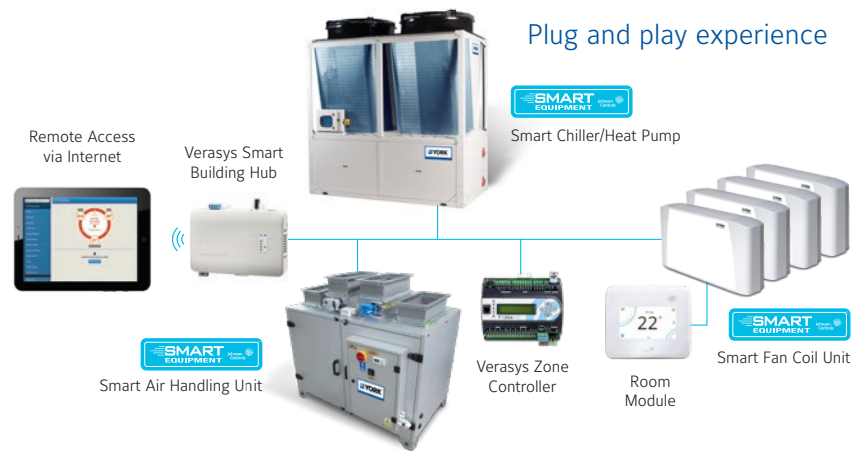
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.



Manufacturer reserves the rights to change specifications without prior notice.

Advanced Control Made Easy

Comfort, productivity, and up to half of the energy used in your building – these are all factors affected by how your chiller operates and how it interacts with other components in your HVAC/R system. To help maximize efficiency and keep you in control, the YORK® Amichi Series comes as standard with integrated Smart Equipment. This technology allows the equipment to connect seamlessly to building controls, such as our world-class Verasys™ system, where smart-enabled equipment can self-identify and interoperate.



Perfect solution for rental application

- Ambient operating range in cooling mode from -18 to 48°C
- Outstanding minimum leaving fluid temperature, down to -12°C
- Power quick connector CEE17 for main power (400/3/50, 3P+G) and 220V compressor heater (in chiller panel)
- Water quick connector Camlock (EN14420-7)
- Gate valves for water inlet/outlet connections
- Condenser coil: Gold fin pre-coating and wire mesh around coil

- Chiller IP54 and control panel IP55
- Low Sound compressor enclosure
- Available ESP up to 200 kPa at standard conditions
- Rental Panel (by request)
- Connected Service Kit (by request)
- Perfect solution for Ice-Rink rental applications

Note: please contact your JCI representative for getting your special quotation

Safety is our priority

The YORK® Amichi Series Air-Cooled DC Inverter Scroll Heat Pump is designed for safe operation. The new R454B refrigerant was chosen with safety and low toxicity in mind.

R454B has a 78 percent lower GWP value in comparison to R410A and is classified in safety class A2L (non-toxic and difficult to ignite).

This heat pump is equipped with refrigerant leakage sensors, additional switch cabinet ventilation, and software management for leak warning messages. With multiple functional and reliability tests, quality assurance is enhanced.

To maximise safety, the system design has been verified by a third-party certification body to increase customer peace of mind. The customized components together with our advanced technology, give absolute confidence.

		Refrigerants Safety Groups	
Flammability	Higher	A3	B3
	Lower	A2	B2
	Difficult to Ignite and Sustain	A2L	B2L
	No Flame Propagation	A1	B1
		Lower	Higher
		No identified toxicity at concentrations ≤ 400 ppm	Evidence of toxicity below 400 ppm
		Toxicity	

Source: ASHRAE Standard 34 Safety Classification



Customized hermetic scroll compressors designed for A2L refrigerant



Optimized plate heat exchanger, suitable for R454B application



A ventilation system installed inside the unit to ensure no A2L gas accumulates



Leakage detective sensor equipped to detect any gas leakage



Amichi Series

Air cooled Scroll DC Inverter reversible heat pump

Main features

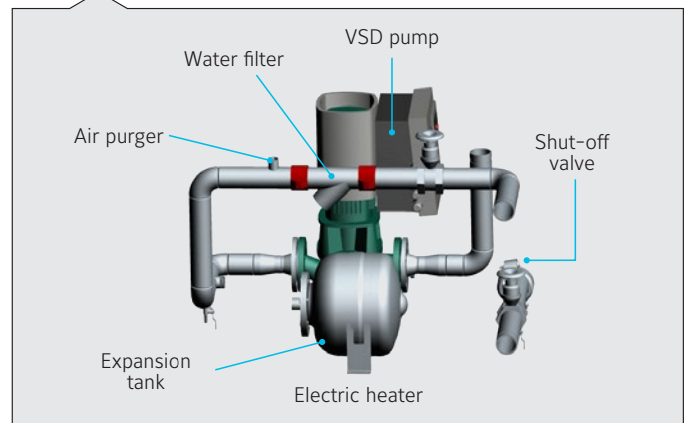
EC Fans

- High efficiency
- Low sound level
- Up to 50Pa available static pressure



Hydronic Kit

- Single fix speed pump hydronic kit or with variable speed **VSD**
- External available pressure up to **100 kPa (10m)** for fix speed pump
- External available pressure up to **150 kPa (15m)** for VSD pump



Easy installation

- Victaulic connections
- Water filter
- Flow switch
- Electrical heater on evaporator as standard

High performance and flexibility

The YORK® Amichi Series has up to 4 completely independent circuits to offer greater flexibility and performance.



YMPA 45 and 65
45kW and 65kW
2 compressors
1 circuit



YMPA 80 to 130
80kW, 100kW and 130kW
3-4 compressors
2 circuits



YMPA 160 and 200
160kW and 200kW
5-6 compressors
3 circuits



YMPA 230 and 260
230kW and 260kW
7-8 compressors
4 circuits

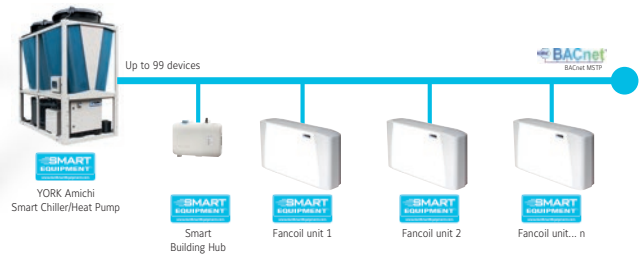
Amichi Series Air cooled Scroll DC Inverter reversible heat pump

Main features



Always connected

- BACnet and Modbus communication protocol as standard.



Easy to set up

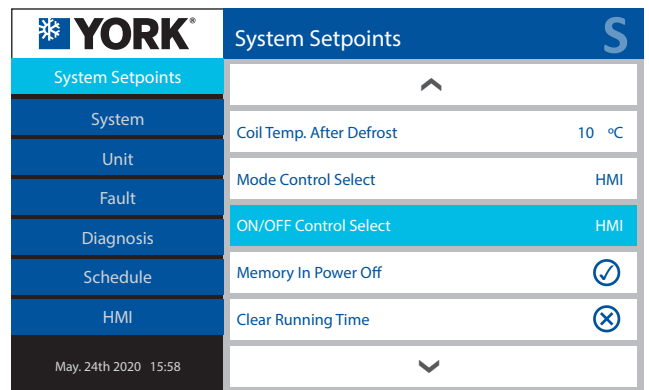
Comfort, productivity and up to half of the energy used in your building – these are all factors affected by how your chiller operates and how it interacts with other components in your HVAC&R system.

To help maximize efficiency and keep you in control, the YORK® Amichi Series comes standard with integrated Smart Equipment. This technology allows the equipment to connect seamlessly to building controls where smart-enabled equipment can self-identify and interoperate. In addition, with the 7" Optiview LT touch panel, setting chiller parameters has never been easier.

Maximum reliability

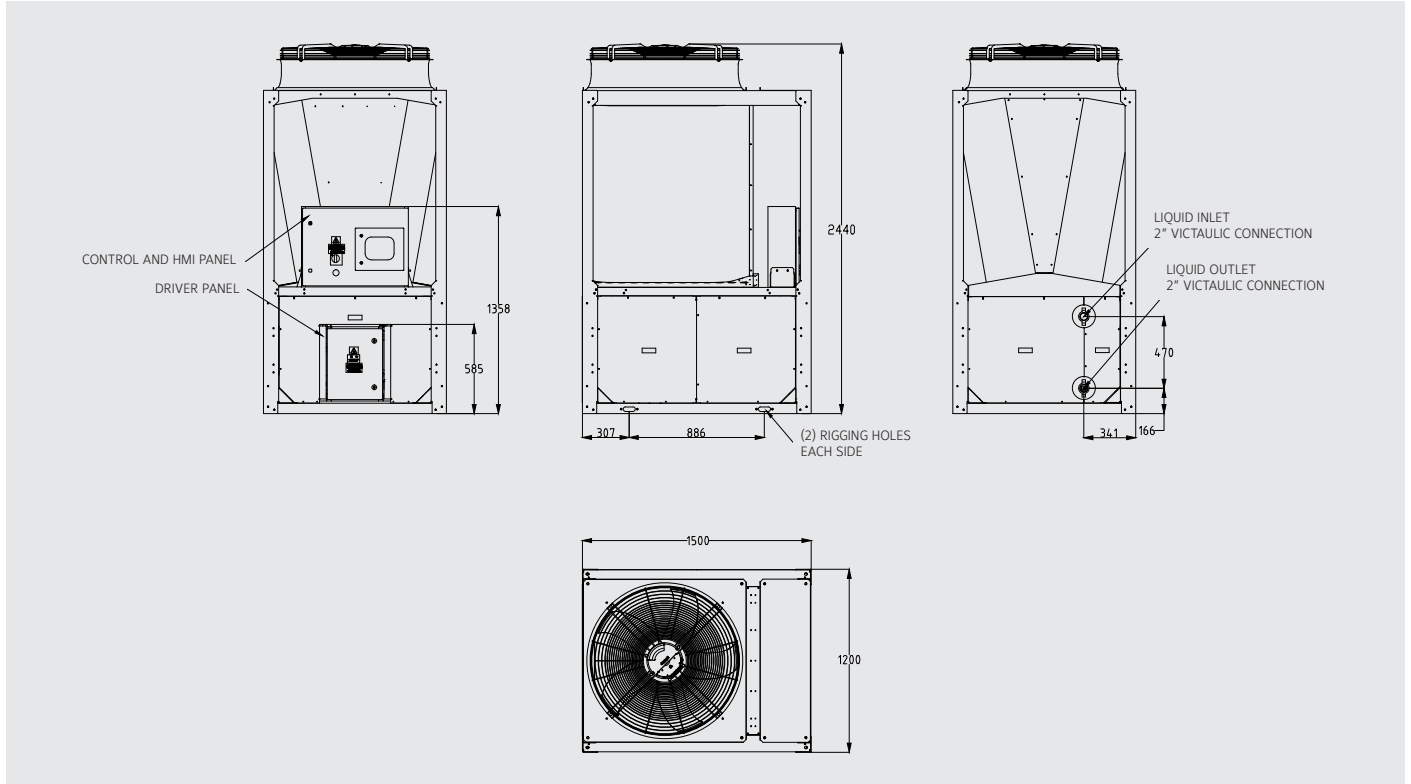
Every new YORK® chiller is subjected to a Highly Accelerated Life Test (HALT) during the design product development stages, allowing us to simulate a variety of extreme conditions and ensuring long-term operational reliability and quality. But our pursuit of quality doesn't stop there.

- **Intelligent defrost** optimizes the sequencing of the defrost cycle and allows the remaining modules in the system to continue to provide heat, reducing interruptions.
- **Compliance and certifications** include EcoDesign 2021 regulatory compliance, Eurovent certification and CE/PED certification.



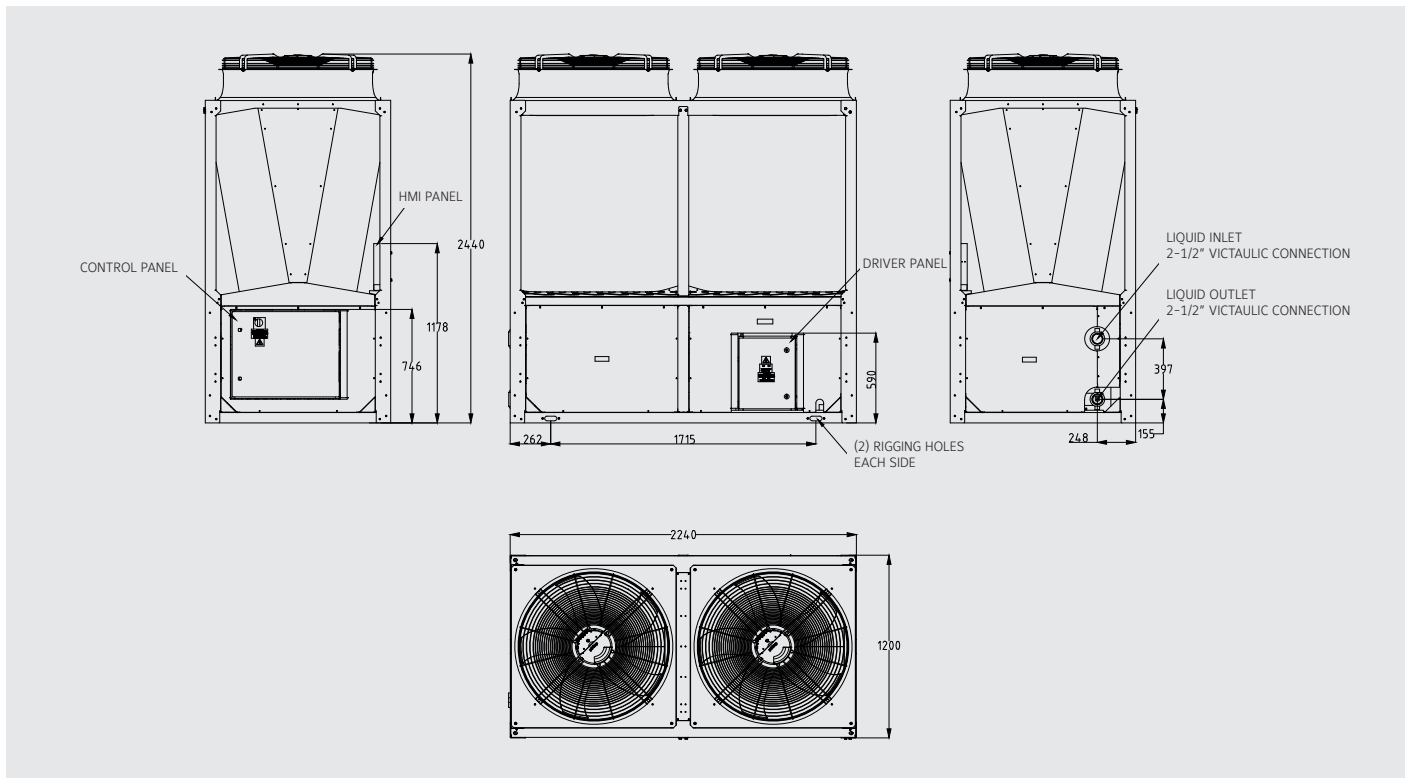
Dimensions and hydraulic connections

YMPA 045 and 065 Single unit



All dimensions in mm. Drawings not in scale.

YMPA 080 to 130 Single unit

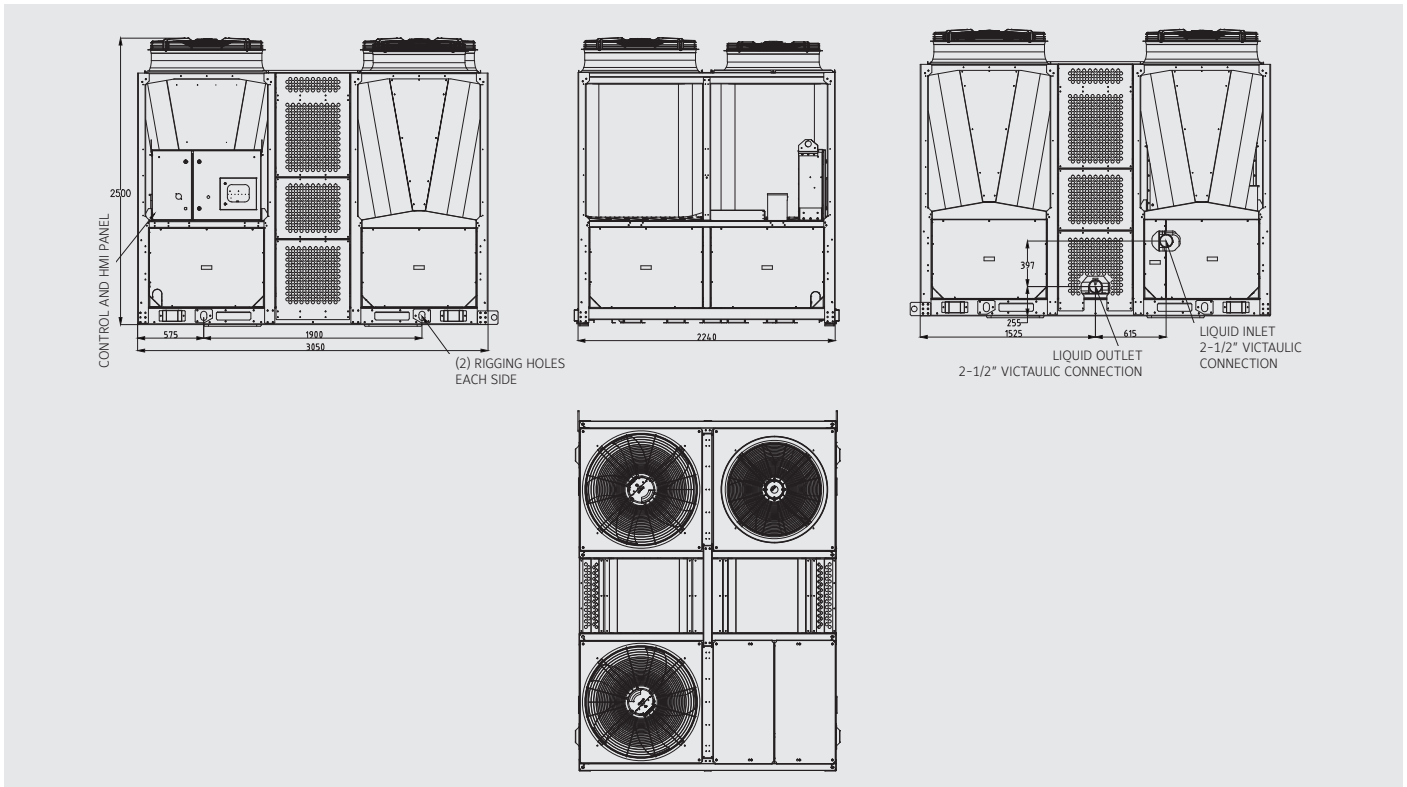


All dimensions in mm. Drawings not in scale.

YMPA 045 to 260

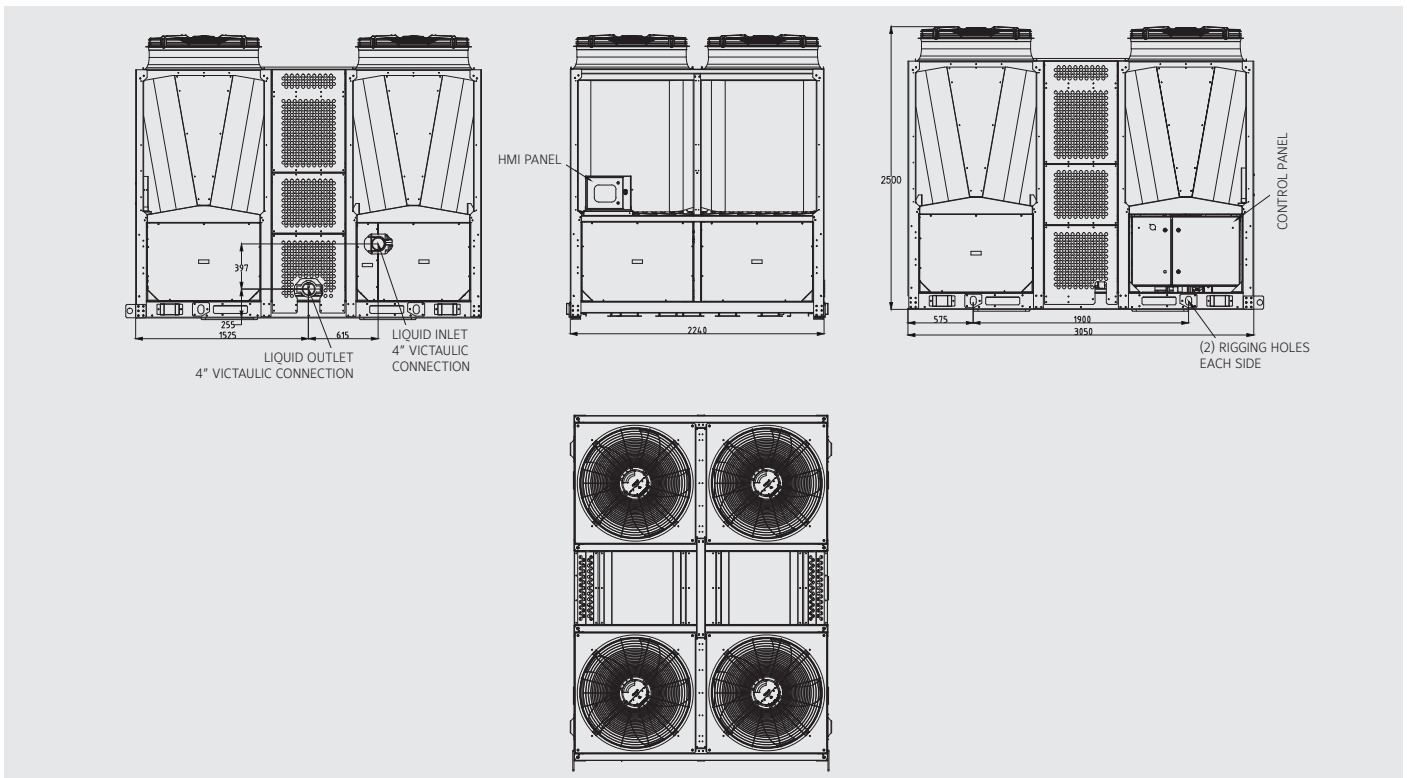


YMPA 160 and 200 Single unit



All dimensions in mm. Drawings not in scale.

YMPA 230 and 260 Single unit



All dimensions in mm. Drawings not in scale.

YLPB Heat pump scroll compressor

Cooling capacities from 336 kW to 628 kW

Heating capacities from 343 kW to 652 kW



Features

The **YLPB** heat pump delivers premium energy efficiency, it is easy to install, quiet to run, and it is supported by a knowledgeable service force.

Efficiency

One of the highest part load cooling efficiency unit in the market, improved defrost cycle, extended operating envelope. Maximize heating efficiency and renewable energy use with the **YLPB** heat pump.

Sound

Designed for quiet operation at full and part load conditions.

Ease of installation

Quick and easy to install, compact design. Smart Equipment and Verasys ready.

Reliability

The **YLPB** is our third generation of fully factory tested scroll heat pumps, and thanks to our extensive service solutions, support and minimal maintenance are assured.

Options/Accessories

- Soft start
- Power factor correction capacitors
- BMS interfacing options
- Dual pressure relief valves
- Victaulic coupling
- Flow switch
- Desuperheater
- Enclosure options
- Sound attenuation options
- Anti-vibration mounts options
- VSD single and dual pump kits



Multiple scroll design enables sound reduction during part load operation by simply turning off unnecessary compressors

Heat pump scroll compressor

YLPB 0345 to 0650



Nominal capacity

YLPB	0345	0430	0525	0575	0650
Cooling capacity (kW)	336	413	479	559	628
EER	2.98	2.93	2.88	2.94	2.98
SEER	4.36	4.55	4.47	4.53	4.51
$\eta_{s,c}$	171	179	176	178	177
Heating capacity (kW)	343	427	514	574	652
COP	3.06	3.07	3.03	2.99	3.01
SCOP	3.48	3.50	3.53	3.56	3.59
$\eta_{s,h}$	136	137	138	139	141
Sound Power Level (dBA)	94	94	95	96	97

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.

Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature.

SCOP calculated according to EN14511 and EN14825.

$\eta_{s,c}$ calculated according to Ecodesign regulation for heating (813/2013).

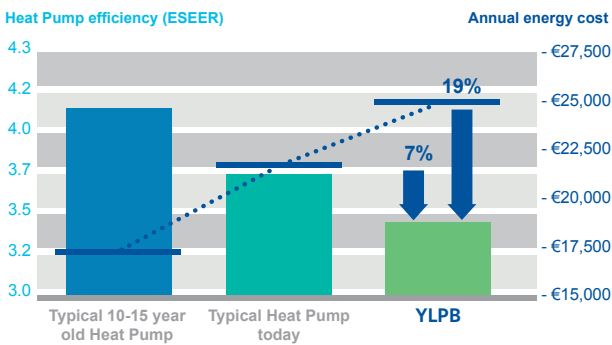
Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

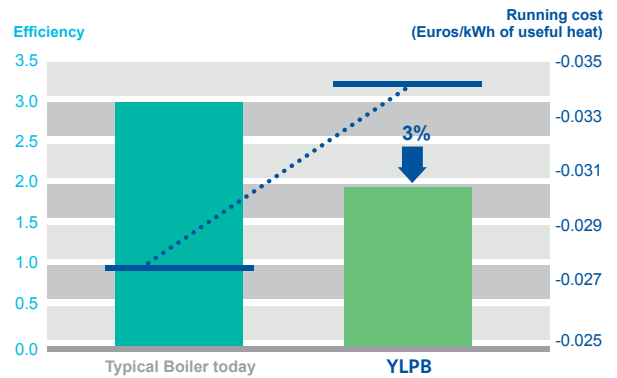
YLPB			0345	0430	0525	0575	0650	
Dimensions	Length	mm	4721		5839		6958	
	Width	mm	2242					
	Height	mm	2391					
Operating weight kg			3793	4043	4210	4747	5495	

High Efficiency Cooling Mode



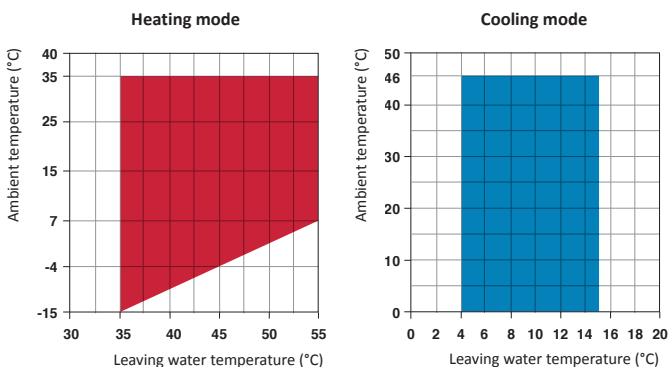
500 kW unit, 3000 operating hours, energy rate = 0.1 EUR / kWh

Additional Energy Savings in Heating Mode

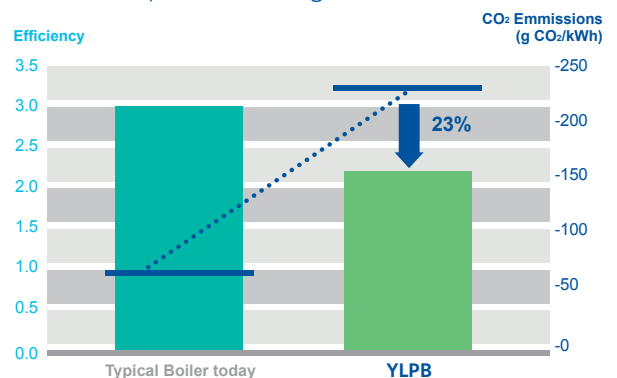


Energy Rate: Electricity 0.1 EUR / kWh; Gas 0.03 EUR / kWh

Operation limits



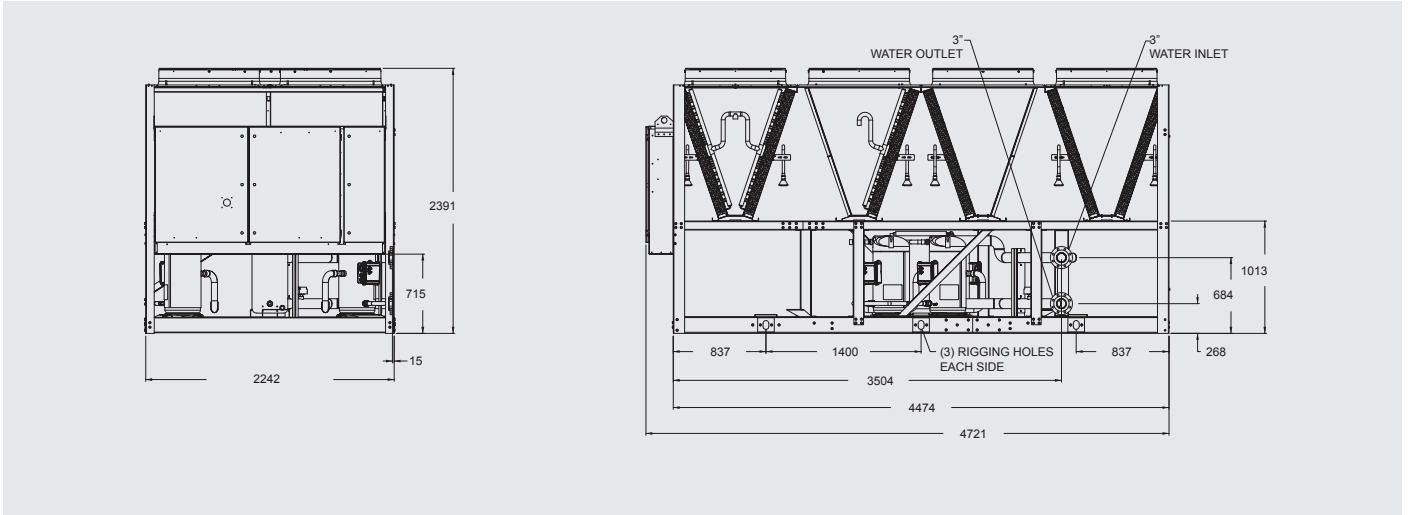
Carbon footprint in Heating Mode



Manufacturer reserves the rights to change specifications without prior notice.

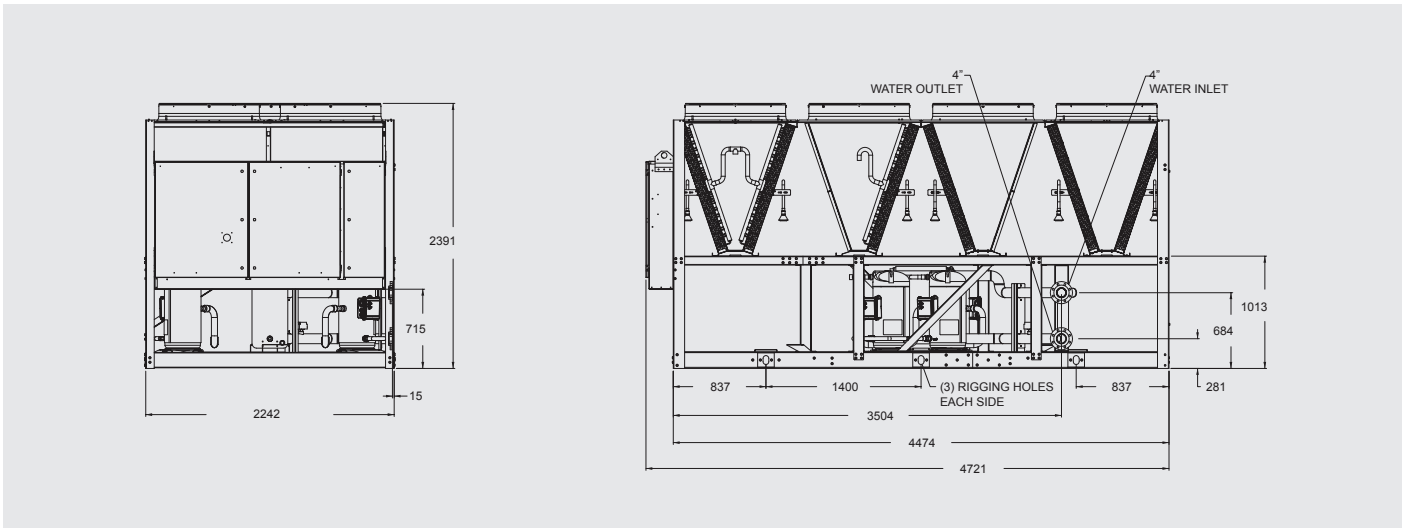
Dimensions and hydraulic connections

YLPB 0345 and 0430



All dimensions in mm. Drawings not in scale.

YLPB 0525

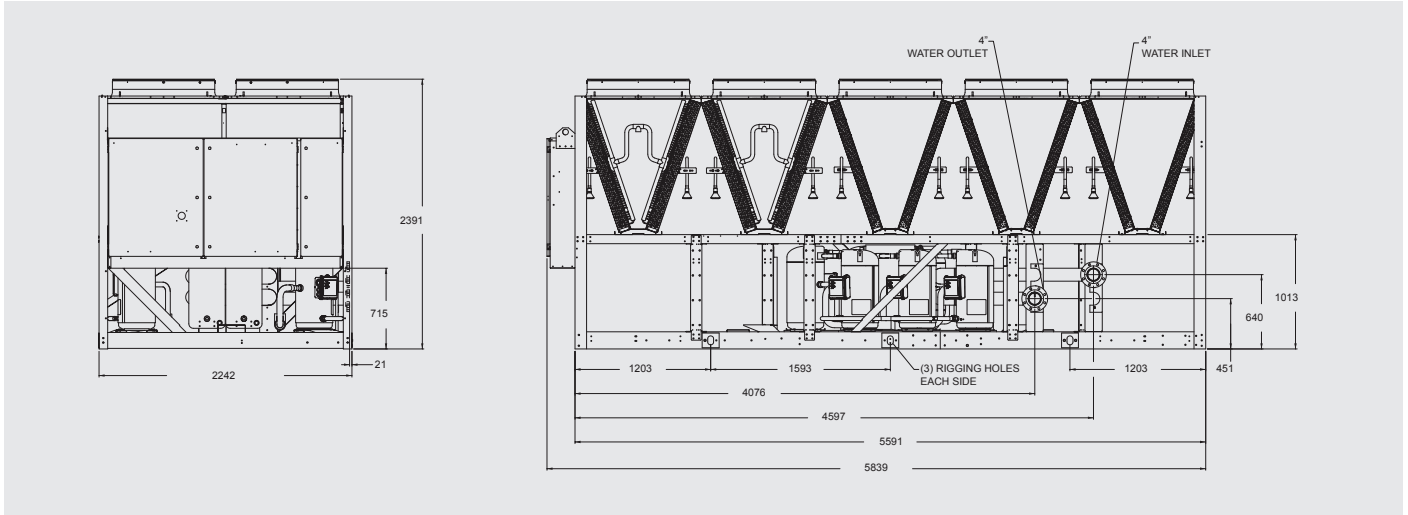


All dimensions in mm. Drawings not in scale.

YLPB 0345 to 0650

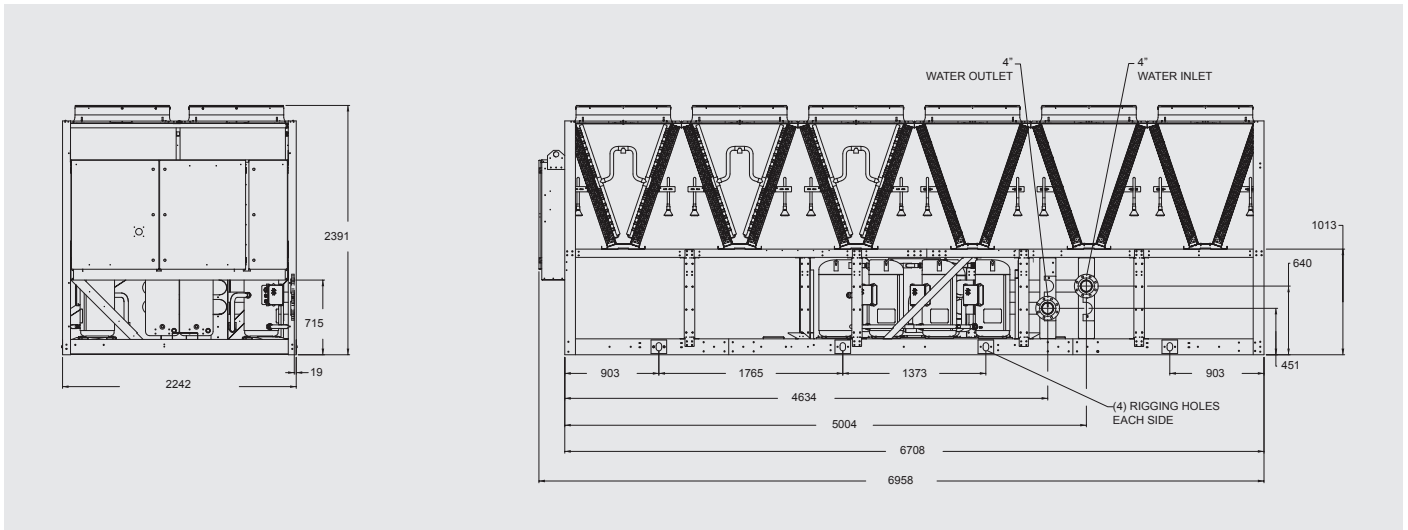


YLPB 0575



All dimensions in mm. Drawings not in scale.

YLPB 0650



All dimensions in mm. Drawings not in scale.

YHA

High efficiency air to water heat pumps (4 pipes)

Cooling capacities from 18.1 kW to 368.5 kW

Heating capacities from 22.2 kW to 407 kW



Features

The **YHA** series of high efficiency heat pumps has been specifically designed for use with radiant floor heating systems or those applications where it is necessary to have maximum efficiency when heating.

They have been optimized on heating mode, are able to produce water up to 60°C and can operate down to -20°C ambient temperature.

All versions are supplied with reverse cycle valve (**RV**) used for winter defrost. The **RV** versions are also able to produce cold water.

The noise is extremely low thanks to the use of a special floating vibration damping system which allows a noise reduction of about 10-12 dB(A) (Optional).

Available versions

SA	Standard efficiency (AC fans)
SE	Standard efficiency (EC fans)
HA	High efficiency (AC fans)
HE	High efficiency (EC fans)
RV	Reversible heating/cooling
LS	Low noise
XL	Super low noise
P4U	4 pipe systems heating/cooling
P4S	2+2 pipe systems with domestic hot water production

High efficiency air to water heat pumps (4 pipes)

YHA 252 to 4504



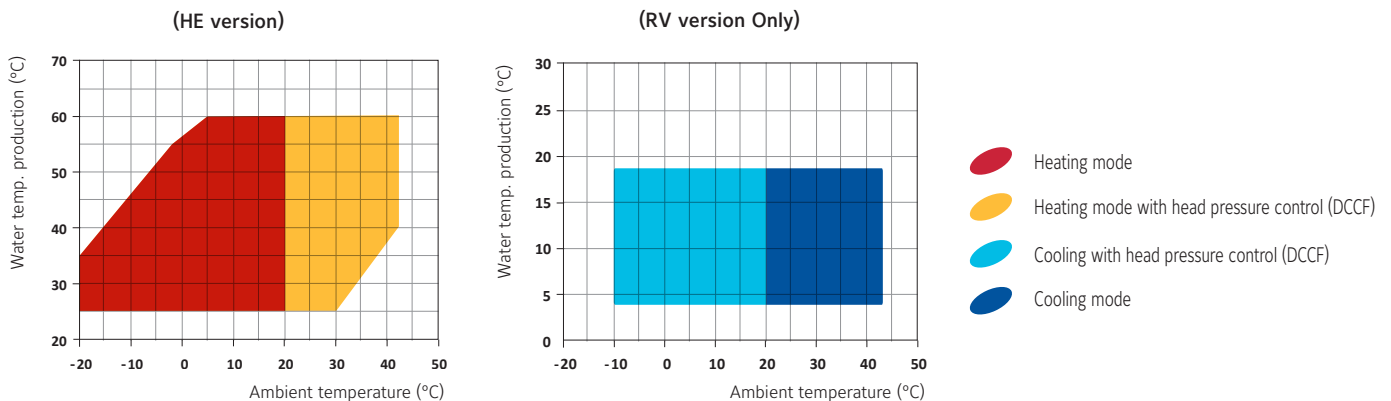
Nominal capacity

YHA HE/LS/RV - P4S version		252	302	412	452	502	602	702	802	902	1002	1202	1402
Heating capacity (EN14511) (1)	kW	22.2	29.6	37.3	47.1	50.8	61.2	67.3	74.9	93.2	104.9	114.9	137.1
Total input power (EN14511) (1)	kW	5.3	7.1	8.8	11.5	11.8	13.3	15.1	17.2	21.2	24.5	27.8	30.9
COP (EN14511) (1)		4.11	4.16	4.23	4.11	4.32	4.61	4.46	4.36	4.40	4.29	4.13	4.44
Energy Class (2)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++
SCOP (2)		3.83	3.86	3.85	3.85	3.92	4.13	4.04	3.97	3.87	3.85	3.83	3.85
η _{s,h} (2)		150.1	151.4	150.9	151.1	153.6	162	158.4	155.8	151.7	150.8	150.2	151
Cooling capacity (EN14511) (3)	kW	18.1	24.6	30.5	40.6	44.2	52.4	57.5	63.4	80.5	90.2	100.5	117.4
Total input power (EN14511) (3)	kW	6.9	9.5	11.0	14.5	16.1	18.3	21.3	23.9	26.6	31.2	35.1	38.6
EER (EN14511) (3)		2.62	2.59	2.78	2.81	2.74	2.87	2.70	2.65	3.03	2.89	2.86	3.04
TER (EN14511) (3)		9.05	9.43	9.56	9.54	10.41	10.48	10.42	10.43	9.84	9.63	9.46	9.91
Sound power (4)	dB (A)	73	74	74	75	76	76	77	78	82	83	85	86
Sound pressure (5)	dB (A)	41	42	42	43	44	44	45	46	50	51	53	54
Power supply	V/Ph/Hz	400/3/50											
Compressors / Circuits	n° / n°	2 / 1											
Fans	n°	2	2	2	2	2	2	2	2	2	2	2	3
Dimensions	Height	mm	1490	1490	1680	1680	1680	1840	1840	1840	1840	1840	1820
	Length	mm	1915	1915	2115	2115	2115	2905	2905	2905	2905	2905	2905
	Width	mm	875	875	875	875	875	1145	1145	1145	1145	1145	1150
Weight	kg	560	560	670	690	720	1060	1060	1070	1120	1160	1240	1560

YHA HE/LS/RV - P4S version		1602	1802	2002	2302	2502	2504	3004	3204	3504	4004	4504	
Heating capacity (EN14511) (1)	kW	151	167.9	182.8	210.6	241.3	229.4	271.4	296.7	339	364.9	407	
Total input power (EN14511) (1)	kW	34.4	40.2	45.5	49.4	54.8	55.8	63.9	71.5	83.7	88.8	104.1	
COP (EN14511) (1)		4.39	4.18	4.02	4.26	4.40	4.11	4.25	4.15	4.05	4.11	3.91	
Energy Class (2)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	
SCOP (2)		3.86	3.85	3.84	3.92	3.97	3.83	3.85	3.83	3.91	3.89	3.87	
η _{s,h} (2)		151.3	150.9	150.4	153.6	155.6	150.2	151.1	150.3	153.5	152.4	151.9	
Cooling capacity (EN14511) (3)	kW	129.5	146.8	159.2	180.4	202.1	198.5	231	259.7	289.4	322.6	368.5	
Total input power (EN14511) (3)	kW	44	50.8	58.7	66.1	73.2	72.7	80.5	89.2	105.2	118.2	135	
EER (EN14511) (3)		2.94	2.89	2.71	2.73	2.76	2.73	2.87	2.91	2.75	2.73	2.73	
TER (EN14511) (3)		9.87	9.99	9.90	9.79	9.74	9.27	9.18	9.60	9.68	9.71	9.62	
Sound power (4)	dB (A)	87	87	87	89	91	88	89	90	90	90	92	
Sound pressure (5)	dB (A)	55	55	55	57	59	56	57	58	58	58	60	
Power supply	V/Ph/Hz	400/3/50											
Compressors / Circuits	n° / n°	2 / 1						4 / 2					
Fans	n°	3	3	3	3	3	4	6	6	6	6	8	
Dimensions	Height	mm	1820	1820	1820	2280	2280	2355	2355	2355	2350	2350	
	Length	mm	3965	3965	3965	3905	3905	4205	4205	4205	4205	4805	
	Width	mm	1150	1150	1150	1145	1145	2210	2210	2210	2210	2210	
Weight	kg	1580	1600	1620	1790	1820	3170	3270	3320	3370	3660	3720	

- (1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.
 - (2) Average conditions, low temperature, variable - Reg EU 811/2013
 - (3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C.
 - (4) Sound power level in accordance with ISO 3744.
 - (5) Sound pressure level at 10 m from the unit in free field conditions in accordance with ISO 3744.
- For information about other YHA versions, contact your JCI representative.

Operating limits



Manufacturer reserves the rights to change specifications without prior notice.

YLZ

High efficiency air to water heat pumps with E.V.I. compressors (4 pipes)

Cooling capacities from 22.9 kW to 180.1 kW
 Heating capacities from 24 kW to 209.6 kW



Features

The **YLZ** series of high efficiency heat pumps has been specifically designed for use with radiant floor heating systems or those applications where it is necessary to have maximum efficiency when heating.

They have been optimized on heating mode, are able to produce water up to 65°C and can operate down to -20°C ambient temperature.

All versions are supplied with reverse cycle valve (**RV**) used for winter defrost. The **RV** versions are also able to produce cold water.

The noise in **XL** and **NN** versions is extremely low thanks to the use of a special floating vibration damping system which allows a noise reduction of about 10-12 dB(A).

Optional

- High Pressure ducted fans option (Available ESP 150 Pa).
- Additional height of the unit due to ducting option: 150 mm

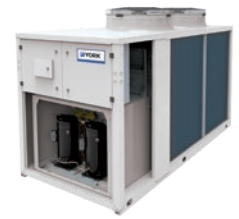


Available versions

SA	Standard efficiency (AC fans)
SE	Standard efficiency (EC fans)
HA	High efficiency (AC fans)
HE	High efficiency (EC fans)
RV	Reversible heating/cooling
XL	Super low noise
NN	Ultra low noise
P4U	4 pipe systems heating/cooling
P4S	2+2 pipe systems with domestic hot water production

High efficiency air to water heat pumps with E.V.I. compressors (4 pipes)

YLZ 252 to 2154

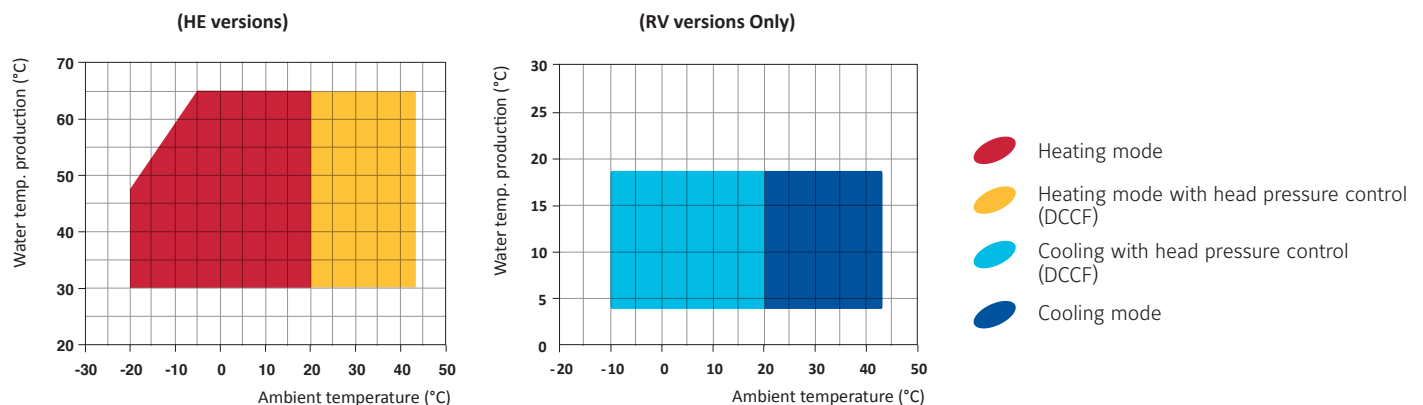


Nominal capacity

YLZ HE/LS/RV - P4U/P4S - Reversible version		252	302	432	492	592	752	852	1002	1202	1454	1654	1854	2154	
Heating capacity (EN14511) (1)	kW	24	29.5	41.8	50.3	58.3	66.9	81.3	88.5	102.7	145.2	163.2	181.3	209,6	
Total input power (EN14511) (1)	kW	5.2	6.7	9.5	12.2	12.8	15.3	18.9	20.6	24.6	33.4	38.9	41.9	50,5	
COP (EN14511) (1)		4.61	4.38	4.40	4.12	4.56	4.37	4.31	4.31	4.17	4.35	4.19	4.33	4,15	
Energy Class in low temperature (2)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	
SCOP low temperature (2)		4.10	3.96	3.87	3.83	4.08	4.06	3.83	3.85	3.84	3.88	3.88	3.89	3,89	
ηs.h low temperature (2)		161	156	152	150	160	159	150	151	151	152	152	153	153	
Energy Class in medium temperature (2)		A++	A++	A+	A+	A++	A++	A+	A+	A+	A+	A+	A+	A+	
SCOP medium temperature (2)		3.25	3.21	3.12	3.15	3.29	3.23	3.07	3.14	3.13	3.10	3.15	3.17	3,19	
ηs.h medium temperature (2)		127	125	122	123	129	126	120	123	122	121	123	124	124	
Cooling capacity (EN14511) (3)	kW	22.9	30.2	37.5	45.6	52.9	62.5	71.6	78.2	90.8	126.8	142.8	157.0	180,1	
Total input power (EN14511) (3)	kW	7.0	8.8	12.7	16.7	17.9	21.3	24.4	26.1	31.3	42.0	50.5	53.4	66,2	
EER (EN14511) (3)		3.27	3.42	2.96	2.73	2.95	2.64	2.94	3.00	2.90	3.02	2.83	2.94	2,72	
Sound power (4)	dB (A)	78	78	78	79	80	80	83	83	83	84	85	85	85	
Sound pressure (5)	dB (A)	46	46	46	47	48	48	51	51	51	52	53	53	53	
Power supply	V/Ph/Hz	400/3/50													
Compressors / Circuits	n° / n°	2 / 1						4 / 2							
Fans	n°	2	2	2	2	2	2	2	2	2	3	3	3	3	
Dimensions	Height	mm	1490	1490	1670	1670	1840	1840	1840	1840	1840	1895	1895	1895	1895
	Length	mm	1915	1915	2400	2400	2905	2905	2905	2905	2905	4695	4695	4695	4695
	Width	mm	875	875	1145	1145	1145	1145	1145	1145	1145	1145	1145	1145	1145
Weight	kg	1000	1000	1500	1500	2000	2000	2000	2000	2000	2580	2640	2720	2760	

- (1) Heating: Ambient temperature 7°C DB. 6°C WB. water temperature 30/35°C.
 (2) Average conditions. variable - Reg EU 811/2013
 (3) Cooling: ambient air temperature 35°C. evaporator water temperature in/out 12/7 °C.
 (4) Sound power level in accordance with ISO 3744.
 (5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.
 For information about other YLZ versions. contact your JCI representative.

Operating limits



Manufacturer reserves the rights to change specifications without prior notice.

YLAA Air Cooled Scroll Chiller with HFO (R454B)

Extended cooling capacities from 195 kW to 636 kW



Features

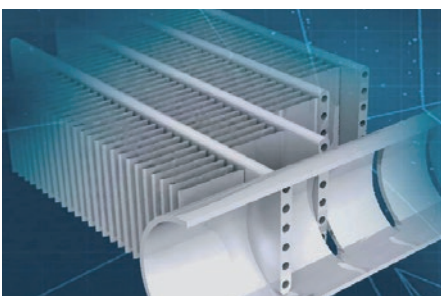
The **YORK YLAA TEMPO** air-cooled chiller is an environmental leader.

Utilising scroll type compressors and microchannel condenser coil technology the **YLAA** delivers premium efficiency for all air conditioning applications.

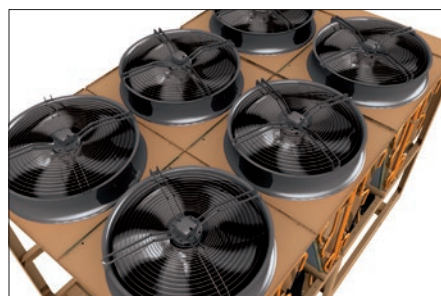
YLAA chillers are a self-contained cooling solution that is light-weight and compact for convenient installation on the ground or on building rooftops.

Options/Accessories

- Variable speed EC fans
- Hydrokits with fixed or variable speed pump (single or dual)
- Soft start
- Power factor correction capacitors
- Low ambient kit
- BMS interfacing options
- Dual pressure relief valves
- Victaulic coupling
- Flow switch
- Heat recovery option
- Enclosure options
- Sound attenuation options
- Anti-vibration mounts options
- Epoxy post-coated dipped microchannel coils

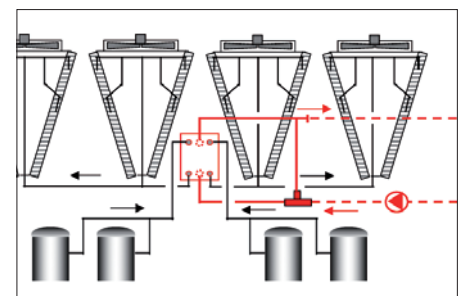


The TEMPO delivers energy efficiency levels that surpasses Ecodesign Tier 2 requirements. Aluminium microchannel condenser coil technology is one reason for this premium efficiencies.



Ultra quiet operation and outstanding part load efficiency can be obtained through variable speed EC fans and a compressor acoustic blankets.

A single point power connection and optional, factory packaged water pumps, water filter and flow switch provide fast and easy installation.



An optional heat recovery feature can be added to provide hot water to 60°C; which is useful for facility heating or hot water preheating.

Air-cooled scroll compressor chiller

YLAA 0195 to 0640



Nominal capacity

YLAA	0195*	0221	0262	0286	0301	0350	0392	0442	0457	0517	0580	0640
Cooling capacity (kW)	195	211	246	275	299	348	377	433	462	531	573	636
EER	3.17	3.37	3.24	2.79	3.16	3.06	3.10	3.05	3.05	3.10	3.23	3.20
SEER	5.00	5.13	4.81	4.62	4.59	4.76	4.79	4.89	5.19	5.24	5.18	5.22
$\eta_{s, c}$	197	202	189	182	180	188	189	193	204	207	204.2	205.8
Sound power level dB(A)	91	84	84	87	87	89	89	90	90	90	TBC	TBC

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.

Ecodesign figures are calculated following variable water and variable outlet approach (VW/VO). For other Ecodesign calculations, please contact your JCI representative.

(* All models with R454B refrigerant using EC fans (except size 0195) and Compressor Sound Blankets.

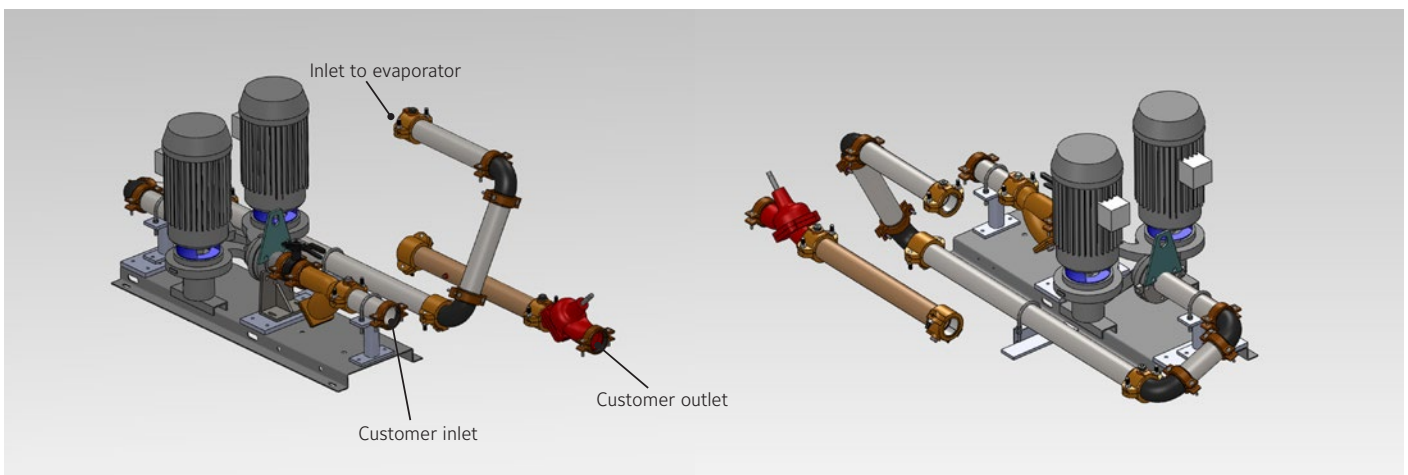
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

YLAA			0195	0221	0262	0286	0301	0350	0392	0442	0457	0517	0580	0640
Dimensions	Length	mm	2911				3690			4807		5880	7000	
	Width	mm	2242				2254			2258		2541		
	Height	mm	2508				2541							
Operating weight kg			1706	1721	1852	1853	2170	2339	2508	3343	3481	3615	4252	4474

YLAA Pump Kit

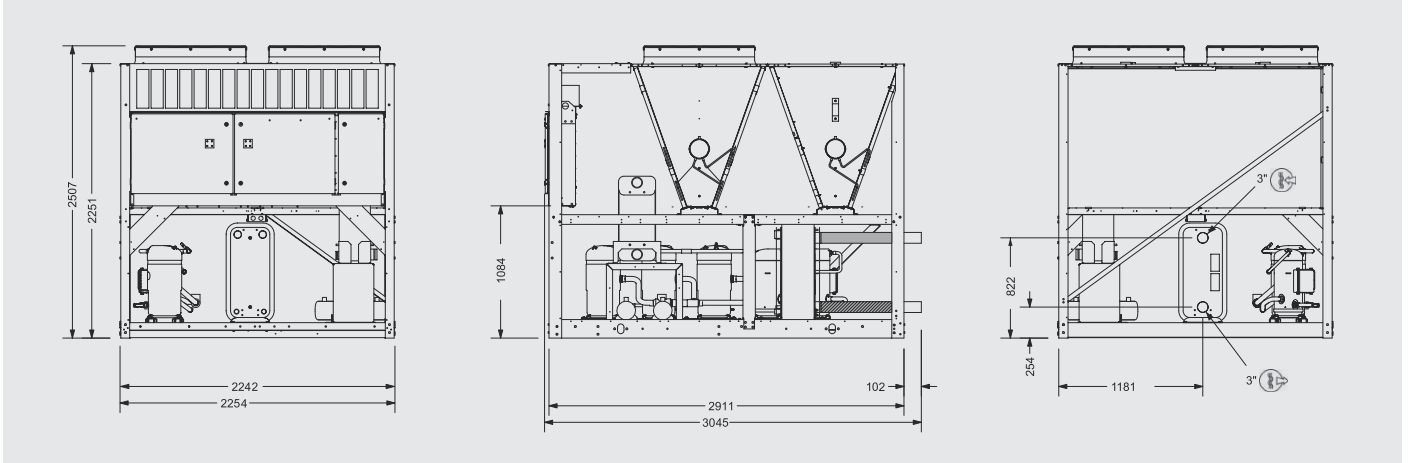
- Fixed or VSD water pump
- Single or Dual water pump
- Two option levels - basic and full featured - for maximum flexibility
- More impeller size options for better match to customer requirements
- New, smaller pump motors suitable for primary-secondary systems



Manufacturer reserves the rights to change specifications without prior notice.

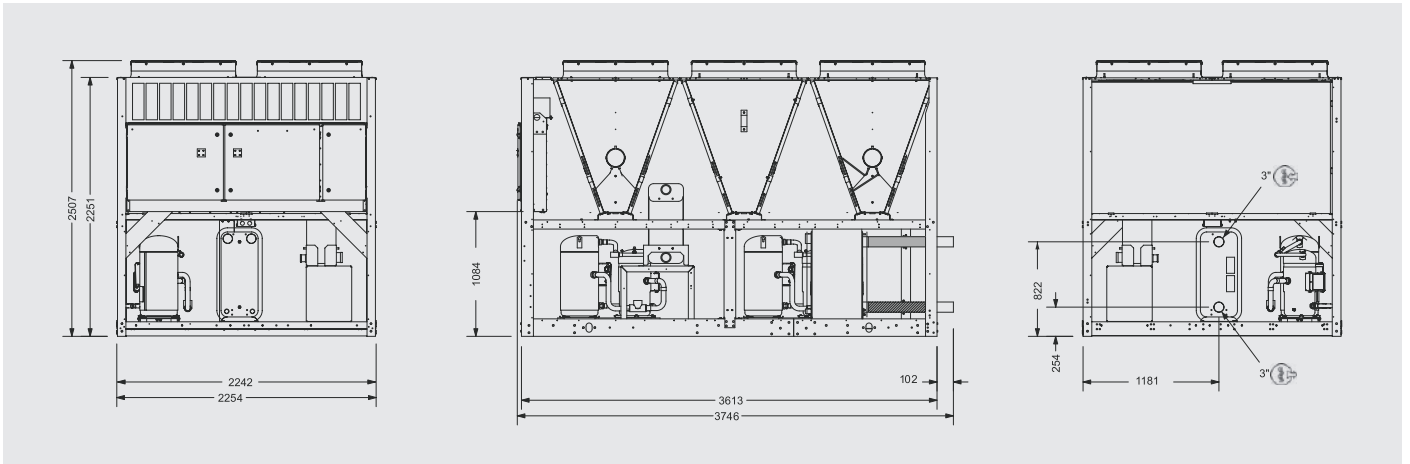
Dimensions and hydraulic connections

YLAA 0195, 0221 and 0262



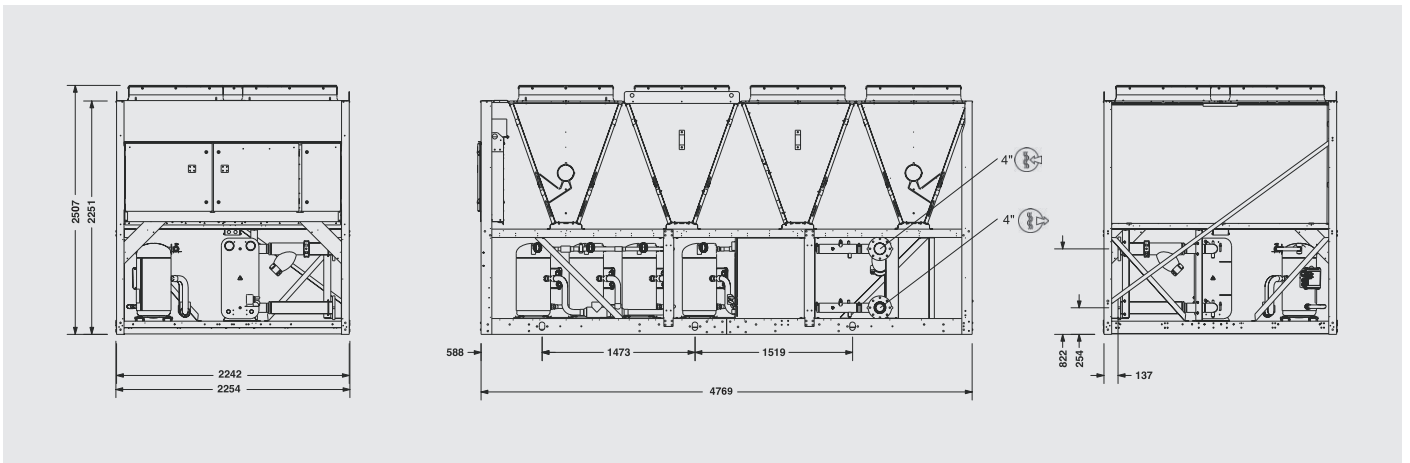
All dimensions in mm. Drawings not in scale.

YLAA 0301 and 0392



All dimensions in mm. Drawings not in scale.

YLAA 0442

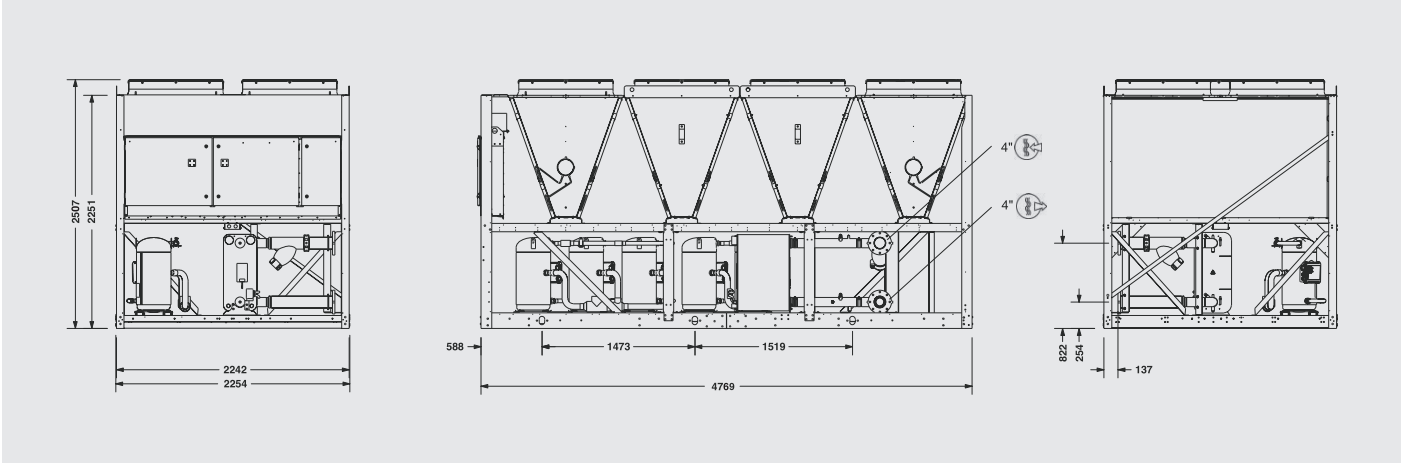


All dimensions in mm. Drawings not in scale.

YLAA 0195 to 0640

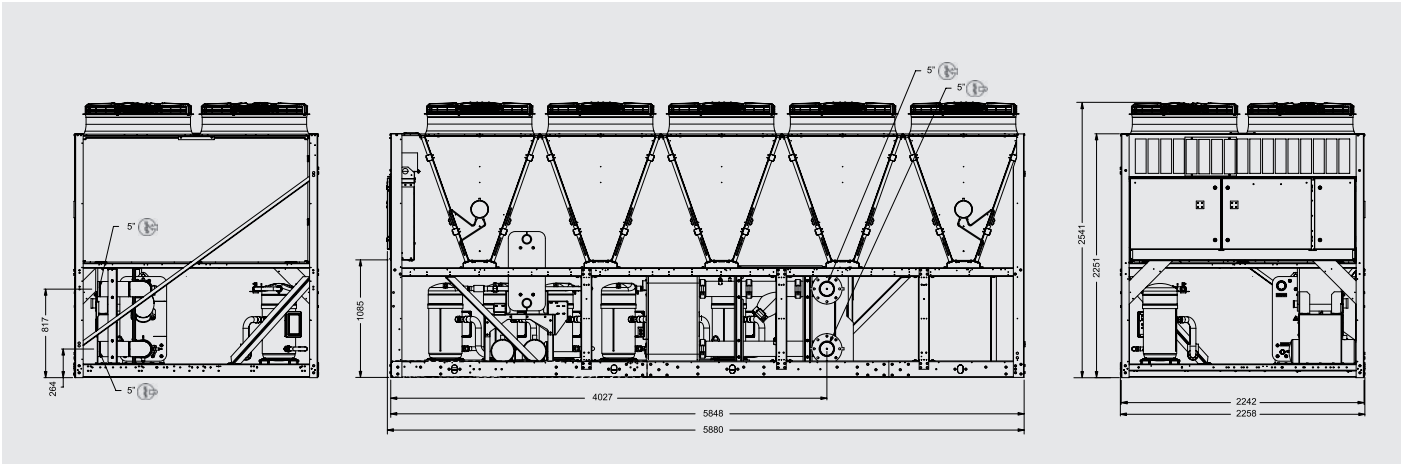


YLAA 0457 and 0517



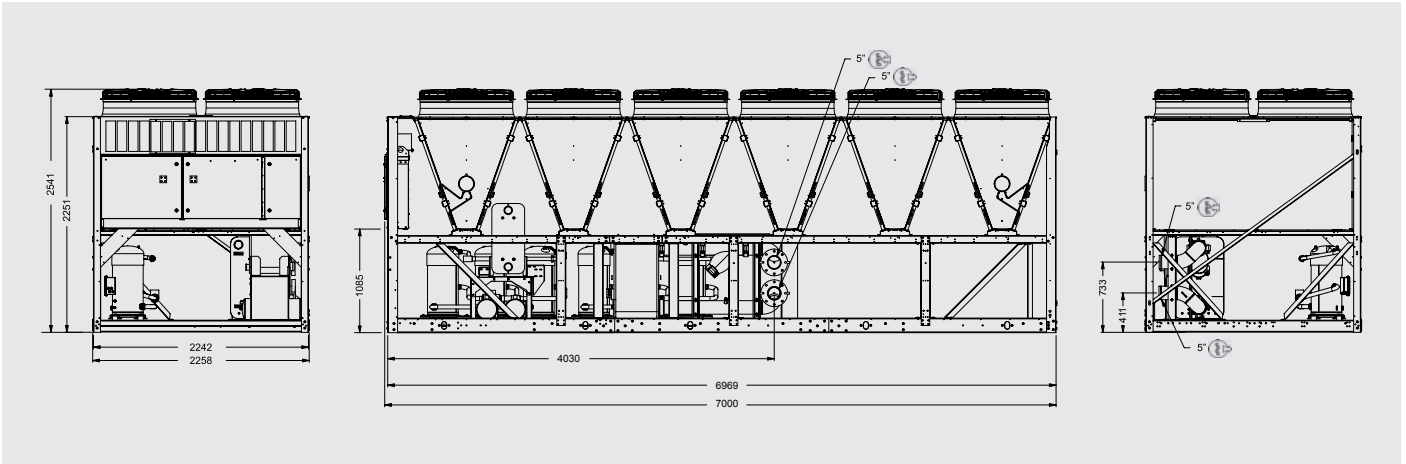
All dimensions in mm. Drawings not in scale.

YLAA 0580



All dimensions in mm. Drawings not in scale.

YLAA 0640



All dimensions in mm. Drawings not in scale.

YGT

Air-cooled VSD screw chiller with HFO

Cooling capacities from 401 kW to 983 kW

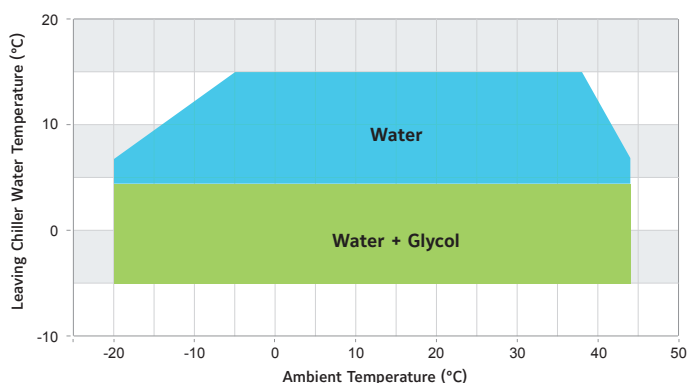


Features

YORK® YGT premium efficiency air-cooled VSD screw chillers from Johnson Controls deliver class-leading efficiency at both full load and part load condition. Built upon decades of industry-leading chiller expertise, our next-generation air-cooled screw chiller portfolio provides lower operating costs, increased application flexibility, reduced sound levels, optimized controls and world-class reliability.

Thanks to the combination of high efficiency and the use of the new 4th generation HFO refrigerant R1234ze, the chiller SEER surpasses the Ecodesign Tier 2 requirement and contributes to the reduction of the Total Equivalent Warming Impact (TEWI).

Operating limits



Design conditions requirements beyond above mentioned Operating Envelope can be reviewed and quoted as Special Quotes

Scope

- Capacity range: 401 to 983 kW
- Capacity sizes: 7 models
- Refrigerant R1234ze
- Ecodesign Tier 2 compliance
- Two efficiency levels: Single or Dual VSD
- Leak detector as standard

Options

- Full Heat Recovery (Special Request)
- Integrated Hydronic Kit (dual/high pressure pumps, buffer tank)
- Variable Speed Drive
- Low Sound configuration

Air-cooled VSD screw chiller with HFO

YGT0400 to 1000



Performances

YGT HE - High Efficiency - Single VSD		0400 HE	0450 HE	0550 HE	0650 HE	0800 HE	0900 HE	1000 HE
Cooling capacity	kW	401.0	415.9	535.3	652.7	796.0	880.6	983.1
EER		3.16	3.17	3.13	3.08	3.08	3.16	3.13
SEER		4.80	4.84	4.70	4.75	4.80	4.90	4.89
$\eta_{s,c}$		189.0	190.6	185.0	187.0	189.0	193.0	192.6
Power input	kW	127.1	131.3	171.2	212.1	258.3	278.3	314.0
Absorbed current	A	214.8	234.0	290.0	356.1	437.0	477.5	546.0
Number of compressors / circuits		1 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Number of EC fans		8	10	10	12	14	18	18
Airflow	m ³ /h	156900	185060	200600	242000	286600	350200	363400
Water flow	m ³ /h	69.0	71.9	91.8	112.5	136.9	151.4	168.9
Pressure drop	kPa	34.3	36.8	26.6	28.7	27.8	32.2	26.5
Refrigerant charge	kg	80	90	100	120	140	170	175
Sound Power Level	dBA	94	96	97	97	98	99	99
Power supply		400V /3PH/ 50Hz						
Unit maximum operating current	A	422	490	630	774	835	998	1106
Unit peak current	A	614	881	775	977	1101	1347	1513

YGT XHE - Extra High Efficiency - Dual VSD		0450 XHE	0550 XHE	0650 XHE	0800 XHE	0900 XHE	1000 XHE	
Cooling capacity	kW	415.9	535.3	652.7	796.0	880.6	983.1	
EER		3.17	3.13	3.08	3.08	3.16	3.13	
SEER		5.02	4.93	5.00	5.02	5.12	5.10	
$\eta_{s,c}$		197.8	194.2	197.0	197.8	201.8	201.0	
Power input	kW	131,3	171,2	212,1	258,3	278,3	314,0	
Absorbed current	A	234,0	290,0	356,1	437,0	477,5	546,0	
Number of compressors / circuits		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	
Number of EC fans		10	10	12	14	18	18	
Airflow	m ³ /h	185060	200600	242000	286600	350200	363400	
Water flow	m ³ /h	71,9	91,8	112,5	136,9	151,4	168,9	
Pressure drop	kPa	36,8	26,6	28,7	27,8	32,2	26,5	
Refrigerant charge	kg	90	100	120	140	170	175	
Sound Power Level	dBA	96	97	97	98	99	99	
Power supply		400V /3PH/ 50Hz						
Unit maximum operating current	A	490	630	774	835	998	1106	
Unit peak current	A	601	776	965	1027	1226	1361	

Data calculated at Eurovent conditions. This data is subject to change without prior notice.

Cooling capacities in kW given for 12/7°C water leaving temperature and 35°C ambient temperature.

Ecodesign figures are calculated following variable water and variable outlet approach (VW/VO). For other Ecodesign calculations, please contact your JCI representative.

Technical data

YGT HE - High Efficiency - Single VSD			0400 HE	0450 HE	0550 HE	0650 HE	0800 HE	0900 HE	1000 HE
Dimensions	Length	mm	5060	6200	6200	7340	8480	10760	10760
	Width	mm	2260						
	Height	mm	2600						

YGT XHE - Extra High Efficiency - Dual VSD			0450 XHE	0550 XHE	0650 XHE	0800 XHE	0900 XHE	1000 XHE	
Dimensions	Length	mm	6200	6200	7340	8480	10760	10760	
	Width	mm	2260						
	Height	mm	2600						



Manufacturer reserves the rights to change specifications without prior notice.

New generation YVAA Air-cooled VSD screw chiller

Cooling capacities from 500 kW to 2000 kW



Also available with R134a



The new generation YVAA air-cooled, variable-speed drive screw chiller from YORK® is designed to improve reliability and performance through proven technology and a customizable, highly optimized design.

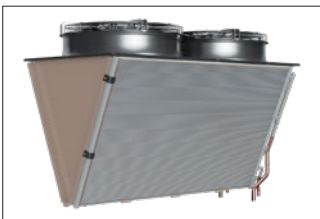
Features

- **Greater flexibility with configurability**
- **Reduced footprint with maintained performance**
- **Improved peak efficiency**
- **Sustainability. Minimise your environmental impact dramatically**

Options/Accessories

- BMS Interfacing options
- Advanced Controls (Silent Night, Quick Restart)
- Low temperature application options
- Dual pressure relief valves
- Flow switch
- Epoxy treatment Microchannel Coils
- Fan options
- Enclosure options
- Sound attenuation options
- Anti-vibration mounts options

Heat exchanger performance

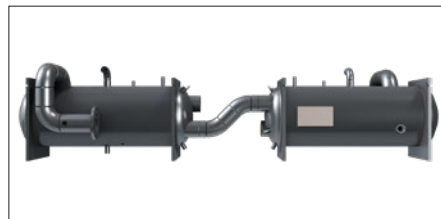


- Condenser design optimized for higher system efficiency
- New MCHX design improves heat transfer



- New brazed plate heat exchanger economizer

Series flow evaporator



- Higher efficiency
- Greater flexibility for performance optimization
- -12°C to 21°C operating range

EC fan



- Higher efficiency with variable speed drive EC motor fan
- Containerized option – able to ship in a closed container saving freight cost
- Delivering real world annual energy consumption savings
- Sound Reduction

Air-cooled VSD screw chiller

YVAAB 0571 to 1731



Application flexibility (*) example of selections

YVAA-B	0571	0586	0599	0616	0671	0686	0699	0701	0741	0754	0756	0769
Cooling capacity (kW)	529.5	544.5	589.5	599.5	644.4	679.3	689.4	699.3	719.3	739.3	749.3	759.2
EER	3.09	3.20	3.21	3.25	3.11	3.13	3.22	2.88	3.06	3.15	3.19	3.29
SEER	4.73	4.86	4.99	5.07	4.97	5.07	5.18	4.63	4.89	5.09	5.19	5.32
$\eta_{s,c}$	186	192	197	200	196	200	204	182	193	201	205	210
Sound power level (dBA)	96	95	96	96	96	97	97	94	95	95	95	97

YVAA-B	0782	0796	0809	0824	0866	0894	0919	0921	0924	0936	0949	1034
Cooling capacity (kW)	779.3	789.3	799.2	819.2	859.2	899.1	909.1	919.3	929.1	949.3	969.3	1029
EER	3.18	3.26	3.33	3.15	3.26	3.07	3.17	3.07	3.21	3.14	3.19	3.24
SEER	5.19	5.30	5.43	5.23	5.45	5.19	5.33	5.22	5.45	5.34	5.46	5.47
$\eta_{s,c}$	205	209	214	206	215	205	210	206	215	211	216	216
Sound power level (dBA)	98	98	97	96	96	98	97	97	97	99	98	98

YVAA-B	1076	1089	1134	1161	1174	1271	1381	1409	1549	1606	1649	1731
Cooling capacity (kW)	1079	1099	1139	1159	1189	1269	1379	1449	1549	1599	1699	1899
EER	3.23	3.26	3.15	3.20	3.22	3.10	3.06	3.08	2.98	3.05	2.97	2.43
SEER	5.54	5.58	5.35	5.43	5.51	5.43	5.41	5.52	5.37	5.51	5.49	4.87
$\eta_{s,c}$	219	220	211	214	218	214	213	218	212	218	217	192
Sound power level (dBA)	99	99	100	99	98	98	99	100	100	100	101	110

Net values at Eurovent nominal conditions for models using R513A: Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature. SEER calculated according to EN14511 and EN14825.

Ecodesign figures are calculated following variable water and variable outlet approach (VW/VO). For other Ecodesign calculations, such as SEPR Medium and High temperature for process application, please contact your JCI representative.

(*) New generation YVAA is a tailor and tune chiller. Its performance will be factory-adjusted to match the exact site requirements based on the specific project operating conditions. The table above shows only a representative sample of performance points based on generic project operating conditions working with R513A refrigerant, optimized compressor and high efficiency fans Variable Speed EC motor.

For tailored and tuned performance based on your specific project requirements, and for more information, please contact your Johnson Controls representative. Please refer to the latest version of the software for specific projects.

Technical data

YVAA-B			0571	0586	0599	0616	0671	0686	0699	0701	0741	0754	0756	0769
Dimensions	Length	mm	5163	6274	7397		6274	7397		5163	6274	7397	8514	9631
	Width	mm	2243											
	Height *	mm	2358											
Operating weight	kg		5268	6122	6516	6946	6198	6592	7021	5841	6234	6628	7022	6957
Refrigerant charge	kg		69/69	75/75	81/81	89/89	82/69	89/75	97/83	70/70	76/76	82/82	89/89	95/95

YVAA-B			0782	0796	0809	0824	0866	0894	0919	0921	0924	0936	0949	1034
Dimensions	Length	mm	7397	8514	9631	7397	9631	7397	8514	7397	9631	8514	9631	
	Width	mm	2243											
	Height *	mm	2358											
Operating weight	kg		6597	6992	7387	7100	7949	7114	7509	7913	7904	7847	8703	8962
Refrigerant charge	kg		90/90	97/97	103/103	102/84	115/97	96/96	102/102	103/103	109/109	109/109	115/115	124/109

YVAA-B			1076	1089	1134	1161	1174	1271	1381	1409	1549	1606	1649	1731
Dimensions	Length	mm	10748	11865	9631	10748	11865		14105	11865	14105	14105	15222	11865
	Width	mm	2243											
	Height *	mm	2358											
Operating weight	kg		7957	8245	9122	8117	8405	9008	9160	9721	10919	11479	11769	10136
Refrigerant charge	kg		131/115	131/128	118/118	124/124	131/131	166/109	160/118	173/131	147/147	160/160	166/166	147/147

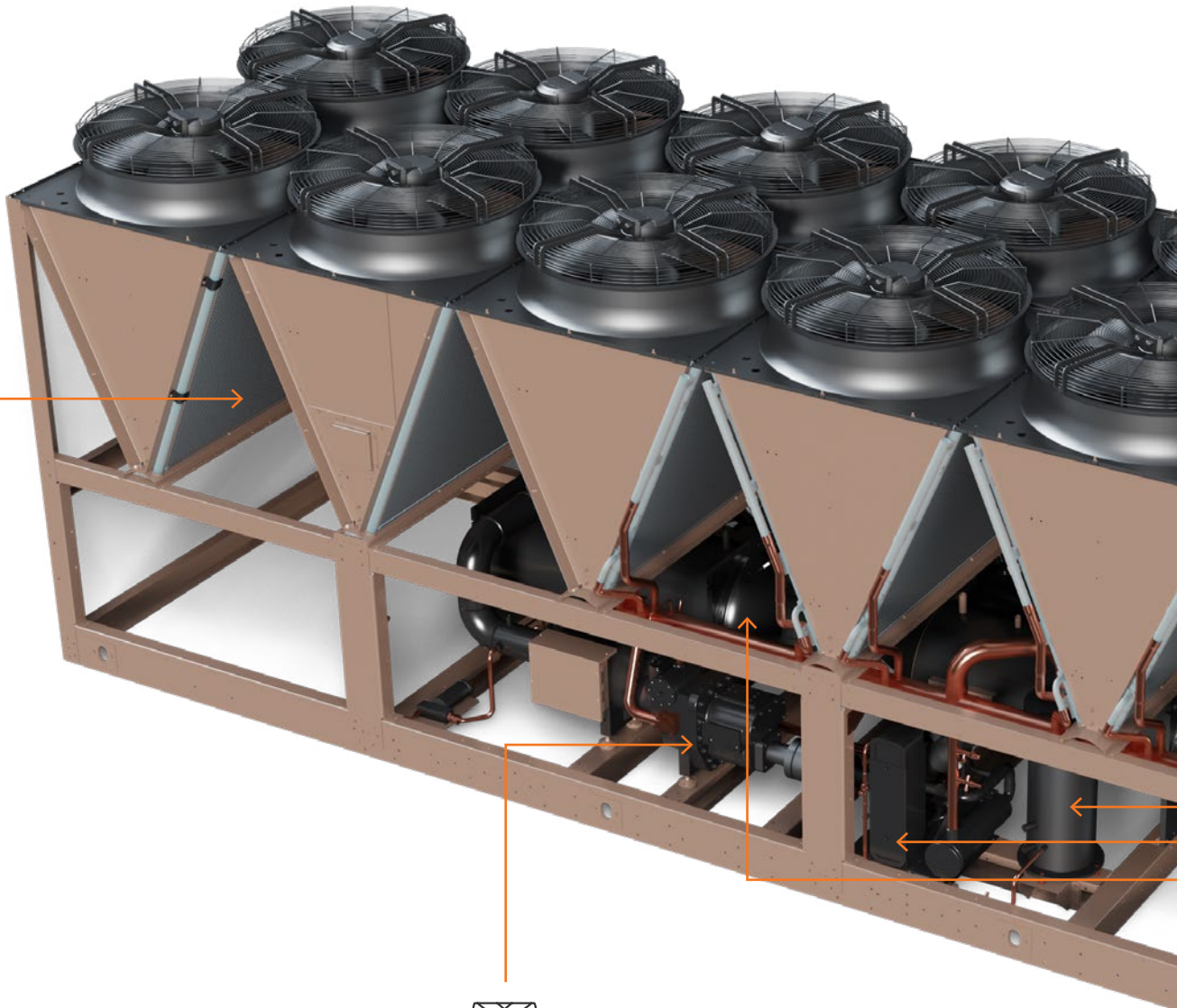
* The indicated height refers to the model with Standard fans.



Manufacturer reserves the rights to change specifications without prior notice.

Proven Technology

Over decades of use, and more than 22,000 units installed globally, the YVAA chiller has excelled in a variety of applications while defining what's possible in air-cooled chiller technology and durability. Our highly optimized component choices make the new generation YVAA a more flexible, more reliable option for energy-efficient cooling and sustainability.



Microchannel condenser coil

Carefully designed and tested for the unique conditions a building's HVAC system experiences, our next-generation microchannel heat exchangers use parallel flow aluminum alloy tubes that are easy to clean. Plus, our microchannel heat exchangers feature coating options that help increase reliability and durability in harsh environments.



Optimized compressors with patented, variable volume index (VI) technology

With decades of experience varying compressor speeds, the YVAA incorporates advanced, patented technology in a proven design. Our VI design optimizes the compression ratio of the compressor to match the conditions between the evaporator and condenser. This optimized compression ratio prevents over-compression to minimize energy consumption. Every compressor is run-tested at the end of the production line to ensure reliable operation.



EC and VSD Fans

Higher efficiency variable speed EC motor fans deliver energy consumption savings and sound reduction. VSD fans offer excellent efficiency with lower first cost and proven performance.



Quick Start

The optional Quick Start feature enables an industry-leading compressor restart of 34 seconds after power is restored. And because YVAA chillers contain a variable-speed drive, there is no inrush of current, so all compressors can be started together. This allows a faster ramp-up to full capacity than is possible with a typical chiller.



Smarter controls

Our built-in controls tolerate large variants in input power, shifts in liquid temperatures and changes in environmental conditions to maximize chiller uptime. And our controls integrate with industry standard Building Automation Systems (BAS) and the world-class Metasys controls system for greater building energy management efficiency. Optional Mobile Access Port (MAP) provides remote monitoring for predictive maintenance, resulting in dependable operation.



Variable-speed drive

Four decades ago, we introduced the first variable-speed drive (VSD) chiller. Our first VSD, air-cooled chiller came in 2004, and we've since installed more VSD chillers than all other manufacturers combined. VSDs help reduce energy consumption – particularly at off-design conditions – and can help lower annual energy costs as much as 50%. Our patented, liquid-cooled VSDs also require less maintenance, with glycol replacement required only every five years. And the variable-speed design dramatically reduces sound levels at offdesign conditions – up to 16 dBA. Designed and manufactured by Johnson Controls, a 100% liquid-cooled VSD is standard on the YVAA range.



Oil separator

The YVAA oil management system uses differential pressure to ensure proper oil flow and eliminate the need for mechanical oil pumps.



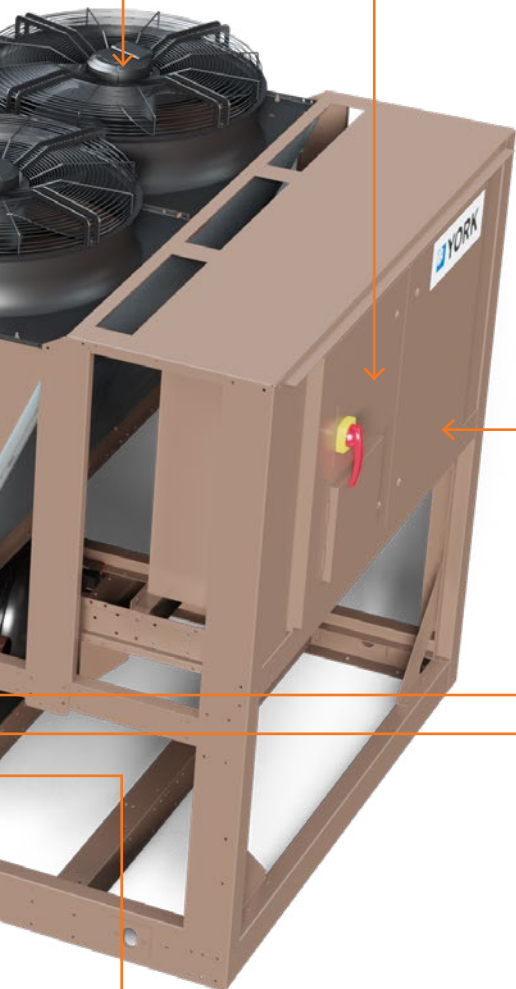
High-efficiency economizer

Our high-efficiency economizer boosts capacity, improves system efficiency and reduces operating costs.



Hybrid falling film series flow evaporator

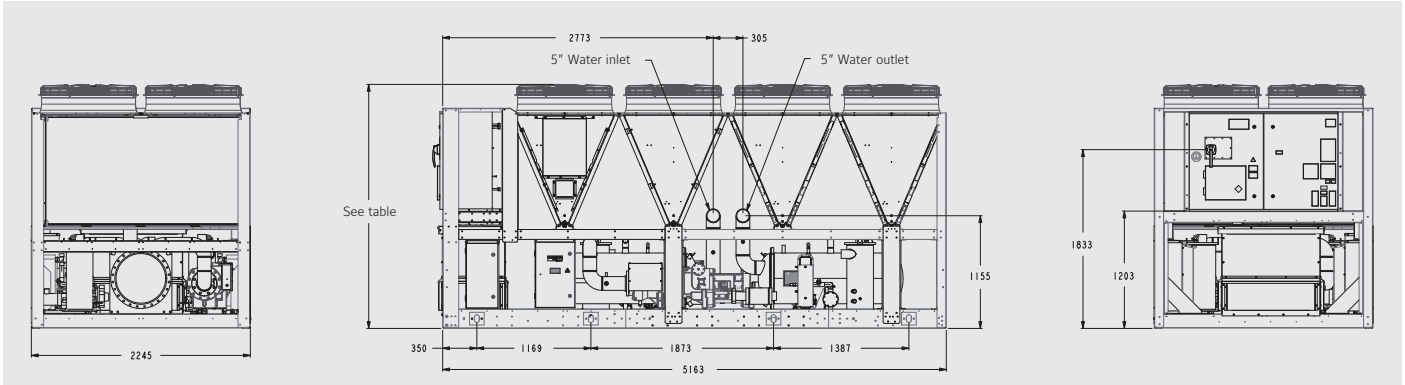
A patented, hybrid falling film shell and tube style of series flow evaporators provides a higher energy efficiency, minimize refrigerant charge up to 15% and offer a greater flexibility for performance optimization. Also it allows a wide operating range (-12°C to 21°C).



Dimensions and hydraulic connections

All drawings are for two pass evaporator. For other configurations, please, contact JCI.

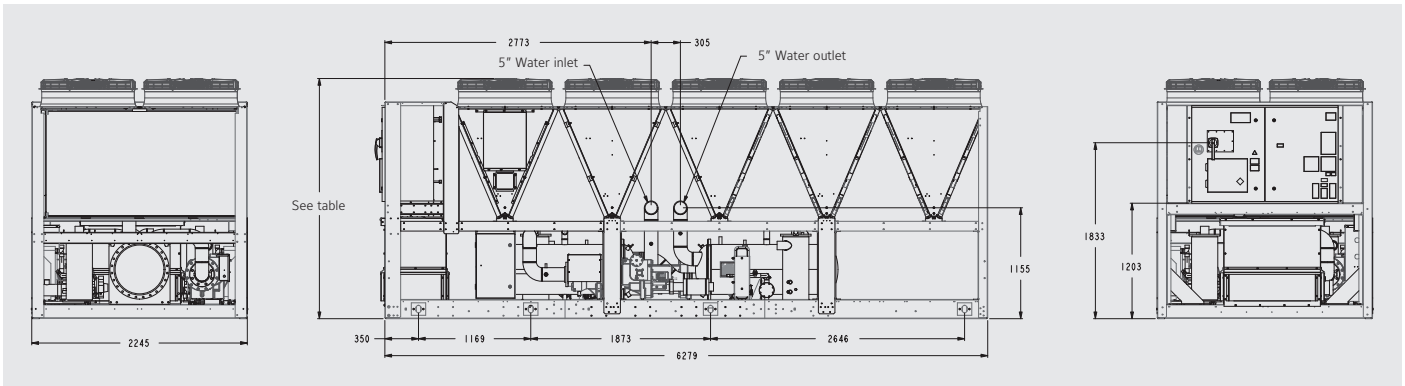
YVAA-B 0571 and 0701



Unit height	EC Fans	Standard fans
YVAA-B 0571 & 0701	2501	2358

All dimensions in mm. Drawings not in scale.

YVAA-B 0586, 0671 and 0741



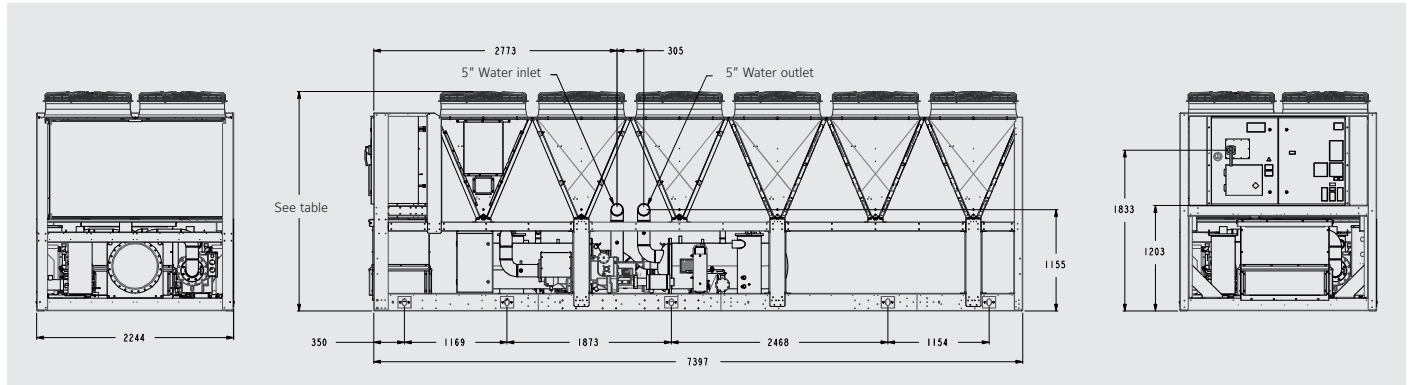
Unit height	EC Fans	Standard fans
YVAA-B 0586, 0671 & 0741	2501	2358

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

All drawings are for two pass evaporator. For other configurations, please, contact JCI.

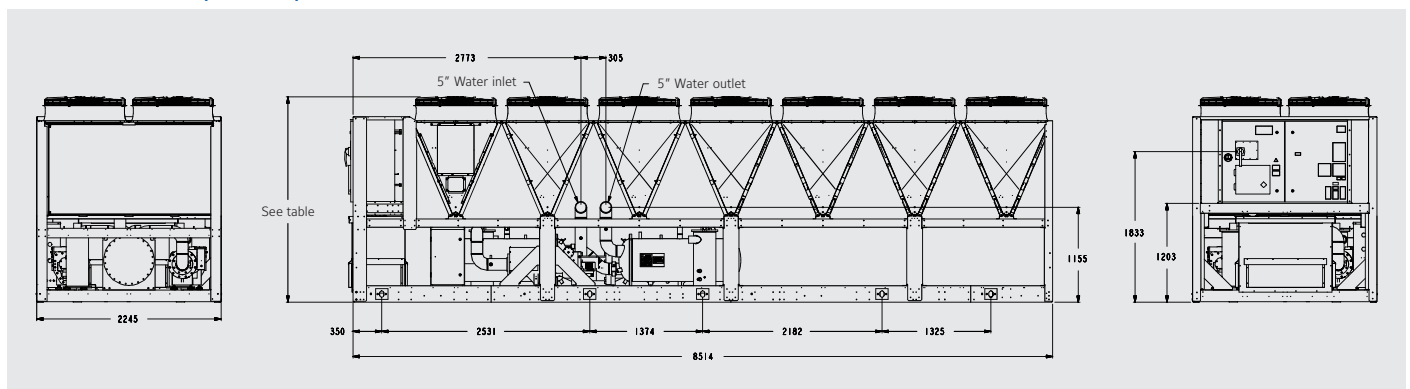
YVAA-B 599, 0616, 0686, 0699, 0754, 0782, 0824, 0894 and 0921



Unit height	EC Fans	Standard fans
YVAA-B 0599, 0616, 0686, 0699, 0754, 0782, 0824, 0894 & 0921	2501	2358

All dimensions in mm. Drawings not in scale.

YVAA-B 0756, 0796, 0919 and 0936



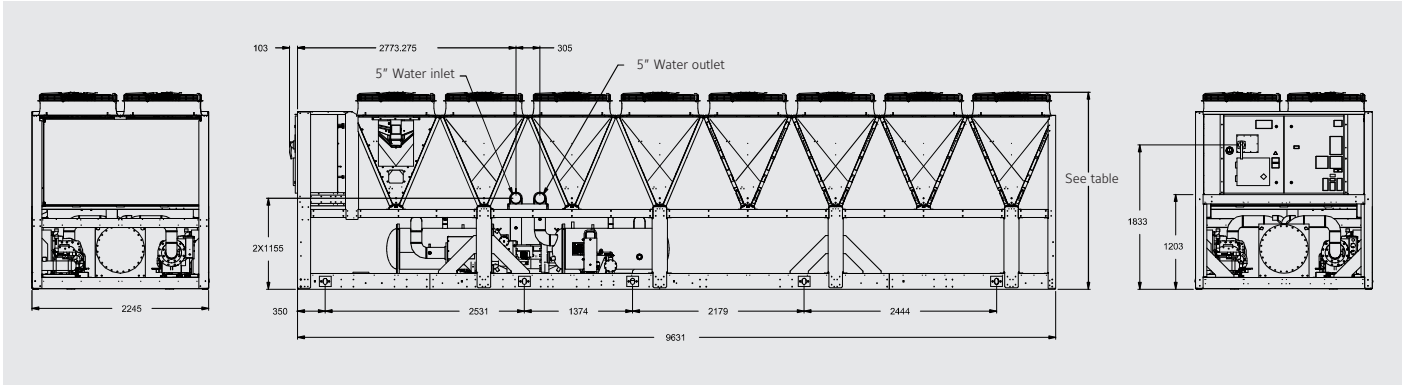
Unit height	EC Fans	Standard fans
YVAA-B 0756, 0796, 0919 & 0936	2501	2358

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

All drawings are for two pass evaporator. For other configurations, please, contact JCI.

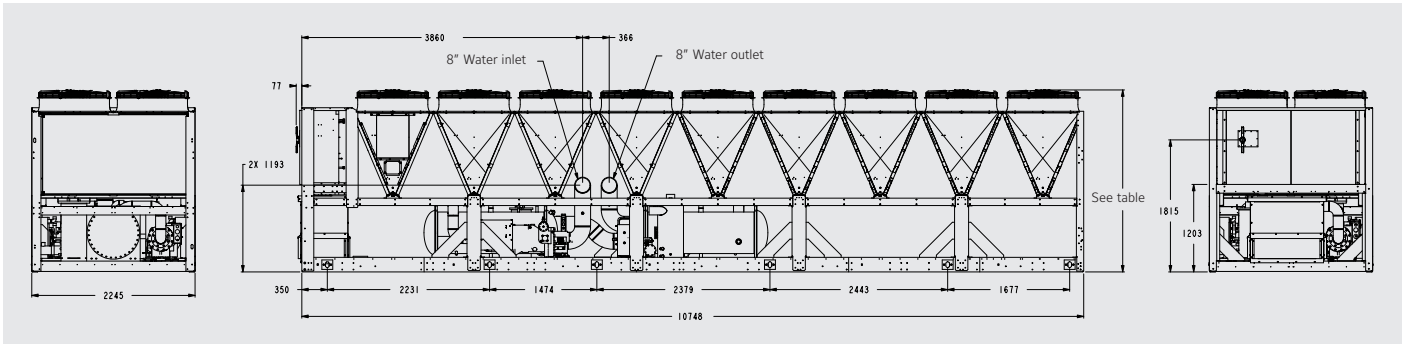
YVAA-B 0769, 0809, 0866, 0924, 0949, 1034 and 1134



Unit height	EC Fans	Standard fans
YVAA-B 0769, 0809, 0866, 0924, 0949, 1034 & 1134	2501	2358

All dimensions in mm. Drawings not in scale.

YVAA-B 1076 and 1161



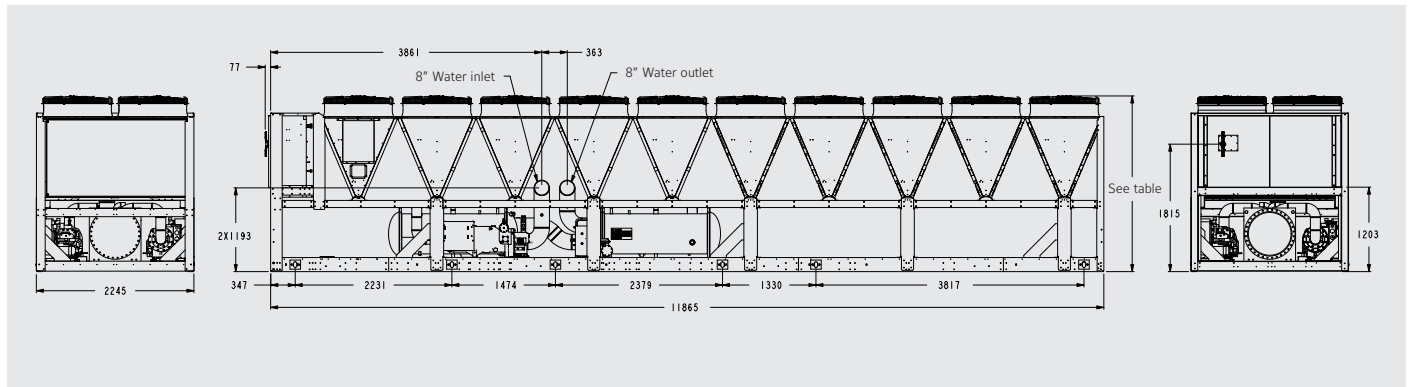
Unit height	EC Fans	Standard fans
YVAA-B 1076 & 1161	2501	2358

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

All drawings are for two pass evaporator. For other configurations, please, contact JCI.

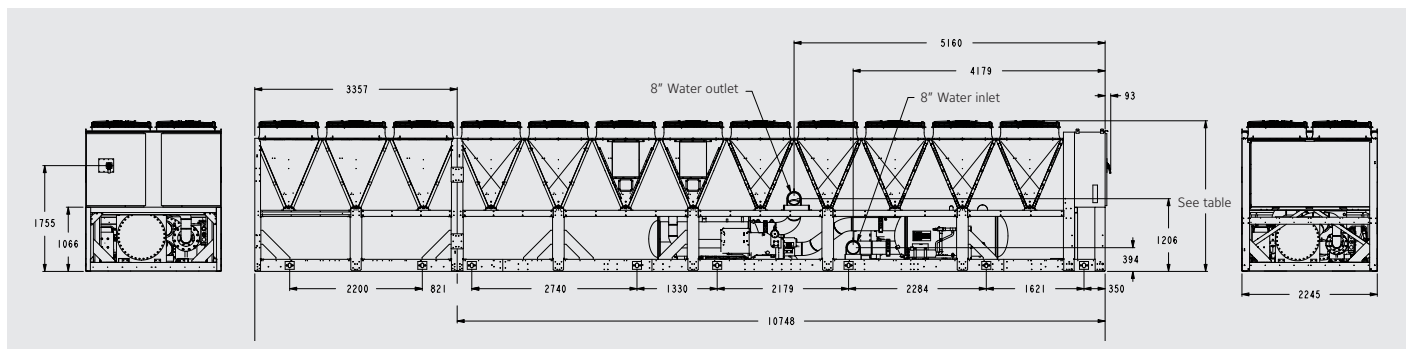
YVAA-B 1089, 1174, 1271, 1381, 1549 and 1731



Unit height	EC Fans	Standard fans
YVAA-B 1089, 1174, 1271, 1381, 1549 & 1731	2501	2358

All dimensions in mm. Drawings not in scale.

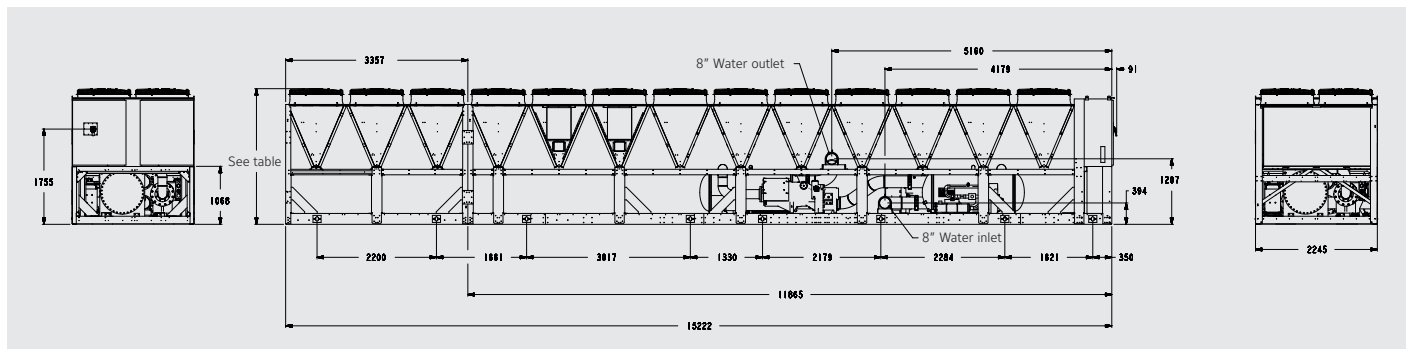
YVAA-B 1409 and 1606



Unit height	EC Fans	Standard fans
YVAA-B 1409 & 1606	2501	2358

All dimensions in mm. Drawings not in scale.

YVAA-B 1649



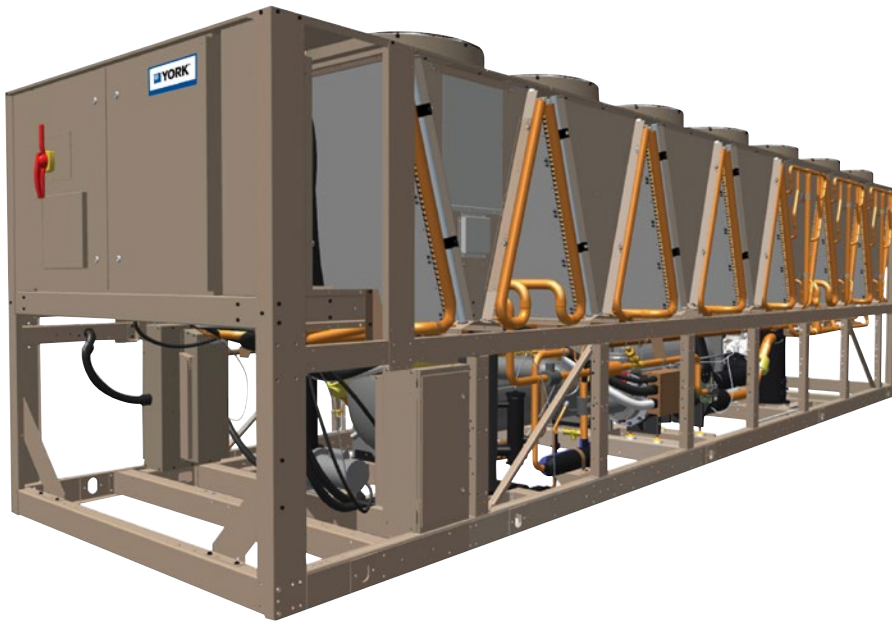
Unit height	EC Fans	Standard fans
YVAA-B 1649	2501	2358

All dimensions in mm. Drawings not in scale.

YVFA

Air-cooled VSD screw chiller with integrated Free-cooling

Cooling capacities from 577 kW to 1664 kW



Features

- Available in Open and Closed (glycol free) loop configurations.
- Optimized Annual Energy Savings thanks to the unique combination of the YORK Variable Speed Drive technology expertise and the sophisticated free-cooling controls.
- Reduced installation footprint, thanks to the integration of the free-cooling coils together with the chiller.
- Lower ambient operating range when in free-cooling mode, compared to standard units.

Options/Accessories

- Refrigerant R134a
- BMS Interfacing options
- Advanced Controls (Silent night, quick restart)
- Low temperature application options
- Dual pressure relief valves
- Flow switch
- Epoxy treatment Microchannel Coils
- Fan options
- Enclosure options
- Sound attenuation options
- Anti-vibration mounts options
- Desuperheater

YVFA free-cooling chillers are available in open- or closed-loop configurations to maximize efficiency for your specific type of building

Open-loop configuration

Open-loop design permits building glycol to flow through the free cooling coils directly, with the best performance and the lowest first cost.

Closed-loop configuration

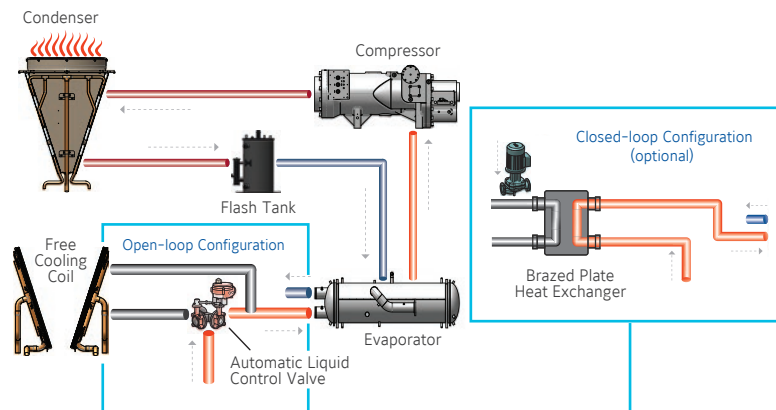
Closed-loop design integrates a brazed plate heat exchanger and pump loop. The building water loop is isolated from the free cooling coils, and the YVFA pump circulates glycol between the brazed plate heat exchanger and the free cooling coils. This provides the lowest pump pressure drop and a building loop that's glycol-free.

Air-cooled VSD screw chiller with integrated Free-cooling

YVFA

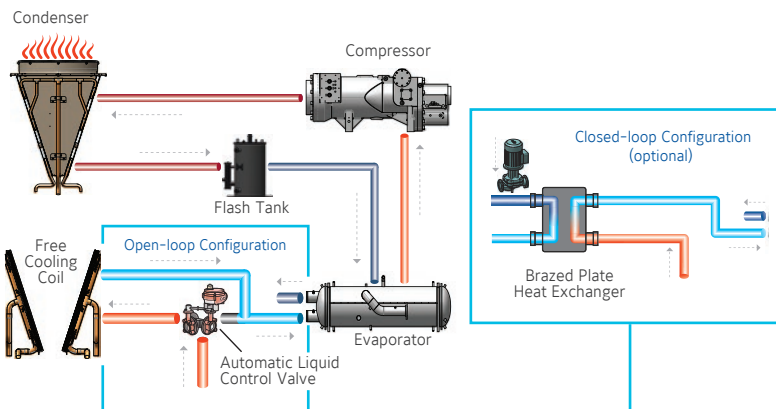


Saving energy is simple in every situation



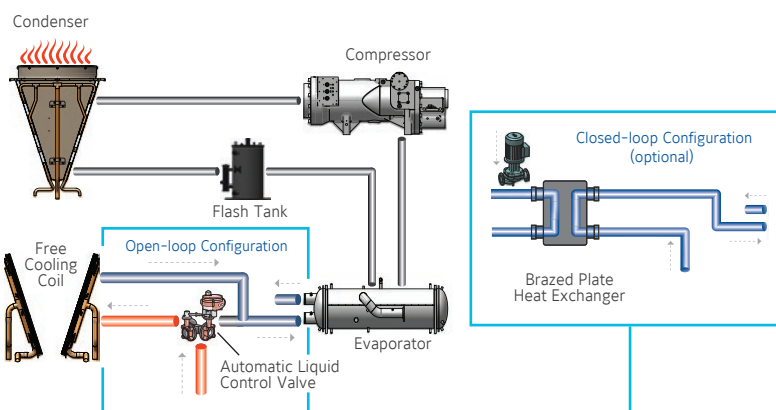
1 Mechanical Cooling Mode

When it's too warm to use ambient air for cooling, the YVFA performs as a standard chiller. The automatic flow-control valve in the open-loop configuration bypasses the free-cooling coils to reduce pump energy. When either cooling load or ambient temperature are less than full design condition, the variable-speed screw compressors and condenser fans modulate to optimize energy use. In a closed-loop configuration, the free-cooling coils are also bypassed.



2 Hybrid Cooling Mode

When ambient temperatures permit, liquid flow through the free-cooling coils is enabled. This pre-cooling reduces energy use while the compressors deliver final cooling to meet setpoint. Thanks to YORK VSD Screw technology, at reduced ambient the compressors may draw less power than the fan motors required to move air through the free-cooling coils. Advanced controls provide the most efficient operation rather than simply shutting off compressors as quickly as possible. The Annual Energy Cost Report demonstrates the benefit of this intelligent control.



3 Free Cooling Mode

At lower ambient temperatures, full cooling load can be most efficiently delivered by the free-cooling coils. Compressors are shut off and the VSD fans are modulated to meet the cooling setpoint.

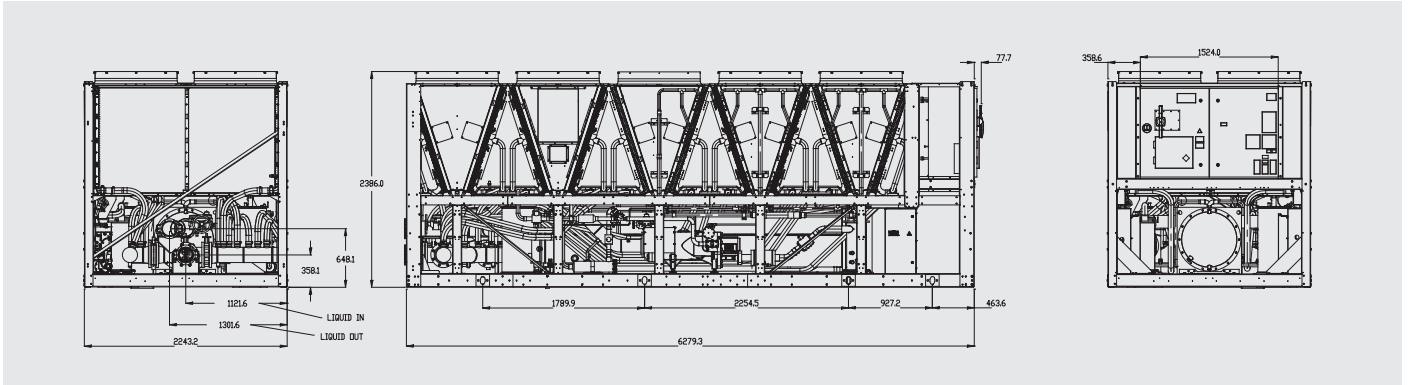


Manufacturer reserves the rights to change specifications without prior notice.

Dimensions and hydraulic connections

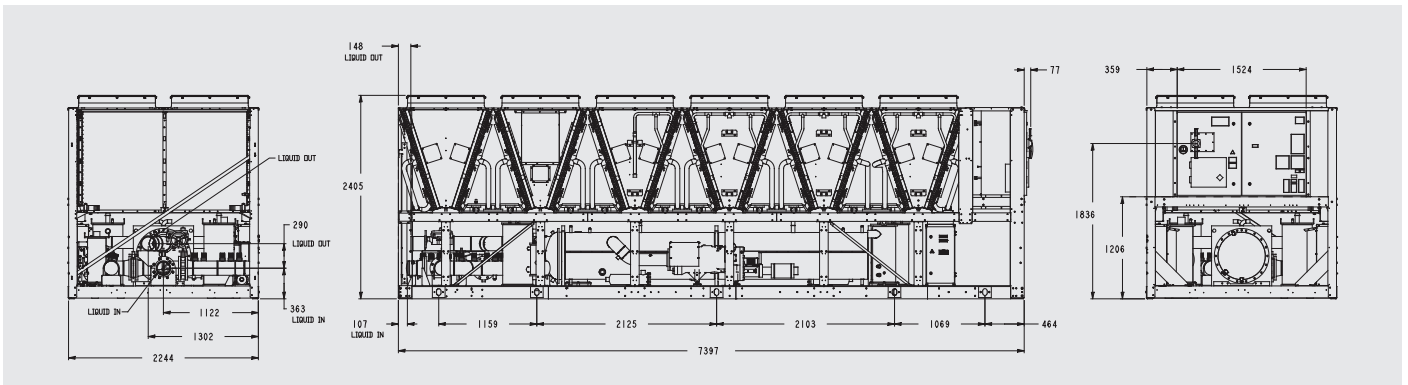
Open-loop (OL) configuration models

YVFA 0539 OL



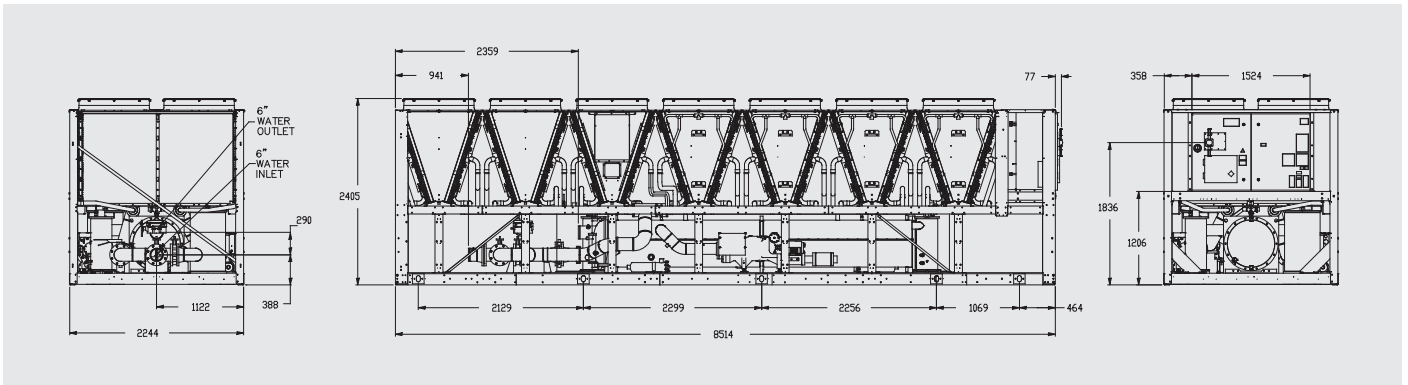
All dimensions in mm. Drawings not in scale.

YVFA 0709 OL



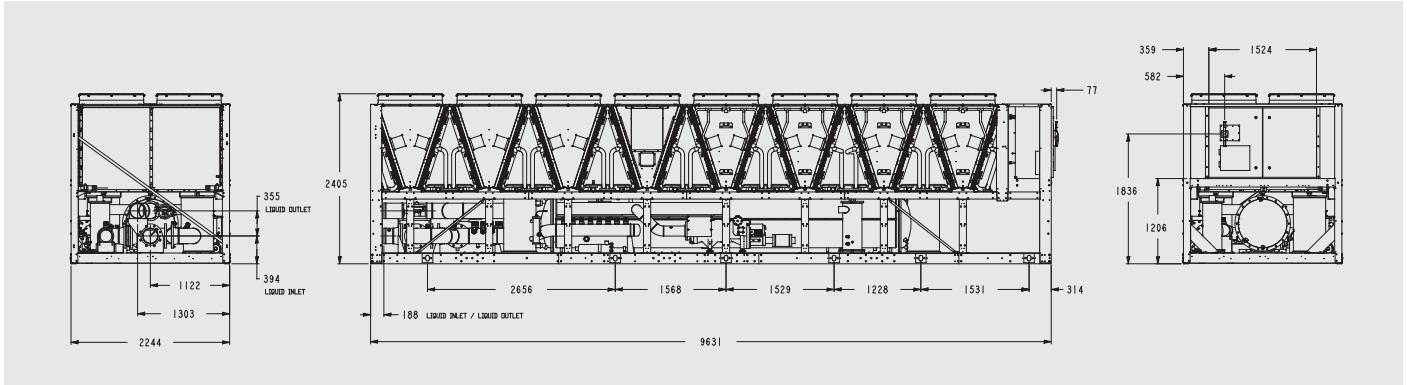
All dimensions in mm. Drawings not in scale.

YVFA 0889 OL



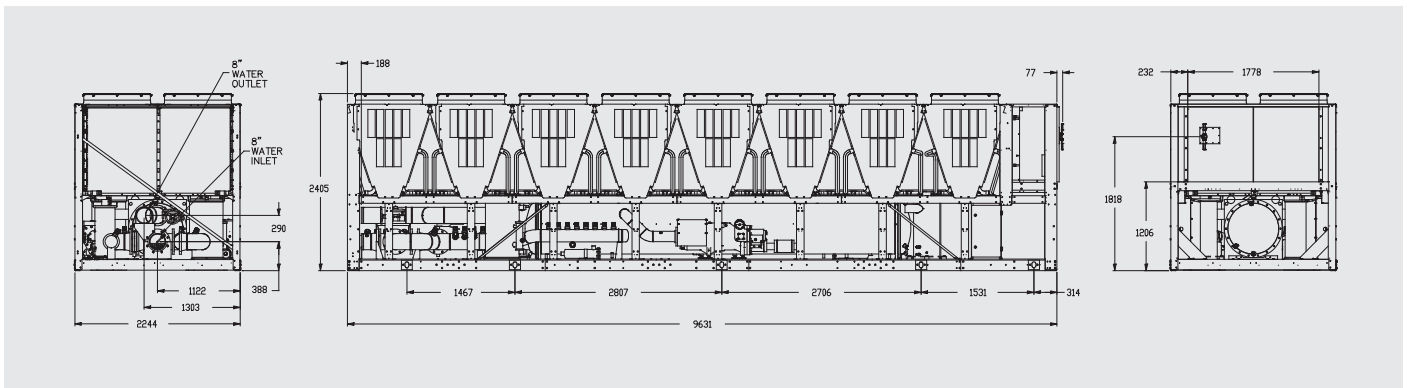
All dimensions in mm. Drawings not in scale.

YVFA 1009 OL



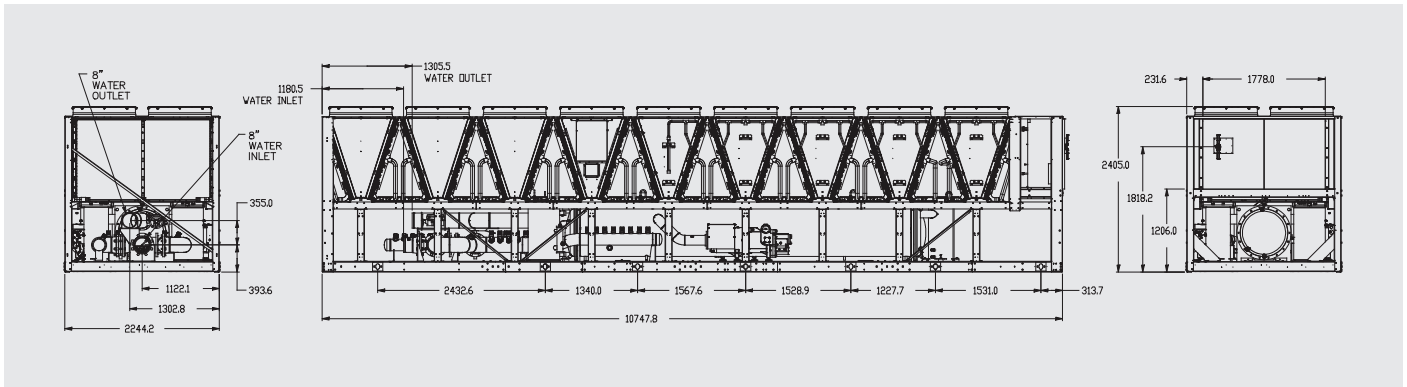
All dimensions in mm. Drawings not in scale.

YVFA 1069 OL



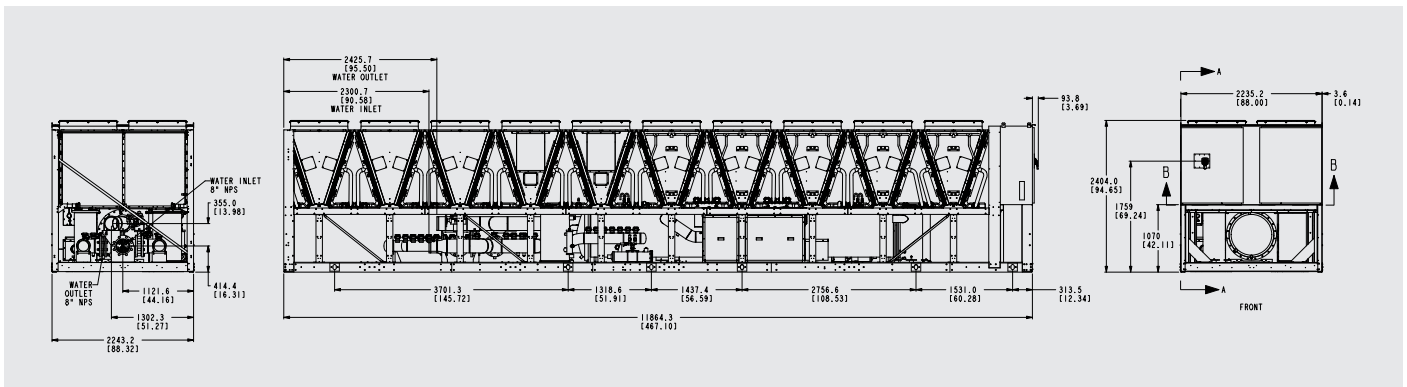
All dimensions in mm. Drawings not in scale.

YVFA 1239 OL



All dimensions in mm. Drawings not in scale.

YVFA 1419 and 1589 OL

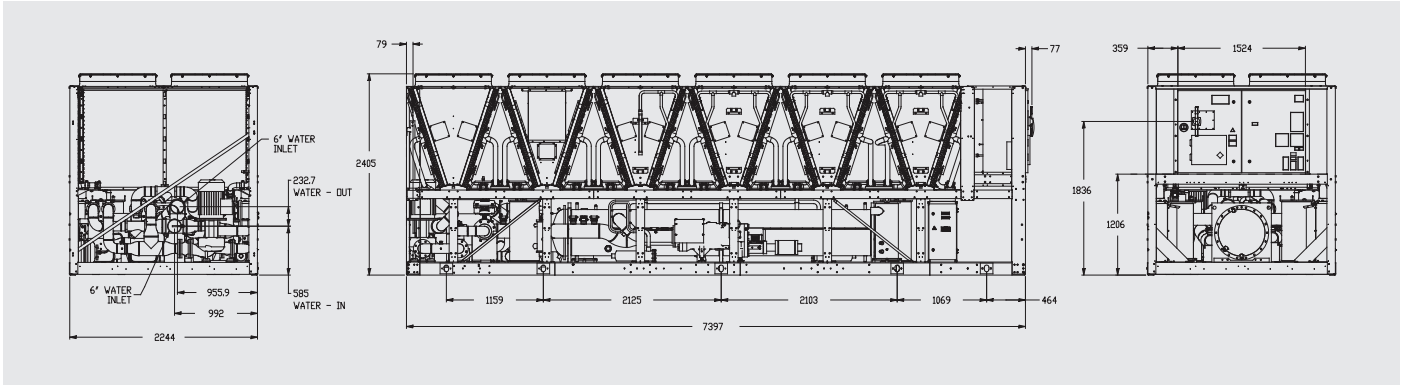


All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

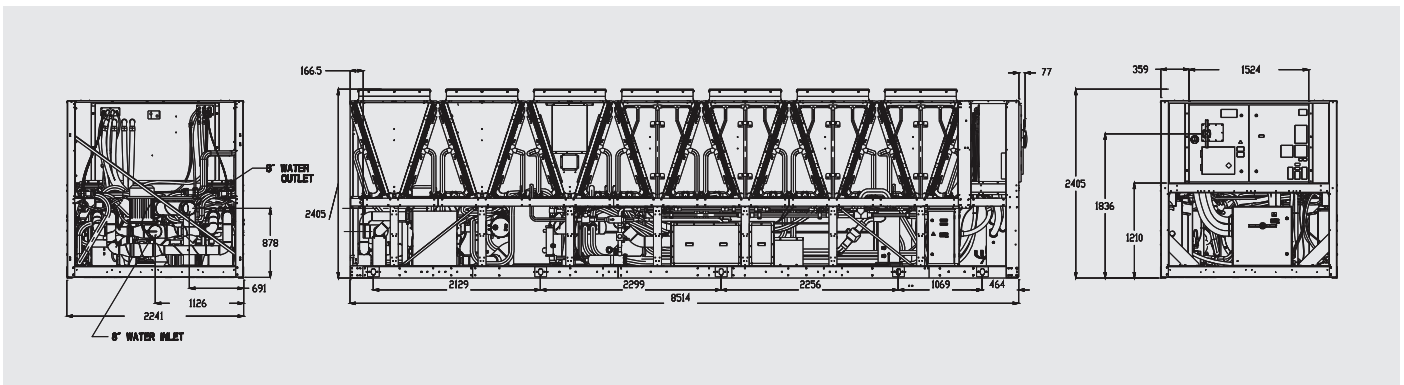
Closed-loop (CL) configuration models

YVFA 0709 CL



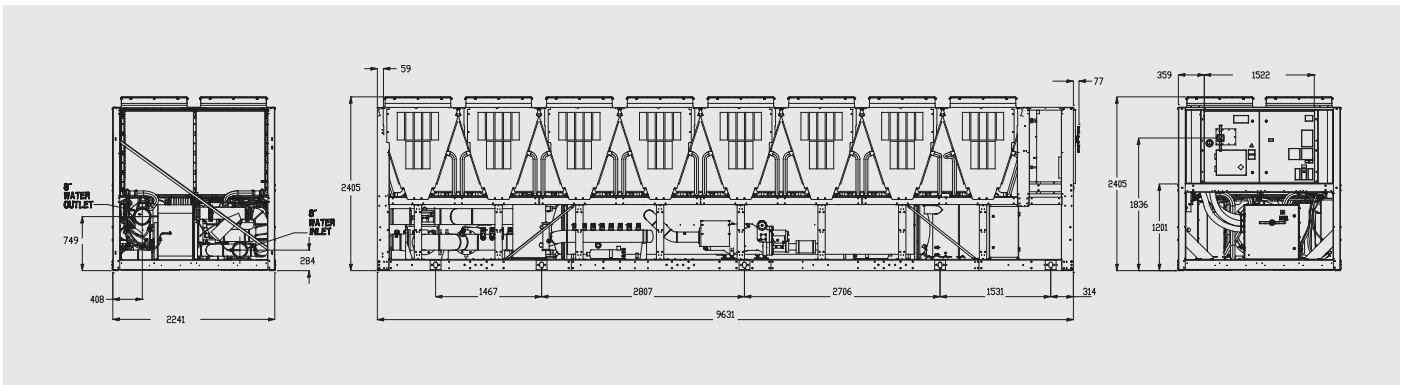
All dimensions in mm. Drawings not in scale.

YVFA 0889 CL



All dimensions in mm. Drawings not in scale.

YVFA 1069 CL

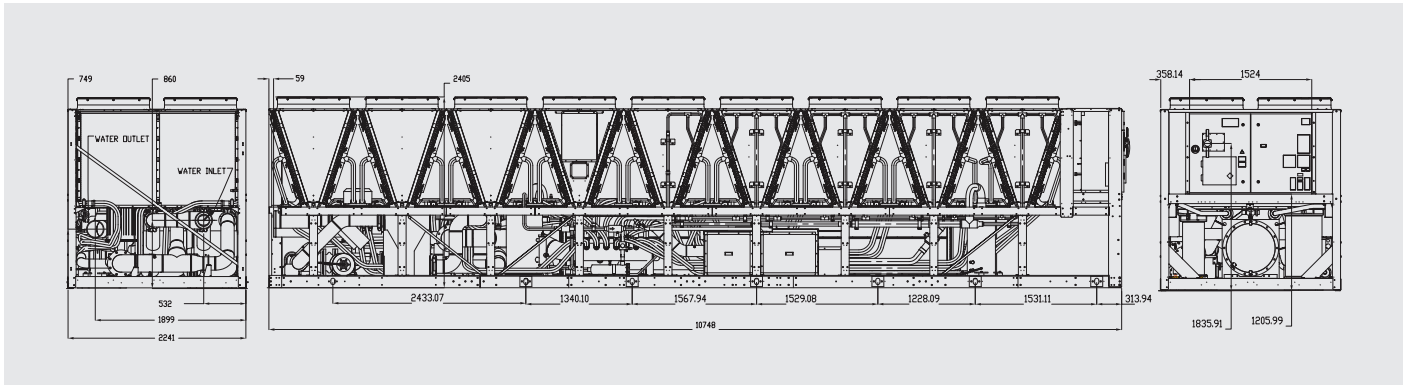


All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

Closed-loop (CL) configuration models

YVFA 1239 CL



All dimensions in mm. Drawings not in scale.

Application flexibility (*) example of selections

YVFA	0539	0709	0889	1009	1069	1239	1419	1589
Mechanical Cooling capacity (kW)	577	684	898	1034	1158	1232	1517	1664
Full Load Efficiency (EER) - Mechanical	2.8	2.78	2.78	2.88	2.73	2.77	2.46	2.32
Part Load Efficiency (SEPR) - Mechanical	6.02	5.98	6.06	6.24	5.59	5.5	5.54	5.5
Sound power level (dBA) - Mechanical	103	104	106	106	106	107	107	109
Total Temperature Free-Cooling (°C)	-0.5	-0.4	-1.5	-1.5	-2.7	-2.1	-3.3	-4.5

Cooling Capacity for Open-Loop configuration at: entering/leaving chilled fluid temperature 16°C/10°C (30% Ethylene Glycol), ambient temperature 35°C.
Sound Pressure according to Eurovent conditions.

(*) YVFA is a tailor and tune chiller. Its performance will be factory-adjusted to match the exact site requirements based on the specific project operating conditions. The table above shows only a representative sample of performance points based on generic project operating conditions working with R513a refrigerant. For R134a information contact your JCI Representative.

For tailored and tuned performance based on your specific project requirements, and for more information, please contact your Johnson Controls representative. The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

YVFA			0539	0709	0889	1009	1069	1239	1419	1589
Dimensions	Length	mm	6280	7397	8514	9631	9631	10748	11864	
	Width	mm	2242						2243	
	Height	mm	2405						2404	
Operating weight kg			7394	8504	10396	11842	11884	12900	14131	17140
Refrigerant charge kg			172	164	216	246	262	282	365	368



YAS

Air-Cooled Chillers and Heat Pumps with R290 (Propane)

Research and innovations for sustainable efficiency

Customer satisfaction and the improvement of our customers' working conditions are top priorities for Johnson Controls.

We know that new market requirements in terms of environmental protection can present a challenge for our customers. That is why we continue to invest in innovative and environmentally friendly solutions for refrigeration and air conditioning so that you can achieve your sustainability goals.

The environmentally conscious use of our limited resources is already taken into account in the development and manufacture of all of our products. A major focus in research and product development is on HVAC systems that are low-noise, energy-saving and also use environmentally friendly refrigerants.

Propane can be used in many areas – either pure or mixed with other hydrocarbon gases. It is mainly used as a fuel (LPG) or refrigerant (R290). The mixture has been used in industry for decades and, thanks to its non-toxic properties, also in medicine. Propane is also not very harmful to the environment.

Johnson Controls is constantly working on innovations in order to achieve technological progress in the efficient use of natural gas – always in compliance with European guidelines and quality standards. Thanks to our research and environmentally-oriented mindset, all the conditions are in place to continue to be a leader in the market.



Ecodesign Directive ERP 2021

The new generation of propane chillers fulfills the strict ecodesign guideline ERP 2021. The European regulation 2016/2281 prescribes a minimum efficiency for cooling capacities <400 kW for water-cooled devices of 5.20 and for air-cooled devices of 4.10.

Low noise

With a sound-insulated housing for the compressors and Axitop fans, a low sound pressure is achieved. The insulation consists of soundproof standard material (20 mm thick) or thicker material (30 mm thick) according to the required noise emissions. This means that the device can also be installed where there are very strict requirements for sound insulation.

Energy saving

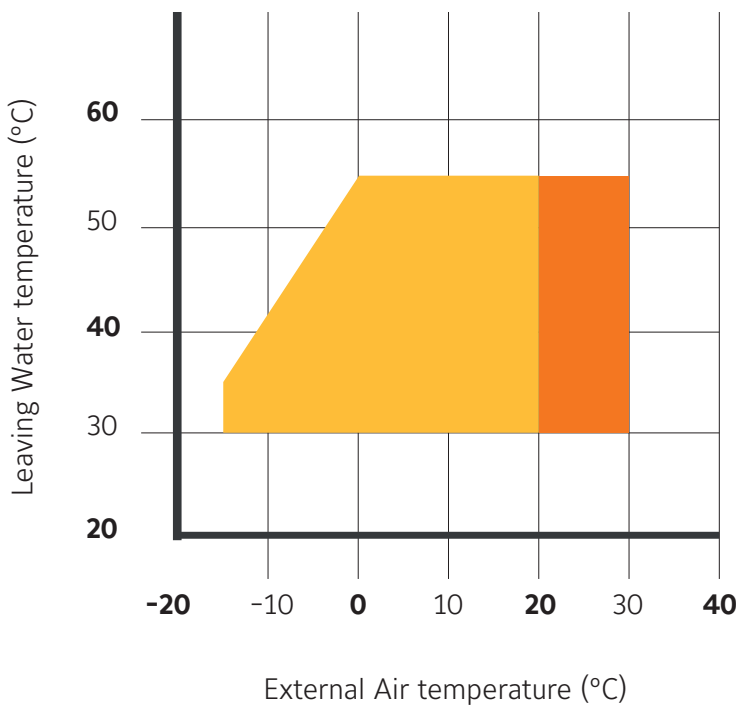
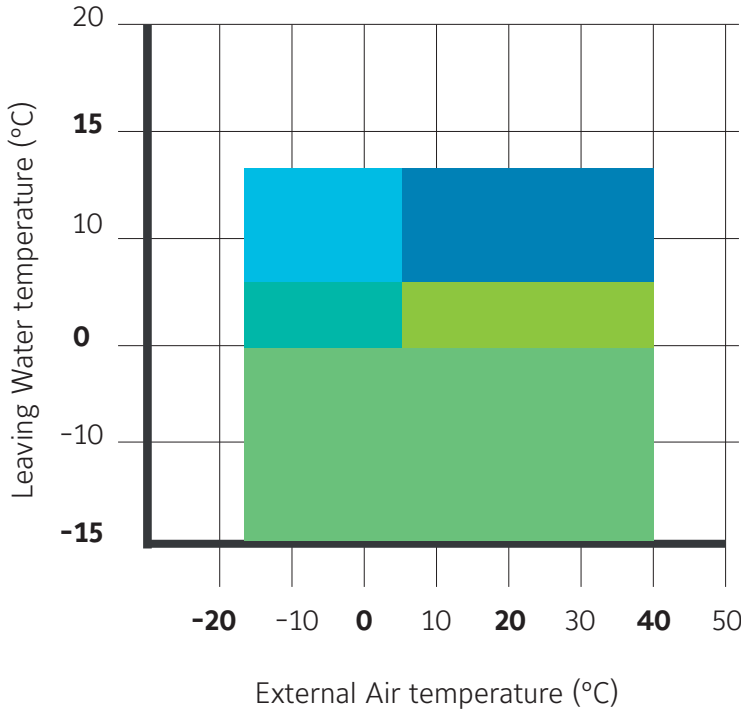
Reducing investments and operating costs, environmental compatibility and optimizing energy consumption are essential factors when selecting new devices. The efficient functioning of the propane chiller can save high operating costs.

Simple controls

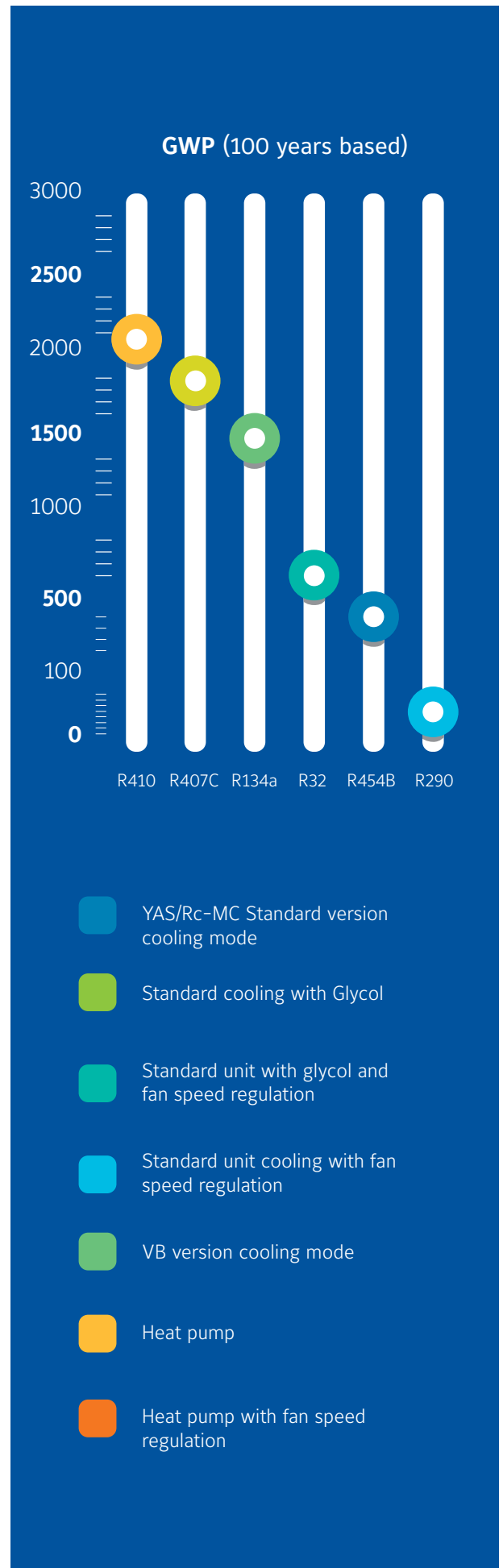
The microprocessor controls and manages time control, speed and safety. The overheating is regulated by means of PID control by the electronic expansion valve, whereby the operation of the system and consumption are optimized. The microprocessor detects irregularities through an automatic diagnosis and enables remote monitoring of the system. An internal memory records the operating status at the time of an alarm so that it can be shown on the display.



Application limits under different environmental conditions



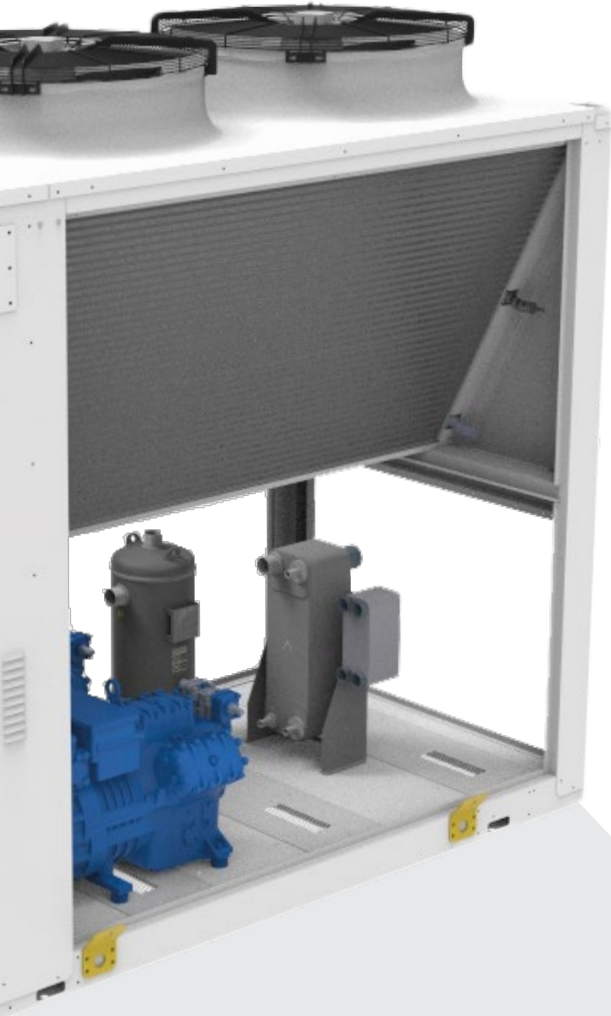
Note: Operating charts are for reference only. Actual operating maps are specific to each unit selection. Please contact your JCI representative.





YAS/Rc-MC

Air-cooled chiller with reciprocating compressor, axial fans and R290 refrigerant



This model is particularly suitable for cooling in industry or in air conditioning in the service sector where excellent performance and very low environmental impact are required. The refrigerant used is propane, a non-toxic hydrocarbon that emits almost no environmentally harmful substances even in high concentrations and has thermodynamic properties that enable a high level of efficiency.

Depending on the cooling capacity, the units are available with one or two independent cooling circuits, which are equipped with one or two compressors for each circuit. Thanks to the many options available, these liquid chillers are particularly versatile and can be easily adapted to different types of plants where chilled water production is required.

All the units are completely factory assembled, tested and supplied with refrigerant non-freezing oil charge; so, once on installation site, they only need to be positioned and connected to the hydraulic and power supply lines.

The Air-cooled chillers meet the requirements of the European regulation 2016/2281.

Operation Limits (standard version):

Air:	from +10 to + 40°C
Water (evaporator outlet):	from -2 to +15°C (standard version)
	from -14 to -2°C (VB-Version)
	from -5 to +15°C (F-Version)

The following versions are available:

YAS-MC: Standard version

YAS-MC-VB: Version suitable to produce low temperature water/glycol mixture, equipped with electronic thermostatic valve, suction gas separator, inverter fans, evaporator higher insulation (20mm thickness)

Main components

Frame

Strong and compact structure, made of base and frame with high-thickness galvanized steel elements assembled with stainless steel rivets. All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with colour RAL7035.

The technical section which contains compressors and the other cooling circuit elements, except the condensing part, is closed in a cabinet; if a refrigerant leak occurs the technical vane is automatically airy using an external centrifugal fan which is able to clean all the air inside the cabinet 4 time/minute. To reduce the sound level it is possible to insulate the technical section with a sound and fire proof standard thickness material or higher thickness material (CFU option).

Compressors

Semi hermetic alternative type optimized to operate with the hydrocarbons and realized in compliance with the safety regulation in force. The electrical motor, arranged for starts with low inrush current (PW option), is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump. Each compressor is installed on rubber type vibration dampers and is provided with switch-off valve on suction and discharge side, electronic differential pressure switch for the oil level control, crankcase heater and temperature probe on discharge side to control the compressor's discharge temperature. If the compressors are installed in "tandem" version each one is equipped with oil level sensor and oil recuperator; this device activates automatically when in one compressor the lubricant level goes down then minimum value.

Evaporator

Stainless steel plates type mono or bi circuits, thermally insulated using a flexible closed cells mattress of high thickness. Is also provided with a safety differential pressure switch which does not allows the unit operation in case of water flow lack or reduction.

Coils

The external exchanger coils are made of microchannel aluminium extruded pipes and brazed aluminium fins. Thanks to the reduced whole volume and the high external surfaces, the microchannel coils allow a great reduction of refrigerant charge and an high heat exchange capacity.

Fans

6 poles axial fans with electrical motor and external rotor directly coupled to the impeller; aluminium blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the maximum efficiency with the minimum noise level. The fan is equipped with a galvanized steel protection grid painted after the construction; the fan motors are of totally closed type and have got a protection factor IP54 and winding-flooded protection thermostat.

Cooling circuit

Independent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze probe, sight glass, dehydrating filter for R290 with wide filtering surface, high pressure side safety valve equipped with connector to the discharge refrigerant conveying piping, electronic thermostatic valve (from 2402 size), settable pressure switches and high/low pressure gauges for R290 specifically.

All the units are equipped with a leak sensor which is able to turn off the compressors and turn on the extraction fan in case of a refrigerant leak occurs.

Electrical board

The housing contains all electrical and control components. All components are wired and tested at the factory. The electrical cabinet has got a watertight structure, equipped with cable glands with protection factor of IP65/66.

Besides the electrical cabinet contains all the power and control devices, microprocessor electronic board complete with keyboard and display for visualizing several function available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans motors, terminals for general alarm and unit remote ON/OFF, spring type terminal board and the possibility to interface to BMS system.

Standard equipment

YAS/Rc-MC VB

YAS/Rc-MC

Power and control housing separate from the compressor

The power and control housing in accordance with EN 60204 is separate from the compressor housing and is therefore designed in such a way that no refrigerant can penetrate in the event of a leak.

Compressor

The unit is equipped with high efficiency semi hermetic alternative compressors suitable for use in a explosion hazard zone (Zone 2) due to the presence of flammable gases following the ATEX 2014/34/UE European norm.

Leak sensor

The leakage sensor consists of an electronic detector and a catalytic sensor that can detect the presence of propane in the air with a sensitivity of 10% of the lower explosive limit (LFL). The sensor is set to two concentration levels (20% and 30% of LFL) which will activate two alarms: an automatic reset at 20% and a manual reset at 30%. If an alarm occurs, all electrical components of the unit with the exception of the leakage sensor and the exhaust fan are de-energized.

Reduced vibrations in the refrigeration circuit

The refrigeration circuits are equipped with vibration dampers on both the suction side and the pressure side of the compressor. The compressors are mounted on rubber dampers to reduce the vibrations transmitted to the frame.

Microchannel coil

The microchannel condensing coil are completely made of aluminium alloy; compared to the standard copper-aluminium ones the microchannel geometry, at the same heat exchange capacity, has less resistance to air flow. This allows to optimize the fan section work reducing consequently both the dimensions (at the same performance) and the electrical consumption. Moreover, this technology allows a great reduction of condensing section weights and also the refrigerant charge.

Extraction fan

The refrigerant extraction fans starts when the gas sensor reveals a gas presence inside of the compressor's cabinet. The fresh air is pushed inside the cabinet allowing the elimination of the mixture air/gas potentially explosive; the fans flow is able to clean completely the air in less than 15 seconds.

Optional equipment

YAS/Rc-MC VB Kp

YAS/Rc-MC Kp

Electronic thermostatic valve

Electronic expansion valve for a perfect overheating regulation in cooling circuits. The design allows a double-flow operation and a perfect hold when the valve is closed.

Inverter compressors

To solve the cooling capacity adaptation the unit can be provided with an external inverter; it guarantees a higher energetic efficiency to the partial loads allowing to reduce the number of starts/stops as well as decrease the sound power.

Inverter pump

Cooled water pump, available as single or double; It can be coupled with an inverter to increase the efficiency and the existing system adaptation.

Hydronic Kit

Pump + buffer tank integrated module composed by: different capacity storage tank (depending on the unit capacity), a circulating centrifugal water pump directly managed by microprocessor which controls the starts and the operation.

Axitop fans

Axial diffuser to combined to condensing section provides a great efficiency and sound pressure improvement.

Thanks to his aerodynamic effect minimizes output losses increasing the air flow till 9% to the same electrical consumption or a consumption decrease till 27% to the same air flow; similarly the sound power reduction to the same air flow decrease till.



YAS/Rc-MC

Technical data

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402
Nominal cooling capacity	kW	54.2	61.0	74.8	92.9	107.1	155.5	182.8	215.7	252.1	289.7	352.9
Nominal absorbed capacity	kW	16.4	19.2	23.3	29.2	34.1	47.5	56.4	68.2	77.0	96.5	114.1
Nominal absorbed current	A	35.1	38.2	42.5	52.1	63.2	85.5	103.7	126.6	145.5	166.3	205.7
EER	-	3.30	3.19	3.21	3.18	3.15	3.27	3.24	3.16	3.28	3.00	3.09
SEER	-	4.17	4.12	4.24	4.17	4.14	4.15	4.14	4.12	4.26	4.13	4.24
Cooling circuit		1	1	1	1	1	2	2	2	2	2	2
Number of compressors		1	1	1	1	1	2	2	2	4	4	4
Refrigerant charge	kg	4	4	8	8	8	15	15	17	17	16	21

Evaporator: Water temperature IN/OUT: 12°C/7°C												
Water flow	m³/h	9.3	10.5	12.9	16.0	18.4	26.7	31.4	37.1	43.4	49.8	60.7
Pressure drop	kPa	29	35	17	24	31	21	28	26	33	26	36

Axial Fan External air temperature: 35°C												
Quantity		2	2	2	2	2	4	4	4	4	4	4
Air flow	m³/h	17760	17690	20020	40220	40070	80770	80470	80110	79850	794000	119920
Absorbed power	kW	1.2	1.2	1.2	3.9	3.9	7.8	7.8	7.8	7.8	7.8	11.6
Absorbed current	A	5.2	5.2	5.2	7.8	7.8	15.6	15.6	15.6	15.6	15.6	23.4

Weight												
Transport	kg	1094	1096	1206	1304	1310	2002	2098	2156	2522	2598	3100
Operation	kg	1098	1100	1212	1310	1316	2016	2112	2178	2544	2630	3132

Dimensions												
Length	mm	2590	2590	2590	2590	2590	4840	4840	4840	4840	4840	4430
Width	mm	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	2260
Height	mm	2570	2570	2570	2570	2570	2570	2570	2570	2570	2570	2480

Noise level												
Unit total LWA	dB(A)	86.3	88.1	88.1	92.2	92.2	92.6	95.7	95.7	96.0	96.0	99.2
Unit total SPL at 1 m free field	dB(A)	67.8	69.6	69.6	73.7	73.7	73.0	76.0	76.0	76.3	76.3	79.3

Power supply												
Tension/Phases/Frequence	V/ph/Hz	400/3/50+N+PE										

YAS/Rc-MC VB

Technical data

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402	3702
Nominal cooling capacity	kW	31.8	35.6	43.6	53.5	60.7	87.1	106.1	123.9	149.2	172.0	207.5	235.3
Nominal absorbed capacity	kW	12.4	14.2	14.2	21.1	25.4	34.6	41.9	51.2	57.4	71.7	85.5	103.2
Nominal absorbed current	A	30.2	31.6	31.6	43.3	52.2	58.3	86.3	105.0	122.1	135.5	168.3	204.7
EER	-	2.56	2.52	2.52	2.54	2.39	2.52	2.53	2.42	2.60	2.40	2.43	2.28
SEPR	-	3.58	3.51	3.38	3.70	3.42	3.35	3.75	3.49	3.75	3.38	3.68	3.47
Cooling circuit		1	1	1	1	1	2	2	2	2	2	2	2
Number of compressors		1	1	1	1	1	2	2	2	4	4	4	4
Refrigerant charge	kg	4.0	4.0	7.0	7.0	7.0	14.0	14.0	15.0	16.0	18.0	23.0	24.0

Evaporator: Water + 35% Ethylenglycol Temperature IN/OUT: -3°C/-8°C													
Water flow	m³/h	6.2	7.07	8.6	10.5	11.9	17.1	20.8	24.3	29.3	33.7	40.7	46.1
Pressure drop	kPa	20.4	25.3	12.0	16.9	21.0	13.9	19.4	17.7	24.3	18.6	25.6	31.7

Axial Fan External air temperature: 35°C													
Quantity		2	2	2	2	2	4	4	4	4	4	6	6
Air flow	m³/h	14420	15780	16750	29580	31030	33440	58990	65520	65600	70780	97550	102310
Absorbed power	kW	1.2	1.2	1.2	3.9	3.9	2.4	7.8	7.8	7.8	7.8	11.6	11.6
Absorbed current	A	5.2	5.2	5.2	7.8	7.8	10.5	15.6	15.6	15.6	15.6	23.4	23.4

Weight													
Transport	kg	1052	1056	1164	1242	1246	1942	2096	2162	2518	2600	3102	3120
Operation	kg	1056	1060	1170	1248	1252	1956	2110	2188	2540	2632	3134	3152

Dimensions													
Length	mm	2590	2590	2590	2590	2590	4840	4840	4840	4840	4840	4430	4430
Width	mm	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	2260	2260
Height	mm	2570	2570	2570	2570	2570	2570	2570	2570	2570	2570	2480	2480

Noise level													
Unit total LWA	dB(A)	86.3	88.1	88.1	92.2	92.2	92.6	95.7	95.7	96.0	96.0	99.2	99.7
Unit total SPL at 1 m free field	dB(A)	67.8	69.6	69.6	73.7	73.7	73.0	76.0	76.0	76.3	76.3	79.3	79.8

Power supply		
Tension/Phases/Frequence	V/ph/Hz	400/3/50+N+PE

YAS/Rc-MC equipment

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402
Amperometer+ Voltmeter	A+V	○	○	○	○	○	○	○	○	○	○	○
Electrical power supply different from standard	AE	★	★	★	★	★	★	★	★	★	★	★
Soundproofed compressors cabinet	CFU	○	○	○	○	○	○	○	○	○	○	○
Compressors inrush counter	CS	○	○	○	○	○	○	○	○	○	○	○
Condensing coil protection grid	GP	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on pump side	L1	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on buffer tank side	L2	○	○	○	○	○	○	○	○	○	○	○
RS485 Serial interface	IH	○	○	○	○	○	○	○	○	○	○	○
BACnet Serial interface	IH BAC	○	○	○	○	○	○	○	○	○	○	○
SNMP or TCP/ IP Serial interface	IWG	○	○	○	○	○	○	○	○	○	○	○
Phase monitor	MF	○	○	○	○	○	○	○	○	○	○	○
Buffer tank module	MV	○	○	○	○	○	○	○	○	○	○	○
Single pump module	P1	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure single pump	P1H	○	○	○	○	○	○	○	○	○	○	○
Twin pump group	P2	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure double pump module (only one working)	P2H	○	○	○	○	○	○	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○	○	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○	○	○	○	○	○	○
Remote display	PQ	○	○	○	○	○	○	○	○	○	○	○
Part-Winding compressors start up system	PW	○	○	○	○	○	○	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○	○	○	○	○	○	○
Power factor correction system Cosfi >0,9	RF	○	○	○	○	○	○	○	○	○	○	○
Compressors overload relays	RL	○	○	○	○	○	○	○	○	○	○	○
Microchannel coil	PCP	○	○	○	○	○	○	○	○	○	○	○
Microchannel coil with anticorrosive treatment	ECP	○	○	○	○	○	○	○	○	○	○	○
Personalized frame painting in alternative colour	RV	★	★	★	★	★	★	★	★	★	★	★
External air low temperature operation (-10°C)	BT	○	○	○	○	○	○	○	○	○	○	○
External air low temperature operation (-20°C)	BF	○	○	○	○	○	○	○	○	○	○	○
Partial heat recovery	RP	○	○	○	○	○	○	○	○	○	○	○
EC-Fans	EC	○	○	○	○	○	○	○	○	○	○	○
High pressure double safety valve	HRV2	○	○	○	○	○	○	○	○	○	○	○
Axial fan diffusor	AXT	○	○	○	○	○	○	○	○	○	○	○
Inverter for compressors	VSC	▲	▲	▲	▲	▲	○	○	○	○	○	○
Inverter for pump	VSP	○	○	○	○	○	○	○	○	○	○	○
Electronic thermostatic valve	TE	○	○	○	○	▲	○	○	○	▲	▲	▲

▲ Standard ■ Not available
 ○ Optional ★ Please contact your JCI representative

YAS/Rc-MC VB equipment

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402
Amperometer+ Voltmeter	A+V	○	○	○	○	○	○	○	○	○	○	○
Electrical power supply different from standard	AE	★	★	★	★	★	★	★	★	★	★	★
Soundproofed compressors cabinet with higher thickness material	CFU	○	○	○	○	○	○	○	○	○	○	○
Compressors inrush counter	CS	○	○	○	○	○	○	○	○	○	○	○
Condensing coil protection grid	GP	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on pump side	11	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on buffer tank side	12	○	○	○	○	○	○	○	○	○	○	○
RS485 Serial interface	IH	○	○	○	○	○	○	○	○	○	○	○
BACnet Serial interface	IH BAC	○	○	○	○	○	○	○	○	○	○	○
SNMP or TCP/ IP Serial interface	IWG	○	○	○	○	○	○	○	○	○	○	○
Phase monitor	MF	○	○	○	○	○	○	○	○	○	○	○
Buffer tank module	MV	○	○	○	○	○	○	○	○	○	○	○
Single pump module	P1	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure single pump	P1H	○	○	○	○	○	○	○	○	○	○	○
Twin pump group	P2	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure double pump module (only one working)	P2H	○	○	○	○	○	○	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○	○	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○	○	○	○	○	○	○
Remote display	PQ	○	○	○	○	○	○	○	○	○	○	○
Part-Winding compressors start up system	PW	○	○	○	○	○	○	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○	○	○	○	○	○	○
Power factor correction system Cosfi >0,9	RF	○	○	○	○	○	○	○	○	○	○	○
Compressors overload relays	RL	○	○	○	○	○	○	○	○	○	○	○
Microchannel coil	PCP	○	○	○	○	○	○	○	○	○	○	○
Microchannel coil with anticorrosive treatment	ECP	○	○	○	○	○	○	○	○	○	○	○
Partial heat recovery	RP	○	○	○	○	○	○	○	○	○	○	○
Personalized frame painting in alternative RAL colour	RV	★	★	★	★	★	★	★	★	★	★	★
Electronic thermostatic valve	TE	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
External air low temperature operation (-10°C)	BT	○	○	○	○	○	○	○	○	○	○	○
External air low temperature operation (-20°C)	BF	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
EC-Fans	EC	○	○	○	○	○	○	○	○	○	○	○
High pressure double safety valve	HRV2	○	○	○	○	○	○	○	○	○	○	○
Axial fan diffusor	AXT	○	○	○	○	○	○	○	○	○	○	○
Inverter for compressors	VSC	○	○	○	○	○	○	○	○	○	○	○
Inverter for pump	VSP	○	○	○	○	○	○	○	○	○	○	○

- ▲ Standard
- Optional
- Not available
- ★ Please contact your JCI representative

YAS/Rc-F

Technical data

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402
Nominal cooling capacity	kW	50.9	60.1	73.8	89.1	103.8	146.6	174.9	208.5	222.0	283.3	332.6
Nominal absorbed capacity	kW	18.2	20.2	23.9	30.8	35.3	47.5	59.5	70.2	83.6	96.5	118.5
Nominal absorbed current	A	35.1	37.2	41.8	55.2	65.0	83.4	105.7	127.1	153.5	168.6	206.5
EER	-	2.80	2.98	3.08	2.89	2.94	3.08	2.94	2.97	2.65	2.94	2.81
SEPR	-	5.32	5.33	5.34	5.49	5.47	4.51	5.41	5.34	5.23	5.28	5.24
Cooling circuit		1	1	1	1	1	2	2	2	2	2	2
Number of compressors		1	1	1	1	1	2	2	2	4	4	4
Refrigerant charge	kg	4	6	7	7	11	13	15	19	14	19	24

Evaporator: Water temperature IN/OUT: 12°C/7°C												
Water flow	m³/h	9.7	11.4	14.0	16.9	19.7	27.8	33.2	39.5	42.1	53.7	63.1
Pressure drop	kPa	35.3	47.2	22.4	31.1	40.5	26.1	35.5	33.4	40.5	33.7	44.6

Free-cooling section												
F.C. cooling capacity	kW	31.5	32.8	26.3	63.6	66.2	52.1	103.2	82.6	103.1	112.4	119.2
Fluid flow	mc/h	9.7	11.4	14.0	16.9	19.7	27.8	33.2	39.5	42.1	53.7	63.1
Pressure drop	kPa	20.5	27.2	25.0	41.8	54.1	22.6	68.7	61.0	46.2	64.3	58.0

Axial Fan External air temperature: 35°C												
Quantity		1	1	1	2	2	2	3	3	4	4	4
Air flow	m³/h	24120	22870	22910	46960	43780	45350	67380	67670	100610	95900	89990
Absorbed power	kW	2.5	2.5	2.5	5.0	5.0	5.0	7.4	7.4	9.9	9.9	9.9
Absorbed current	A	5.2	5.2	5.2	10.3	10.3	10.3	15.5	15.5	20.6	20.6	20.6

Weight												
Transport	kg	1066	1102	1131	1451	1517	1739	2180	2220	2703	2874	3100
Operation	kg	1088	1124	1150	1482	1558	1776	2246	2280	2794	2974	3178

Dimensions												
Length	mm	1730	1730	1730	2770	2770	2770	3810	3810	4850	4850	4850
Width	mm	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420	2420	2420	2420	2420	2420

Noise level												
Unit total LWA	dB(A)	88.9	90.1	91.8	94.5	94.5	94.7	94.7	96.7	96.5	97.1	99.2
Unit total SPL at 1 m free field	dB(A)	71.0	72.2	73.3	75.9	75.9	76.1	75.6	77.6	76.8	77.4	79.5

Power supply												
Tension/Phases/Frequency	V/ph/Hz	400/3/50+N+PE										

YAS-Rc F equipment

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402
Amperometer+ Voltmeter	A+V	○	○	○	○	○	○	○	○	○	○	○
Electrical power supply different from standard	AE	★	★	★	★	★	★	★	★	★	★	★
Soundproofed compressors cabinet	CFU	○	○	○	○	○	○	○	○	○	○	○
Compressors inrush counter	CS	○	○	○	○	○	○	○	○	○	○	○
Condensing coil protection grid	GP	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on pump side	L1	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on buffer tank side	L2	○	○	○	○	○	○	○	○	○	○	○
RS485 Serial interface	IH	○	○	○	○	○	○	○	○	○	○	○
BACnet Serial interface	IH BAC	○	○	○	○	○	○	○	○	○	○	○
SNMP or TCP/ IP Serial interface	IWG	○	○	○	○	○	○	○	○	○	○	○
Phase monitor	MF	○	○	○	○	○	○	○	○	○	○	○
Buffer tank module	MV	○	○	○	○	○	○	○	○	○	○	○
Single pump module	P1	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure single pump	P1H	○	○	○	○	○	○	○	○	○	○	○
Twin pump group	P2	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure double pump module (only one working)	P2H	○	○	○	○	○	○	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○	○	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○	○	○	○	○	○	○
Remote display	PQ	○	○	○	○	○	○	○	○	○	○	○
Part-Winding compressors start up system	PW	○	○	○	○	○	○	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○	○	○	○	○	○	○
Power factor correction system Cosfi >0,9	RF	○	○	○	○	○	○	○	○	○	○	○
Compressors overload relays	RL	○	○	○	○	○	○	○	○	○	○	○
Partial heat recovery	RP	○	○	○	○	○	○	○	○	○	○	○
Copper-copper coil	RR	○	○	○	○	○	○	○	○	○	○	○
Personalized frame painting in alternative colour	RV	★	★	★	★	★	★	★	★	★	★	★
Electronic thermostatic valve	TE	○	○	○	○	▲	○	○	○	▲	▲	▲
Double layer threatment coil	TDS	○	○	○	○	○	○	○	○	○	○	○
External air low temperature operation (-20°C)	BF	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
EC-Fans	EC	○	○	○	○	○	○	○	○	○	○	○
High pressure double safety valve	HRV2	○	○	○	○	○	○	○	○	○	○	○
Axial fan diffuser	AXT	■	■	■	■	■	■	■	■	■	■	■
Inverter for compressors	VSC	○	○	○	○	○	○	○	○	○	○	○
Inverter for pump	VSP	○	○	○	○	○	○	○	○	○	○	○

- ▲ Standard
- Optional
- Not available
- ★ Please contact your JCI representative

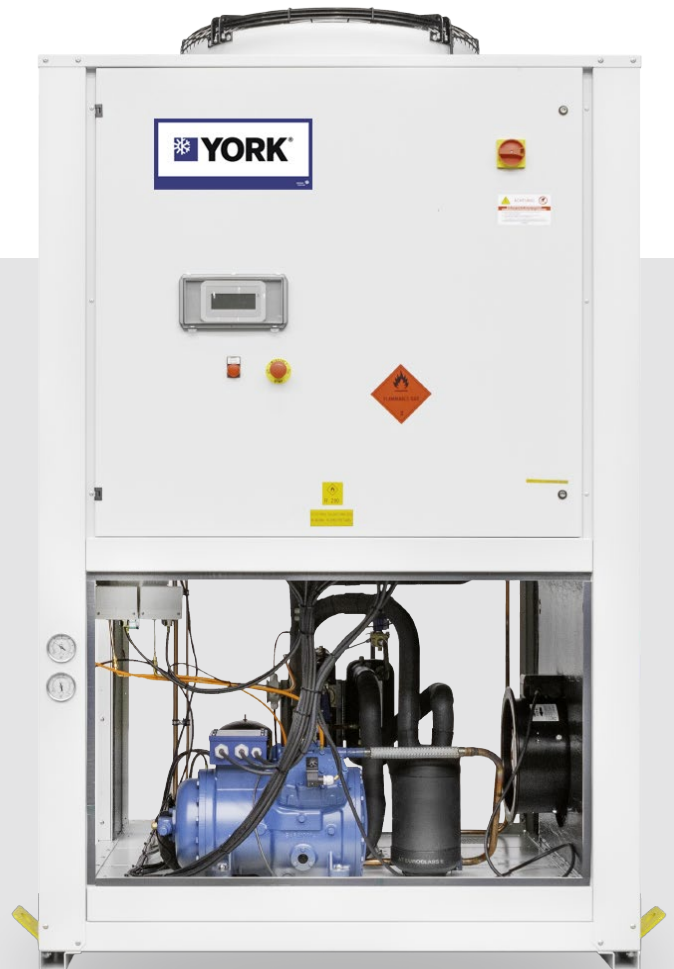
YAS/Rc-WP

Air-cooled heat pumps with reciprocating compressor, axial fans and R290 refrigerant

The air-cooled heat pumps with reciprocating compressors and axial fans are suitable for installation outdoors. The refrigerant used is propane, which is not harmful to the environment. Propane is also particularly efficient and at the same time retains its optimal thermodynamic properties.

Depending on the required heating capacity, the units are available in mono or multi compressor with 1 or 2 independent cooling circuits. Thanks to the many available options, these heat pumps are particularly versatile and are easily adaptable to the different types of plant, where production of chilled water is required. All the units are completely factory-assembled and tested and supplied with refrigerant and non-freezing oil charge. So, once on site, they only need to be positioned and connected to the hydraulic line and power supply.

Units CE certified in compliance with the European regulation 813/2013 at working condition.



Main components

Frame

Structure strong and compact, made of base and frame with high-thickness galvanised steel elements, assembled with stainless steel rivets. All galvanised steel surfaces externally positioned are superficially coated by an oven powder-painting with colour RAL 7035. The technical section which contains compressors and the other cooling circuits elements, except the condensing part, is hermetically closed from the rest of the ambient, equipped with a leakage sensor and a forced ventilation system. To reduce the sound level, it is possible to insulate the technical section with a sound and fire proof mattress.

Compressors

Semi-hermetic reciprocating compressors optimized to operate with the hydrocarbons and realized in compliance with the regulations on safety in force. The compressors and all the relevant components of the cooling circuit are closed inside a technical compartment which is hermetically closed and kept in constant forced ventilation to avoid air stagnation and refrigerant pockets which can come out from possible leaks. The electrical motor, arranged for starting with low inrush current (option PW), is equipped with thermal protection module (installed inside the electrical cabinet). The lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump. Each compressor, which works on a single independent circuit, is installed on rubber isolation dampers and provided with anti-vibration dampers and valves on suction and discharge side.

Evaporator

The evaporator is available as a plate heat exchanger made of stainless steel, in a single or double circuit design, insulated and equipped with a differential pressure flow monitor. The external heat exchanger consists of copper tubes in several rows, which have been mechanically expanded inside the aluminum register.

With micro-finned copper tubes and a hydrophilic treatment, positioned in staggered rows and mechanically expanded into an aluminium finned pack. Fins are designed with such a shape providing the highest heat exchange efficiency. The coil is placed directly on a condensate drip tray. The frontal section of the coil can have, as an option, the safety protection grid (Option GP).

Fans

The axial fans with low motor speed are driven directly and controlled by a frequency converter with integrated thermal protection and a 6-pole electric motor, aluminum blades with profile for low-noise and efficient operation. The fan is always equipped with a galvanized touch guard. The motors are completely closed and have an IP54 degree of protection.

Cooling circuits

Each provided with a shut-off valve for refrigerant charge, antifreeze sensor, 4 way valve for circle inversion liquid separator, shut-off valves on liquid line, sight glass, dehydrating filter for R290 with wide filtering surface, high-pressure safety valve on high pressure refrigerant side equipped with a connector to the discharged refrigerant conveying piping, solenoid valve on liquid line with coil, mechanical thermostatic expansion valve, calibrated high and low pressure switches and gauges for R290 specifically. All units are equipped with a special sensor that turning off the compressors in the event of a gas leak.

Electric board

The power and control housing contains all components that are required to regulate and control all motors in the complete unit. This is assembled and tested in the factory. Inside are the power and control elements, a display and keyboard, the main switch and fuses for the motors, the compressors and the fans. It is possible to connect to a BMS system.

YAS/Rc-WP

Technical data

Models		1001	1201	1502	1702	2102	2502	2902	3402
Nominal cooling capacity	kW	90.9	104.3	129.7	148.4	180.6	209.5	248.2	296.8
Nominal absorbed capacity	kW	29.3	35.4	40.0	47.5	58.7	70.9	78.4	96.0
Nominal absorbed current	A	52.0	63.8	74.8	83.6	104.0	128.2	145.5	169.8
EER	-	3.10	2.94	3.24	3.13	3.08	2.96	3.17	3.09
Cooling circuit		1	1	2	2	2	2	2	2
Number of compressors		1	1	2	2	2	2	4	4
Refrigerant charge	kg	13	13	15	20	37	37	46	57

Evaporator: Water									
Water flow	m³/h	15.6	17.9	22.3	25.5	31.1	36.0	42.7	51.1
Pressure drop	kPa	23	29	15	19	27	24	32	26

Axial Fan									
Quantity		2	2	3	3	4	4	5	5
Air flow	m³/h	41700	41700	64710	62580	83400	83400	104250	125250
Absorbed power	kW	3.9	3.9	5.8	5.8	7.8	7.8	9.7	12.4
Absorbed current	A	7.8	7.8	11.7	11.7	15.6	15.6	19.5	25.8

Heat pump working at external air temp. 7°C and water inlet 40/45°C									
Nominal thermal power	kW	103.3	119.5	142.2	168.0	209.3	239.8	280.1	333.8
Nominal absorbed power	kW	29.3	34.4	38.7	46.2	58.8	68.0	76.7	94.2
Nominal absorbed current	A	52.3	62.5	73.6	82.2	104.5	123.9	144.1	168.4
SCOP	-	3.45	3.35	3.30	3.25	3.29	3.29	3.38	3.27
COP	-	3.53	3.48	3.68	3.63	3.56	3.53	3.65	3.54

Weight									
Transport	kg	1416	1466	1798	1876	2246	2366	2918	3106
Operation	kg	1422	1472	1812	1890	2260	2388	2949	3138

Dimensions									
Length	mm	2660	2660	3700	4850	4850	4850	5890	5890
Width	mm	1370	1370	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420	2420	2420

Noise level									
Unit total LWA	dB(A)	93.2	93.2	93.7	93.7	95.2	95.2	95.2	95.5
Unit total SPL at 1 m free field	dB(A)	74.7	74.7	74.6	74.6	75.6	75.6	75.1	75.4

Power supply									
Tension/Phases/Frequence	V/ph/Hz	400/3/50+N+PE							

YAS/Rc-WP equipment

Models		1001	1201	1502	1702	2102	2502	2902	3402
Amperometer+ Voltmeter	A+V	○	○	○	○	○	○	○	○
Electrical power supply different from standard	AE	★	★	★	★	★	★	★	★
Soundproofed compressors cabinet	CFU	○	○	○	○	○	○	○	○
Compressors inrush counter	CS	○	○	○	○	○	○	○	○
Condensing coil protection grid	GP	○	○	○	○	○	○	○	○
Victaulic insulation on pump side	L1	○	○	○	○	○	○	○	○
Victaulic insulation on buffer tank side	L2	○	○	○	○	○	○	○	○
RS485 Serial interface	IH	○	○	○	○	○	○	○	○
BACnet Serial interface	IH BAC	○	○	○	○	○	○	○	○
SNMP or TCP/ IP Serial interface	IWG	○	○	○	○	○	○	○	○
Phase monitor	MF	○	○	○	○	○	○	○	○
Buffer tank module	MV	■	■	■	■	■	■	■	■
Single pump module	P1	○	○	○	○	○	○	○	○
Higher available pressure single pump	P1H	○	○	○	○	○	○	○	○
Twin pump group	P2	○	○	○	○	○	○	○	○
Higher available pressure double pump module (only one working)	P2H	○	○	○	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○	○	○	○
Remote display	PQ	○	○	○	○	○	○	○	○
Part-Winding compressors start up system	PW	○	○	○	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○	○	○	○
Power factor correction system Cosφ >0,9	RF	○	○	○	○	○	○	○	○
Compressors overload relays	RL	○	○	○	○	○	○	○	○
Microchannel coil	PCP	■	■	■	■	■	■	■	■
Microchannel coil with anticorrosive treatment	ECP	■	■	■	■	■	■	■	■
Partial heat recovery	RP	○	○	○	○	○	○	○	○
Personalized frame painting in alternative colour	RV	★	★	★	★	★	★	★	★
Electronic thermostatic valve	TE	○	○	○	○	○	○	▲	▲
External air low temperature operation (-10°C)	BT	▲	▲	▲	▲	▲	▲	▲	▲
External air low temperature operation (-20°C)	BF	○	○	○	○	○	○	○	○
EC-Fans	EC	○	○	○	○	○	○	○	○
High pressure double safety valve	HRV2	○	○	○	○	○	○	○	○
Axial fan diffusor	AXT	○	○	○	○	○	○	○	○
Inverter for compressors	VSC	○	○	○	○	○	○	○	○
Inverter for pump	VSP	○	○	○	○	○	○	○	○

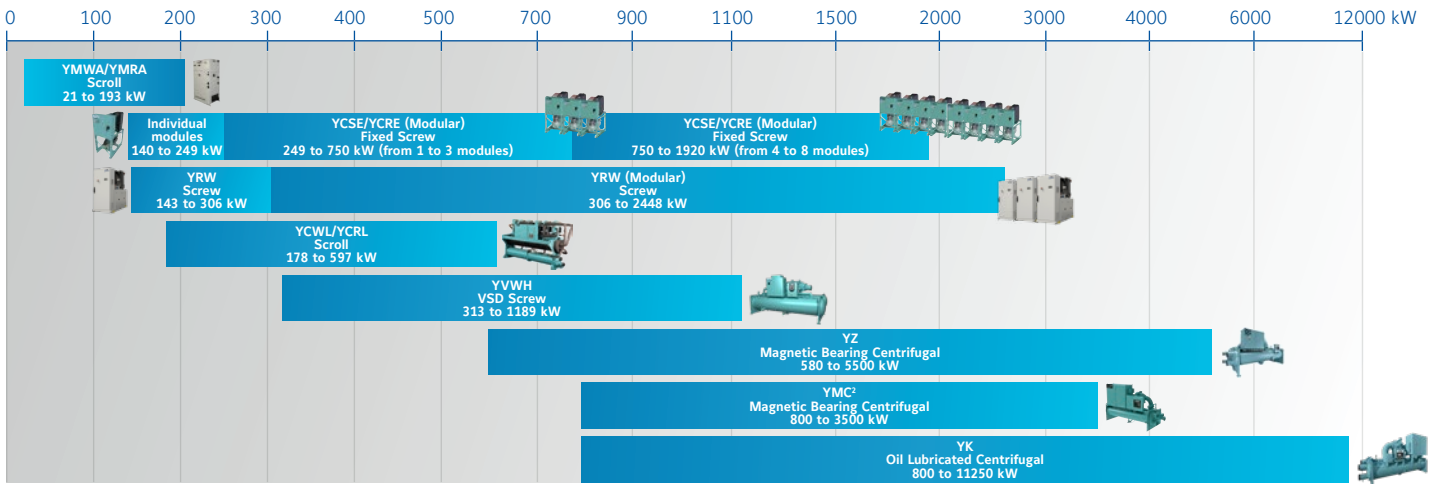
- ▲ Standard
- Optional
- Not available
- ★ Please contact your JCI representative



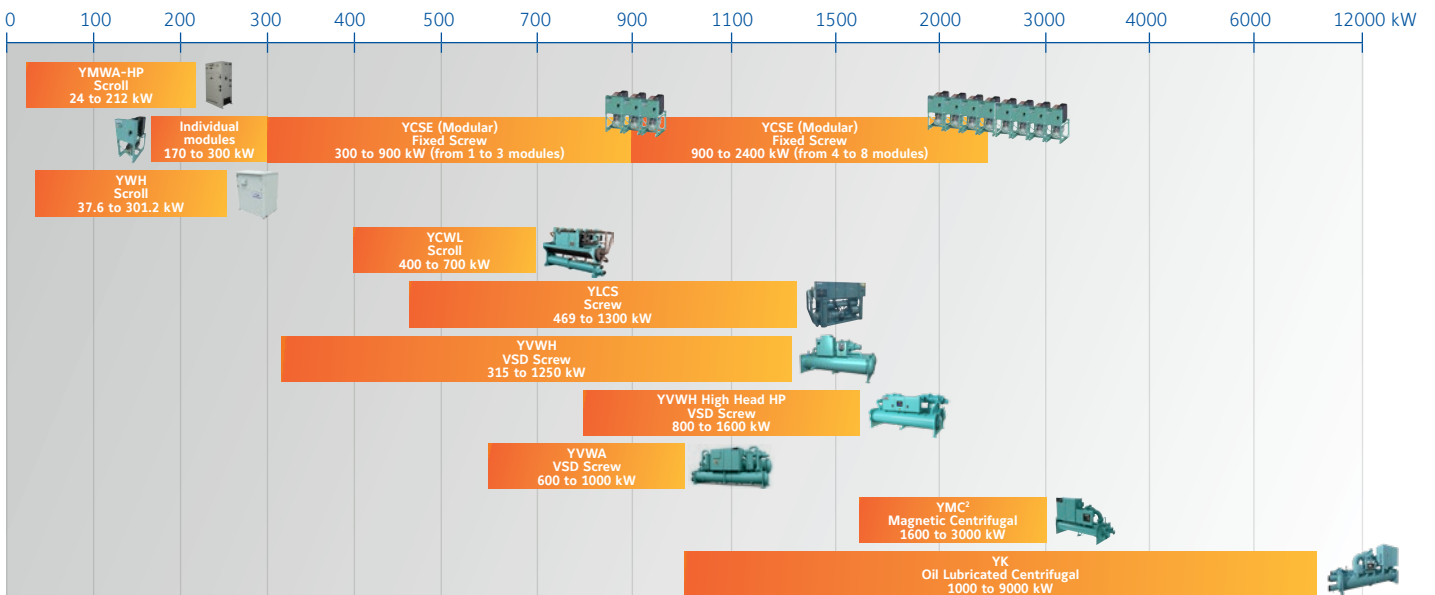
Water-Cooled Chillers and Heat Pumps

YORK offers a complete range of water-cooled chiller and heat pumps within **21 kW to 11250 kW capacities**, to cover all customer needs, maintaining the highest efficiency levels and operative performances.

YORK Chillers Units



YORK Heat Pump Units



Three different compressor technologies for to meet the most challenging requirements

Scroll compressor YMWA, YCWL, YWH

A **scroll compressor** is typically used in small-medium size HVAC applications for residential and commercial buildings. It offers a good compromise between a compact footprint and wide operating envelope. A typical application is a multi-compressor system, often with one inverter compressor for more flexible regulation and improved efficiency.

Screw compressor YCSE, YRW, YVWH, YVWA, YLCS

A **rotary-screw compressor** uses a rotary-type positive-displacement mechanism. Screws are commonly used for medium size comfort or process cooling applications where high compression ratios and lift are required, such as for glycol or dry cooler operation.

Variable compression ratio (Vi) and slide valve can provide the best efficiency while matching the different operating conditions required by each application.

Centrifugal compressor YZ, YMC², YK

A **centrifugal compressor** adopts a radial design and it is capable of achieving the refrigerant's pressure increase by adding kinetic energy to a continuous flow. Suitable for large refrigerant volumes and cooling capacities, YORK proprietary design is based on a single stage compressor and Inverter VSD to match all the operating conditions by RPM speed. Typically one single impeller is capable of achieving approx. 40°C refrigerant lift. Compared to screws, this type of compressor is less suitable for glycol or dry cooler but provides the highest efficiencies at low lift operation, such as for high setpoint cooling (e.g. Data Centers).

YMWA/YMRA

Water-cooled reversible heat pump with scroll compressor

Cooling capacities from 21 kW to 193 kW
 Heating capacities from 24 kW to 212 kW



Features

- Scroll compressors (single or tandem)
- Higher EER and COP
- 2 different frames/configurations:
 - 1 compressor/1 circuit up to 45 kW
 - 2 compressors/1 circuit from 50 to 190 kW
- Reduced refrigerant charge
- Condensing pressure control
- "Plug and Play" units

Available versions

14 available YMWA sizes in three versions:

- 1) **YMWA-CO**: Cooling only
- 2) **YMRA**: Remote condenser
- 3) **YMWA-HP**: Reversible heat pump



Same cabinet w/o or with factory mounted hydrokit (one or two pumps).
 More compact and slim.

Nominal capacity and technical data

YMWA-CO	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	21.2	26.2	31.1	34.8	39.2	46.6	50.9	61.1	77.3	91.1	118.4	147.1	170	192.7
EER	4.58	4.54	4.46	4.53	4.48	4.57	4.29	4.48	4.48	4.38	4.46	4.46	4.50	4.51
SEER	5.58	5.60	5.45	5.50	5.35	5.83	6.13	6.38	5.95	6.70	5.90	6.13	6.08	6.20
$\eta_{s,c}$	220	221	215	217	211	230	242	252	235	265	233	242	240	245
Length / Width / Height (mm)	821 / 455 / 1350						1210 / 850 / 1500							
Operating weight (kg)	162	182	179	185	191	214	352	371	392	411	597	666	701	745
YMRA	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	21.2	26.2	31.1	34.8	39.2	46.6	50.9	61.1	77.3	91.1	118.4	147.1	170	192.7
Length / Width / Height (mm)	821 / 455 / 1350						1210 / 850 / 1500							
Operating weight (kg)	144	164	166	166	172	172	332	344	365	376	558	612	643	674
YMWA-HP	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	20.8	26.0	30.1	34.0	38.1	45.5	49.9	58.9	76.1	88.6	114.9	144.3	165.7	185.4
Heating Capacity (kW)	23.7	28.9	33.6	38.5	42.9	51.2	57.7	68.2	86.3	102.2	132.0	164.2	190.1	212.3
EER	4.45	4.47	4.28	4.35	4.33	4.39	4.15	4.24	4.36	4.20	4.26	4.33	4.34	4.28
COP	3.88	3.85	3.73	3.79	3.77	3.85	3.83	3.81	3.92	3.89	3.92	3.95	3.93	3.93
SCOP	5.65	5.40	5.24	5.23	5.18	5.46	5.06	5.57	5.28	5.05	5.5	5.12	5.21	5.34
$\eta_{s,h}$	218	208	202	201	199	210	194	215	203	194	212	197	200	205
Length / Width / Height (mm)	821 / 455 / 1350						1210 / 850 / 1500							
Operating weight (kg)	165	187	184	190	195	219	360	379	403	422	610	683	718	762

Net values at Eurovent nominal conditions:

YMWA-CO: Standard Eurovent LCP/W/AC conditions in cooling mode: evaporator EWT/LWT 12°C/7°C, condenser EWT/LWT 30°C/35°C

YMRA: Evaporator EWT/LWT 12°C/7°C, condensing temperature 40°C

YMWA-HP: Standard Eurovent LCP/W/AC conditions in cooling mode: evaporator EWT/LWT 12°C/7°C, condenser EWT/LWT 30°C/35°C

YMWA-HP: Standard Eurovent LCP/W/AC conditions in heating mode: evaporator EWT/LWT 10°C/7°C, condenser EWT/LWT 40°C/45°C

Ecodesign figures are calculated following variable water flow and variable outlet approach (VW/VO). For other Ecodesign calculations, please contact your JCI representative.

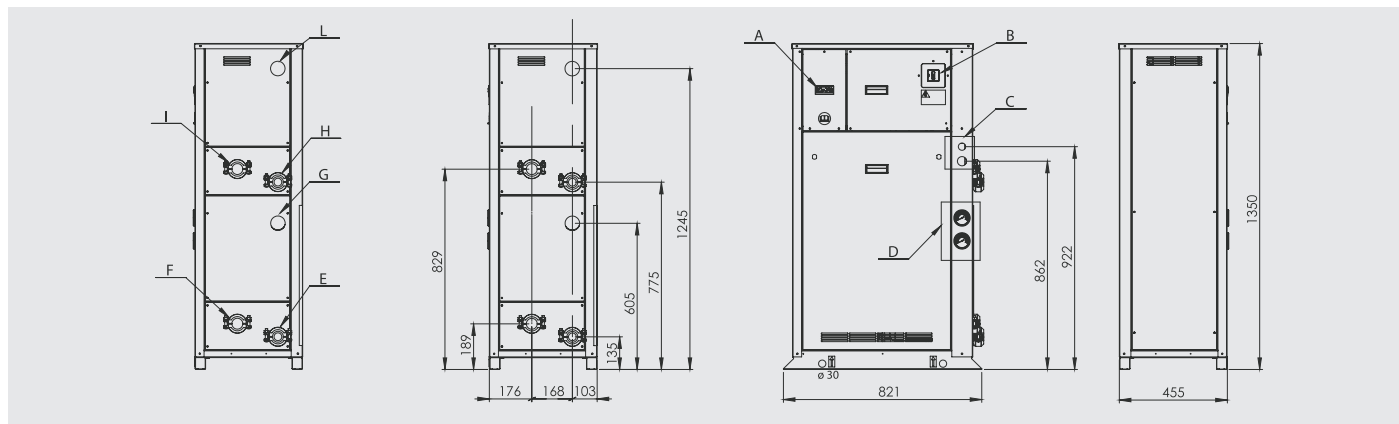
SEER and SCOP calculated according to EN14511 and EN14825

η_s calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281).

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects

Dimensions and hydraulic connections

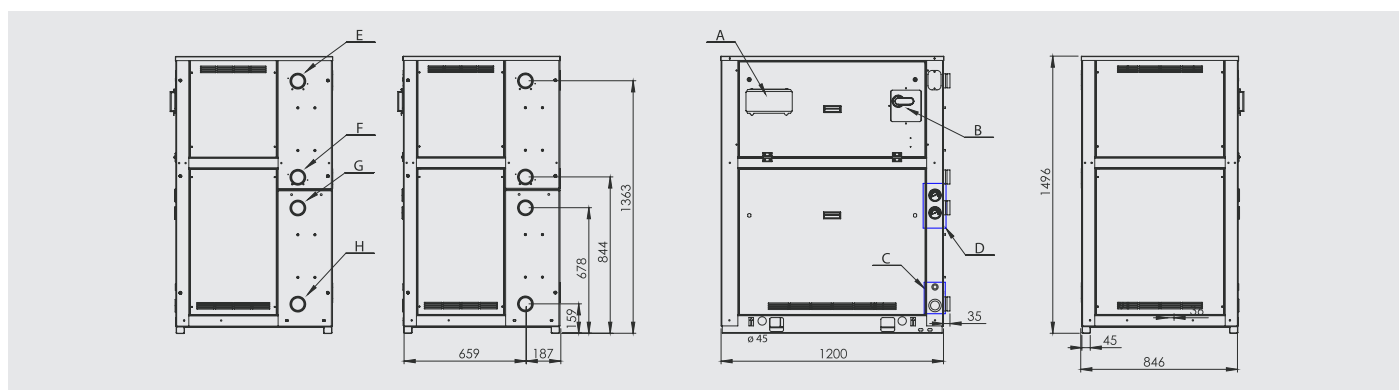
YMWA-CO/HP 0020-0045



A	Control display	D	Gauge kit	YMRA Sizes	In	Out
B	Main switch	E, F, G	Water evaporator connections \varnothing 1 1/2" victaulic	020	H \varnothing 5/8"	L \varnothing 5/8"
C	Auxiliary lines, electrical connection	H, I, L	Water condenser connections \varnothing 1 1/2" victaulic	025-045	H \varnothing 5/8"	L \varnothing 7/8"

All dimensions in mm. Drawings not in scale.

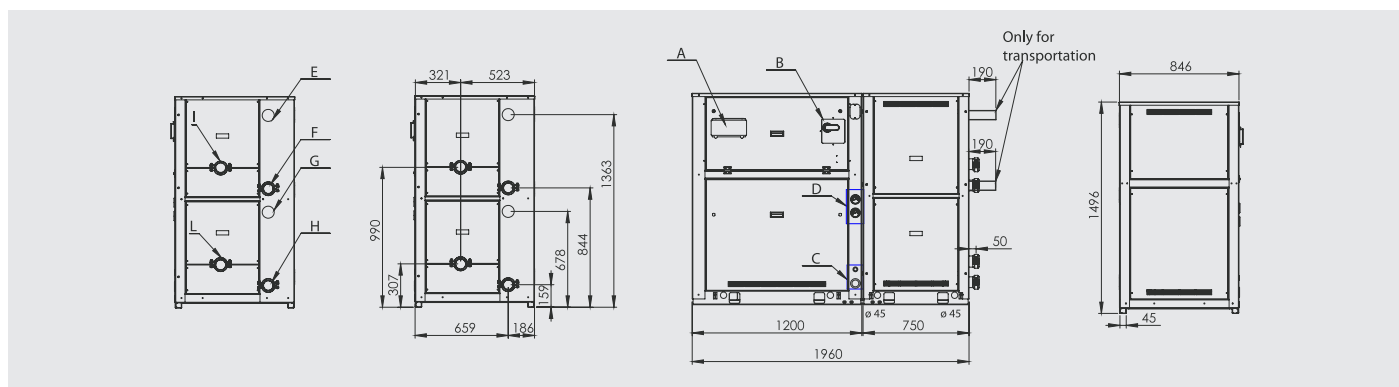
YMWA-CO/HP 0050-0190 without Hydrokit



A	Control display	D	Gauge kit
B	Main switch	G, H	Water evaporator connections \varnothing 1 1/2" victaulic
C	Auxiliary lines, electrical connection	E, F	Water condenser connections \varnothing 1 1/2" victaulic

All dimensions in mm. Drawings not in scale.

YMWA-CO/HP 0050-0190 with Hydrokit



A	Control display	D	Gauge kit
B	Main switch	G, H, L	Water evaporator connections \varnothing 1 1/2" victaulic
C	Auxiliary lines, electrical connection	E, F, I	Water condenser connections \varnothing 1 1/2" victaulic

All dimensions in mm. Drawings not in scale.

YMRA Sizes	In	Out
050-060	F \varnothing 5/8"	E \varnothing 7/8"
075-090	F \varnothing 7/8"	E \varnothing 1 1/8"
120	F \varnothing 7/8"	E \varnothing 1 3/8"
150	F \varnothing 7/8"	E \varnothing 1 5/8"
170-190	F \varnothing 1 1/8"	E \varnothing 1 5/8"



Manufacturer reserves the rights to change specifications without prior notice.

YRW

Water-cooled screw compressor chiller

Cooling capacities from 143 kW to 306 kW



Available as option



Features

YORK® **YRW** water-cooled screw chiller series provide chilled water for all air conditioning applications thanks to the combination of high efficiency in process and comfort cooling applications (Ecodesign Tier II compliant).

The **YRW** can utilize variable speed drive technology to achieve premium efficiency.

The **YRW** helps to reduce CO₂ total emissions using low GWP refrigerant **R513A**.

Options

- Inverted VSD compressor option, up to 5% improved SEER performance
- Modular configurations available, with n.1 cascade controller to connect and run up to 8 identical units
- Soundproofed compressor cabinet (as in the picture), approximately 3-5 dBA reduction
- Heat Pump control, available on request

Water-cooled screw compressor chiller

YRW 151 to 301



Performances

YRW	151	201	251	301
Cooling capacity (kW)	143	195	236	306
Absorbed power (kW)	30.7	43.6	50.8	66.4
SEER ¹	5.57	5.29	5.52	5.33
EER	4.66	4.47	4.65	4.61
Regulation	25/50 ~ 100%			
Refrigerant charge (kg)	20	27	35	41
Evaporator	Inlet water temp. (°C)	12	12	12
	Outlet water temp. (°C)	7	7	7
	Waterflow (m³/h)	24.59	33.54	49.42
	Pressure drop (kPa)	11.2	13	15
Condenser	Inlet water temp. (°C)	30	30	30
	Outlet water temp. (°C)	35	35	35
	Waterflow (m³/h)	29.96	41.11	40.57
	Pressure drop (kPa)	16.2	22.3	12.1
Sound power level dB(A)	92	91	95	92
Max absorbed current (A)	90	125	155	195
Inrush current (A)	269	350	439	612
Power supply	400V /3PH/ 50Hz			

1: Ratings in accordance to Ecodesign, variable water flow and variable outlet (VW/VO).

The above data is based on Johnson Controls' selection software. Please refer to the latest version of the software for specific projects and available options. In the software you can also find the performance data for YRW-VS, the series with the inverter option.

Technical data

YRW	151	201	251	301
Dimensions	Length	1880		
	Width	800	900	
	Height	1820		
Operating weight	1370	1510	1952	2063

Consult the software for the technical data of YRW-VS, the series with inverter option.



Manufacturer reserves the rights to change specifications without prior notice.

YCSE/YCRE Style C

Water-cooled screw compressor chiller

Cooling capacities from 140 kW to 249 kW

Heating capacities from 170 kW to 300 kW



YORK YCSE Style C chiller is designed for water or water-glycol cooling. It is designed for indoor installation in a plant room. The unit is completely factory assembled with all interconnecting refrigerant piping and wiring ready for field installation. **YCSE** unit is pressure tested, evacuated, and fully factory charged with refrigerant R134a and oil. After assembly, an operational test is performed with water flowing through the evaporator and condenser to ensure that each refrigerant circuit operates correctly. The units are also capable to be remodeled as a remote air-cooled screw compressor chiller condenser-less (**YCRE**).



Features

Model sizes

4 cooling only and 4 heat pumps.

Efficient screw compressors

YORK YCSE Style C offers the highest standard of reliability and economical operation utilizing twin-screw rotor technology and fully modulating compressor slide valve for increased part-load efficiency, together with low inrush current star-delta starters.

Quiet operation

The compressor has been designed so that there are minimal external gas pulsations. Thanks to the above and the adoption of integral oil separators **YCSE** units can achieve very low vibration and sound levels.

Small footprint

The compact design is ideally suited for reduced base area locations. The unit frame is manufactured from heavy-gauge galvanized steel coated with baked-on powder paint.

Extended Heating range

The operating range in heat pump mode has been extended, **YCSE Style C** units are now able to provide **heated water outlet up to 60°C**.

Modular concept

Provide flexibility

Up to 8 modules in one water system brings important benefits, such as:

- flexibility to fit in the existing space
- possible capacity increase in the future.

Achieve reliability

Full redundancy – safety first. Should a module fail, the remaining modules maintain operational continuity.

Options/Accessories

- Heat pump sensor kit, up to 60°C hot water production
- High chilled water setpoint available
- Brine down to -10°C setpoint
- Sound kit option, up to 15 dBA reduction

Nominal capacity and technical data

Model	YCSE				YCRE		
	0141	0181	0221	0241	0141	0181	0221
Cooling Capacity (kW) *	140	180	220	249	135	175	215
EER	4.85	4.81	4.71	4.73	4.22	4.19	4.10
SEER	5.27	5.46	5.51	5.52	Not Applicable		
η _{s, c}	208	215	217	218	Not Applicable		
Sound power level (dBA)	87	88	89	90	88	89	90
Length / Width / Height (mm)	Base 1378 max / 806 / 1681						
Operating weight (kg)	860	950	1040	1075	765	835	900

* YCSE: At 35°C leaving condenser liquid temperature and 7°C leaving chilled liquid temperature according to EUROVENT calculation EN14511:2011

* YCRE: At 45°C condensing temperature and 7°C leaving chilled liquid temperature

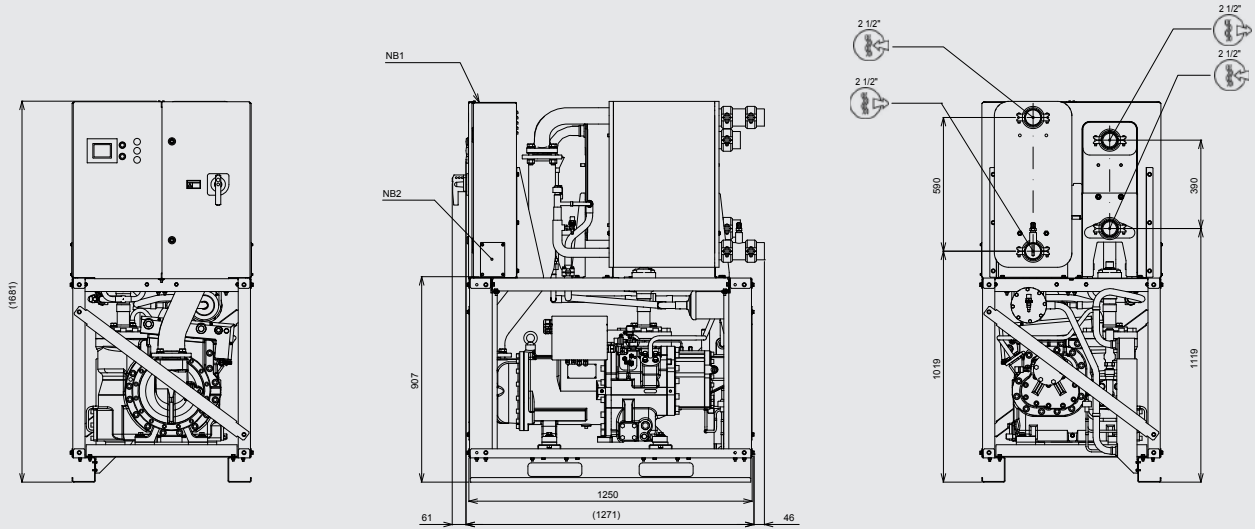
Ecodesign figures are calculated following fixed water and fixed outlet approach (FW/FO). For other Ecodesign calculations, please contact your JCI representative.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects

Dimensions and hydraulic connections

YCSE 0141 to 0241

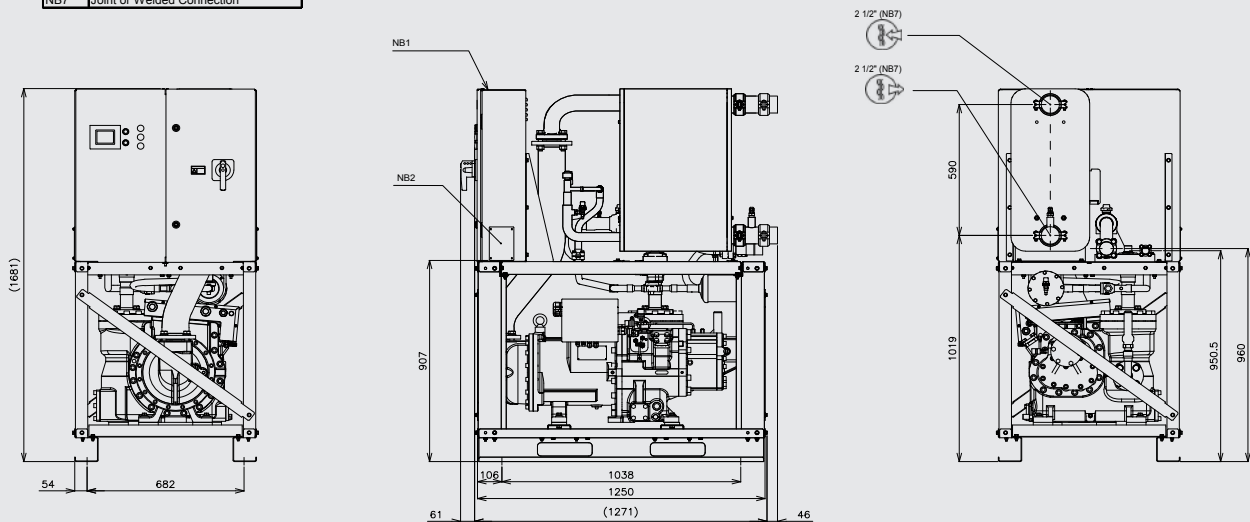
NB1	Electrical Box
NB2	Customer Wiring Entry (both sides)
NB3	2 1/2" Victaulic Connection
NB4	76.1 mm Welded Connection



All dimensions in mm. Drawings not in scale.

YCRE 0141 to 0221

NB1	Electrical Box
NB2	Customer Wiring Entry (both sides)
NB3	28.58 mm Brazing Connection
NB4	53.98 mm Brazing Connection
NB5	2 1/2" Joint Connection
NB6	76.1 mm Welded Connection
NB7	Joint or Welded Connection



All dimensions in mm. Drawings not in scale.



Manufacturer reserves the rights to change specifications without prior notice.

YWH

Super-high temperature water to water scroll heat pumps

Heating capacities from 37.6 kW to 301.2 kW



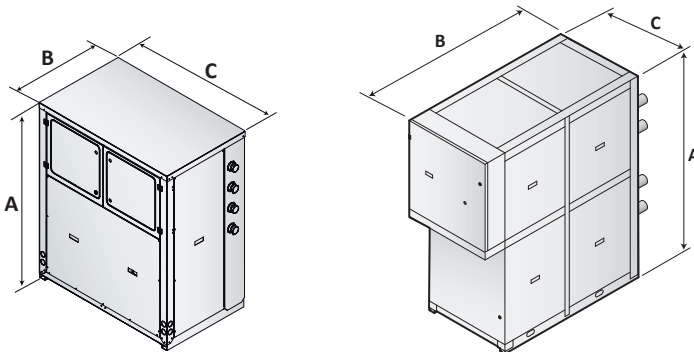
Features

YWH heat pumps are designed with braze welded stainless steel AISI 316 heat exchangers and are particularly suitable for applications that use source energy at medium or high temperatures.

These units have been designed to produce water at high or very high temperature for applications where it is necessary to have maximum efficiency in heating. The units are available in heating only mode and can produce water up to 78°C (HT version).

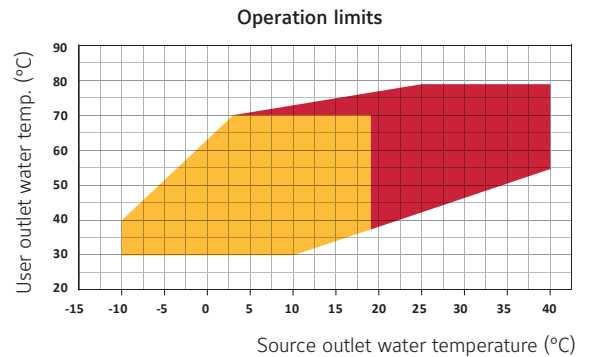
Options

- HT** High source leaving water temperature up to 40°C, water temperature production up to 78°C.
- LT** Medium source leaving water temperature up to 20°C, water temperature production up to 70°C.
- XL** Floating frame and super low noise version, up to 12 dBA attenuation
- HK** Hydraulic kit, single or dual pump, for mod. 1804, 2304, 2604 only



Mod.	A (mm)	B (mm)	C (mm)	Kg
302	1600	800	1150	660
402	1600	800	1150	680
602	1600	800	1150	700
702	1600	800	1150	730
902	1600	800	1150	740
1202	1600	800	1150	760
1402	1600	800	1150	790

Mod.	A (mm)	B (mm)	C (mm)	Kg
1804	1900	3120	800	1320
2304	1900	3120	800	1390
2604	1900	3120	800	1430



- Heating
- Heating with HT version

Super-high temperature water to water scroll heat pumps

YWH 302 to 2604



Nominal capacity

YWH LT/XL		302	402	602	702	902	1202	1402	1804	2304	2604
Heating capacity (EN14511) (1)	kW	38.8	46.0	58.4	70.3	88.4	109.9	136.5	176.9	219.5	273.2
Input power (EN14511) (1)	kW	8.2	9.4	11.8	14.8	18.8	23.1	27.9	37.2	45.7	55.3
COP (EN14511) (1)	W/W	4.73	4.85	4.93	4.76	4.70	4.75	4.88	4.75	4.80	4.94
Energy Class in low temperature (2)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++
SCOP low temperature (2)	kWh/kWh	4.85	5.00	5.16	5.00	5.08	5.17	5.36	5.29	5.38	5.56
$\eta_{s,h}$ low temperature (2)	%	185.9	192.1	198.2	191.8	195.3	198.9	206.3	203.4	207.0	214.4
Energy Class in medium temperature (2)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++
SCOP medium temperature (2)	kWh/kWh	4.07	4.19	4.28	4.18	4.16	4.22	4.35	4.27	4.34	4.47
$\eta_{s,h}$ medium temperature (2)	%	154.8	159.6	163.0	159.0	158.3	160.9	165.9	162.8	165.6	170.7
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Maximum input current	A	128.7	137.6	168.0	209.0	266.0	324.0	372.5	348.0	428.0	497.5
Peak current	A	35.4	39.2	56.0	70.0	82.0	104.0	125.0	164.0	208.0	250.0
Compressors / Circuits	n°/n°	2-1	2-1	2-1	2-1	2-1	2-1	2-1	4-2	4-2	4-2
Capacity steps	n°	2	2	2	2	2	2	2	4	4	4
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Global warming potential (GWP)		1430	1430	1430	1430	1430	1430	1430	1430	1430	1430
Refrigerant charge	Kg	2	2	3	3	4	5	6	8.5	10.5	13
Equivalent CO2 charge	t	2.9	2.9	4.3	4.3	5.7	7.2	8.6	12.2	15.0	18.6
Sound power LS version (3)	dB(A)	--	--	--	--	--	--	--	88	89	91
Sound pressure LS version (4)	dB(A)	--	--	--	--	--	--	--	72	73	75
Sound power XL version (3)	dB(A)	65	65	70	73	74	76	78	--	--	--
Sound pressure XL version (4)	dB(A)	49	49	54	57	58	60	62	--	--	--

(1) Heating: user water temperature 30/35°C, source water temperature 10/7°C.

(2) Ratings in accordance with Ecodesign regulation 813/2013, average climatic profile and variable water outlet temperature.

(3) Sound power level in accordance with ISO 3744.

(4) Sound pressure level at 1 m from the unit in free field conditions in accordance with ISO 3744.

Nominal capacity

YWH HT/XL		302	402	602	702	902	1202	1402	1804	2304	2604
Heating capacity (EN14511) (1)	kW	37.6	43.6	64.1	75.1	97.8	121.7	150.5	195.6	243.9	301.2
Input power (EN14511) (1)	kW	6.7	7.5	11.1	13.7	17.6	21.7	26.2	35.0	43.1	52.2
COP (EN14511) (1)	W/W	5.65	5.83	5.79	5.48	5.56	5.62	5.74	5.59	5.65	5.77
Energy Class in low temperature (2)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++
SCOP low temperature (2)	kWh/kWh	5.71	5.83	5.91	5.81	5.85	5.94	6.09	5.95	6.01	6.20
$\eta_{s,h}$ low temperature (2)	%	220.2	225.3	228.2	224.5	226.0	229.4	235.6	230.0	232.4	239.9
Energy Class in medium temperature (2)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++
SCOP medium temperature (2)	kWh/kWh	4.62	4.73	4.78	4.76	4.67	4.74	4.85	4.73	4.79	4.91
$\eta_{s,h}$ medium temperature (2)	%	176.9	181.1	183.2	182.2	178.7	181.5	186.1	181.0	183.6	188.3
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Maximum input current	A	111.4	128.7	167.1	208.3	267.9	324.8	372.9	353.7	430.4	498.7
Peak current	A	32.8	35.4	54.2	68.6	85.8	105.6	125.8	171.6	211.2	251.6
Compressors / Circuits	n°/n°	2-1	2-1	2-1	2-1	2-1	2-1	2-1	4-2	4-2	4-2
Capacity steps	n°	2	2	2	2	2	2	2	4	4	4
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Global warming potential (GWP)		1430	1430	1430	1430	1430	1430	1430	1430	1430	1430
Refrigerant charge	Kg	4	4	5	6	8	10	10	21	26	33
Equivalent CO2 charge	t	5.7	5.7	7.2	8.6	11.4	14.3	14.3	30.0	37.2	47.2
Sound power LS version (3)	dB(A)	--	--	--	--	--	--	--	88	89	91
Sound pressure LS version (4)	dB(A)	--	--	--	--	--	--	--	72	73	75
Sound power XL version (3)	dB(A)	65	65	70	73	74	76	78	--	--	--
Sound pressure XL version (4)	dB(A)	49	49	54	57	58	60	62	--	--	--

(1) Heating: user water temperature 30/35°C, source water temperature 10/7°C.

(2) Ratings in accordance with Ecodesign regulation 813/2013, average climatic profile and variable water outlet temperature.

(3) Sound power level in accordance with ISO 3744.

(4) Sound pressure level at 1 m from the unit in free field conditions in accordance with ISO 3744.



Manufacturer reserves the rights to change specifications without prior notice.

YCWL/YCRL

Water-cooled scroll compressor chiller

Cooling capacities from 178 kW to 597 kW

Heating capacities from 200 kW to 700 kW



Features

Model sizes

9 models with High efficiency and 3 models with Standard efficiency.

High performances

The **YCWL** series was designed to produce the greatest cooling capacity with the lowest sound levels. The use of scroll compressors and shell & tube heat exchangers provides optimum efficiency at part load. **Its dimensions have been optimized to pass through a doorway of approx. 2 m high by 90 cm wide.**

The **YCWL** is designed for all air conditioning application and medium temperature process cooling. It is equipped with two independent cooling circuits and regulated by a microprocessor that optimizes chiller performance.

Options

- High chilled water setpoint available
- Heat pump up to 50°C hot water production
- Sound kit, up to 7 dBA reduction
- Flow switch or pressure differential switch
- Soft starters
- Neoprene pads or spring isolators
- Dual relief valves kit

Available with remote condenser option (mod. YCRL)

All the 9 models of the High efficiency range are capable to be remodeled as condenser-less air-cooled chillers.

Water-cooled scroll compressor chiller

YCWL / YCRL 0201 to 0611



Performances

YCWL-SE	0292	0343	0396
Cooling capacity (kW) ¹	294	333	371
EER ¹	4.72	4.67	4.72
SEER ¹	7.54	7.15	7.25
$\eta_{s,c}$ ¹	299	283	287
Sound Pressure (dB(A)) ²	72	73	73

YCWL-HE	0201	0231	0261	0302	0347	0426	0447	0532	0611
Cooling capacity (kW) ¹	191	219	244	308	353	412	445	499	597
EER ¹	4.94	5.06	5.03	4.96	5.01	5.08	5.03	5.04	4.93
SEER ¹	6.50	6.98	8.51	7.49	7.30	7.56	7.01	6.92	7.42
$\eta_{s,c}$ ¹	257	276	337	296	289	299	277	274	294
Sound Pressure (dB(A)) ²	59	69	71	72	73	73	74	73	74

YCRL-HE	0201	0231	0261	0302	0347	0386	0447	0532	0611
Cooling capacity (kW) ³	178	207	233	273	325	356	415	485	556
EER ³	4.00	4.00	4.12	4.20	4.16	4.11	4.17	4.06	3.99
Sound Pressure (dB(A)) ²	64	65	67	67	70	68	69	71	73

1: Ratings in accordance to Ecodesign, variable water flow and variable outlet (VW/VO).

2: Sound pressure measured at 1m.

3: Cooling capacity and efficiencies at 12/7°C chilled water in the evaporator and saturated discharge temperature 45°C.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

YCWL-SE			0292	0343	0396
Dimensions	Length	mm	3161	3169	3159
	Width	mm	859		
	Height	mm	1830	1819	
Operating weight		kg	2481	2494	2716

YCWL-HE			0201	0231	0261	0302	0347	0426	0447	0532	0611
Dimensions	Length	mm	3161	3098	3154	3169	3132	3133	3643		
	Width	mm	859	857	844	859		859	885		
	Height	mm	1670	1914	1820	1819	1889	1889	1946	1965	
Operating weight		kg	2218	2512	2463	2481	2808	2824	3632	3838	3999

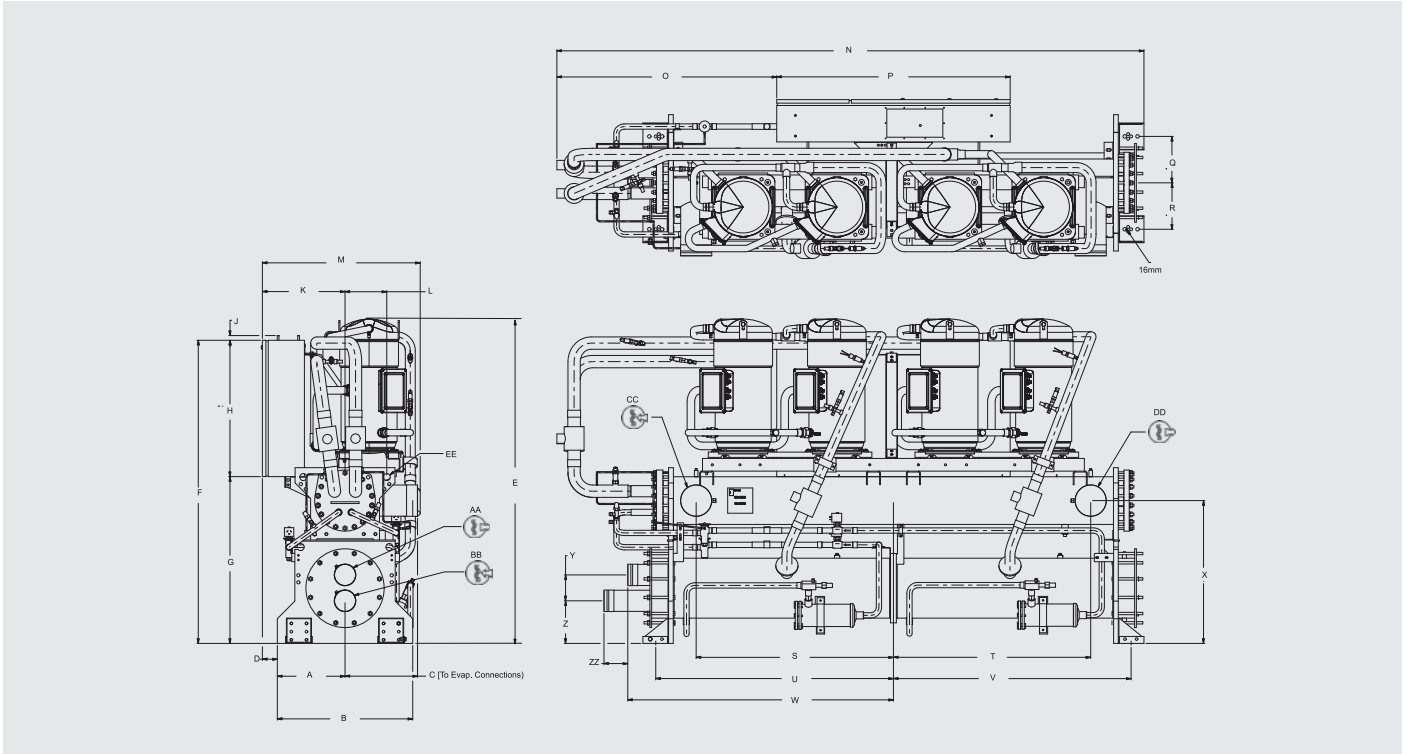
YCRL-HE			0201	0231	0261	0302	0347	0386	0447	0532	0611
Dimensions	Length	mm	3086	3061	3076		3061	3617	3576		
	Width	mm	826	856	843		856	965		902	
	Height	mm	1438	1481	1471	1593	1683	1641	1638	1641	
Operating weight		kg	1309	1481	1471	1593	1682	1947	2266	2264	2263



Manufacturer reserves the rights to change specifications without prior notice.

Dimensions and hydraulic connections

YCWL0292SE, YCWL0343SE, YCWL0396SE, YCWL0201HE, YCWL0231HE, YCWL0261HE, YCWL0302HE, YCWL0347HE, YCWL0426HE, YCWL0447HE



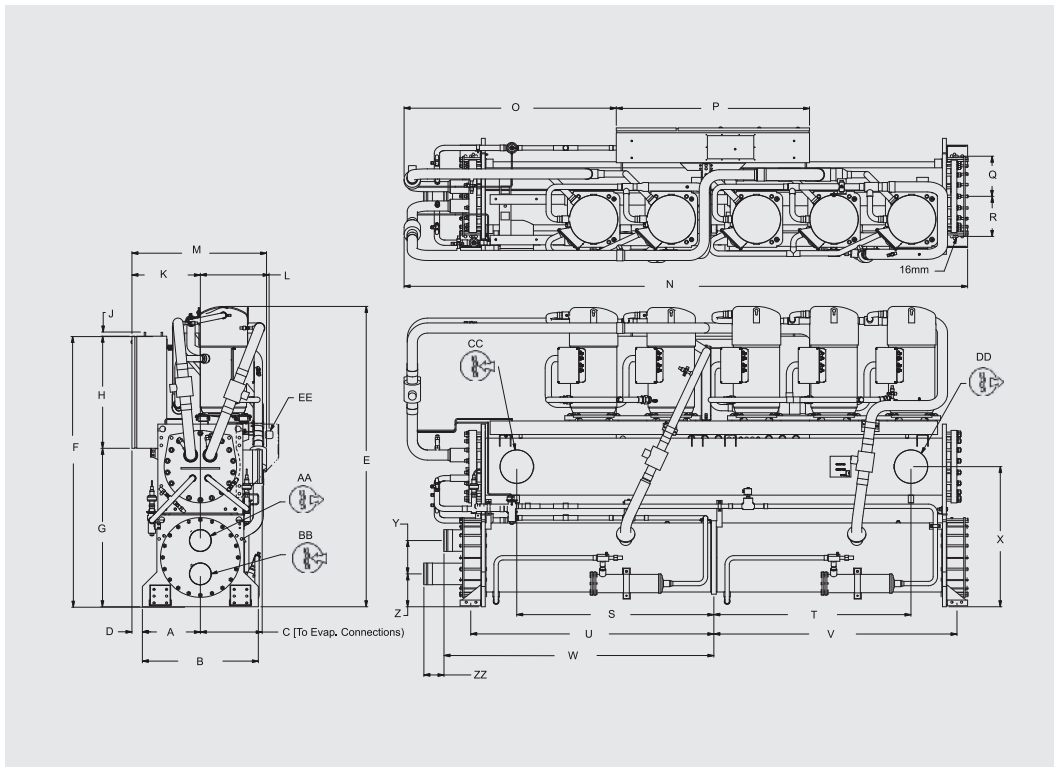
YCWL	0292SE	0343SE	0396SE	0201HE	0231HE	0261HE	0302HE	0347HE	0426HE	0447HE
Dimension	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
A	368	368	368	368	368	368	368	368	368	381
B	737	737	737	737	737	737	737	737	737	762
C	299	394	394	299	407	394	394	406	406	406
D	81	81	81	81	81	81	81	81	81	69
E	1830	1819	1819	1670	1914	1820	1819	1889	1889	1946
F	1638	1714	1714	1638	1753	1714	1714	1753	1753	1778
G	901	977	978	901	1016	977	977	1016	1016	1041
H	737	737	737	737	737	737	737	737	737	737
J	25	25	25	25	25	25	25	25	25	25
K	450	450	450	311	450	450	450	450	450	450
L	311	311	311	311	324	311	311	324	324	452
M	859	859	859	859	857	844	859	859	859	885
N	3161	3169	3159	3161	3098	3154	3169	3132	3133	3643
O	1163	1171	1155	1163	1100	1156	1171	1134	1133	1334
P	1270	1270	1270	1270	1270	1270	1270	1270	1270	1270
Q	251	251	251	251	251	251	251	251	251	264
R	251	251	251	251	251	251	251	251	251	264
S	1080	1080	1080	1080	1054	1080	1080	1054	1054	1295
T	1080	1080	1080	1080	1054	1080	1080	1054	1054	1295
U	1293	1293	1293	1293	1293	1293	1293	1293	1293	1598
V	1293	1293	1293	1293	1293	1293	1293	1293	1293	1598
W	1445	1445	1455	1445	1445	1445	1445	1455	1455	1774
X	813	813	813	813	845	813	813	845	845	921
Y	181	181	207	181	181	181	181	207	207	219
Z	210	210	197	210	210	210	210	197	197	216
ZZ	130	130	133	130	130	130	130	133	133	132
EE Ø	38	38	38	38	38	38	38	38	38	51

All dimensions in mm. Drawings not in scale.

YCWL	0292SE	0343SE	0396SE	0201HE	0231HE	0261HE	0302HE	0347HE	0426HE	0447HE
Water Connections	in	in	in	in	in	in	in	in	in	in
AA Ø	4	4	5	4	4	4	4	5	5	5
BB Ø	4	4	5	4	4	4	4	5	5	5
CC Ø	6	6	6	6	8	6	6	8	8	8
DD Ø	6	6	6	6	8	6	6	8	8	8

Dimensions and hydraulic connections

YCWL0532HE

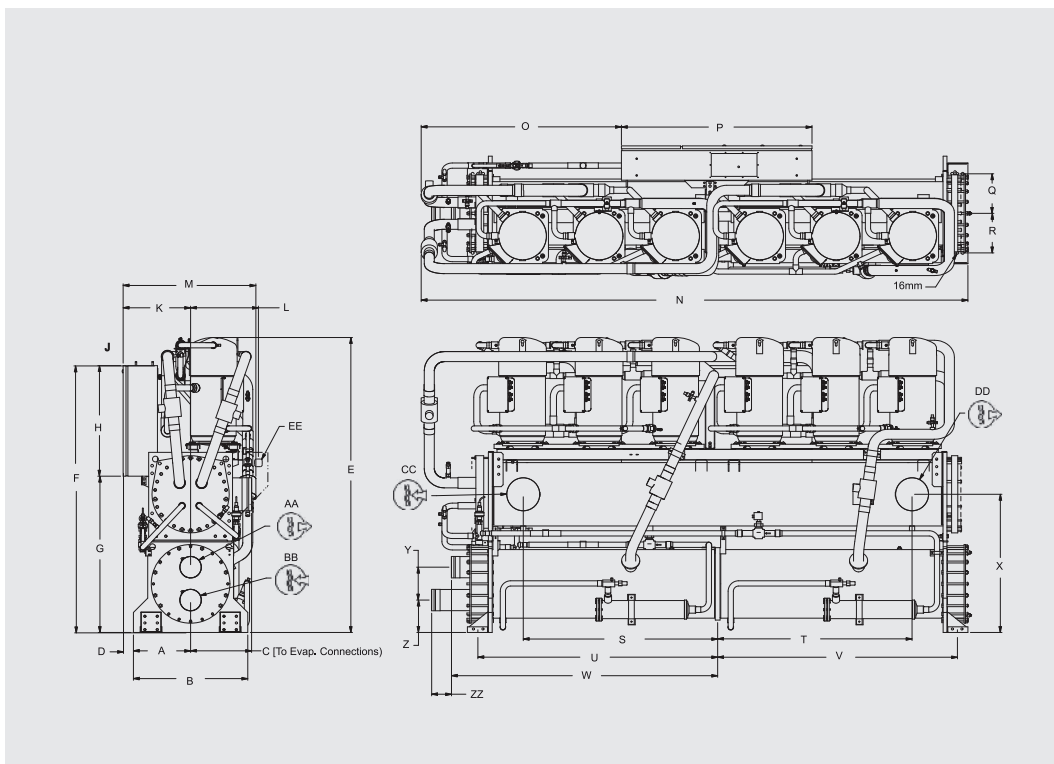


YCWL	0532HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	263
R	263
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

All dimensions in mm.

YCWL	0532HE
Water Connections	in
AA Ø	5
BB Ø	5
CC Ø	8
DD Ø	8

YCWL0611HE



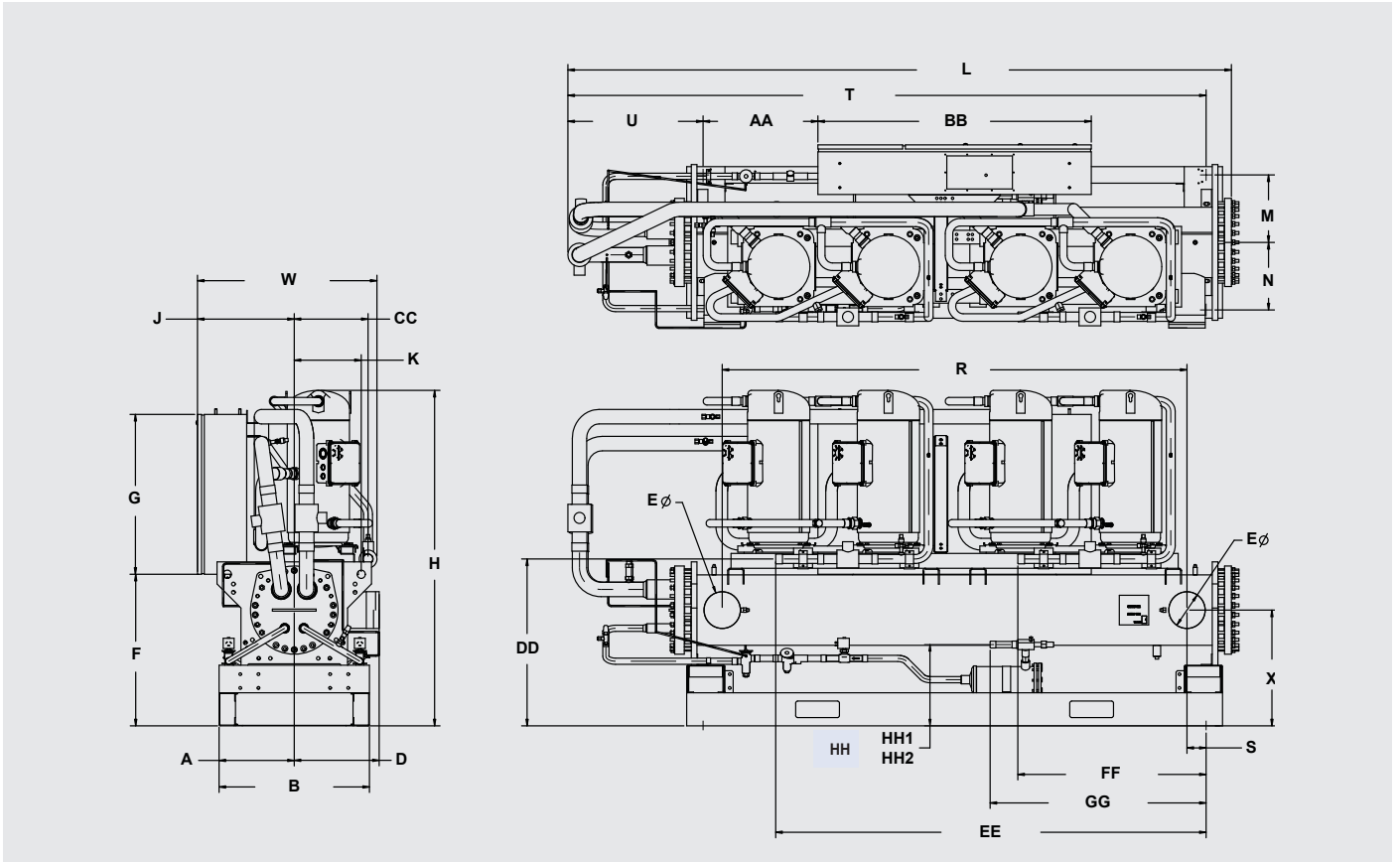
YCWL	0611HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	264
R	264
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

All dimensions in mm.

YCWL	0611HE
Water Connections	in
AA Ø	5
BB Ø	5
CC Ø	8
DD Ø	8

Dimensions and hydraulic connections

YCRL 0201 HE to YCRL 0347 HE

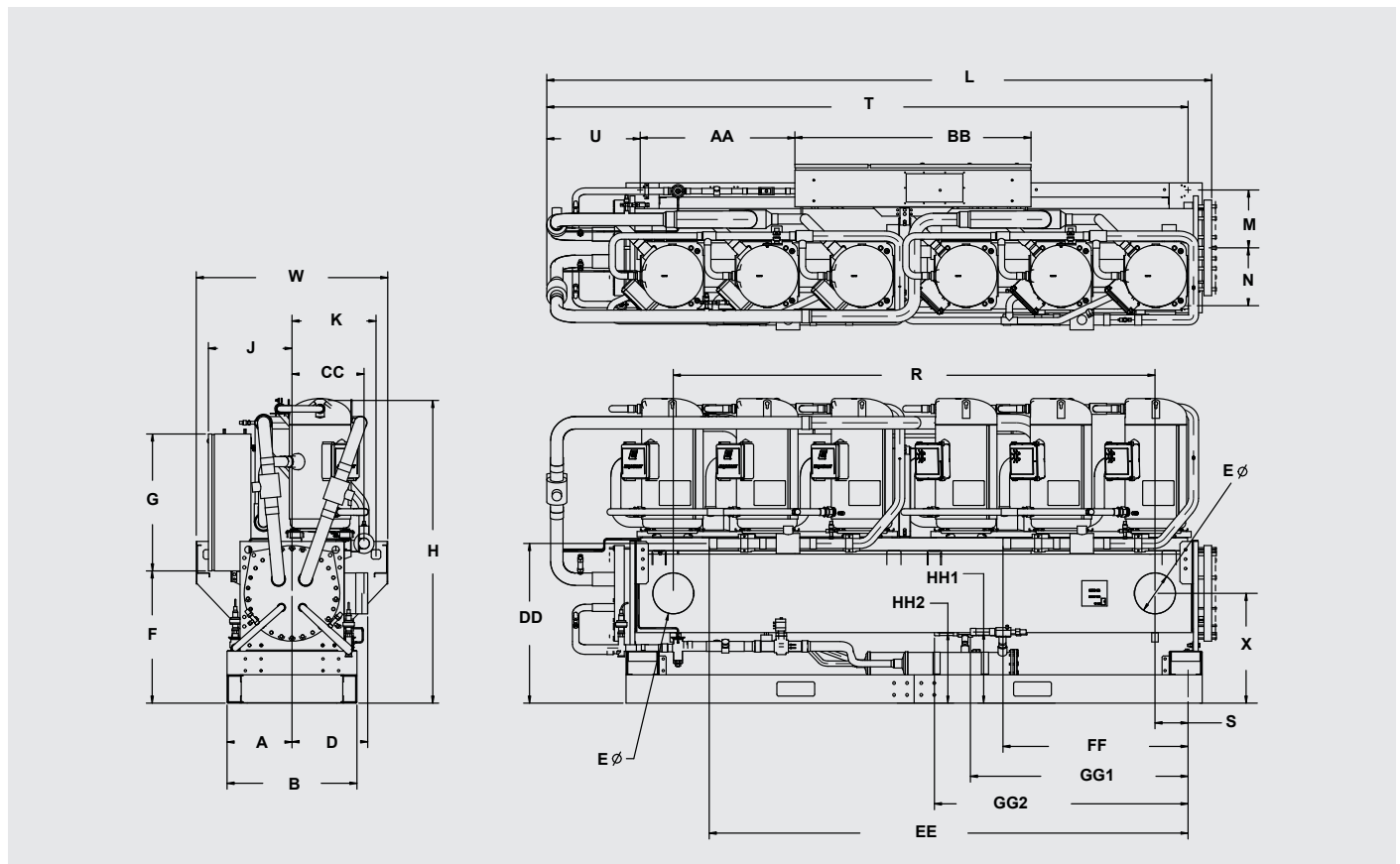


YCRL	0201 HE	0231 HE	0261 HE	0302 HE	0347 HE
W	824	834	834	834	846
H	1437	1616	1546	1544	1613
L	3085	3062	3082	3082	3062
A	349	349	349	349	349
B	699	692	699	699	699
D	299	407	394	394	407
E	219	219	168	168	219
F	622	737	699	699	737
G	737	737	737	737	737
J	450	450	450	450	450
K	311	324	311	311	324
M	311	311	311	311	311
N	311	311	311	311	311
R	2159	2108	2159	2159	2108
S	89	114	89	89	114
T	2965	2938	2965	2965	2938
U	628	601	628	628	601
X	533	565	533	533	565
AA	533	533	533	533	533
BB	1270	1270	1270	1270	1270
CC	343	343	343	343	356
DD	780	838	769	769	838
EE	2059	2085	1999	1999	2008
FF	947	886	875	875	883
GG	1003	1003	1003	965	1040
HH	466	375	375	375	378

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

YCRL 0386 HE to YCRL 0611 HE



YCRL	0386 HE	0447 HE	0532 HE	0611 HE
W	1030	1030	965	902
H	1641	1628	1641	1641
L	3633	3576	3576	3576
A	349	349	349	349
B	699	692	699	699
D	406	407	407	407
E	219	219	219	219
F	711	711	711	711
G	737	737	737	737
J	450	450	450	450
K	452	452	452	452
M	311	311	311	311
N	311	311	311	311
R	2591	2591	2591	2591
S	178	178	178	178
T	3509	3449	3449	3449
U	563	502	502	502
X	591	591	592	587
AA	832	832	832	832
BB	1270	1270	1270	1270
CC	387	387	387	387
DD	859	859	859	859
EE	2499	2575	2575	2575
FF	919	995	995	995
GG-1	1466	1171	1171	1171
GG-2	1466	1364	1364	1364
HH-1	378	383	383	383
HH-2	378	379	379	379

All dimensions in mm. Drawings not in scale.

YLCS

Remote Air-Cooled and Heat Pump screw compressor

Cooling capacities from 323 kW to 1079 kW

Heating capacities from 469 kW to 1307 kW



Features

Designed to operate with leaving chilled liquid temperature from -4.5°C to $+15^{\circ}\text{C}$ and warm water to 60°C in heat pump.

Efficient compressors

YLCS is a dual circuit chiller with industrial type semi-hermetic screw compressors. Star delta compressor starters are incorporated to reduce the inrush current.

Outstanding chiller control

An advanced microprocessor controller with, a 40 character plain language display, controls and monitors temperatures, pressures, operating hours, number of starts and start stop/holiday times.

Fast and easy installation

Evaporator water connections can be provided in a vertical or horizontal plain. Electrical power supplies enter from the top for easy drop down wiring.

Options/Accessories

- Compressor suction shut-off valves
- Companion flange kits
- Multi-point power supply
- Remote leaving liquid temperature offset
- Pressure gauges
- Closed transition star delta starters
- Power factor correction capacitors
- Heat pump control up to 60°C
- 90/10 Cu/Ni condenser

Remote Air-Cooled (AA) and Heat Pump (HA) screw compressor

YLCS 0350 to 1120



Remote Air Cooled Chiller (Condenser less)

YLCS-AA	0350	0415	0480	0530	0575	0620
Cooling capacity (kW)	323	383	454	483	520	553
Power input (kW)	92.6	107	126.5	134	144.3	153.7
Full Load Efficiency (EER) (kW/kW)	3.49	3.58	3.59	3.60	3.61	3.60
Evap. Pressure Drop (kPa)	39.8	47.5	26.7	30	40	44.8
Sound Power (dBA)	93	93	93	95	95	95

YLCS-AA	0670	0750	0860	0980	1120
Cooling capacity (kW)	617	713	833	944	1079
Power input (kW)	153.9	175.5	196.6	219.5	250.5
Full Load Efficiency (EER) (kW/kW)	4.01	4.06	4.24	4.30	4.31
Evap. Pressure Drop (kPa)	31.1	46.1	93.4	116	76.5
Sound Power (dBA)	95	95	101	101	101

At 7°C leaving chilled water and condensing at 45°C with 5°C sub cooling.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Heat Pump Application

YLCS-HA	0415	0480	0530	0575	0620
Net Heating capacity (kW)	469	556	590	641	681
Net Heating Power input (kW)	121.2	142.9	151	163.5	174.4
Net Heating COP (kW/kW)	3.87	3.89	3.91	3.92	3.91
Evap. Pressure Drop (kPa)	41.2	23.3	26.1	35.4	39.6
Cond. Pressure Drop (kPa)	32.0	44.2	34.6	40.4	33.1
Sound Power (dBA)	93	93	95	95	95

YLCS-HA	0670	0750	0860	0980	1120
Net Heating capacity (kW)	756	873	1013	1145	1307
Net Heating Power input (kW)	174.4	199.6	225.2	254.7	289.9
Net Heating COP (kW/kW)	4.34	4.37	4.50	4.50	4.51
Evap. Pressure Drop (kPa)	28.9	42.8	87.3	108.5	71.5
Cond. Pressure Drop (kPa)	40.3	31.1	41.1	69.2	89.1
Sound Power (dBA)	95	95	101	101	101

At 12-7°C leaving chilled water and condensing at 40-45°C.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

YLCS			0350	0415	0480	0530	0575	0620
Dimensions	Length	mm	3225	3244	3274	3274	3544	3600
	Width	mm	900					
	Height	mm	2100					
Operating weight kg			3420	4030	4170	4270	4370	4540

YLCS			0670	0750	0860	0980	1120
Dimensions	Length	mm	3565	3645	3830	3830	3830
	Width	mm	1290				
	Height	mm	2148				
Operating weight kg			4510	5010	5620	6090	6610



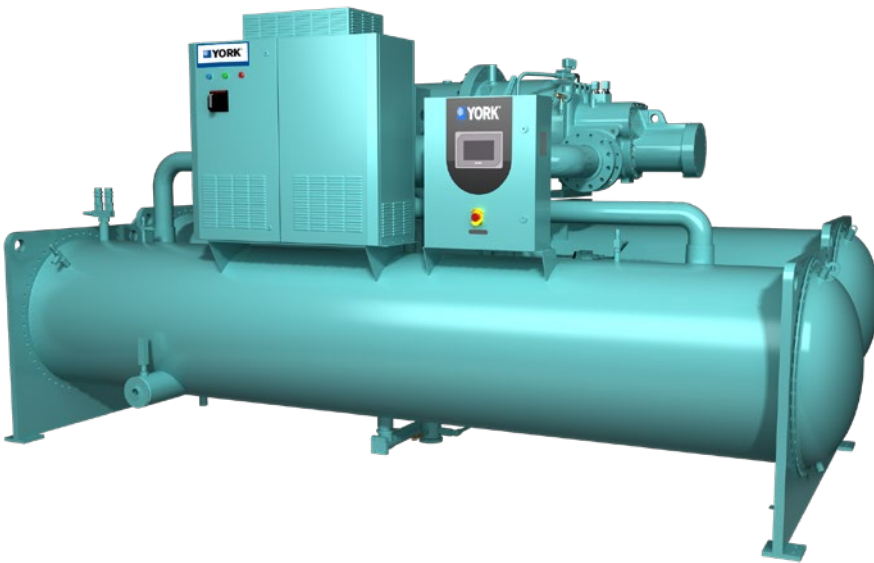
Manufacturer reserves the rights to change specifications without prior notice.

YVWH

Premium-efficiency VSD water-cooled screw compressor chiller

Cooling capacity: 313 kW to 1189 kW (R1234ze) – 1566 kW (R134a)

Heating capacity: 315 kW to 1250 kW (R1234ze) – 1730 kW (R134a)



Features

YVWH is innovatively designed and manufactured, it offers **premium efficiency** at both full load and part load condition, helping the customer achieving the greatest value. Thanks to the combination of high efficiency and the use of the new 4th generation **HFO refrigerant R1234ze**, the chiller SEER surpasses the Ecodesign Tier 2 requirement and contributes to the reduction of the CO2 emissions.

Key components

- Optimized motor and flow structure design ensure high compressor efficiency
- Optimized compressor with variable Vi design further enhances partload performance
- Built-in condenser oil separator increases the oil separation effectiveness
- Counterflow subcooler design provides the most optimized subcooling

Committed to sustainability

- Low GWP solution with new refrigerant R1234ze (GWP = 7, F-Gas)
- R1234ze and R134a refrigerants protect the ozone layer (ODP = 0) and have no phase out date
- Chiller SEER exceeding by far Ecodesign Tier 2 requirements
- Premium chiller efficiency brings green building effectiveness to a remarkable level

Options/Accessories

- Fix Vi compressor
- Heat pump up to 50°C water production, with R1234ze
- Spring isolators
- Left/right pipe connection
- Sound kit up to 10 dB(A) reduction
- Thicker evaporator insulation
- Refrigerant isolation valve
- Harmonic filter

Refer to <https://www.ahrinet.org/wccl> for water cooled Program Scope, Inclusions, and Exclusions as some options listed herein fall outside the scope of the AHRI certification program. For verification of certification, go to the AHRI Directory at www.ahridirectory.org

Premium-efficiency VSD water-cooled screw compressor chiller

YVWH 115 to 445



Performances (R1234ze)

YVWH		115	145	180	225	265	305	325	380	445	
Cooling capacity	kW	313.3	389.3	481.5	602.1	721.7	799.7	882.8	1033.0	1189.0	
Optimized compressor (Variable Vi)	EER	6.23	6.41	6.19	6.41	6.25	6.25	6.07	6.24	6.13	
	SEER	8.61	8.81	8.85	9.13	9.31	9.31	9.68	10.01	9.82	
	η_{sc}	341.44	349.57	351.17	362.27	369.36	369.36	384.34	397.44	389.9	
Evaporator	Pass	4				2					
	Flow rate	l/s	15.00	19.23	23.56	28.82	33.11	39.63	42.22	49.54	58.71
	Piping dimension	mm	125		150		200				
	Pressure drop	kPa	44.5	53.6	53.3	51.6	43.0	37.2	19.6	27.1	32.8
Condenser	Pass	4				2					
	Flow rate	l/s	17.56	22.42	27.55	33.61	38.75	46.18	49.53	57.87	68.74
	Piping dimension	mm	125		150		200				
	Pressure drop	kPa	43.6	52.6	52.4	52.4	45.9	32.7	21.7	24.5	34.3
Refrigerant circuit	n.	1									
Compressor quantity	n.	1									
Capacity control %		15-100%									
Refrigerant charge	kg	200		240	250	360	370	400	410	510	
Sound pressure level (1m) ¹	dBA	78	80	82	84	80	85	87	89	91	

Ratings in accordance to Ecodesign, variable water flow and variable outlet (VW/VO). Rated with YORKworks 21.04a.

For other Ecodesign calculations or R134a information, please contact your JCI Representative.

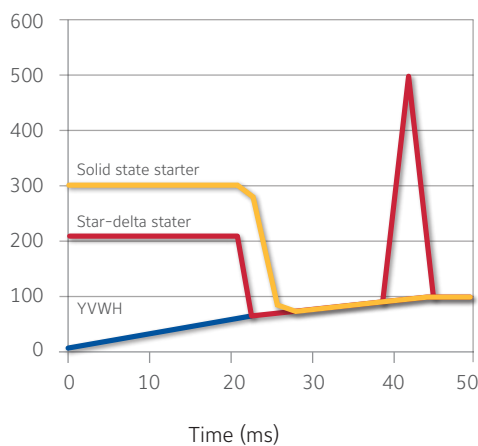
¹ Bare unit. Sound kit 1 or 2 are available for sound attenuation.

Technical data

YVWH		115	145	180	225	265	305	325	380	445
Dimensions	Length	mm	3118	3131	3154	3156	4807	4832	4873	
	Width	mm	1710	1797	1975	2005	1925	1988	2086	
	Height	mm	1966	1996	2124	2250	2300		2320	
Operating weight	kg	4387	5169	6350	6951	7834	8894	9306	9983	

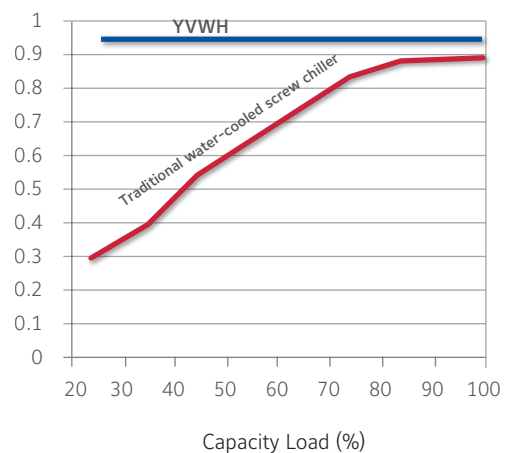
Soft Start

YVWH provides a soft start without current shock. The start-up current will never be larger than the rating current, which benefits the customer with lower cost on associated equipment and smaller backup generator and quick start function in case of the shutdown due to power supply failure.



Displacement Power Factor (DPF)

The Variable Speed Drive (VSD) design makes 0.95 high DPF achievable in standard YVWH models at all operating conditions. For traditional non-VSD designed screw chiller, the DPF will reduce when the cooling load goes down.



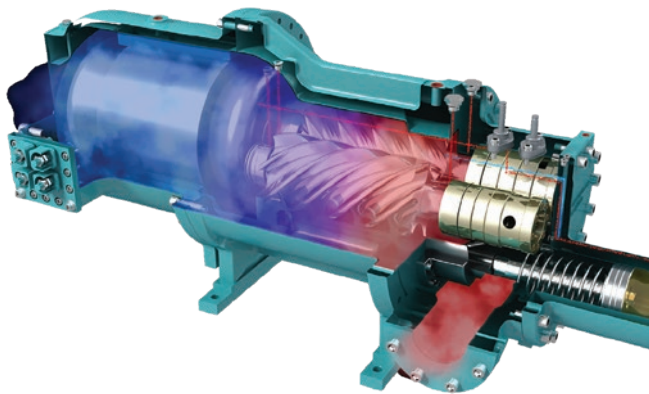
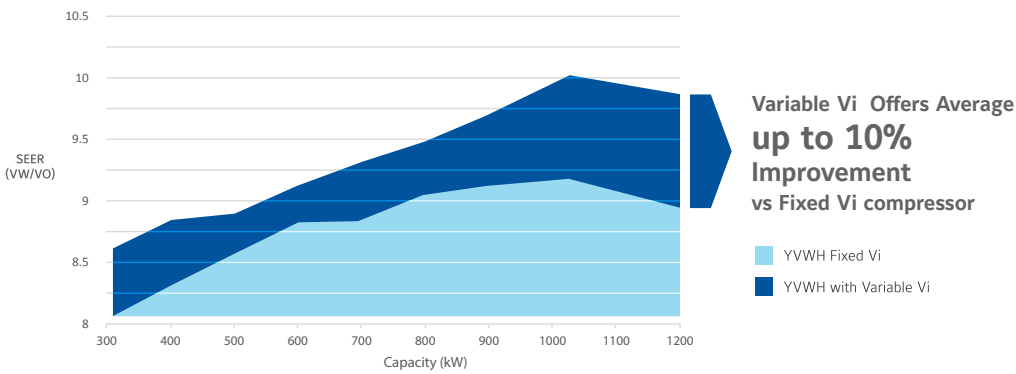
Manufacturer reserves the rights to change specifications without prior notice.

YVWH main features

Variable Vi

Premium efficiency water-cooled screw chillers from YORK® control the refrigerant volume ratio (Vi) to match the pressure ratio, which helps maintain optimum compressor efficiency. YORK® was the first manufacturer to offer this technology, and our step-less control with perfectly matched compressor and system Vi can provide up to 10% SEER performance improvement (average 6% across the range) vs fixed Vi systems.

Performance Improvement by Variable Vi

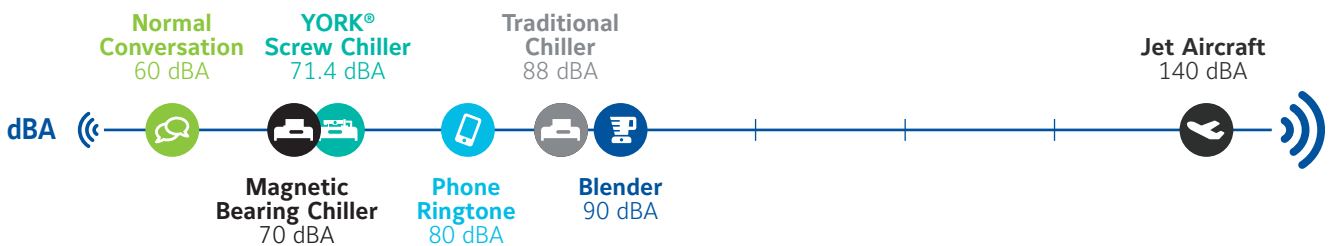


Optimized Compressor

Screw compressors from YORK® use advanced technology to deliver higher efficiencies. Optimized variable volume ratio compressor design matches compression to the load to avoid over-compression and wasted energy. A special rotor design provides a tight seal and high compression efficiency. A compact design with simple assembly provides easier maintenance. Together, these technological enhancements increase efficiency while reducing noise and vibration.

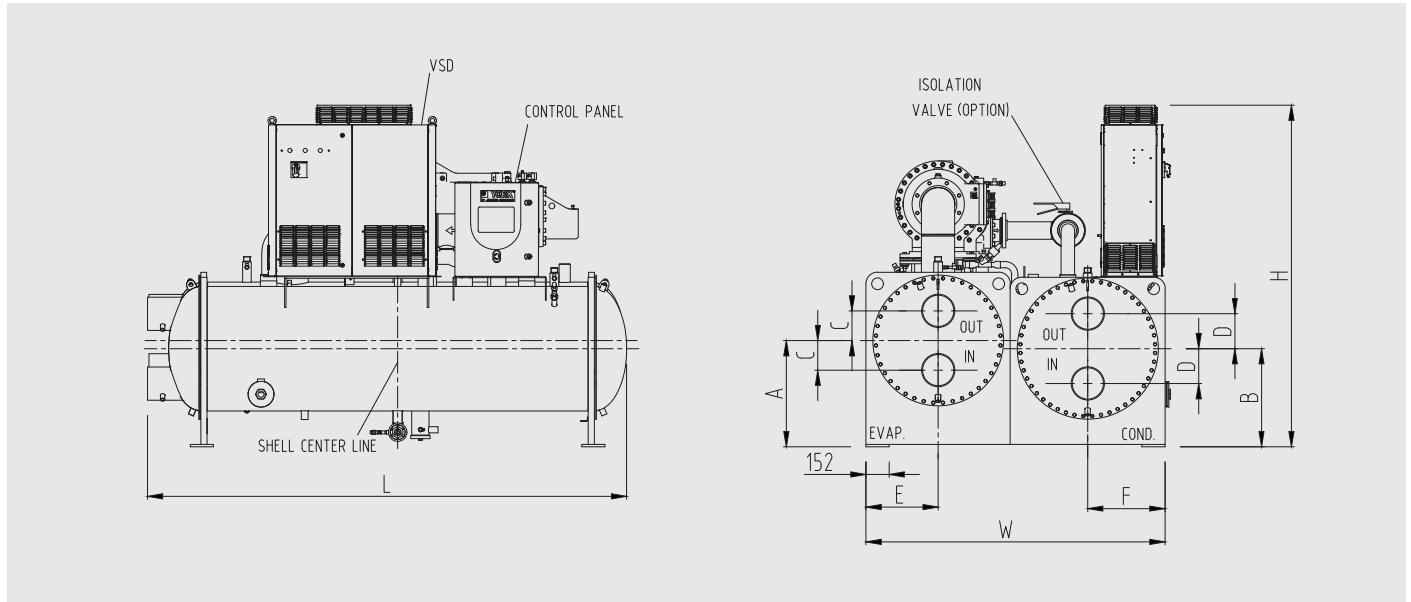
Reduced Sound Pressure Levels (1m)

A unique, patented dampening structure in the YORK® screw compressor is combined with an integrated oil separator to reduce noise. These technologies result in operating sound levels up to 17 dBA quieter than traditional chillers while maintaining peak efficiency.



Dimensions and hydraulic connections

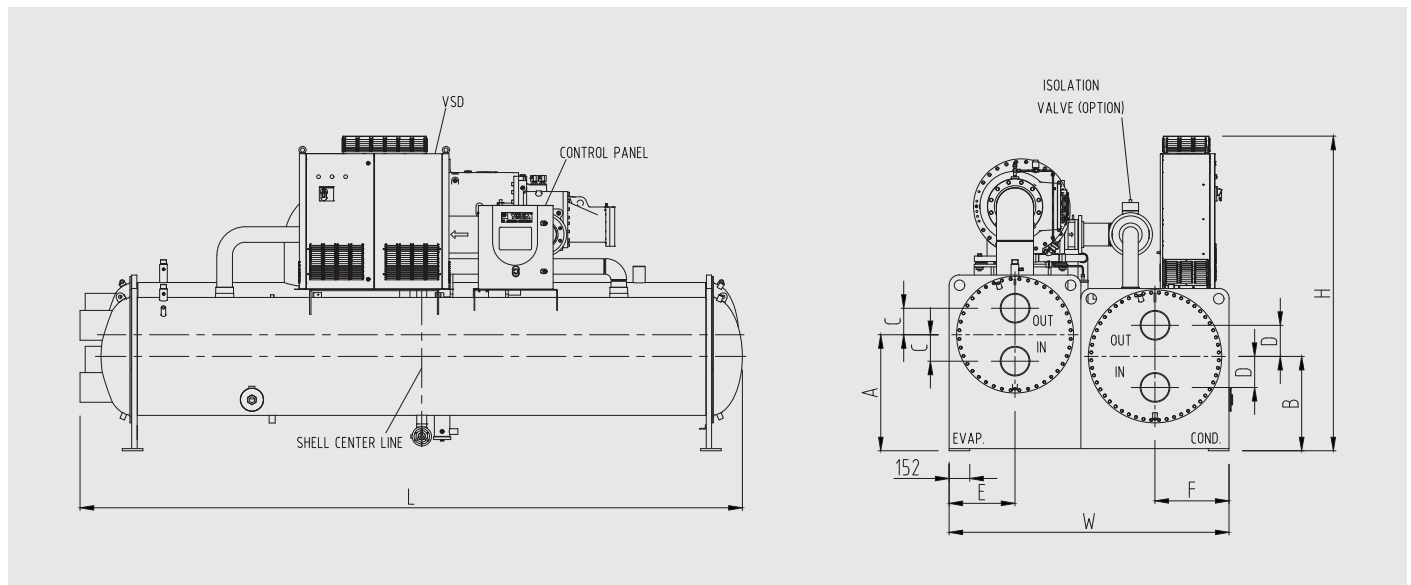
YVWH 115/145/180/225



Model	L (mm)	W (mm)	H (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
YVWH115	3118	1710	1966	644	566	190	180	400	435
YVWH145	3131	1797	1996	694	586	165	180	425	450
YVWH180	3154	1975	2124	709	646	230	230	460	520
YVWH225	3156	2005	2250	699	646	230	230	475	510

All dimensions in mm. Drawings not in scale.

YVWH 265/305/325/380/445



Model	L (mm)	W (mm)	H (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
YVWH265	4807	1925	2300	856	696	195	195	460	485
YVWH305	4832	1988	2300	856	696	195	230	460	520
YVWH325/380/445	4873	2086	2320	856	696	195	229	485	545

All dimensions in mm. Drawings not in scale.

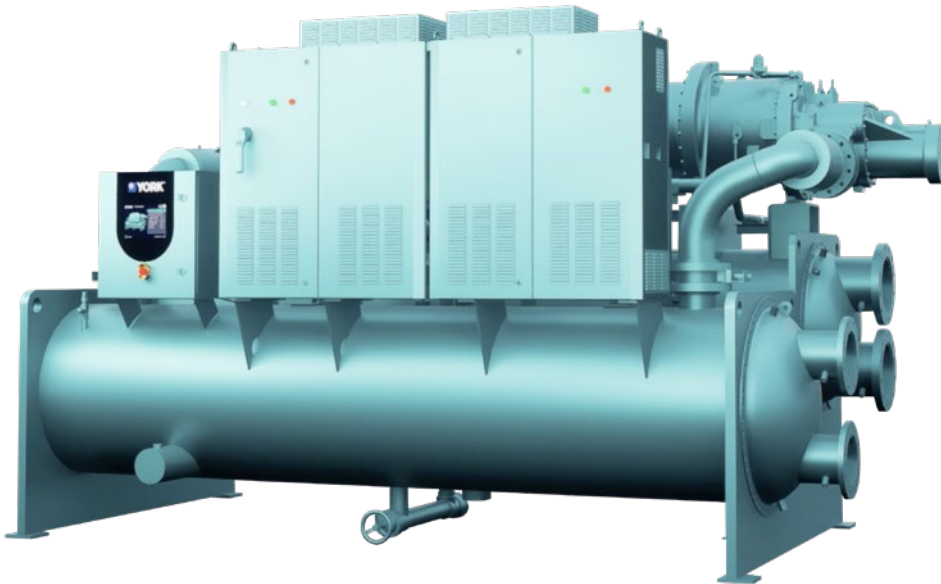
YVWH HP

Premium-efficiency VSD water-cooled screw compressor heat pump



Cooling capacity: 788 kW to 1576 kW

Heating capacity: 900 kW to 1800 kW



R1234ze



INVERTER



R515B



Features

YVWH HP is innovatively designed and manufactured. It is a sustainable, cost-effective alternative to traditional boiler and chiller systems and ideal for commercial buildings, hospitals, industrial processes and district energy applications.

It offers **premium efficiency** at both full load and part load condition of cooling and heating, helping the customer achieving the greatest value. Thanks to the combination of high efficiency and the use of the new 4th generation **HFO refrigerant R1234ze**, the heat pump SCOP surpasses the Ecodesign Tier 2 requirement and contributes to the reduction of the CO₂ emissions.

Key components

- High-head compressor capable to provide high-temperature hot water up to 80°C
- Compressor with variable Vi design delivers optimized efficiency of heating and cooling
- Variable-speed drive helps achieve premium off-design performance
- Economizer design increases the cycle efficiency and heating capacity
- Built-in condenser oil separator increases the oil separation effectiveness
- Counterflow subcooler design provides the most optimized subcooling

Committed to sustainability

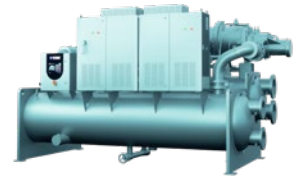
- Achieve sustainability goals by reducing fossil fuel-fired boilers
- More than 2 times efficient than typical boiler reduces energy consumption and CO₂ emissions
- Low GWP solution with new refrigerant R1234ze (GWP = 7, F-Gas)
- Alternate R515B refrigerant available
- R1234ze and R515B refrigerants protect the ozone layer (ODP = 0) and have no phase out date
- Heat pump SCOP exceeding by far Ecodesign Tier 2 requirements

Options/Accessories

- Spring isolators
- Left/right pipe connection
- Refrigerant isolation valve
- Harmonic filter (floor mounted)

Premium-efficiency VSD water-cooled screw compressor heat pump

YVWH HP 270 to 550



Performances (R1234ze and 515B) – Preliminary Data

YVWH HP		270	370	450	550	
Heating range at 12/7 - 60/65°C						
Heating capacity	kW	900	1245	1440	1800	
COP		3,34	3,33	3,38	3,33	
Heating range at 10/7 - 40/45°C						
Heating capacity	kW	931	1260	1480	1850	
COP		5,19	5,16	5,24	5,18	
Ecodesign Medium Temperature Heat Pump						
SCOP ^{(1), (2)}		5,21	5,14	5,16	5,21	
η _{s, h} ^{(1), (2)}		200,4	197,6	198,4	200,4	
Cooling Range at 12/7 - 30/35°C						
Cooling capacity	kW	788	1092	1266	1576	
EER		5,64	5,63	5,67	5,63	
SEER ⁽²⁾		7,78	7,68	8,08	8,08	
η _{s, c} ⁽²⁾	%	308	304	320	320	
Sound pressure @ 1m		84,5	86,5	87,5	88,5	
Evaporator	Pass	2	2	2	2	
	Flow rate	l/s	37,6	52,09	60,35	75,17
	Piping dimension	mm	150	200	200	250
	Pressure drop	kPa	57,8	54,5	55	51
Condenser	Pass	2	2	2	2	
	Flow rate	l/s	44,6	61,81	71,5	89,19
	Piping dimension	mm	150	200	200	250
	Pressure drop	kPa	70,8	70,7	70,6	71
Refrigerant circuit	n.	1	1	1	1	
Compressor quantity	n.	1	2	2	2	
Refrigerant charge	kg	300	400	420	460	

1) Ratings in accordance to Ecodesign at 10/7 - 47/55°C

2) Ratings variable water flow and variable outlet (VW/VO).

3) The table above shows only a representative sample of performance points. For job specific operating conditions contact your JCI Representative.

Technical data

YVWH		270	370	450	550	
Dimensions	Length	mm	4169	4235	4235	4543
	Width	mm	2005	2140	2160	2240
	Height	mm	2110	2456	2482	2541
Operating weight	kg	6908	9391	10286	12399	
Shipping weight	kg	6417	8660	9442	11345	

GT Screw Compressor



Variable Speed Drive



OptiView LT Panel



Manufacturer reserves the rights to change specifications without prior notice.

YVWA

Water-cooled VSD screw compressor chiller

Cooling capacity from 546 kW to 1074 kW

Heating capacity from 600 kW to 1000 kW



Features

Key components

The **YVWA** reduces operating expenses with the application of a standard variable speed drive Inverter (VSD).

Application flexibility

Tailor and tune flexibility makes the **YVWA** ideal for any high lift application, primarily **Heat Pump** duty higher than 50°C hot water set point, glycol and low temperature process cooling.

Enhanced sustainability

Achieved through high efficiency operation and low refrigerant charges.

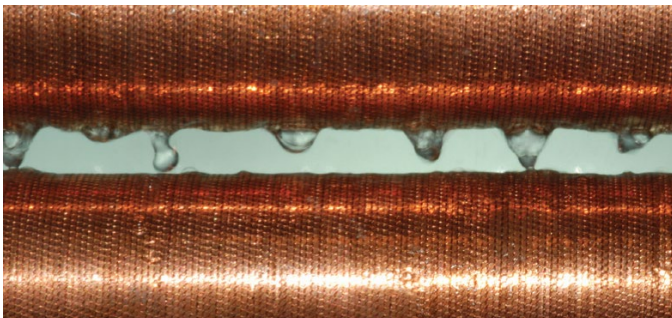
Product confidence

R-513A is a refrigerant that is classified as A1. It combines zero ODP and lower GWP (631, F-Gas) than R-134a. It offers higher specific cooling capacity (kW/kg ref.) compared to R-1234ze and therefore it is **ideal for small footprint retrofit applications**.

Options/Accessories

- BMS Interfacing options
- Heat pump up to 60°C hot water production
- Different options of tubes and nozzle arrangements for the heat exchangers
- Dual pressure relief valve
- Several options for flow switches
- Thermal insulation options
- Anti-vibration mounts options

Photo courtesy of the LTCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland



Reduce refrigerant charges by up to 15% beyond traditional chiller designs with the YVWA's falling film evaporator design.



The YVWA chiller can efficiently handle the high condenser pressure required for dry cooling.

Photo courtesy of Baltimore Air Coil.

Refer to <https://www.ahrinet.org/wccl> for water cooled Program Scope, Inclusions, and Exclusions as some options listed herein fall outside the scope of the AHRI certification program. For verification of certification, go to the AHRI Directory at www.ahridirectory.org

Water-cooled VSD screw compressor chiller

YVWA



R513A sample selections

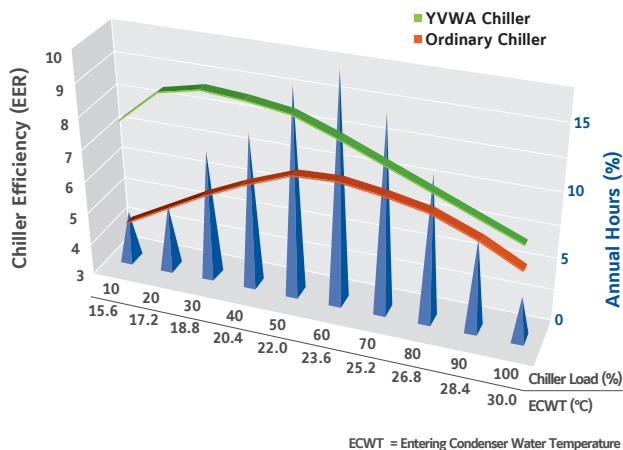
Model	YVWACDCDFX	YVWACDCDGX	YVWAMEMEEE	YVWAMEMEFF
Cooling capacity (kW)	546	701	904	1074
EER	5.11	4.79	5.16	4.88
SEER	7.76	8.25	8.34	7.93
ηs, c	307	327	330	314

Ratings in accordance to Ecodesign, fixed water flow and fixed outlet (FW/FO). For other Ecodesign calculations, please contact your JCI representative. The table above shows only a representative sample of performance points based on generic project operating conditions working with R513A refrigerant (2 passes evaporator, 2 passes condenser). For R134a information contact your JCI Representative. The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

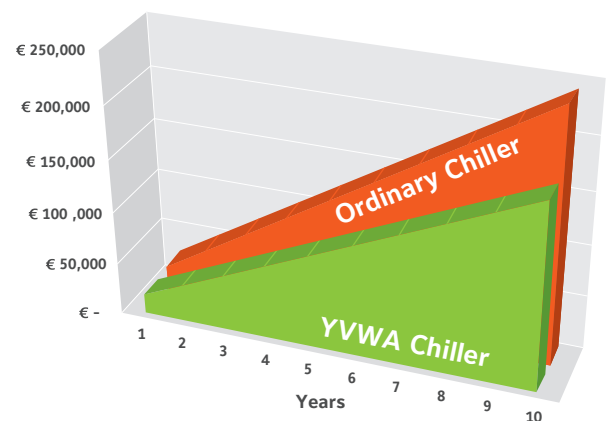
Model	YVWACDCDFX	YVWACDCDGX	YVWAMEMEEE	YVWAMEMEFF
Compressors / Circuit(s)	1	1	2	2
Dimensions	Length mm	3571	4390	4390
	Width mm	1413	1413	1405
	Height mm	1846	1846	1824
Operating weight (kg)	4169	4299	6032	6540
Refrigerant charge (kg)	153	163	250	260

YVWA Efficiency vs. Ordinary Chiller



The YVWA chiller delivers superior energy performance at all operating hours.

YVWA Energy Cost vs. Ordinary Chiller



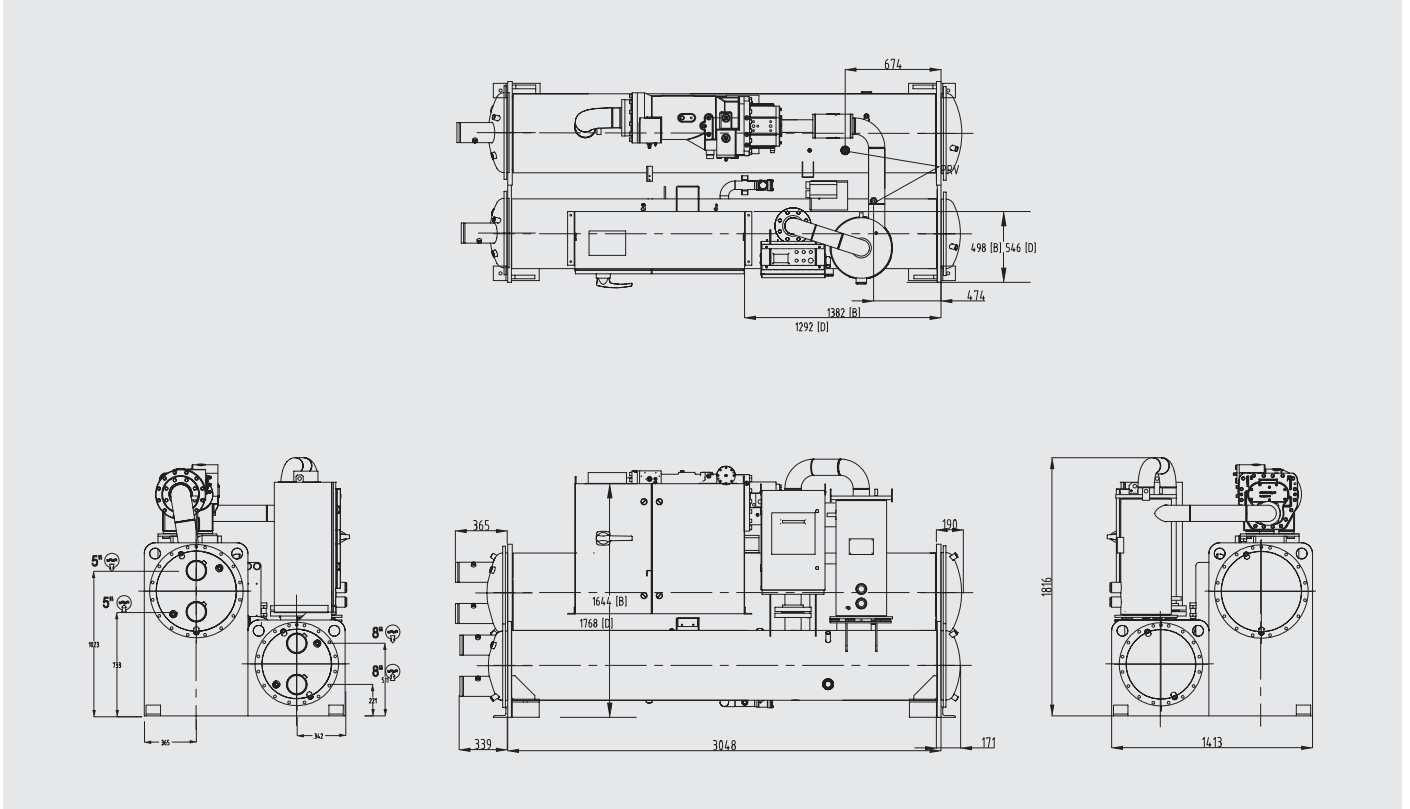
An investment in an optimized YVWA chiller reduces energy costs by 25%.



Manufacturer reserves the rights to change specifications without prior notice.

Dimensions and hydraulic connections

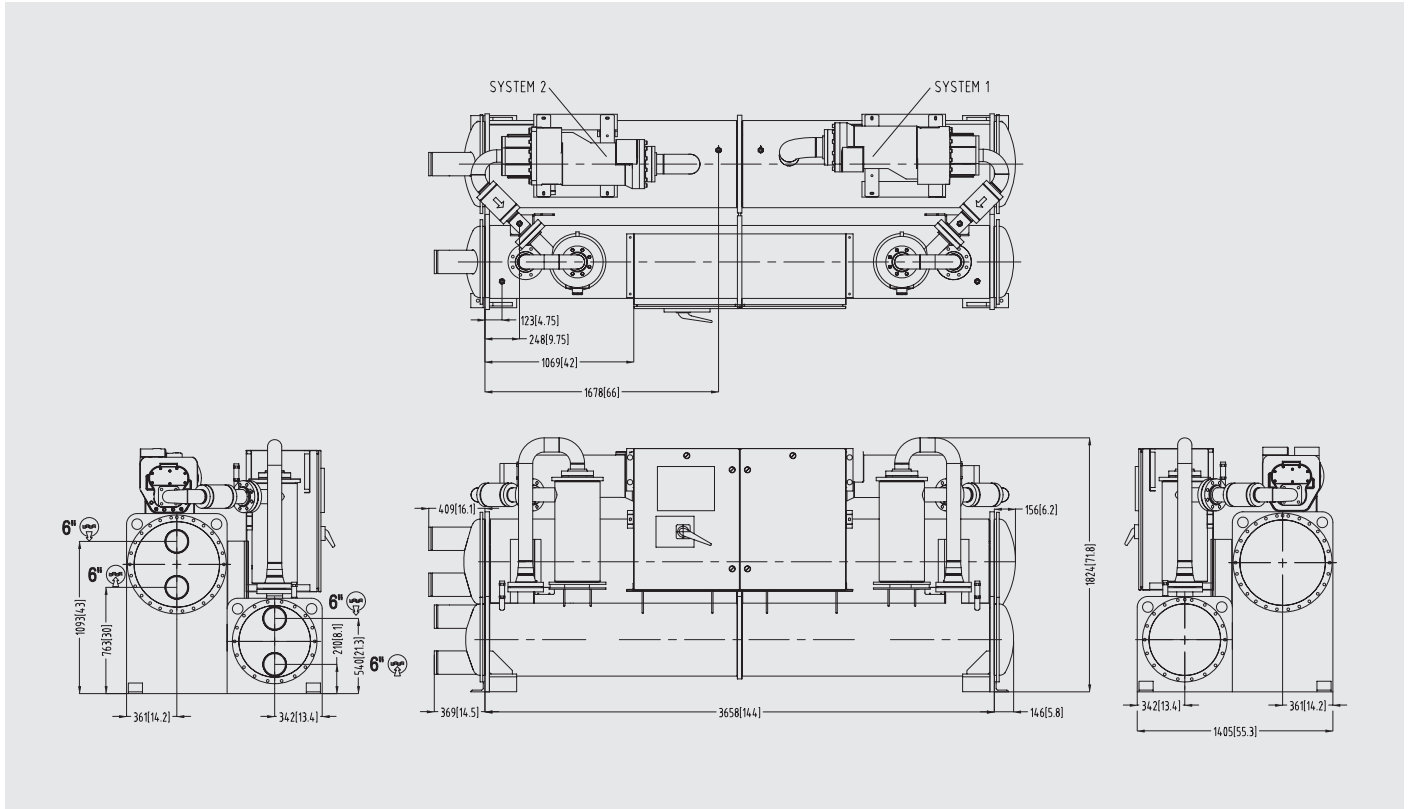
YVWA C models



All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

YVWA M models



All dimensions in mm. Drawings not in scale.

YZ Magnetic bearing centrifugal chiller

Cooling capacities from 580 kW to 5500 kW



“Tailor and tune”
customized units around
job specific design.

Features

The **YORK YZ Magnetic Bearing Centrifugal Chiller** is a revolutionary advancement that challenges everything about conventional chiller design. Built upon decades of industry-leading chiller expertise, our engineers questioned every component, analyzed every function and challenged every assumption. The result is the first chiller fully optimized for ultimate performance with a next generation low-GWP (global warming potential) refrigerant, delivering **superior real-world performance, lower cost of ownership and a new definition of sustainability**. It's the first chiller built to exceed every expectation – today and tomorrow.

The design premise for the **YORK YZ** was simple: Don't just make a new chiller – make the best chiller for our customers. This was accomplished through a holistic approach to system design and engineering, optimizing every component around a carefully selected next generation refrigerant for ultimate performance.

Committed to sustainability

- Low GWP solution with new refrigerant R1233zd (GWP = 4.5, F-Gas)
- R1233zd refrigerant protect the ozone layer and have no phase out date
- Chiller SEER exceeding by far Ecodesign Tier 2 requirements
- Premium chiller efficiency brings green building effectiveness to a remarkable level

Magnetic bearing centrifugal chiller

YZ



Proven Firsts

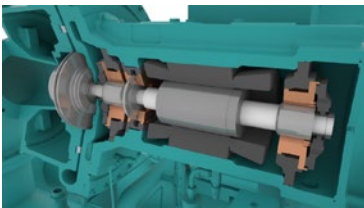
Groundbreaking YORK innovations refined over decades of real-world use have been brought together to create a revolution in chiller design and optimization. It's everything we've learned to-date, and then some.

Variable-Speed Drive:

Four decades ago, YORK introduced the first variable-speed drive (VSD) chiller. And we've since installed more VSD chillers than all other manufacturers combined. A VSD is standard on the YORK YZ.

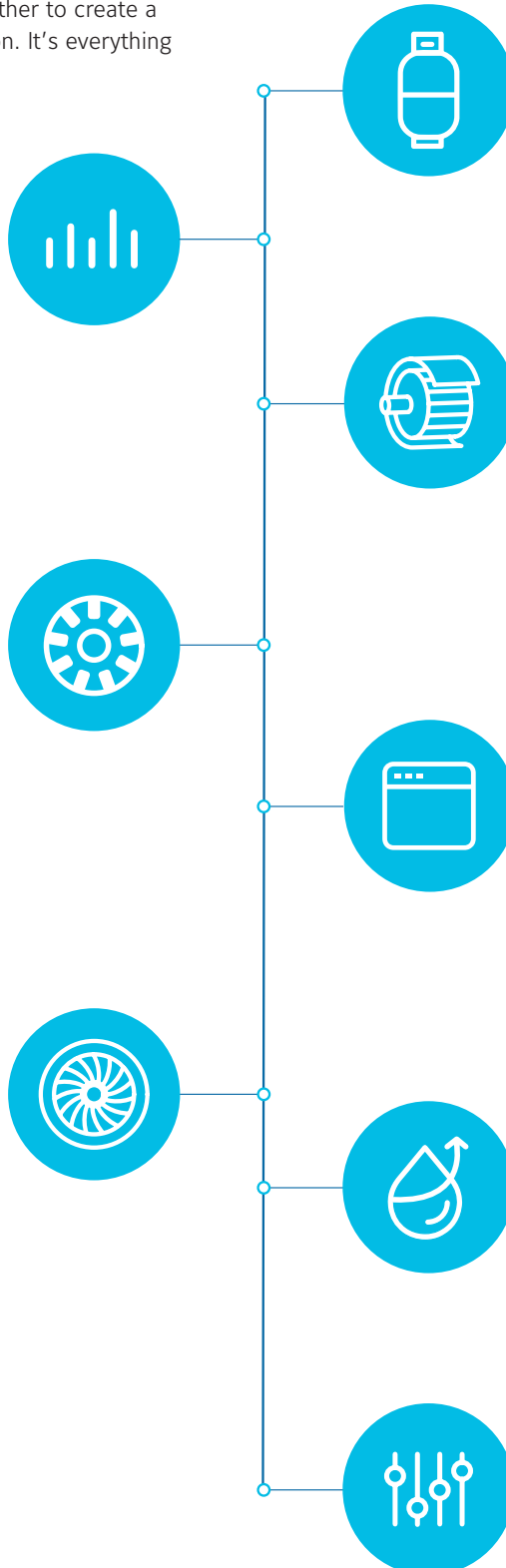
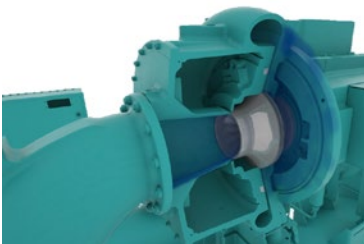
Magnetic Bearing Driveline:

In 1998, YORK Navy Systems pioneered reliable magnetic-bearing technology to cool submarines. The same durable and efficient technology is used on the YORK YZ.



Optimized Compressor:

An optimized, single-stage design enables YORK chillers to provide the best possible real-world energy efficiency. YORK YZ compressors also lead the industry with the widest operating range at off-design conditions where systems most often operate. New advanced aerodynamic system has been designed to operate with low GWP refrigerant R1233zd.



Low-Pressure Chiller:

For most of the past century, the YORK centrifugal chiller portfolio has offered low-pressure refrigerants to deliver high-efficiency chillers. The YORK YZ is designed to maximize the efficiency of a new, low-GWP, low-pressure refrigerant.

High-Speed Hermetic Induction Motor:

YORK was the first to combine low-maintenance, hermetically-sealed induction motors with variable-speed drives in 2004 to directly drive the compressors in air-cooled chillers. The YORK YZ builds on this reliable, proven technology to power our latest generation of centrifugal compressors.

OptiView Control Panel with Connected Service:

The full-color, interactive OptiView control panel of the YORK YZ offers over 100 setpoints, readouts, alerts and trending reports. In addition, data can be securely connected to the cloud-based analytics platform for remote monitoring and predictive diagnostics – another innovation first brought to you in YORK chillers. It is the same control system of YK and YMC².

Falling Film Evaporator:

The YORK-patented falling film design of the YORK YZ reduces refrigerant charge up to 60%, and reduces evaporator shell size up to 20%, compared to other flooded, low-pressure refrigerant designs. The YORK patented falling film design also eliminates the need for a refrigerant pump.

Capacity Control Logic:

This patented YORK control technology provides rapid response to the load on the building, ensuring the YORK YZ Chiller does not waste energy or work harder than needed.



Manufacturer reserves the rights to change specifications without prior notice.

Magnetic Driveline Superiority

The YZ variable-speed drive and advanced magnetic bearing lubrication free design deliver extraordinary efficiency, superior durability, simplified maintenance and a wider operating envelope than any chiller using oil- or refrigerant-lubricated compressor bearings.

Ultimate Performance Efficiency

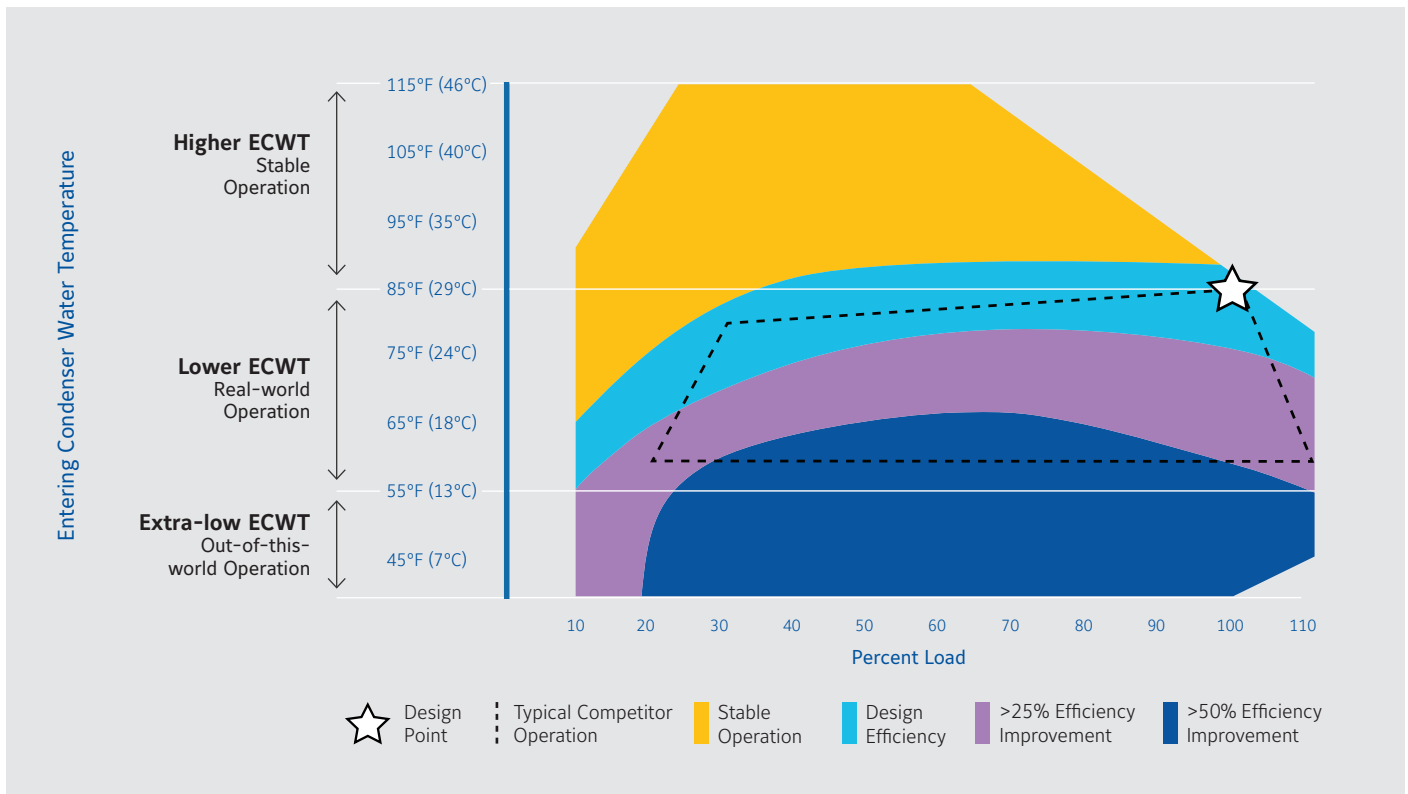
Thanks to magnetic bearing and lubrication free design YZ can run stably in the whole envelope shown in figure.

It provides highest energy efficiency when running at any low head condition, especially below 16°C water temperature inlet in the condenser (ECWT) where most of conventional chillers cannot operate.

YZ can take benefit of minimum lift applications, with **COP as high as 38**.

In the extra-low ECWT area on the map, running at low lift conditions (e.g. Data center) can occur at higher leaving evaporator temperatures, similar efficiencies can be achieved.

Note: The operating map can vary, please contact your JCI Representative for project specific details.



Minimum Driveline Maintenance and Costs of Ownership

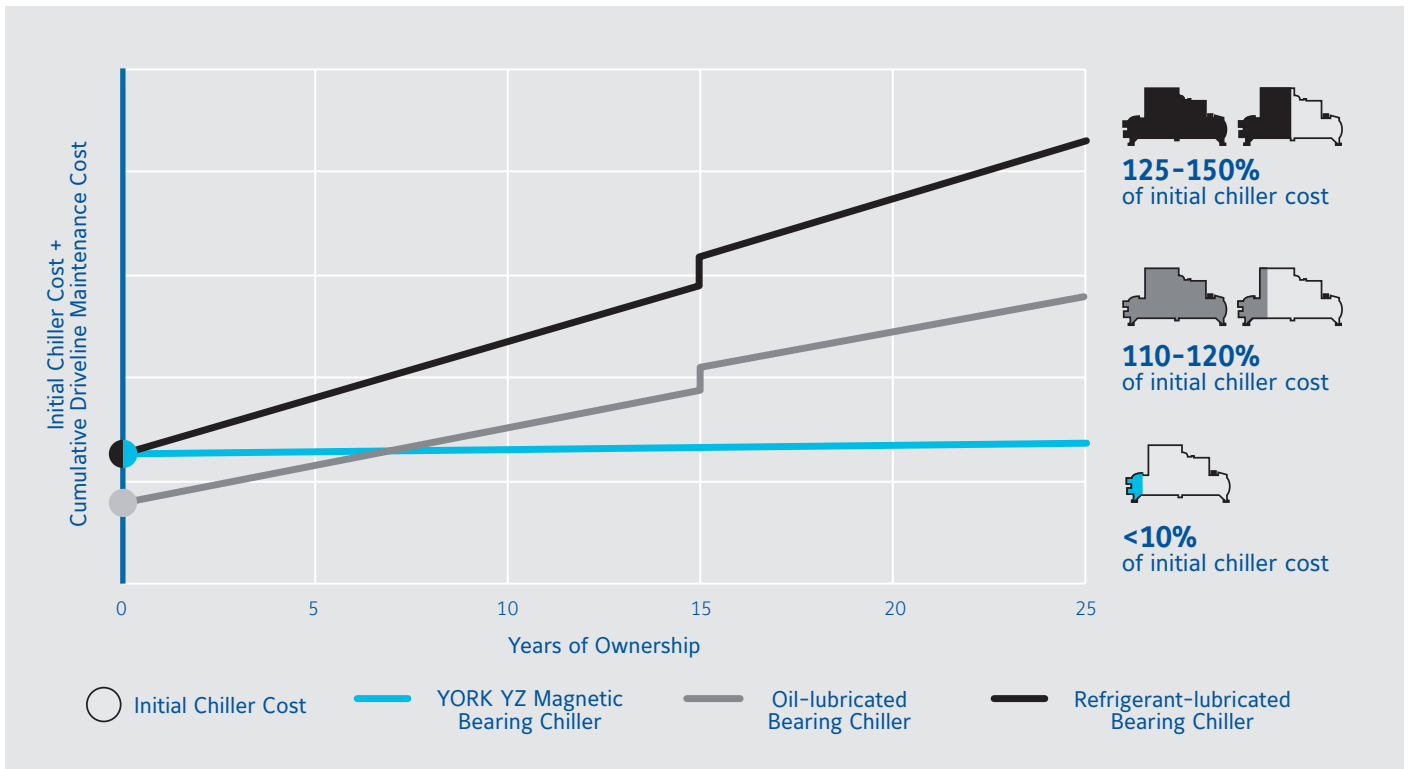
YZ driveline features a single moving assembly suspended in a magnetic field that does not require lubrication.

With fewer moving parts than traditional oil- or refrigerant-lubricated drivelines **longevity is enhanced and maintenance is reduced.**

The chart compares driveline maintenance (assuming other scheduled maintenance tasks are equal across centrifugal chillers)

Magnetic bearings and lubrication free designs mean:

- No scheduled compressor/motor teardowns; components are designed to last the life of the chiller
- No required filter changes
- No complex lubrication system maintenance



YZ are customized centrifugal units with job specific design. See below table as a reference, within Ecodesign capacity range.

Performances

YZ	900	1100	1300	1500	1600	1800	2000
Cooling capacity (kW)	900	1100	1300	1500	1600	1800	2000
EER	5.99	5.65	6.30	6.00	6.27	6.40	6.10
SEER	8.40	9.00	9.50	9.17	9.00	8.90	9.00
$\eta_{s,c}$ %	333	357	377	364	357	353	357
Sound pressure 1m (dB(A))	74	75	70	78	78	82	83

Ratings in accordance to Ecodesign, fixed water flow and variable outlet (FW/VO). For other Ecodesign calculations please contact your JCI Representative.

The table above shows only a representative sample of performance points based on generic project operating conditions working with R1233zd refrigerant.

For larger capacities up to 5500 kW, contact JCI Representative.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

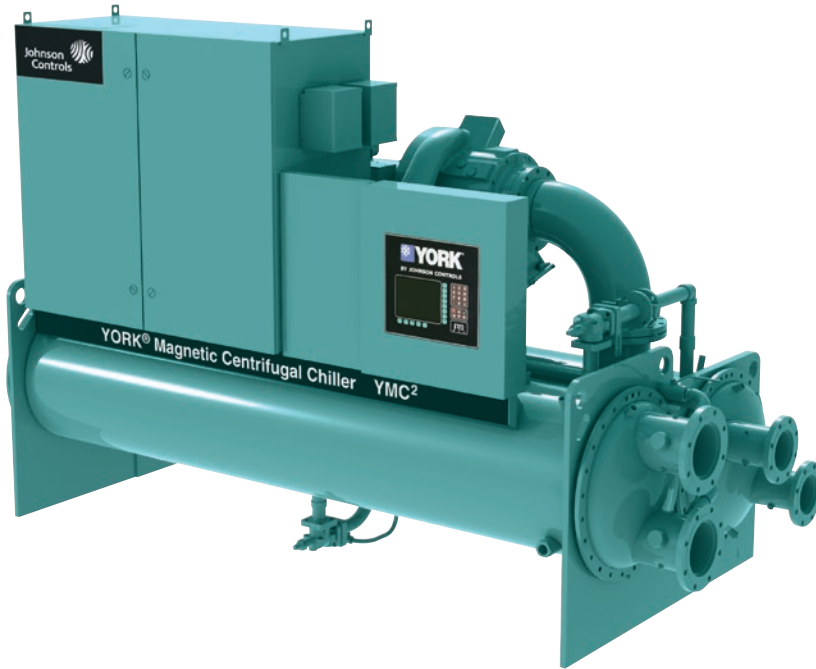
YZ	900	1100	1300	1500	1600	1800	2000	
Dimensions	Length	mm	4347	4394	4446	5130		
	Width	mm	1776	1880	2099	2356		
	Height	mm	2244	2375	2515	2594		
Refrigerant charge	kg	230	303	319	364	353	462	452

1. All dimensions are approximate. Certified dimensions, shipping and operating weights are available on request.

2. Refrigerant charge quantity and unit weight will vary based on tube count.

YMC² Water-cooled magnetic centrifugal chiller

Cooling capacities from 800 kW to 3500 kW



“Tailor and tune”
customized units around
job specific design.

Features

Enhanced efficiency

Achieved through application of active magnetic bearing technology with variable speed drive.

Enhanced sustainability

Achieved by leak free refrigerant design, lower refrigerant charge and falling film evaporator.

Low sound levels

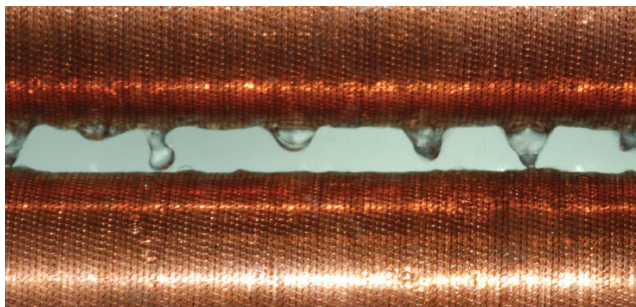
Advanced technology results in sound levels as low as 75dBA.

Superior reliability

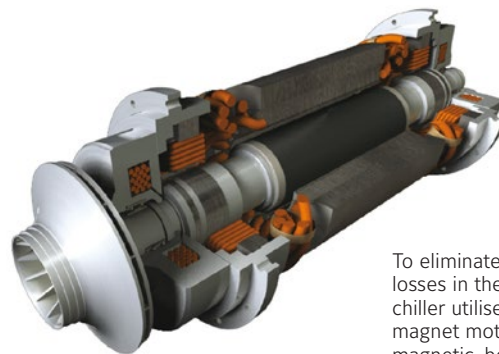
Use of active magnetic bearing technology removes friction and the need for oil resulting in a quieter and more reliable chiller.

Superior reliability

Between the centrifugal technologies, this series has the smallest dimensions, fitting where others simply cannot.



A falling-film evaporator is more efficient because refrigerant is sprayed over the tubes, offering improved heat transfer and reducing refrigerant charge by 30%.



To eliminate mechanical-contact losses in the driveline, the YMC² chiller utilises a permanent-magnet motor and active magnetic-bearing technology.

Water-cooled magnetic centrifugal chiller

YMC² S0800AA to S3500AB



YMC² are customized centrifugal units with job specific design. See below table as a reference, within Ecodesign capacity range.

Performances

YMC ²	S0800AA	S1000AA	S1200AB	S1400AA	S1600AB	S1800AB	S2000AB
Cooling capacity (kW)	800	1000	1200	1400	1600	1800	2000
EER	6.06	6.13	6.32	6.33	6.31	6.07	6.00
SEER	7.58	7.83	7.92	8.34	8.59	7.83	8.16
η _{s, c}	300	310	304	331	340	310	323
Sound pressure at 1 m (dBA)	77	77	76	76	77	79	80

Ratings in accordance to Ecodesign, fixed water flow and fixed outlet (FW/FO). For other Ecodesign calculations please contact your JCI Representative.

The table above shows only a representative sample of performance points based on generic project operating conditions working with R513A refrigerant.

For larger capacities up to 3500 kW or R134a information, contact JCI Representative.

The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

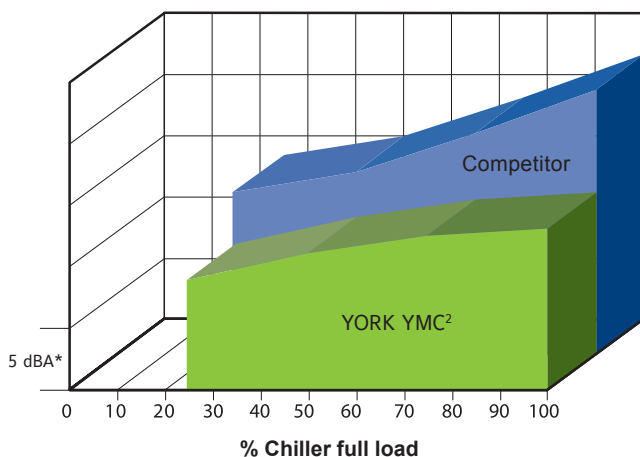
Technical data

YMC ²	S0800AA	S1000AA	S1200AB	S1400AA	S1600AB	S1800AB	S2000AB	
Dimensions	Length	mm	3048				4267	
	Width	mm	1880				2007	
	Height	mm	2410		2499		2573	
Shipping weight (kg)	5171		5810		6579		7809	
Refrigerant charge (kg)	278	280	423	454	445	612	656	

1. All dimensions are approximate. Certified dimensions are available on request.
2. Refrigerant charge quantity and shipping weights will vary based on tube count.
3. Shipping weights are based on fully assembled and charged units.
4. Refer to product drawings for detailed weight information.

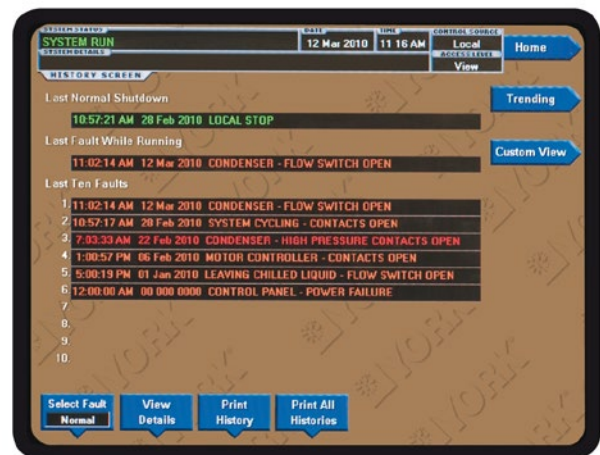
Superior sound reduction

A-Weighted sound pressure level (dBA (re: 20μPa))
Measured in accordance with AHRI-575



The YMC² chiller is so much quieter than competitive magnetic-bearing chillers, it sounds about half as loud.
*Note: each segment on the Y axis = 5 dBA.

OptiView control centre



The OptiView control centre provides complete diagnostics to speed troubleshooting.



Manufacturer reserves the rights to change specifications without prior notice.

YK Water-cooled centrifugal chiller

Cooling capacities from 800 kW to 11250 kW



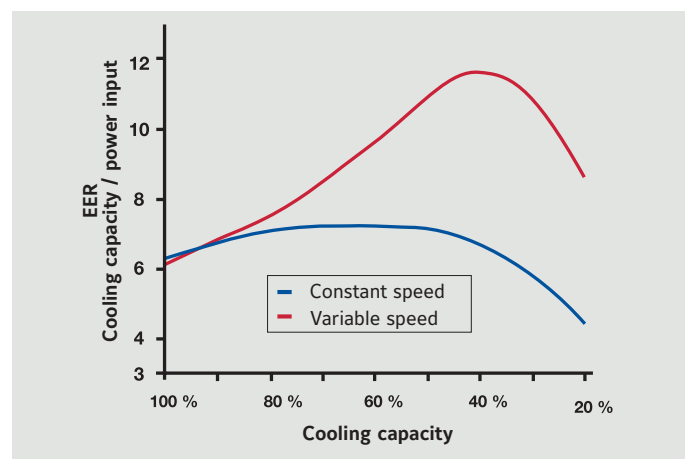
“Tailor and tune” customized units around job specific design.

Old but Bold, wondering why?

- Cooling capacity up to approx. 4500 kW with standard 400V VSD; custom made unit can reach 11250 kW.
- 30+ years of experience in the market, with R134a and unit mounted Variable Speed Drive starter.
- The YORK YK chiller is designed for air conditioning and process applications where very high cooling capacities are required, available also with medium voltage supply.
- The high efficiency single-stage centrifugal compressor is powered by an open-drive motor. This provides flexibility to operate the chiller with electricity, steam, or gas depending on utility rates. Lubrication by oil.
- The YK utilizes a falling film evaporator to increase chiller efficiency and reduce refrigerant charges.
- The inherent design flexibility of this chiller allows it to be precisely selected for any building load profile.
- The YK provides the highest flexibility for customization and its small footprint design with R513A make it ideal for retrofit applications too. **Available now with R1234ze refrigerant option for improved sustainability.**



OptiView panel



Speed comparison

Refer to <https://www.ahrinet.org/wccl> for water cooled Program Scope, Inclusions, and Exclusions as some options listed herein fall outside the scope of the AHRI certification program. For verification of certification, go to the AHRI Directory at www.ahrirectory.org

Water-cooled centrifugal chiller

YK



YK are customized centrifugal units with job specific design. See below table as a reference.

Nominal capacity

Model	Code	Cooling capacity kW (HFC refrigerants)
YK	Q3 - Q7	800 - 2100
	P7 - P9	1750 - 2800
	H9	2400 - 3800
	K1 - K7	3200 - 9850

Cooling capacities at 7°C leaving chilled water and 30°C entering condensed water.

The table above shows only a representative sample of performance points based on generic project operating conditions working with R513A and R134a refrigerants. For R1234ze information contact your JCI Representative.

Heat Recovery

The YK Heat Recovery option can be used for domestic hot water preheat, process heat, facility air reheat, and humidity control. Heat recovery delivers operational savings, CO2 reductions, and reduced water consumption.



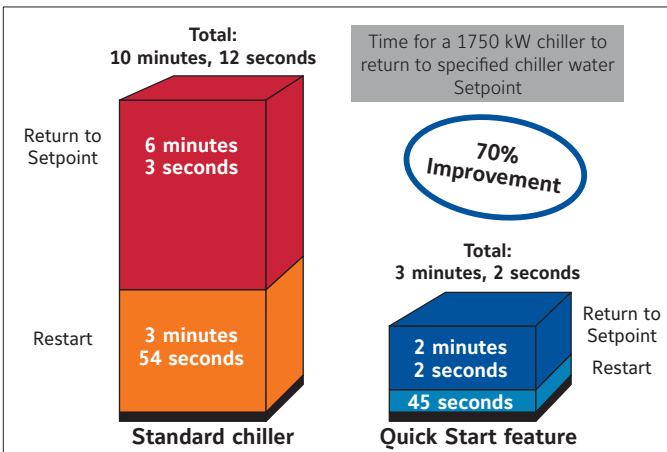
Medium Voltage Variable Speed Drive

YORK has a full line of unit mounted and floor mounted Variable Speed Drives, from 380V to 11,000V, to maximize operational savings at off design conditions; which typically occur 99% of the time!



Quick Start (only available for VSD units)

Utilize Quick Start technology to improve chiller starting times and get back to setpoint up to 70% faster than standard chiller designs!



Manufacturer reserves the rights to change specifications without prior notice.

Tailored water-cooled offerings

From 2021 the European market would have to face growing environmental challenges, based on HFC phase down (quota system) and decarbonisation process towards 2050.

YORK is fully ready to support its Customers, introducing now to market new low GWP refrigerant chillers and heat pump solutions to replace boilers or feed large district cooling/heating networks. Connect with your JCI representative for details and support.

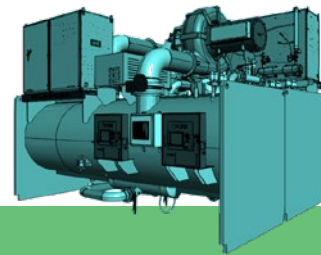


YZ
Magnetic bearing centrifugal chiller



Based on the standard YZ range and single stage compressor with 400V supply, the capacity is now up to 5.5 MW to cover larger installations.

YZ works with low GWP new refrigerant R1233zd (GWP = 4.5, F-Gas)



YZD
Dual magnetic bearing centrifugal chiller

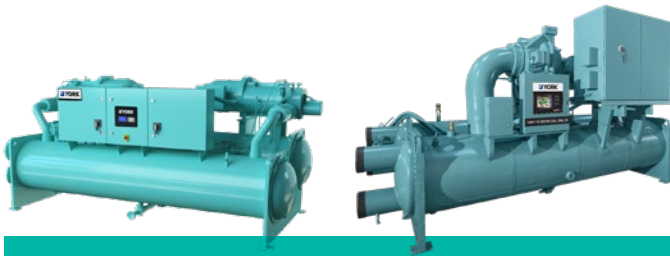


Based on proven lubrication free and mag bearing technology adopted in the standard YZ, YZ Dual is designed with two single stage compressors (series counterflow arrangement) and offers:

- Better lift on each compressor and improved performance
- Higher capacity range
5.5 to 7 MW
- Reduced footprint
- Independent compressor operation for redundancy

Ask how our AHRI certified products can be customized to meet your needs.

YORK is committed to taking on the most unique and complex customer challenges with highly flexible product platforms.



YVWH high head screw compressor with R1234ze
YK Oil lubricated centrifugal chiller with HFO R1234ze



The YVWH water-cooled screw and YK water-cooled centrifugal chillers offer the highest degrees of flexibility.

The YORK screw range will be extended during 2022 with new high head compressor to match dry cooler requirements and heat pump applications.

YK offering now includes R1234ze refrigerant option for improved sustainability. AHRI certified.



Heat Pumps

Customized temperature settings with both HFC and HFO refrigerants



These are highly engineered products to meet special applications, such as large district heating with special operating temperatures.

Key parameters to be taken into account for the unit design are for example:

- Hot water production temperature level (condenser)
- Available source temperature (evaporator)
- Heating capacity target

NOTE: Please refer to specific section of this catalog for custom Heat Pumps offerings and new HFO refrigerants available.

Ask how our AHRI certified products can be customized to meet your needs.

Where there is waste energy,
there is an application for
an absorption chiller.



What are absorption chillers?

- **Employs heat and a concentrated salt solution** (lithium bromide) to produce chilled water.
- **Eliminates ozone depleting, global warming accelerating refrigerants.** Water is the refrigerant, which has zero Global Warming Potential (GWP).
- **Uses the lithium bromide solution's high affinity for water (hygroscopic properties) to create a high vacuum in the evaporator/absorber.** The vacuum causes the refrigerant (water) to boil at 2°C.
- **Absorption refrigeration cycle uses approximately 10% of electricity** compared to an equivalent centrifugal chiller. Very little electricity compared to an electric motor-driven compression cycle chiller.
- **Allows use of a variety of heat sources:** directly using a gas burner, recovering waste heat in the form of low or high temperature hot water, low-pressure or high-pressure steam, exhaust gas, or boiler-generates hot water or steam.
- **Available in flexible configurations.** The easy-to-read control panel can be connected to any building automation system for remote monitoring and control.



YORK® YHAU-CL-DXS single-effect absorption chiller's two-step design backed with an auxiliary cycle provides a wide operating envelope utilizing waste heat as low as 55°C where competitive offerings cannot operate.

YORK® YHAU-CW double-effect design combines the flexibility of a wide operating envelope with the efficiency and reliability made possible by today's advanced technology. The innovative YHAU-CW design is optimally suited for a variety of steam pressures that are commonly found in combined heat and power (CHP) systems, and commercial cooling and industrial process applications.



Applying absorption chillers

Reusing Waste Energy for Cooling and Comfort



Industry
Petroleum and Chemical

Driving Heat Source
Uses heat from desalting and distillation (fractionation) processes

Energy
Waste Heat

Application and Chiller Selection
For hot water or low-pressure steam: [YHAU-CL/CH](#) & [YHAU-C](#)
For direct firing or high-pressure steam: [YHAU-CG](#) & [YHAU-CW](#)



Industry
Brewery

Driving Heat Source
Uses heat recovered from cookers and kettles

Energy
Waste Heat

Application and Chiller Selection
For hot water or low-pressure steam: [YHAU-CL/CH](#) & [YHAU-C](#) & [YHAU-L](#) & [YHAU-LL](#)



Industry
Printing

Driving Heat Source
Uses heat recovered from press drying units

Energy
Hot Air

Application and Chiller Selection
For hot water: [YHAU-CL/CH](#) & [YHAU-CHW](#)



Industry
Pulp and Paper Mill

Driving Heat Source
Uses heat from the combustion of bark and lignin

Energy
Steam

Application and Chiller Selection
For low-pressure steam: [YHAU-C](#)
For high-pressure steam: [YHAU-CW](#)



Industry
District Cooling

Driving Heat Source
Uses low- and high-pressure district steam

Energy
Steam

Application and Chiller Selection
For low-pressure steam: [YHAU-C](#)
For high-pressure steam: [YHAU-CW](#)

APPLICATION OPPORTUNITIES
FOR ABSORPTION CHILLERS



Industry
Incinerator

Driving Heat Source
Uses recovered heat from hot exhaust

Energy
Hot Exhaust

Application and Chiller Selection
For hot water or low-pressure steam: [YHAU-CL/CH](#) & [YHAU-C](#)



Industry
Landfill Gas

Driving Heat Source
Uses heat from methane gas burners or methane-fired boilers

Energy
Gas

Application and Chiller Selection
For hot water or low-pressure steam: [YHAU-CL/CH](#) & [YHAU-C](#)
For direct firing: [YHAU-CG](#) & [YHAU-CE](#)



Industry
Biogas

Driving Heat Source
Uses heat from methane gas burners or methane-fired boilers

Energy
Gas

Application and Chiller Selection
For hot water or low-pressure steam: [YHAU-CL/CH](#) & [YHAU-C](#)
For direct firing: [YHAU-CG](#) & [YHAU-CE](#)



Industry
Combined Heat and Power

Driving Heat Source
Uses heat recovered from exhaust gas and/or engine coolant

Energy
Hot Exhaust; Hot Water

Application and Chiller Selection
For hot water or low-pressure steam: [YHAU-CL/CH](#) & [YHAU-DXS](#) & [YHAU-C](#)
For high-pressure steam: [YHAU-CW](#) & [YHAU-CHW](#)



Industry
Solar Thermal

Driving Heat Source
Uses a solar panel array as a sustainable energy source

Energy
Hot Water

Application and Chiller Selection
For hot water: [YHAU-CL/CH](#)

YORK absorption chillers and heat pumps






With innovative 2-step evaporation and absorption-cycle technology

Driving Heat Source	Model and Description	
<p>Hot Water, Steam, Direct Fired</p>	<p>Absorption Heat Pump (Up to 95°C) Model: YHAP Capacity: Custom Application: District heating, industrial process heating</p>	
<p>Hot Water</p>	<p>Single Effect Hot Water Model: YHAU-CL/CH Capacity: 105 - 6,350 kW Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>Low Temperature Hot Water</p>	<p>Single Effect Double Lift Hot Water Model: YHAU-CL/CH-DXS Capacity: 176 - 2,813 kW Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>Low Pressure Steam</p>	<p>Single Effect Steam Model: YHAU-C Capacity: 422 - 5,275 kW Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>High and Medium Pressure Steam</p>	<p>Double Effect Steam Model: YHAU-CW Capacity: 422 - 14,067 kW Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>Small Direct Fired</p>	<p>Small Double Effect Natural Gas or Light Oil * Model: YHAU-CG/CA-CXR Capacity: 105 - 352 kW Application: Commercial cooling</p>	
<p>Direct Fired</p>	<p>Large Double Effect Natural Gas or Light Oil Model: YHAU-CG/CA Capacity: 422 - 5,626 kW Application: Commercial cooling, industrial process cooling</p>	

* Utilizes standard cycle

YORK absorption chillers and heat pumps

With innovative 2-step evaporation and absorption-cycle technology

Driving Heat Source	Model and Description	
<p>Exhaust Gas</p>	<p>Double Effect Direct Exhaust Gas Model: YHAU-CE Capacity: 527 - 5,064 kW Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>Exhaust Gas and Low Temperature Hot Water</p>	<p>Multi Energy Exhaust and Jacket Hot Water Model: YHAU-CE-J Capacity: 527 - 5,064 kW Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>Exhaust Gas and Low Temperature Hot Water and Direct Fired</p>	<p>Multi Energy Exhaust, Jacket Hot Water, Direct Fired Model: YHAU-CGE-J Capacity: Custom Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>Natural Gas and Low Temperature Hot Water</p>	<p>Gas Gene-Link Model: YHAU-CG-J Capacity: 422 - 5,626 kW Application: Combined heat and power (CHP), commercial cooling, industrial process cooling</p>	
<p>Medium Pressure Steam and Low Temperature Hot Water</p>	<p>Steam Gene-Link Model: YHAU-CW-J Capacity: 422 - 14,067 kW Application: Combined heat and power (CHP), industrial process cooling</p>	
<p>Hot Water, Steam, Direct Fired</p>	<p>Low Leaving Chilled Water Temperature (Down to -6°C) Model: YHAU-LL Capacity: 176 - 1,758 kW Application: Industrial process cooling / refrigeration</p>	

The 2-step cycle in YORK absorption chillers

Reliable energy-saving technology, explained.

Conventional Cycle

Another way of thinking about this process is to imagine a rocket ship trying to reach the moon.

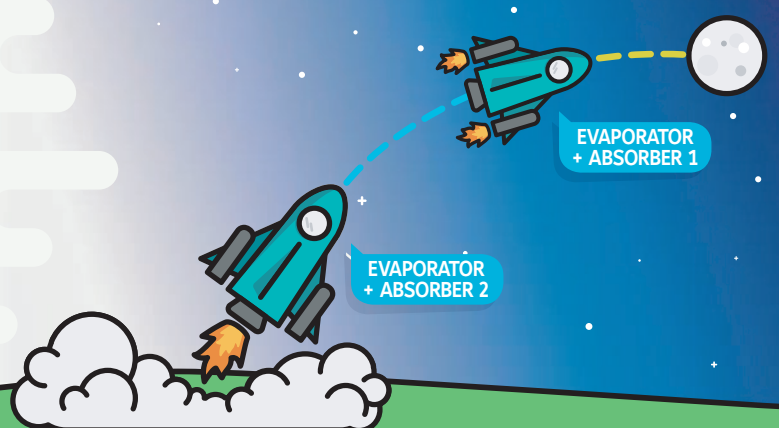
In the example here, the rocket ship only has one rocket to push it the entire distance from the earth to the moon – requiring 100% of the fuel. In much the same way, a conventional-cycle absorption chiller only has one evaporator and absorber to overcome cooling output requirements and achieve the cooling load, using 100% input energy.



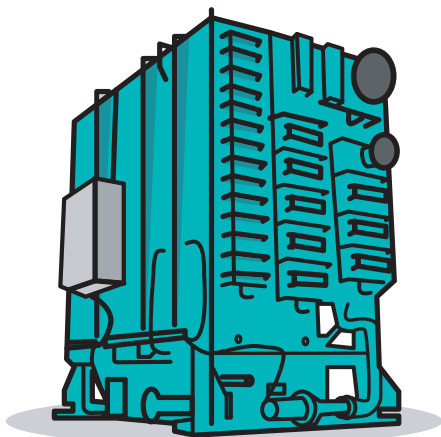
2-Step Evaporator/Absorber Cycle

Now imagine the rocket ship has two rockets to share the goal of reaching the moon.

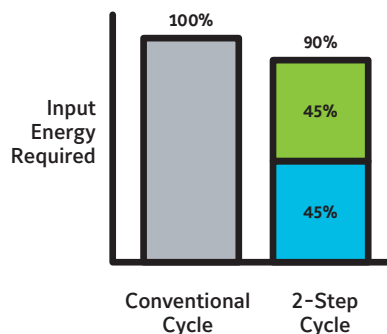
Both rockets need less fuel, since they share the effort to get the rocket ship to its goal. Instead of a single rocket bearing the entire job from point A to point B, two rockets split the effort, allowing for a continuation of effective effort and requiring only 90% of the fuel. This example illustrates the 2-step evaporator/absorber cycle, which allows the evaporator and absorber to achieve the necessary cooling output over two steps while using 10% less input energy.



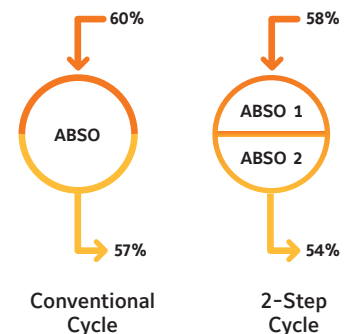
The 2-step cycle evaporator/absorber requires less energy input and a lower salt solution concentration, allowing for increased reliability and 10% energy savings.



Input Energy Required to Achieve Cooling Load



Salt Solution Concentration



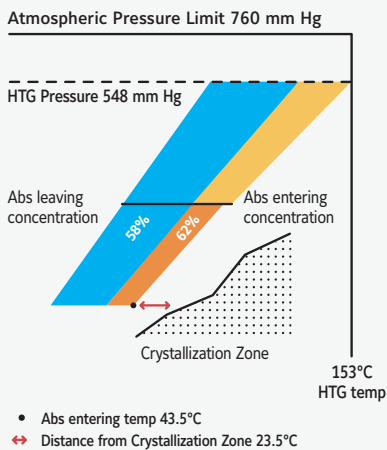
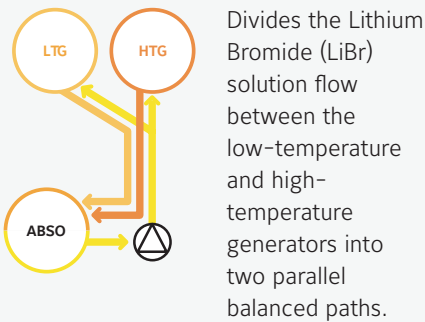
Learn more about the benefits of YORK 2-step cycle technology at [YORK.com/Absorption-Chillers](https://www.york.com/Absorption-Chillers)

YORK parallel flow and 2-step cycle absorption chiller technology

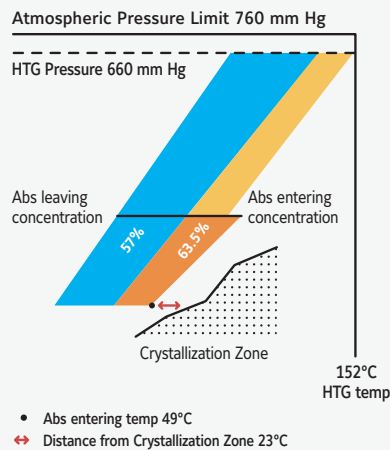
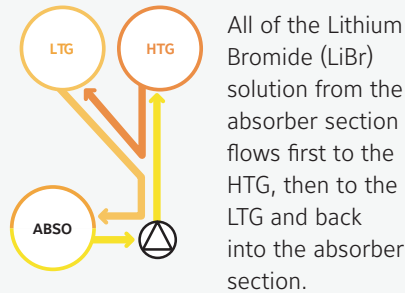
A challenge in absorption chiller design is engineering a unit that operates furthest from the crystallization line. Johnson Controls absorption engineers accepted the challenge with the development of a parallel flow and 2-step evaporator/absorber design technology.

Typical Industry Flow Cycles

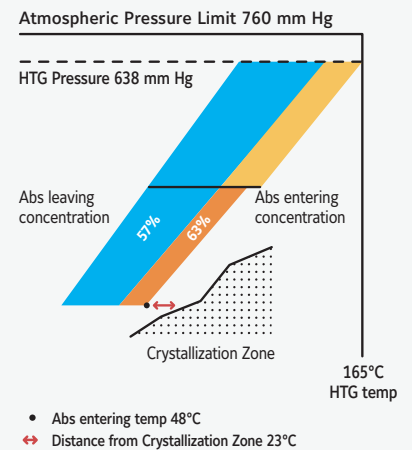
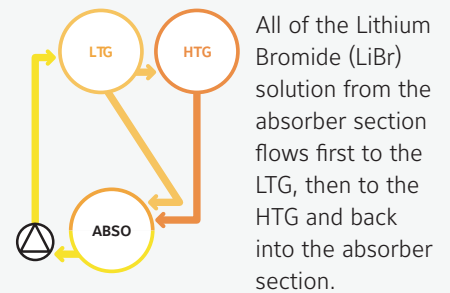
Parallel



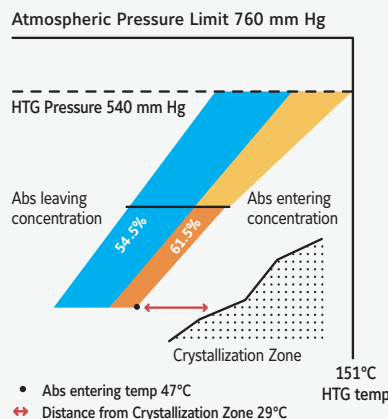
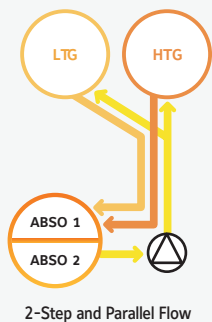
Series



Reverse



Benefit of Combined Parallel Flow and 2-Step Evaporator/Absorber Technology



Combining these two technologies, our two-step and parallel flow design provides the lowest temperature, pressure and concentration. Because this design uses a lower LiBr concentration, it is easier to heat in the generator section. Therefore, it requires a relatively lower grade for the driving heat source, providing a high COP.

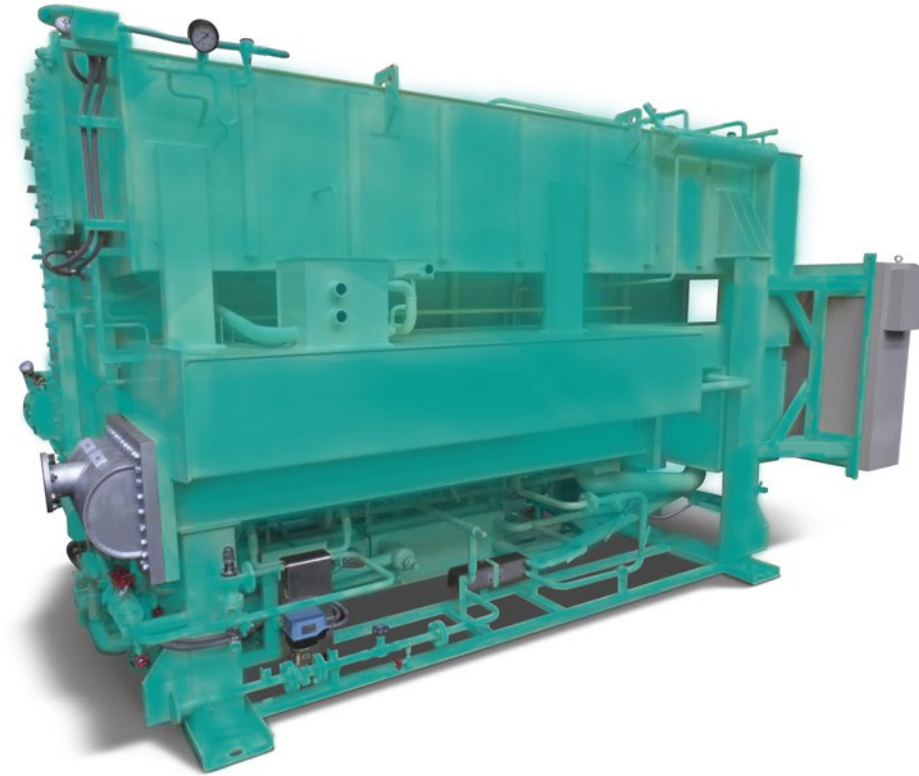
YORK parallel flow and 2-step absorption chiller technology operates furthest from the crystallization zone for efficient and reliable operation compared to other designs.

Conditions: Chilled water entering/leaving: 12°C/7°C. Cooling water entering: 32°C.
"Absorption Chillers - Practice of new operation management" - 2nd Edition, published by JRAIA, 2017

YHAP

Absorption heat pump

Custom capacities from 1 MW to 40 MW



Achieves highest energy and water savings while helping reduce CO₂ emissions

The **YORK® YHAP** absorption heat pump saves energy by transferring heat (energy) from waste heat sources to increase the temperature of supplied hot water. The additional heat (energy) required by a heat pump system is far less than needed by a boiler.

YHAP absorption heat pumps are ideal for district heating and industrial process heating applications, because they take advantage of waste heat energy found in industrial facilities and deliver high-temperature hot water.

Maximizing performance by design

Driving heat sources: **YORK®** absorption heat pumps use a variety of driving heat sources, such as jacket water from a gas engine, low to high pressure steam, direct fired or even exhaust gas. As a result, the unit helps reduce primary energy consumption, water and carbon dioxide emissions. The **YHAP** design is also more efficient and reliable than conventional designs, because it employs innovative, 2-step evaporation and absorption technology.

To meet the needs of different heating applications, two types of **YHAP** absorption heat pumps are available:

Type I heat pump, also referred to as a heat amplifier, is driven by a high-temperature driving heat source in the generator section.

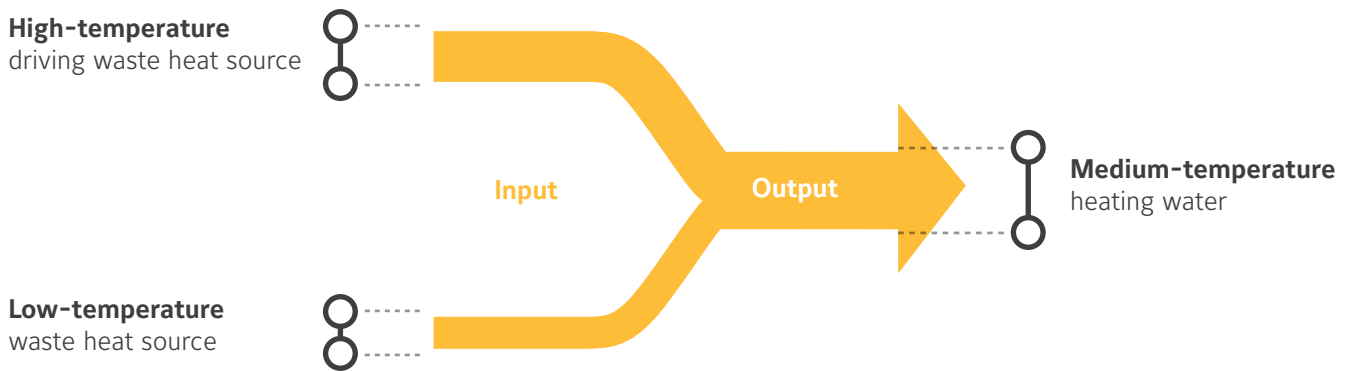
Type II heat pump, also referred to as the heat transformer, is driven by a medium-temperature driving heat source in the generator and evaporator sections.

Two Types of YHAP Heat Pumps



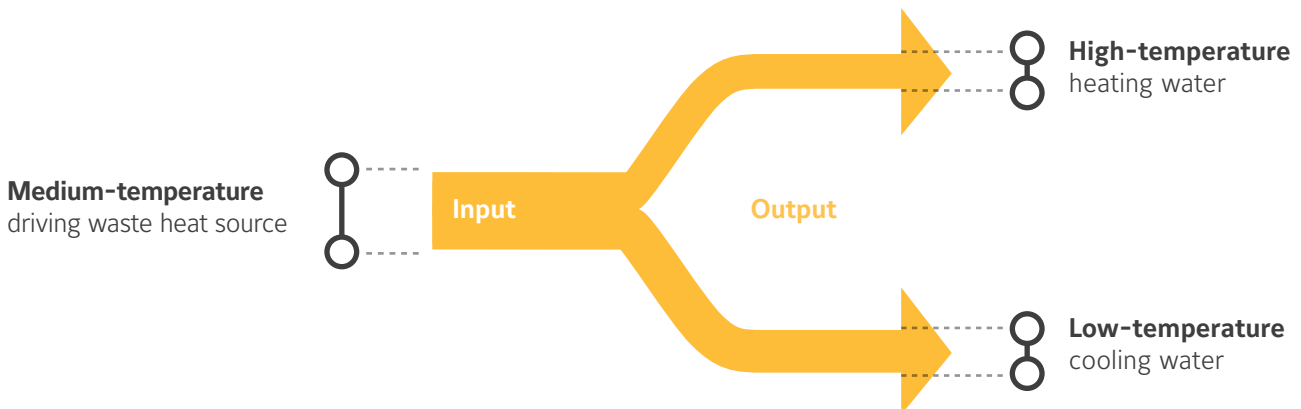
Type I

Driven by high-temperature driving heat source in generator



Type II

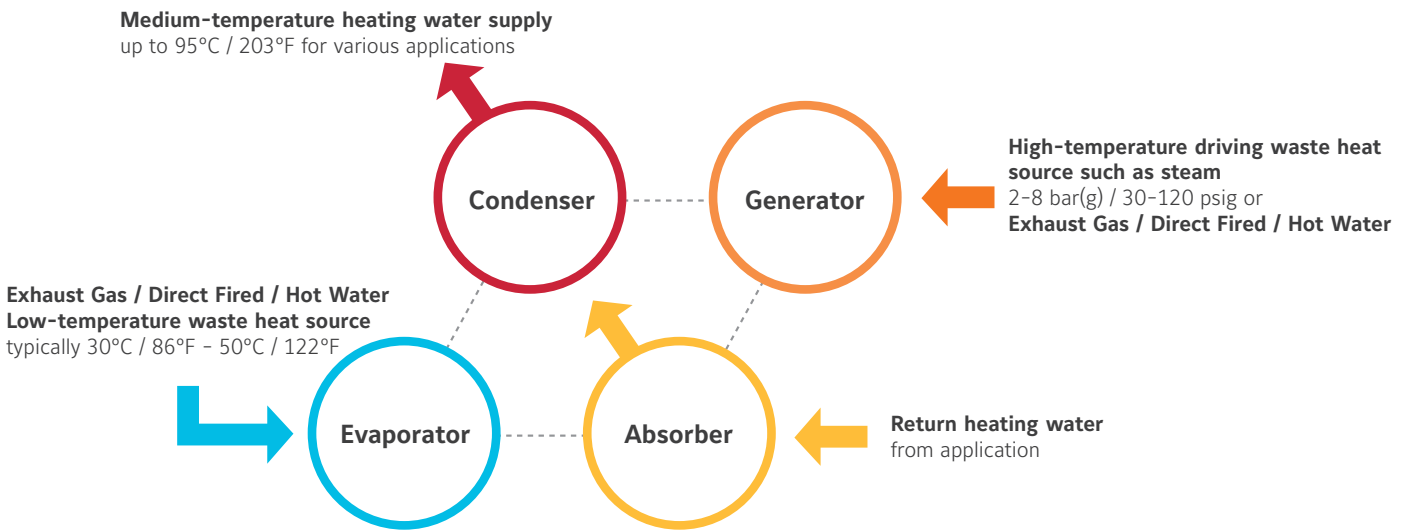
Driven by medium-temperature driving heat source in generator and evaporator



Type I Flexible Operating Envelope

The Type I heat pump, also referred to as a heat amplifier, is driven by a high-temperature waste heat source in the generator section. The low-temperature waste heat source is fed into the evaporator section. With these two heat sources, the Type I heat pump amplifies and provides useful medium temperature heat from the absorber and condenser section.

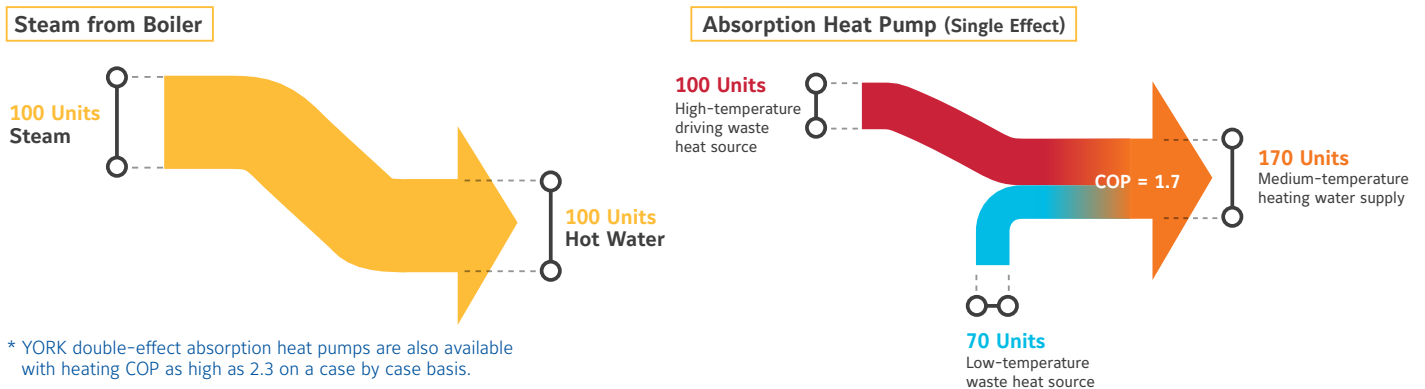
How it Works



Heat Balance

Compared to the typical steam boiler's 0.93 Coefficient of Performance (COP), the Type I unit provides a COP as high as 1.7*, delivering up to 95°C (203°F) hot water for various heating applications. This unit also provides a good turndown over a range of heating loads.

Performance of Boiler Compared to Absorption Heat Pump





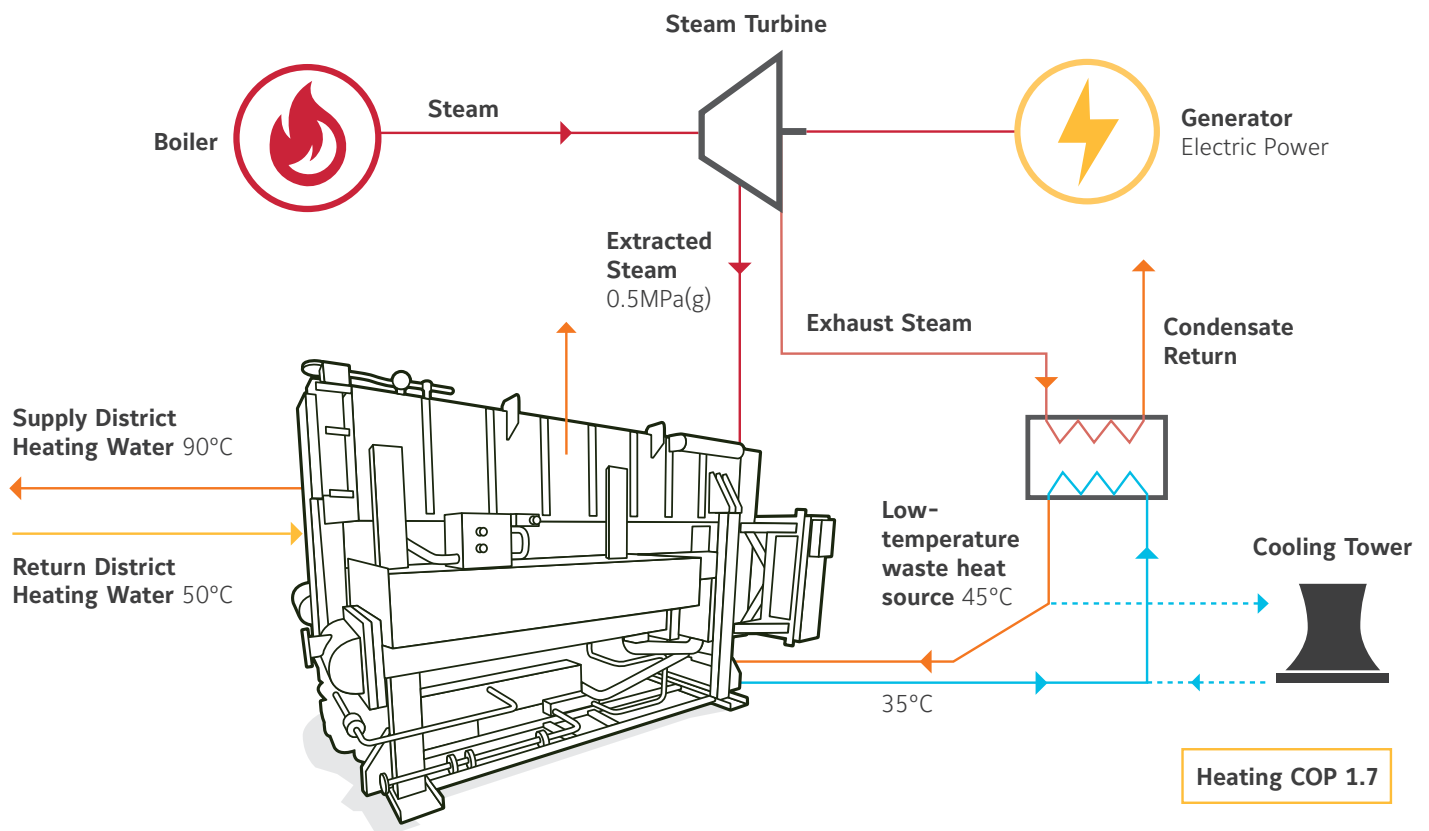
Type I Industrial Application

The Type I unit produces a high amount of medium-temperature heat from the absorber and condenser section based on a relatively smaller amount of high-temperature waste heat in the generator section and low-temperature waste heat in the evaporator section.

In this Type I application, the extracted steam at 0.5 MPa(g) from the power steam turbine is the driving heat source in the generator section. The water diverted from the cooling tower is the low-temperature waste heat source that is fed into the evaporator section. The heat pump delivers 90°C (194°F) from

the absorber and condenser section, which can be used for district heating or boiler feed water pre-heating. This application saves primary energy, reduces steam and water consumption and helps cut emissions.

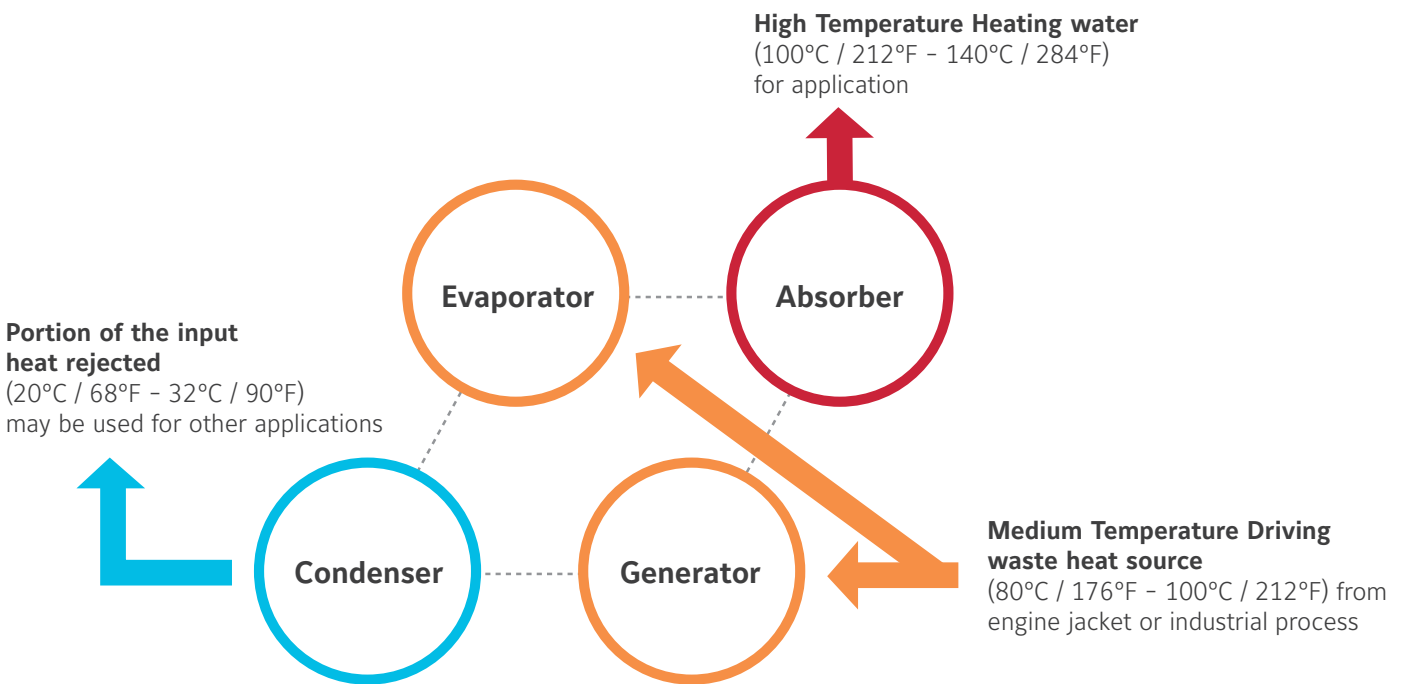
With a Type I absorption heat pump, it is typical to have a heating COP of 1.7, meaning 1.7 units of heat is obtained from the absorber and condenser with a 1.0 unit of driving heat source in the generator and .7 units being in the evaporator section.



Type II Flexible Operating Envelope

The Type II heat pump, also referred to as a heat transformer, is driven by a medium-temperature waste heat source in the generator and evaporator sections. This unit transforms and provides small, useful high-temperature heat from the absorber section. The rejected heat from the condenser can be used as the cooling water for other applications.

How it Works



Heat Balance

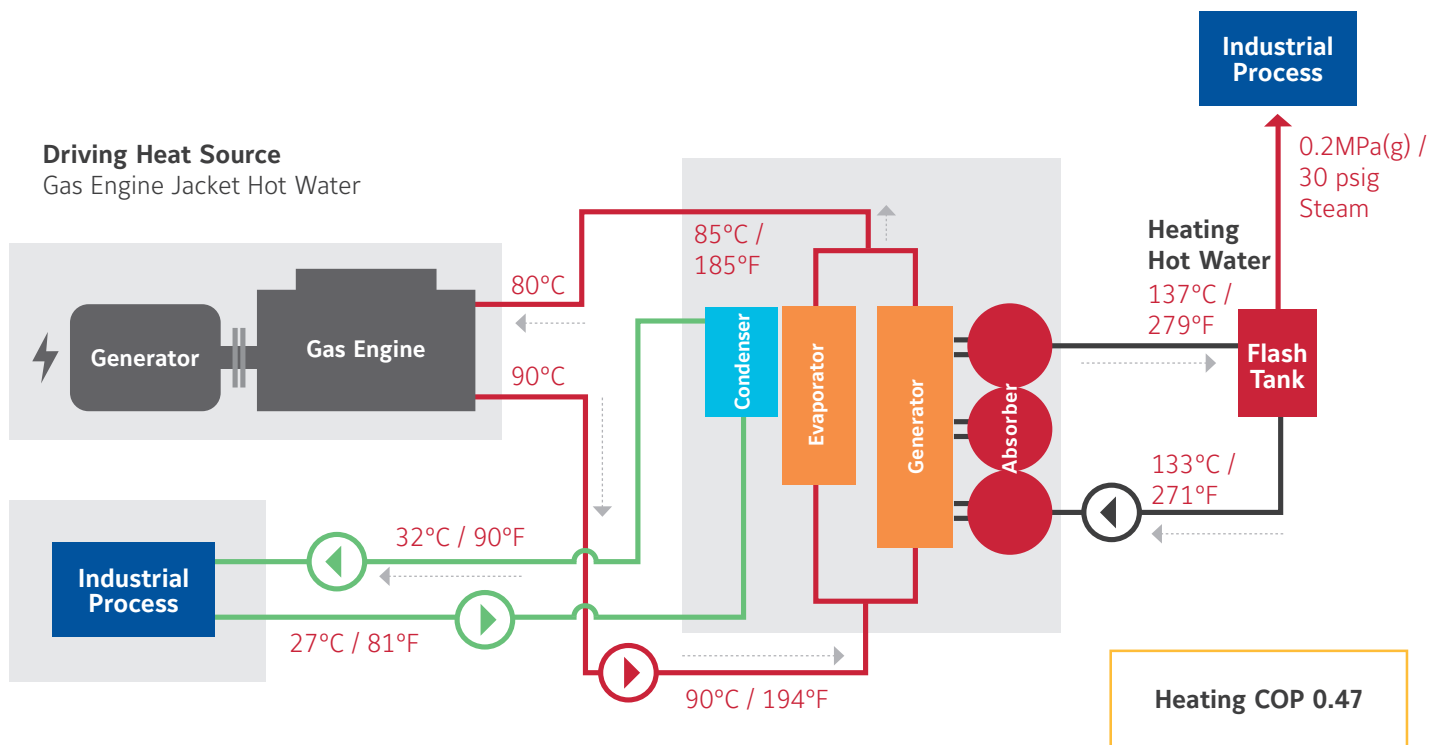
The Type II heat pump with a COP of 0.47 can deliver high-temperature hot water up to 140°C (284°F), which is ideal for industrial processes. This unit also provides a good turndown over a range of heating loads.



Type II Industry Application Process Heating Application

With a Type II absorption heat pump, it is typical to have a heating COP of 0.47, meaning 0.47 units of heat is obtained from the absorber with a 1.0 unit of driving heat source in the evaporator and generator. The 0.53 units of heat rejected in the condenser can be used for other process applications.

In this Type II absorption heat pump application, the jacket water of the gas engine at 90°C (194°F) is the driving heat source. The heat pump delivers 137°C (279°F) from the absorber section that can be flashed in a tank to produce low-pressure steam at 0.2 MPa(g) for process heating. A portion of the input heat is rejected through the condenser section and is used for other purposes in the facility.



YHAU-CL/CH

Single Effect hot water driven absorption chiller

Cooling capacities from 105 kW to 6350 kW



Features

Flexible Operating Envelope

The **YORK YHAU-CL/CH** Single Effect Hot Water absorption chiller provides efficiency and reliability through the use of innovative technology that is optimized to use low temperature waste heat – as low as 70°C where competitive offerings cannot operate. Common applications include comfort or industrial process cooling that use or recover waste heat from combined heat and power (CHP) systems, industrial process or other available heat sources. The **YHAU-CL/CH** cooling capacity ranges from 105–6,350 kW.

The **YHAU-CL/CH** has the unique ability to be used for applications where the

- Chilled water leaving temperature as low as 1°C.
- Cooling water temperature entering temperature as high as 37°C.
- Hot water temperature, driving heat source, entering temperature as high as 160°C and as low as 70°C.

Refrigerant cycle

The **YORK YHAU-CL/CH** high efficiency single-effect absorption refrigeration cycle uses water as the refrigerant and lithium bromide as the absorbent. It is the strong affinity and ease of separation that these two substances have for each other that makes the cycle work. The entire process occurs in hermetic vessels in a near complete vacuum.

Single Effect hot water driven absorption chiller

YHAU-CL/CH



Two Step Evaporator and Absorber Design

Efficiency, Reliability, Cost of Ownership

The innovative 2-step evaporator and absorber design is more efficient than a conventional cycle. This ingenious design splits the absorption process into two steps, similar to how a series-counter-flow arrangement splits the work between two chillers. The result of the design allows the **YHAU-CL/CH** to perform the absorption function with lower solution concentrations than conventional designs, increasing efficiency and reliability, and decreasing cost of ownership.

Reliability is enhanced because the solution concentrations are lower leaving the absorber, which allows the entire cycle to operate at lower concentrations virtually eliminating the possibility of crystallization. Efficiency is enhanced because the **YHAU-CL/CH** can take advantage of lower than normal hot water temperatures in the generator. This is because at lower concentrations the solution will boil at a lower temperature in the generator.

Lastly, total operating cost decreases because of the lower concentration of the solution entering the generator, a wider temperature range of hot water can be used, reducing pumping horsepower.

Nominal capacity

YHAU-CL/CH model	30EXE	40EXE	50EXE	65EXE	80EXE	100EXE	130EXE	160EXE	200EXE	255EXE	320EXE	400EXE	500EXE
Cooling Capacity kW	105	141	179	222	271	352	443	563	721	869	1125	1407	1758
COP (low temp. hot water)	0.78	0.78	0.78	0.78	0.78	0.76	0.78	0.78	0.78	0.78	0.78	0.78	0.78

YHAU-CL/CH model	630EXW2S	700EXW2S	800EXW2S	900EXW2S	1000EXW2S	1120EXW4S	1250EXW4S	1400EXW4S	1500EXW4S	1600EXW4S	1680EXW4S	1800EXW4S	1900EXW4S	2000EXW4S
Cooling Capacity kW	1934	2110	2461	2708	3024	3411	3938	4431	4852	5134	5274	5650	5960	6350
COP (low temp. hot water)	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78

At 6°C leaving chilled water, 90°C entering generator water, and 27°C entering condenser water.

Technical data

YHAU-CL model		30EXE	40EXE	50EXE	65EXE	80EXE	100EXE	130EXE	160EXE	200EXE	255EXE	320EXE	400EXE	500EXE
Dimensions	Length mm	1750	2100	2500	3050	2200	2600	3150	3800	4600	3250	3900	4700	5700
	Width mm	1550				1900				2350				
	Height mm	2100				2500				3200				
Operating weight kg		2900	3300	3800	4400	4700	5500	6500	7800	9100	11300	13300	15500	18600

YHAU-CL model		630EXW2S	700EXW2S	800EXW2S	900EXW2S	1000EXW2S	1120EXW4S	1250EXW4S	1400EXW4S	1500EXW4S	1600EXW4S	1680EXW4S	1800EXW4S	1900EXW4S	2000EXW4S
Dimensions	Length mm	5500	6000	6700	7300	8000	6800	7600	8200	8700	9200	9700	10200	10700	11200
	Width mm	2750				3300				3300					
	Height mm	3300				3900				3900					
Operating weight kg		22800	24600	26500	29300	31700	43900	46300	48700	50900	53200	55400	58100	60900	63600

YHAU-CH model		30EXE	40EXE	50EXE	65EXE	80EXE	100EXE	130EXE	160EXE	200EXE	255EXE	320EXE	400EXE	500EXE
Dimensions	Length mm	1900	2250	2650	3200	2350	2750	3300	3950	4750	3400	4050	4850	5850
	Width mm	1550				1900				2350				
	Height mm	2100				2500				3200				
Operating weight kg		3500	3900	4400	5000	5800	6600	7600	8900	10200	13700	15700	17900	21000

YHAU-CH model		630EXW2S	700EXW2S	800EXW2S	900EXW2S	1000EXW2S	1120EXW4S	1250EXW4S	1400EXW4S	1500EXW4S	1600EXW4S	1680EXW4S	1800EXW4S	1900EXW4S	2000EXW4S
Dimensions	Length mm	5500	6000	6700	7300	8000	6800	7600	8200	8700	9200	9700	10200	10700	11200
	Width mm	2750				3300				3300					
	Height mm	3300				3900				3900					
Operating weight kg		25400	27200	29100	31900	34300	47600	50000	52400	54600	56900	59100	61800	64600	67300



Manufacturer reserves the rights to change specifications without prior notice.

YHAU-CL/CH-DXS Single Effect Double Lift Hot Water Driven Absorption Chiller

Cooling capacities from 176 kW to 2813 kW



Features

Flexible Operating Envelope

The **YORK YHAU-CL/CH-DXS** Single Effect Double Lift Hot Water absorption chiller provides efficiency through the use of innovative technology. It is optimized to use low temperature waste heat – as low as 55°C where competitive offerings cannot operate. Common applications include comfort or industrial process cooling that use or recover waste heat from combined heat and power (CHP) systems, districts heating systems, industrial process or other available heat sources. The **YHAU-CL/CH-DXS** cooling capacity ranges from 176–2,813 kW.

The **YHAU-CL/CH-DXS** has the unique ability to be used for applications where the

- Chilled water leaving temperature as low as 1°C.
- Cooling water temperature entering temperature as high as 37°C.
- Hot water temperature, driving heat source, entering temperature as high as 160°C and as low as 55°C.
- Hot water leaving temperature as low as 40°C.

Refrigerant cycle

The **YORK YHAU-CL/CH-DXS** high efficiency single-effect double lift absorption refrigeration cycle uses water as the refrigerant and lithium bromide as the absorbent. It is the strong affinity and ease of separation that these two substances have for each other that makes the cycle work. The entire process occurs in hermetic vessels in a near complete vacuum.

Single Effect Double Lift Hot Water Driven Absorption Chiller

YHAU-CL/CH-DXS



Parallel Flow and Two Step Evaporator and Absorber Design

Efficiency, Reliability, Cost of Ownership

The innovative 2-step evaporator and absorber design is more efficient than a conventional cycle. This ingenious design splits the absorption process into two steps, similar to how a series-counter-flow arrangement splits the work between two chillers.

Parallel flow divides the LiBr solution flow between the low- and high- temperature generators into two parallel, balanced paths. One goes to the high temperature generator (HTG), while the other goes to the low temperature generator (LTG).

The result of the design allows the **YHAU-CL/CH-DXS** to perform the absorption function with lower solution concentrations than conventional designs, increasing efficiency and reliability, and decreasing cost of ownership.

Reliability is enhanced because the solution concentrations are lower leaving the absorber, which allows the entire cycle to operate at lower concentrations virtually eliminating the possibility of crystallization. Efficiency is enhanced because the **YHAU-CL/CH-DXS** can take advantage of lower than normal hot water temperatures in the generator. This is because at lower concentrations the solution will boil at a lower temperature in the generator.

Lastly, total operating cost decreases because of the lower concentration of the solution entering the generator, a wider temperature range of hot water can be used, reducing pumping horsepower.

Nominal capacity

YHAU-CL/CH-DXS Model	50DXS	60DXS	80DXS	100DXS	130DXS	160DXS	200DXS	250DXS	320DXS	400DXS	500DXS	600DXS	700DXS	800DXS
Cooling Capacity kW	176	211	281	352	457	563	703	897	1125	1406	1758	2110	2461	2813
COP (low temp. hot water)	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72

At 7°C leaving chilled water, 95°C entering generator water, and 27°C entering condenser water.

Technical data

YHAU-CL/CH-DXS Model	50DXS	60DXS	80DXS	100DXS	130DXS	160DXS	200DXS	250DXS	320DXS	400DXS	500DXS	600DXS	700DXS	800DXS		
Dimensions	Length	mm	1900	2200	2600	3200	3900	2700	3300	4000	4800	5800	5400	6200	7200	7900
	Width	mm	2100		2200		2500		2600		3000					
	Height	mm	2700			3000			3300							
Operating weight	kg	8300	8900	9800	11100	12500	14600	16500	18700	22200	25600	31900	35900	40700	43700	



Manufacturer reserves the rights to change specifications without prior notice.

WFC SC

Single Effect Hot Water Absorption Chiller

Cooling capacities from 17.6 kW to 175.8 kW



Features WFC SC

WFC SC chillers from **Yazaki** are single stage hot water driven chillers. Compared to electrically driven chillers the **WFC SC** series can dramatically lower system operating costs when using waste heat. Applications particularly well suited to the **Yazaki WFC SC** absorption chiller include waste heat recovery from cogeneration or biomass, waste heat from district power station or industry as well as solar thermal. This makes absorption cooling an environmentally friendly and cost-saving alternative to conventional air-conditioning systems. A low electrical energy consumption results in low CO₂ emissions and provide a relief for electricity grids by replacing conventional cooling demand peaks. All chillers are pre-filled and ready for "plug & chill".

Driving heat source hot water

WFC SC units can operate with entering hot water temperature from 70 to 95°C.

Refrigerant cycle

The **Yazaki WFC SC** high efficiency single-stage absorption refrigeration cycle uses water as the refrigerant and lithium bromide (non-flammable, non-toxic, ecologically benign and ozone-friendly) as the absorbent. It is the strong affinity and ease of separation that these two substances have for each other that makes the cycle work. The entire process occurs in hermetic vessels in a near complete vacuum.

Single Effect Hot Water Absorption Chiller

WFC SC



Nominal capacity WFC SC

Model				WFC SC 05	WFC SC 10	WFC SC 20	WFC SC 30	WFC SC 50
Cooling Capacity		kW		17.6	35	70	105	175.8
Sound pressure at 1 m		dB(A)		46	46	49	52	52
Cold water	Temperature	Inlet	°C	12.5	12.5	12.5	12.5	12.5
		Outlet	°C	7	7	7	7	7
Cooling water	Cooling performance		kW	42.7	85.5	171	256	427
	Temperature	Inlet	°C	31	31	31	31	31
		Outlet	°C	35	35	35	35	35
Hot water	Power consumption		kW	25.1	50.2	100.4	150.6	251
	Temperature	Inlet	°C	88	88	88	88	88
		Outlet	°C	83	83	83	83	83

Technical data WFC SC

Model				WFC SC 05	WFC SC 10	WFC SC 20	WFC SC 30	WFC SC 50
Dimensions	Length	mm		594	760	1060	1380	1785
	Width	mm		744	970	1300	1545	1960
	Height (with mounting plate)	mm		1756	1920	2030	2065	2085
Operating weight		kg		420	604	1156	1801	2650



Manufacturer reserves the rights to change specifications without prior notice.



OpenBlue Central Utility Plant (CUP)



Whether you have a simple chilled water plant or a complex heating, cooling and power generation plant, **OpenBlue CUP** can reduce costs, increase reliability and enhance sustainability.

What if you could predict the future?

Even better, what if your central plant automatically made adjustments to prepare for that future? **OpenBlue Central Utility Plant** uses predictive algorithms and real-time data to optimize plant design as well as everyday operating decisions. Whether you have a simple chilled water plant or a complex heating, cooling and power generation plant, OpenBlue CUP delivers powerful digital tools to cut energy use and greenhouse gas emissions, reduce costs and increase reliability.



Save Money



Save Energy



Save Water



Earn Rebates



Validate Savings

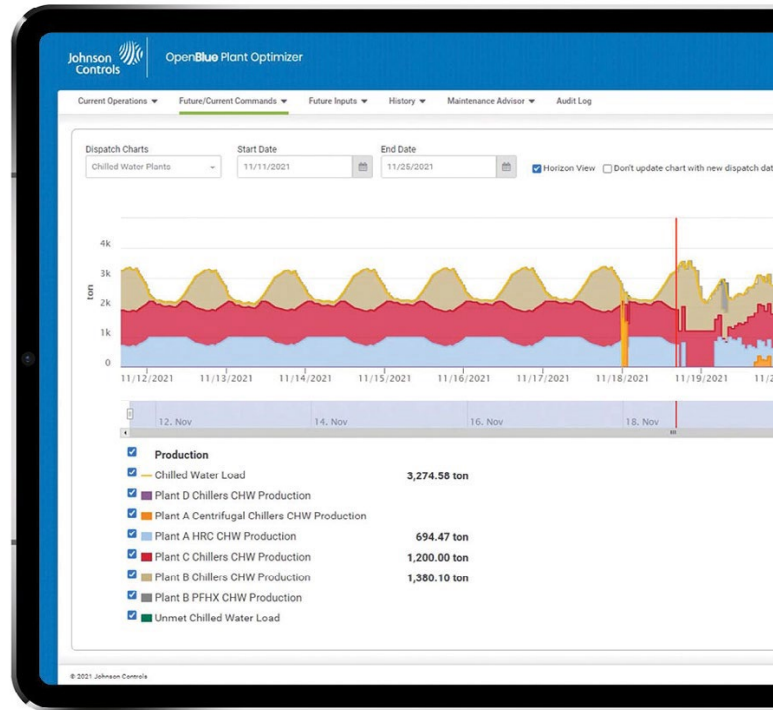


It's time to change the rules and truly optimize your costs.

Every hour of every day, facility operators can choose from hundreds of possible equipment combinations and set points to maximize energy efficiency. Ever-changing loads, weather and utility prices further complicate decision-making. OpenBlue CUP brings you a better way.

Optimize holistically—every 15 minutes.

OpenBlue CUP software optimizes dispatch decisions every 15 minutes to minimize utility costs and maximize potential utility program revenues, based on myriad inputs:



Equipment Performance Models

Every major piece of equipment, including chillers, boilers, pumps and cooling towers, has a model that predicts the equipment's energy performance and cost under all operating conditions. These models are adaptive; as equipment conditions change, the system tunes the models to optimize performance.



Weather Forecasts

Seven-day forecasts for temperature, humidity and cloudiness are pulled from a web-based source for your specific location. The algorithms recognize that forecast accuracy improves as events draw closer in time. These inputs are used to predict loads, equipment performance and ambient conditions.



Load Predictions

The software predicts hourly cooling, heating and power loads for the next seven days. These predictions are based on historical loads, weather, day of week, time of day, building schedules, and special events. The tool then adjusts operations and makes decisions based on those predictions to ensure the reliable delivery of utility services.



Utility Pricing

OpenBlue CUP can model everything from simple flat rates to time-of-use and demand-based rates to complex real-time pricing and incentive programs. Unlike traditional optimization methods, this cost-based approach empowers you to manage demand charges and other more complex tariffs—a major portion of your utility budget.



Calendars and Maintenance Schedules

The software incorporates building schedules to predict loads, accounting for weekends, holidays and special events. Equipment maintenance schedules are also used to optimize systems before, during and after equipment is taken out of service. If equipment goes out of service unexpectedly, the system re-optimizes based on the remaining available equipment.



Connected Chillers

A strategic, behind-the-scenes approach to optimized maintenance and performance

Proactive, not reactive, for peak performance

We're there before you need us

Johnson Controls knows it is essential to quickly identify and resolve operational issues before they become a problem. Our teams are swift to react – but we prefer not to let it get that far.

We take a strategic, proactive stance, actively investigating HVAC equipment data through our suite of cloud-hosted connected assets. By monitoring your system through remote troubleshooting and diagnostics, we can identify issues, take corrective actions and prescribe targeted, timely maintenance to prevent breakdowns from happening in the first place.

You can feel confident knowing your chiller will always be in top form, operating reliably and efficiently.

Prevention is better than cure

A chiller is one of the most critical pieces of equipment in your facility. It is responsible for the comfort of your environments and the productivity of your people.

With OpenBlue Connected Chillers, you can take maximum control of how your environment functions with strategies around planned, predictive and proactive maintenance that find and fix small issues before they become big problems that hit your output and your pocket.

Because chillers can consume as much as half of the total energy used in a building, high efficiency levels are paramount to optimizing how your spaces operate and impact on your bottom line.

Our world-class chillers provide an exceptional level of efficiency, where their operation is an art in itself. And when they are OpenBlue Connected Chillers, pairing data-driven insights with the knowledge of our OpenBlue Chiller Experts, their efficiency is exponential, increasing overall equipment performance.

At Johnson Controls, sustainability is a part of everything we do. It can be for you, our customers, too.

Finally, achieving your sustainability goals doesn't affect your bottom line. The path to net zero leads through reduced energy use, cut costs and boosted efficiency. Our digitally enabled services save you money and save you time while helping save our planet.

We put our global expertise and more than a century of innovation excellence behind every Johnson Controls solution.

Proactive first and reactive second, it's always business as usual with us as we don't interrupt your day-to-day operations.







OpenBlue Connected Chillers – a key part of OpenBlue Net Zero Buildings
Save the planet while saving money

How Connected Chillers work



Selection of deliverables

 <p>Regular reports With less time than ever to analyze the different aspects required to run a building properly, our team of experts assesses and cross-checks the status of your chillers to give you regular, relevant reports.</p>	 <p>Health check We use algorithms to produce accurate, accessible reports for you to check the condition of your chiller's health. This is a potential deliverable provided by our OpenBlue Chiller Experts.</p>	 <p>Health check with enhanced comments Our experts review and analyze algorithm data to identify any possible dysfunction of the chiller and explain its associated risks to provide clear recommendations.</p>	 <p>Virtual inspection We provide customized reports from our top experts, providing the intelligence to not only maintain your chiller but also enhance its efficiency with suggested adjustments that could help you optimize operations.</p>
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Heat Pump Solutions

According to the Environmental Protection Agency (EPA), it is estimated that 5% of the world's daily energy consumption is expended on fuel for heating water. Additionally, in Western European countries, 25 % of primary energy used is for cooling and heating applications. As pressure continues on natural resources and energy bills continue to rise, we must seek new, environmentally friendly solutions.

One smart option is to improve the energy utilization of your facility's heating and cooling system by recycling heat energy that would otherwise be rejected. This can be accomplished with a Johnson Controls heat pump.

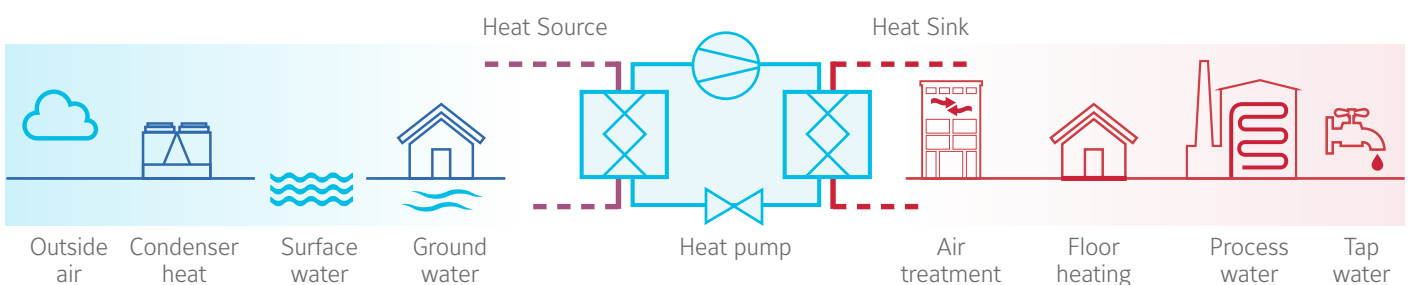
At Johnson Controls we set standards without compromising our core principles: and when passion and innovation come together, great things happen!

What is a Heat Pump?

Heat pumps are designed to produce hot water at a specified temperature. Heat is extracted from a low-temperature source such as air, ground water, or waste process heat, and its temperature is raised to a level where it can be used in alternative processes.

There are 4 primary system designs for heat pumps:

- 1) **Air-source** – An example of this is the heat pump you may have in your home.
- 2) **Ground-source** – This system uses the ground as the heat source, often used in residential or light commercial applications.
- 3) **Water-source** – This system uses a building's water supply to transfer heat. This is the most commonly used system.
- 4) **Cascade-source** – The system uses heat from existing refrigerant systems or any available waste heat source.



Traditionally, chillers are used to provide a building's required cooling load (rejecting heat to atmosphere via cooling towers) and boilers supply hot water to meet the building's heating needs. Using a Heat Pump gives increased system efficiency and lowers operating expense as they can supplement or even replace existing heating systems, and can also operate in reverse cycle to provide cooling during the summer. There are also processes in which cooling and heating functions perform simultaneously. Again, heat pumps are an ideal solution to this challenge.

Benefits of using heat pumps

Traditional systems used to heat water for hydronic heating and domestic hot water are not energy efficient. Heat pumps offer a number of advantages when compared to fossil-fuel water heaters:

- Higher COPs offer **energy cost-savings above 50%**.
- Thanks to their efficiency and short amortization period, they represent an environmentally compatible and economically attractive alternative to conventional heating systems. **Potential payback of the heat pump can be less than 2 years.**
- **Low operating-cost supplement** to water heaters where total heating requirement exceeds heat pump capacity.
- **Heat pumps can also be used as water chillers**, which means lower first-costs, as one item of equipment performs cooling and heating.
- **Life cycle of over 20 years.**

Johnson Controls heat pumps offer additional benefits by using environmentally friendly HFC and natural refrigerants, with **zero ozone depletion potential, and low global warming potential.**










Reduced operating costs

The best way to compare the efficiency of a heat pump and a water heater is to do a COP analysis. COP equals the energy output (useful heat generated) divided by the energy input (energy supplied to the equipment).

Accordingly, the higher the COP, the more efficient the system – and the lower your running costs!

As an example we can take a 1800 kW water-cooled heat pump as the one showed in chart and compare it to a natural gas boiler. When you compare the efficiency of a boiler to a heat pump, the heat pump comes out way ahead.

In the example given it's possible to save up to 53% in the energy bill vs the traditional natural gas boiler!

Hot Water Requirement	Energy Source	Efficiency	Energy Consumption	Cost of Source*	Cost of Hot Water Requirement	HP Saving vs Gas Boiler
1 kWh 	Natural Gas Boiler 	Average efficiency COP=0.9	 1 kWh / 0.9 1.11 kWh	European Avg. Gas Cost 0.041 €/kWh	1.11 kWh x 0.041€/ kWh 4.5 c€	-
1 kWh 	Air cooled Heat Pump 	Average efficiency COP=3.2	 1 kWh / 3.2 0.31 kWh	European Avg. Electricity Cost 0.12 €/kWh	0.31 kWh x 0.12€/ kWh 3.7 c€	18%
1 kWh 	Water cooled Heat Pump 	Average efficiency COP=5.5	 1 kWh / 5.5 0.18 kWh	European Avg. Electricity Cost 0.12 €/kWh	0.18 kWh x 0.12€/ kWh 2.1 c€	53%

* Cost of Source: Eurostat Statistics web site.













CO₂ footprint reductions

Another benefit that offers heat pump technology is the reduction in CO₂ emissions from fossil fuel use. Heat pumps are a highly efficient electric alternative.

If we refer to the same example with a 1800 kW water-cooled heat pump and compare it to a natural gas boiler, the reduction in CO₂ emissions is impressive.

In fact 1322 tons of CO₂ annually can be saved, which is the equivalent of removing about 278 cars* from the road!

* www.epa.gov/cleanrgy/energy-resources/calculator.html

Hot Water Requirement	Energy Source	Efficiency	Energy Consumption	CO ₂ Source Emissions*	Carbon Footprint	HP CO ₂ footprint reduction vs Gas Boiler
1 kWh 	Natural Gas Boiler 	Average efficiency COP=0.9	 1 kWh / 0.9 1.11 kWh	CO ₂ Emissions 204 g CO ₂ / kWh	 1.11 kWh x 204g CO ₂ /kWh 226 g CO ₂	-
1 kWh 	Air cooled Heat Pump 	Average efficiency COP=3.2	 1 kWh / 3.2 0.31 kWh	CO ₂ Emissions 541 g CO ₂ / kWh	 0.31 kWh x 541g CO ₂ /kWh 167 g CO ₂	26%
1 kWh 	Water cooled Heat Pump 	Average efficiency COP=5.5	 1 kWh / 5.5 0.18 kWh	CO ₂ Emissions 541 g CO ₂ / kWh	 0.18 kWh x 541g CO ₂ /kWh 97 g CO ₂	57%

* CO₂ Source Emissions: UK Department of Energy, Food and Rural Affairs and carbonindependent web site

Reduced water and chemical consumption

When a heat pump is operating we are keeping heat within the building and not rejecting heat to the atmosphere. In other words, we're saving condenser water from evaporating.

So when we look at our same 1800 kW water-cooled heat pump example again, how much water are we saving by not expelling heat to the atmosphere from the cooling tower?

Over 26 million litres annually!

LEED points

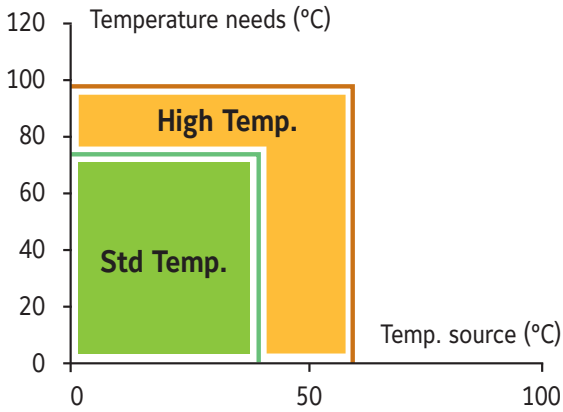
Heat pumps will help you and your customers get LEED points. LEED is one of the most recognizable bodies that certifies building designs to demonstrate leadership in environmental impact.

The use of a heat pump also helps accreditation for BREEAM and other similar schemes.



Heat Pumps solutions

We do have a wide range of industrial heat pumps for several capacities and at different temperature levels.



Compressor type	Refrigerant
Scroll	R410A, R454B, R290
Screw	R134a, R513A, R717
Centrifugal	R134a, R513A, R1234ze, R1233zd(E)
Reciprocating	R717
Absorption	R718

Special products and customized heat pumps

Below data are for reference only and may vary. Please contact your JCI representative for more details and customization.



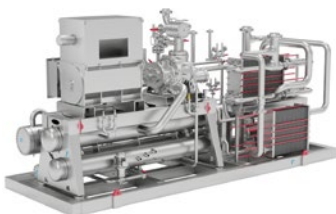
YK
Water to water heat pump
VSD Centr. compr. / R1234ze
Hot water up to **68°C**
Hot water up to **93°C (High Pressure casing only)**
Heating capacity: 1000 to 9000 kW



CYK HP
Water to water heat pump
Dual-Centrifugal compressors, Series-Arrangement / R1234ze
Hot water up to **93°C**
Heating capacity: 4000 to 10000 kW



Titan OM HP
Water to water heat pump
Multi-stage Centrifugal, electric, steam or gas driven / R1234ze
Hot water up to **95°C**
Heating capacity: 5000 to 20000 kW



HicaHP
Water to water heat pump
Screw compressor / R717
Hot water up to **95°C**
Heating capacity: up to 7000 kW



YHAP
Single stage absorption
Steam, Gas or Hot Water driven / R718
Hot water up to **95°C**
Heating capacity: 900 to 40000 kW

YORK Heat Pump products are Outside the scope of AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program or not optionally certified. Refer to the following AHRI sites at <https://www.ahrinet.org/accl> or <https://www.ahrinet.org/wccl> for air-cooled and water cooled Program Scope, Inclusions, and Exclusions. For verification of certification, go to the AHRI Directory at www.ahridirectory.org.

Heat pumps with standard temperature



YVAG
Air to water HP
Scroll compr. / R410A
Hot water up to **52°C**
Heating capacity:
10.9 to 18.4 kW



YMPA
Air to water HP
Scroll compr. / R454B and R410A
Hot water up to **55°C**
Heating capacity:
45 to 256 kW



YLPB
Air to water HP
Scroll compr. / R410A
Hot water up to **52°C**
Heating capacity:
344 to 653 kW



YAS/Rc-WP
Air to water HP
Scroll compr. / R290
Hot water up to **55°C**
Heating capacity:
103.3 to 333.8 kW



YHA
Air to water HP
4 pipe system
Scroll compr. / R410A
Hot water up to **60°C**
Heating capacity:
22.2 to 463.7 kW



YLZ
Air to water HP E.V.I
4 pipe system
Scroll E.V.I / R410A
Hot water up to **65°C**
Heating capacity:
24 to 209.6 kW



YMWA
Water to water HP
Scroll compr. / R410A
Hot water up to **55°C**
Heating capacity:
24 to 215 kW



YWH
Water to water HP
Scroll compr. / R134a
Hot water up to **78°C**
Heating capacity:
37.6 to 301.2 kW



YCSE HP
Water to water HP
Screw compr. / R134a (R513A on request)
Hot water up to **50°C**
Heating capacity:
170 to 300 kW



YCWL
Water to water HP
Scroll compr. / R410A
Hot water up to **50°C**
Heating capacity:
200 to 700 kW



YLCS
Water to water HP
Twin screw / R134a (R513A on request)
Hot water up to **65°C**
Heating capacity:
469 to 1300 kW



YVWA
Water to water HP
VSD Screw compr./ R513A
Hot water up to **60°C**
Heating capacity:
600 to 1000 kW



YVWH
Water to water HP
VSD Screw compr. / R1234ze
Hot water up to **50°C**
Heating capacity:
315 to 1250 kW



YVWH High Head HP
Water to water HP
VSD Screw compr./ R1234ze
Hot water up to **80°C**
Heating capacity:
800 to 1600 kW



YZ
Water to water HP
VSD Centrifugal compr. Mag. bearings R1233zd(E)
Hot water up to **45°C**
Heating capacity:
1000 to 6800 kW



YMC²
Water to water heat pump
VSD Centrifugal compressor, Magnetic bearings / R513A
Hot water up to **65°C**
Heat. cap.: 1600 to 3000 kW



YK
Water to water heat pump
VSD Centrifugal compressor R513A
Hot water up to **50°C**
Heat. cap.: 1000 to 9000 kW



HeatPAC recip
Variable-Speed Drive
Reciprocating compr. / R717
Hot water up to **90°C**
Heating cap. up to 2700 kW



DualPAC recip 2-stages
Variable-Speed Drive
Reciprocating compr. / R717
Hot water up to **90°C**
Heating cap. 400 to 2900 kW

HVAC Fundamentals

Chilled water systems

Air conditioning system designs normally use supply chilled water temperatures of 5°C to 8°C. Some systems, such as chilled ceilings or beams, may use higher temperatures up to 14°C or 15°C.

If leaving temperatures less than 4.5°C are required brine solutions are used to prevent freezing. This is specially the case with Ice Storage Systems that can have temperatures as low as minus 7°C.

The cooling capacity of a Chiller increases with rising leaving chilled temperatures. A temperature difference, between flow and return, of 5°C to 8°C is normal.

The water flow volume is dependent on the cooling capacity and chilled water temperature difference in the following formula:

$$\text{Water Flow Volume (Litres per Second)} = \frac{\text{COOLING CAPACITY (kW)}}{\text{Density (kg/m}^3\text{) x Specific Heat (kJ/kg}^\circ\text{C) x Temperature Difference }^\circ\text{C} \times 1000}$$

The resulting water flow must be checked against the flow limitations of the Chiller. This can be found in the "Limitations Table" for each type of Chiller or heat pump (data is not in this catalogue).

A small temperature difference achieves a low **mean water temperature** which will generally allow the selection of smaller cooling coils in Air Handling Units and Fan Coil Units etc.

Conversely water flow volume will be high resulting in a larger circulating pump and increased pressure drop through the Chiller and coiling coils and a consequent increase in operating costs.

The pressure drop varies as the square of the flow and is defined in the following formula:

$$H2/H1 = (W2/W1)^2$$

H1 = Pressure Drop kPa at final condition

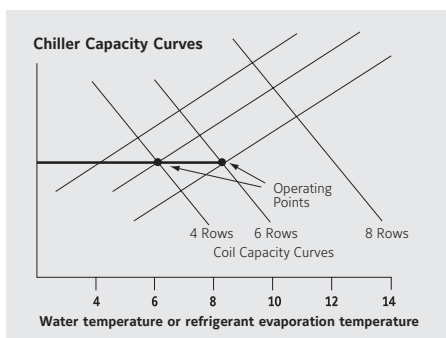
H2 = Pressure Drop kPa at original condition

W2 = Flow rate L/s at final condition

W1 = Flow rate L/s at original condition

Selecting the optimum temperature difference is therefore a compromise between operating costs and equipment size and the capital cost of such equipment. Primary chilled water temperature differences are normally between 5°C and 6°C. Generally a minimum system flow volume will provide the least expensive system in both capital and operating costs.

An Air Conditioning system in a building comprises a variety of components, such as Chillers, Air Handling Units, Diffusers, Ductwork, Pipework, Controls, Electrical Wiring, etc.



An optimisation of the system price, function and efficiency must consider all components and their interaction. It starts with the load calculation. A floating temperature setpoint in the comfort range area will save energy and reduce operating costs. Capital costs can be reduced by balancing the selection of Chillers, Air Handling Units, Ductwork sizes, etc. It is important to determine the optimum operating point that balances the selection of the Chiller leaving water temperature and the Air Handling Unit cooling coil. A temperature rise of 1°C in water temperature yields approximately 3% more capacity for the Chiller and reduces the absorption input power typically by 1.5%. However the coil capacity reduces with temperature rise and requires larger heat exchange surfaces (more rows and/or a lower fin spacing).

If the leaving water temperature of the Chiller is raised it is possible that one Chiller size smaller can be selected.

The capital cost for the larger coil is comparatively small and the cost savings of a smaller Chiller can be considerable.

Increasing the leaving chilled water temperature will also increase the air temperature leaving the Air Handling Unit coil and this may in turn decrease the supply and return air temperature difference.

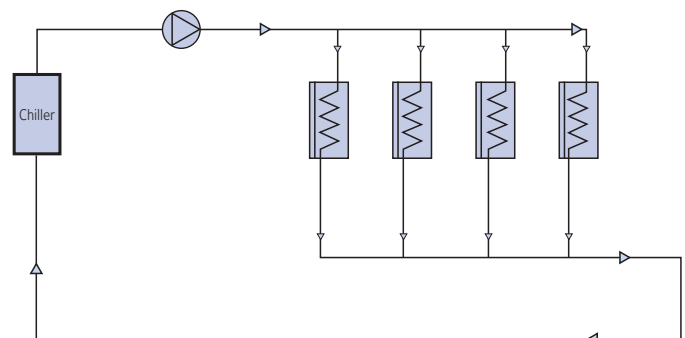
The Air Volume is determined by the following formula:

$$\text{Air Volume m}^3/\text{s} = \frac{\text{HEAT GAIN (kW)}}{\text{Density (kg/m}^3\text{) x Specific Heat (kJ/kg}^\circ\text{C) x Temperature Difference }^\circ\text{C}}$$

A smaller air temperature difference will increase the air volume and therefore the duct sizes and resultant cost of the ductwork. It is therefore important to consider the total impact on all the components of the air conditioning system. Lower supply air temperatures will reduce the size of both ductwork and Air Handling Units and specially designed air diffusers can be used to ensure that the lower supply air temperatures have no adverse effect on the building occupants.

Piping system design

On larger air conditioning systems it is generally recommended that "Reverse Return" piping arrangements are used to ensure balanced flow rates.



Minimum system water volume

To allow the Chiller or Heat Pump to operate smoothly at low load capacities sufficient thermal storage is required in the primary water circuit to give at least 5 minutes operation when the machine is not running. This will ensure that the equipment will not continuously stop and start at low load conditions and consequently cause undue wear on the compressor.

The following formula will satisfy the total required thermal storage volume:

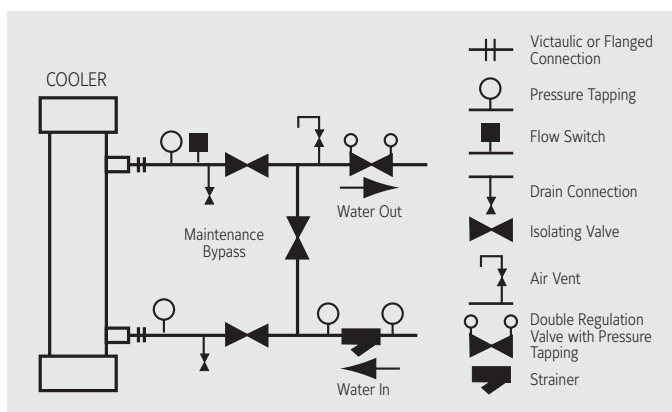
$$V = \frac{(N \times 60 \times Z)}{4.18 \times dt}$$

V = Total system water content (Litres)(4.18 x dt)
 N = Capacity of the Chillers first capacity step (kW)(4.18 x dt)
 Z = Minimum allowable running time (minimum 5 min.)
 dt = Temp. difference at the minimum partload condition

$$V = 35.88 \times S \times Q$$

S = Minimum capacity step (at lowest operating ambient)
 Q = Full capacity at nominal conditions

Chiller cooler connection



In order to ensure a trouble-free operation of the cooling water pump during startup of the system, the entire cooling water piping should be as far as possible below the operating level of an open circuit cooling tower. This prevents emptying of the cooling water lines in the cooling tower trough.

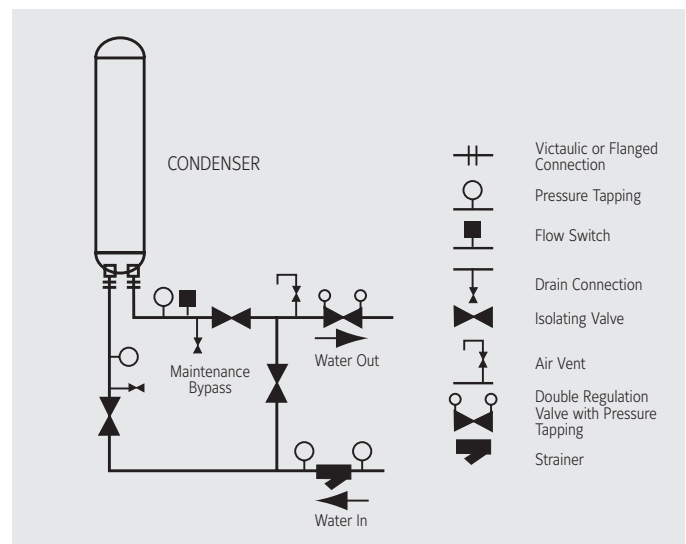
If multiple cooling towers are used in a common cooling water circuit, compensation pipes must be installed between the cooling tower tanks in order to keep the cooling water in all cooling towers at the same level. If more than one water entry into the cooling tower is required, install throttle valves to balance the flow between circuits. Check that the pressure of the spray nozzles and the pressure of the make-up water are not exceeded.

Warm water system

The leaving water temperature from a Heat Recovery Chiller or a Heat Pump is normally between 45°C and 60°C depending on the refrigerant that the machine is charged with. For Heat Pumps more heating capacity and higher operating efficiency is available with lower leaving water temperatures. Water temperatures of 45°C to 50°C are quite adequate for the selection of heating coils in Air Handling Units and Fan Coils.

Refrigerant to water condensers are limited in the volume of water that can be passed through them and it is necessary that this limitation is considered during the system design process. This may result in a larger water temperature differences than those used in a normal Boiler fed low temperature hot water system. The water temperature can be increased from a Boiler but measures must be taken to ensure that the return water to the Chiller or Heat pump cannot ever exceed 60°C.

Chiller condenser connection

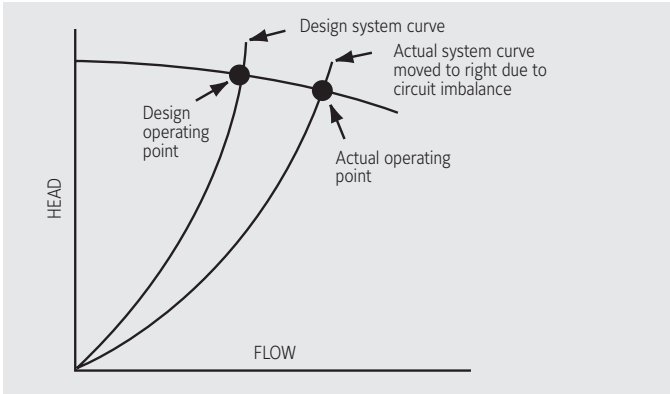


Chiller condenser water systems

To ensure satisfactory pump operation at start-up and to prevent overflowing of the Cooling Tower sump all condenser piping, and as much tower piping as possible, should be installed below the operating level of the tower. If multiple towers are used on a common system equalising lines should be installed between the sumps of the separate Cooling Towers to ensure balanced water level in all the towers. If more than one inlet connection is required to a tower balancing valves should be installed to give the required flow to each circuit. Check that the maximum spray water and make-up water pressures are not exceeded.

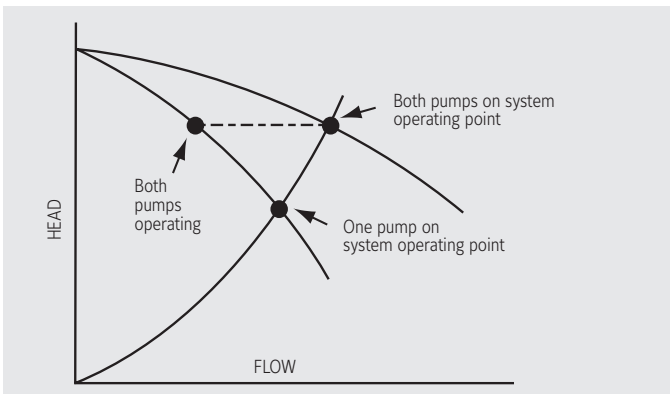
Circulating pump selection

Pumps should have a flat characteristic and should operate near to the left of the maximum point of efficiency on the curve to allow for any deviation in the position of the actual system curve from that estimated in the design process. This will ensure satisfactory pump operation with no overloading of water volume or reduction in available head.



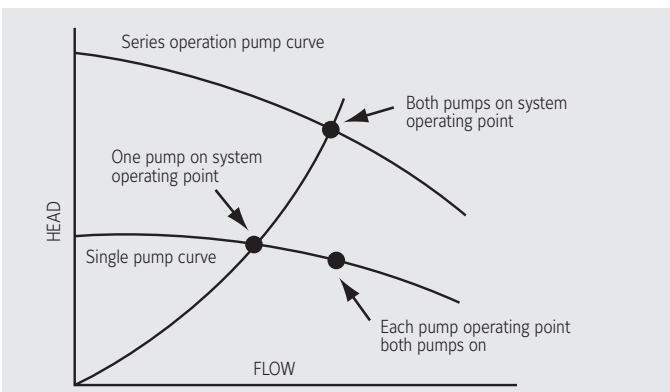
Parallel pumps

When two pumps, of equal flow, are used in parallel they operate at the same head and share the total system flow. When only one of the two pumps is in operation the flow volume can be as much as 80% of total flow resulting in a very good performance for stand-by in case of pump failure.



Series pumps

When two pumps, of equal flow, are used in series they operate at the same flow and share the total system head. When only one of the two pumps is in operation the flow volume can be as much as 80% of total flow resulting in a very good performance for stand-by in case of pump failure.



System pressurisation

A diaphragm expansion tank, pre-charged to the system fill pressure and sized to accept the expansion of the water, is normally used in larger water circulating systems. The air charge and the water are permanently separated by a diaphragm that eliminates corrosion and noise caused by air in the system.

Water treatment

Water system problems can be recognised from the following symptoms:

1. A reduction in heat transfer, which is a sign of insulating deposits on heat transfer surfaces reducing the cooling or heating efficiency of the equipment. This can be caused by scale or biological growths.
2. A reduction in water flow which is generally caused by a restriction in pipework, condenser or evaporator tubes or other components due to a build-up of scale. Bacterial and algae accumulate in Cooling Towers and can radically reduce water flow and are a major cause of corrosion. As the water evaporates in a Cooling Tower the dissolved solids originally present in the water remain in the system and suspended solids scrubbed from the air can also contribute to the blockage and corrosion of condenser water pipework and the Chillers condenser tubes.
3. Corrosion of materials or undue wear to pumps, shafts, seals etc. Unless a Cooling Tower is regularly cleaned and protected with adequate water treatment biological contaminants, including Legionella, may be introduced into the re-circulating water.

A water treatment program must be employed to control all possible contaminants. It must be compatible with all the materials of construction and the pH of the circulating water must be maintained between 7 and 9. Biological contamination can be controlled by the use of biocides.

The proper control of water treatment is dependent on the proportional addition of the relevant chemicals to maintain the correct concentration at all times. The relevant chemical treatment of water systems is a complicated matter and it is therefore important that a specialist water treatment company is involved early in the design stage of the project.

Mechanical filtration

A Filter, with a 40 mesh screen, must be installed as close as possible to the water inlet of both the cooler of air cooled and water cooled Chillers and Heat Pumps and the condenser of water cooled equipment. A means of local isolation should be provided. The Filters will also protect the circulating pumps in the system.

Sound

Noise is a major comfort criterion and has considerable effect on the well being of human beings. Noise is generated by friction due to moving parts, compression, explosion etc.,. Mechanical forces create vibration of components which radiate noise in the frequencies of the mechanical source. Deep frequencies cause rumbling which is transported via the structural elements of a building and can be experienced by the sense of touch and body vibrations. Higher frequencies are transported by air. The vibration compresses and expands the air around the noise source and the varying pressure waves are transmitted in all directions.

Sound pressure Lp

Sound pressure is the noise emitted from an object in a series of high frequency pressure waves which move through the air in a similar pattern to the water ripples caused when a stone is thrown into a pond. It radiates outwards from the sound source and is reflected from objects and surfaces in its path.

The magnitude of a sound pressure wave is measured in pascals (N/m²) but in order to correspond with the human perception of sound. A logarithmic scale is used with decibel (dB) units. Most internationally accepted scales use zero decibels as a sound pressure wave of 0.00002 pascals in height which is approximately the threshold of human hearing. As this is a logarithmic scale each time the size of the pressure wave increases by a factor of ten the decibel scale increases by the number ten, i.e., 70 dB represents a pressure wave 1000 times greater than 40dB. This corresponds to the human perception of sound which would also rate the 1000 times increase in sound pressure as a 30 times increase in loudness.

Sound pressure is given the symbol Lp.

$$L_p = n \text{ dB re } 2 \times 10^{-5} \text{ Pa}$$

The human ear can normally detect sound to as low as 2×10^{-5} Pa.

Sound pressure is projected at a specific distance from the source and is effected by the surroundings.

Sound power Lw

Energy is required to generate a sound pressure wave and the size of the wave is directly related to the amount of energy used.

A continuous sound will only be produced if continuous power is available. Sound power can be measured in watts but it is more convenient to use a logarithmic scale and decibel units. As a basis for the sound power scale 1 picowatt is generally taken to be 0 dB. In order to find a measure for noise a ratio is taken between the sound power and a reference sound power of $P_0 = 10^{-12}$ Watts

Sound power is NOT distance dependant.

Sound power is the property of the noise emitting object and sound pressure is used to measure the pressure waves which carry the sound to the ear.

Sound power is given the symbol Lw.

$$L_w = n \text{ dB re } 10^{-12} \text{ W}$$

Example:

The human voice has an average sound power of 10^{-6} W.

$$L_w = 10^{-6} / 10^{-12} = 10^6$$

Translated into logarithmic figures:

$$L_w = 10 \times \log 10^6 = 10 \times 6 = 60 \text{ dB}$$

If two sound sources of equal power (60 dB or 10 W each) were active their added sound level would be as follows:

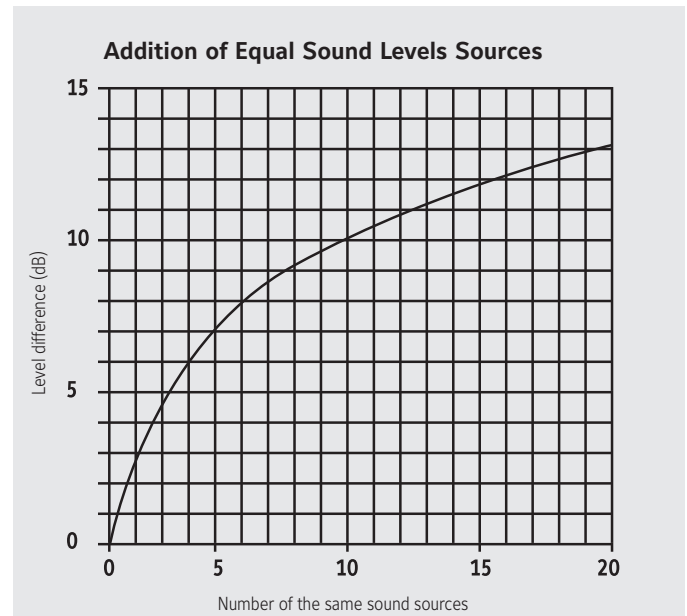
$$(10^{-6} + 10^{-6}) / 10^{-12} = 2 \times 10^{-6} / 10^{-12} = 2 \times 10^6 = 2 \times 10^6$$

$$L_w = 10 \log (2 \times 10^6) = 63 \text{ dB}$$

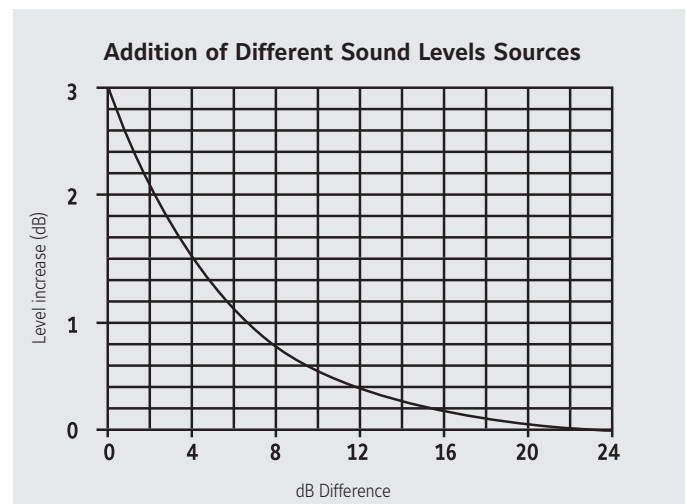
Therefore: 60 dB + 60 dB = 63 dB.

Therefore if two sound sources have the same sound power add 3 dB.

For several sound sources of having the same sound level refer to the following graph.



When sound sources of differing sound levels are to be added refer to the following table.



Weighting scales dB(A)

The human ear detects the single frequencies with different intensity and it has therefore been necessary to establish a method that simulates human hearing. In order that a single overall sound output value of an object may be determined a weighted or averaged value, that assimilates human hearing, can be taken of the sound level in each frequency of the frequency band between, the lowest and the highest, which can be heard.

The generally accepted bands are centred on 62.5Hz which is then doubled each time to a peak of 8000Hz (8kHz). These are the octave bands . The most commonly used weighting curve is the "dBA" scale. Weighted dB differences are subtracted from the source frequency band values and the resulting dB(A) value will therefore be lower than the unweighted.

The ratio sound pressure/sound power

The relationship between sound pressure waves and the sound power of the object producing them depends on the nature of the area around the object and the location of the person effected by the sound.

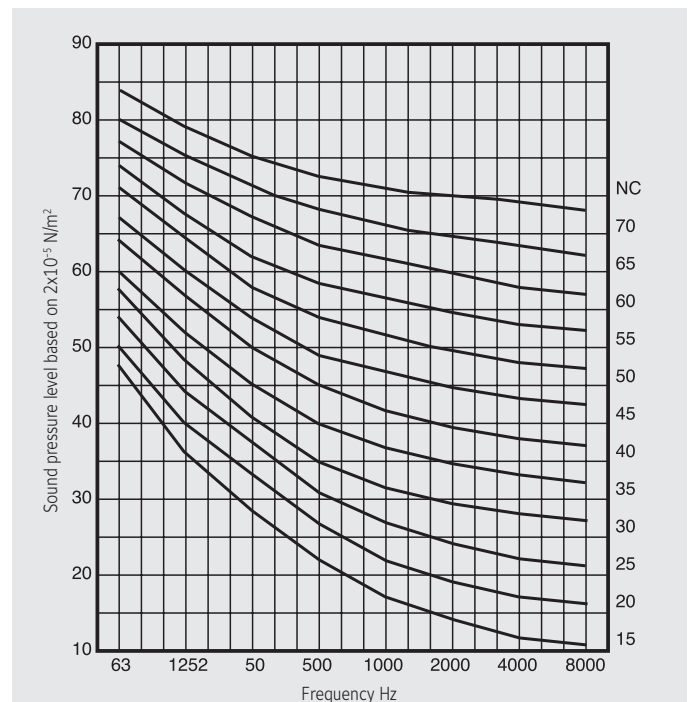
In order to take accurate sound measurements it is preferable to have a "Free Field" environment. This is an area having constant properties, free of boundaries or objects or any other sound source which could effect measurements. The sound waves radiate outwards in concentric hemispheres from the source getting weaker as the distance increases. The average sound level at the surface of one of these hemispheres is directly related to the sound power of the machine which is assumed to be generated at a point at the geometric centre of the machine. If an object is large, relative to the distance from which sound measurements are taken, the sound cannot be considered to be coming from a single point and the sound level will depend on where the subject is standing. The sound level can vary considerably with a small change in position and it is not therefore possible to relate sound pressure to sound power using Near Field measurements.

Site installations are seldom a free field environment . Adjacent buildings, walls etc, affect the sound pressure waves and a wall in close proximity can increase the sound level on the opposite side of the machine by reflecting the sound back in that direction.

Noise criteria (NC) curves

The ear can only perceive the pressure variations of air pressure not the sound power itself. The radiated sound power is transformed into sound pressure, part of which is absorbed by the environment and such objects as carpets, clothes etc, that may be situated within the wave pattern, and the intensity decreases with distance. This effect is called "Room Effect".

The difference between the sound power and the received sound pressure can be read from a diagram. The noise dB curve at the single frequencies is plotted and compared with reference curves. The value of the highest reference line that touches the noise curve is the NC value.



Chiller sound measurement

Chiller sound power

Sound Power is the property of the chiller only and can be used directly to compare the Sound Power of the chillers of one manufacturer against another. Most Sound Power data is quoted with reference to standard ISO 3744 which is entitled 'Sound Power Levels of noise Sources' and is sub-titled 'Engineering methods of determination of sound power levels for sources in free field conditions over a reflective plane'. This standard refers only to Sound Power values.

Sound power values are not distance-dependant

The basic method described by the standard involves averaging a number of sound pressure measurements taken all over an imaginary surface around a chiller in free field conditions.

Providing that background noises are within prescribed limits all of the sound measured at the surface must be coming from the chiller and the sound output (power) can be calculated as follows:

$$L_w = L_p + 10 \times \log_{10}(S)$$

Where:

L_w = Sound power in dB (reference value: 10⁻¹²W)

L_p = Average value of the sound pressure measurements in dB
(Reference value: 2 × 10⁻⁵ Pa)

S = Measuring area in square meters

Chiller sound pressure

Chiller manufacturers use the parallelepiped method (rectangular box) of constant distance D from the surface of the chiller to measure the Sound Pressure. The use of this shape does not change the calculated Sound Power for the chiller.

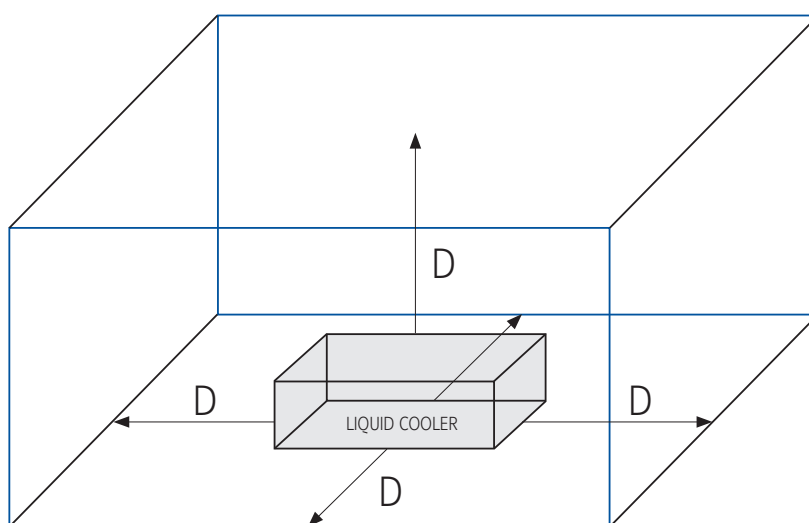
For example to calculate the sound pressure at 10 metres for a chiller with an 'A' weighted overall **Sound Power of 107dB(A) re 10⁻¹²W** and a rectangular surface area at 10 metres distance of 1778 m² using the parallelepiped surface:

$$\text{Sound pressure at a distance of 10 meters} = 107 - 10 \times \log_{10}(1778 \text{ m}^2) = 107 - 32.5 = \mathbf{74.5 \text{ dB(A)}} \text{(reference value } 2 \times 10^{-5} \text{ Pa)}$$

Some manufacturers quote sound Pressure levels at a distance of one metre. When a chiller can be anything up to 10 metres in length this distance is illogical, as the sound level will change depending upon the position along the unit. That is near to the compressor will be noisier than near to the control panel etc, Even a distance of 5 metres is too close in the case of very large chillers.

Deduction from Sound Power Level to Obtain Sound Pressure Levels at Various Distances from a Chiller

Distance "D" in meters	5	10	25	50
Deduction from sound power	-28	-32	-39	-45

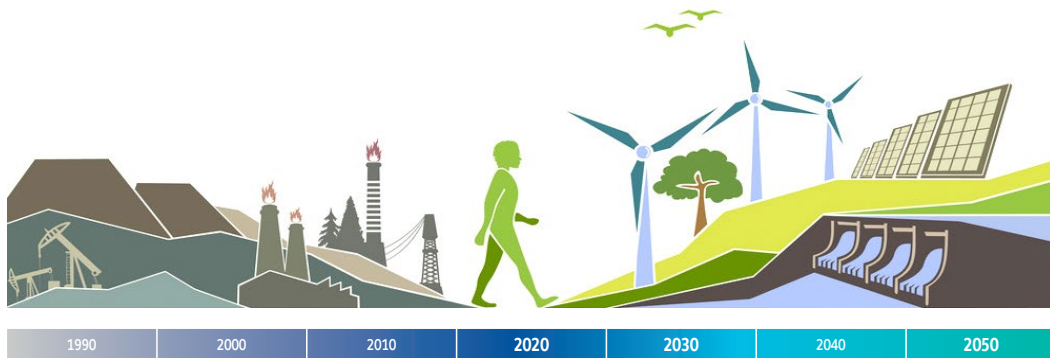


Ecodesign Directive for HVAC Chillers and Heat Pumps

EU Energy and Climate Policy Context

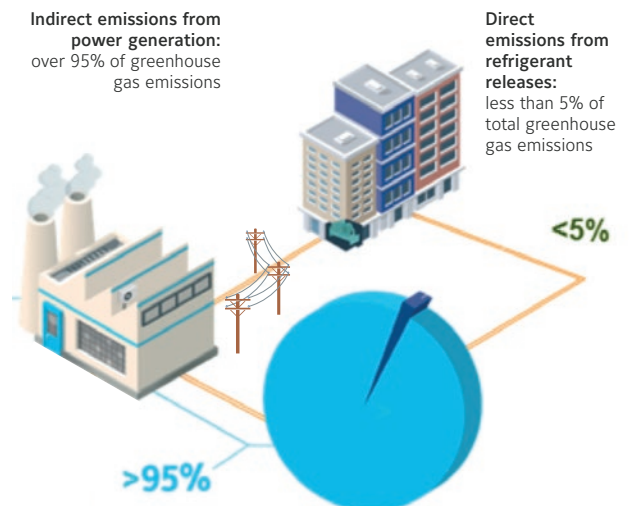
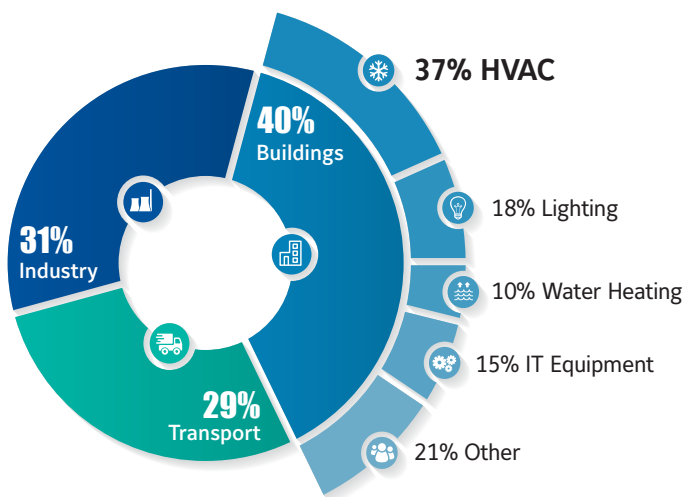
European 2050 Vision towards a low carbon economy is targeting reduction of 80/95% of the Green-house gas emissions by looking at the reduction of the 3 following parameters and comparing to the values of 1990.

	2020	2030	2050
Primary Energy consumption	-20%	-27%	
Green-house effect gas emissions	-20%	-40%	-80/95%
Use of renewable energies	+20%	+27%	



EU Energy efficiency improvement targets strongly influence the HVAC market

Buildings are the largest consumers of energy today, and HVAC systems account for a significant portion of a building's energy consumption. This is why the HVAC industry is a focus of European Environmental Policies. The F-Gas regulation addresses direct emissions while EPBD, EcoDesign and RES are directives focused on indirect greenhouse gas emissions by improving the efficiency of the HVAC systems and the buildings.



Which products are affected by Ecodesign?

The European Union has developed two directives (Ecodesign Directive 2009/125/EC and Energy Labeling Directive 2010/30/EC) to address the environmental impact of all Energy related Products (ErP) beginning at the earliest stages of design. The Ecodesign directive affects all types of Energy related Products (ErP) such as TVs, washing machines, lights and, of course, also HVAC products and components. Energy related Products (ErP) are grouped into "Lots" that, once they are published, they become mandatory CE regulations. There are three Ecodesign Lots (already approved regulations) that directly impact HVAC products.

- ENER Lot 21 ⇒ Reg 2016/2281 ⇒ Central Heating and Cooling Products (Chillers)
- ENTR Lot 1 ⇒ Reg 1095/2015 ⇒ Professional Refrigeration (Process Chillers Brine)
- ENER Lot 1 ⇒ Reg 813/2013 ⇒ Space Heaters (Heat Pumps)

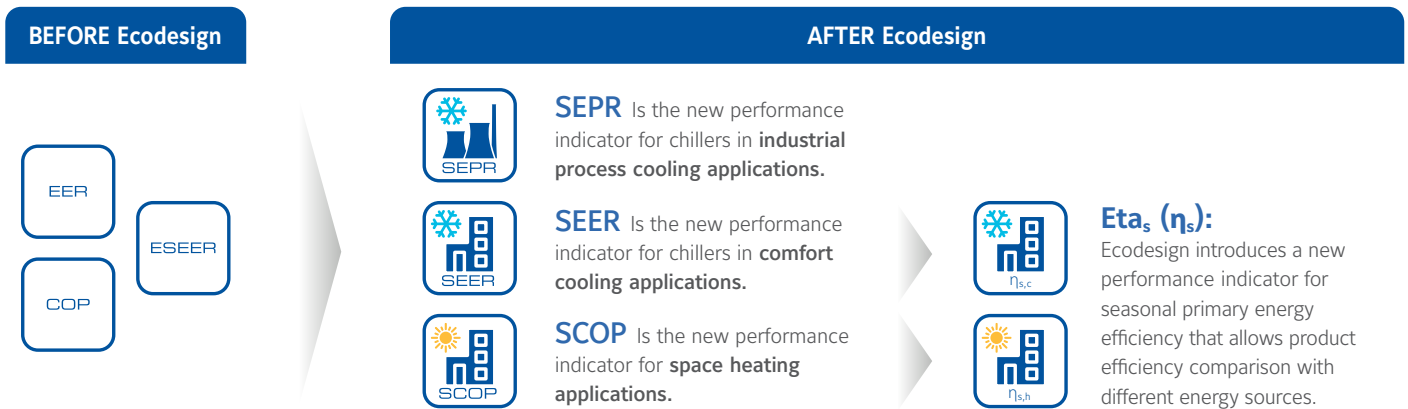
Each of the three regulations set the MEPS or Minimum Efficiency Performance Standards for the product category and those are implemented in 2 steps (Tiers), as shown in the table below.

Regulation	Scope	MEPS		2015	2016	2017	2018	2019	2020	2021
		SEER	$\eta_{s,c}$				T1 Jan18			T2 Jan21
Reg 2016/2281 (former ENER Lot 21)	Comfort Chillers	SEER	$\eta_{s,c}$				T1 Jan18			T2 Jan21
	High Temperature Process Chillers	SEPR _{HT}								
Reg 1095/2015 (former ENTR Lot 1)	Medium Temperature Process Chillers	SEPR _{MT}			T1 Jul16		T2 Jul18			
Reg 813/2013 (former ENER Lot 1)	Heat Pumps	SCOP	$\eta_{s,h}$	T1 Oct15		T2 Oct17				

Calculations according to Transitional Methods that indicates the Harmonized EN standards to use (EN14511, EN14825 mainly).

Ecodesign has changed the way we speak

Former full efficiency ratios like EER and COP are now disappearing. Even the seasonal efficiency ratio ESEER has been replaced. Ecodesign MEPS are the current key indicators used for all HVAC product and compliance is mandatory to have the CE marking. The Eurovent organization is already using Ecodesign MEPS at the different certification programs are not using ESEER value anymore.



Calculation method

An important point that must be specified on the manufacturers rating report is the calculation method regarding the water flow and outlet temperature. According regulation there are four possible methods.

FW/FO = Fixed Water Flow, Fixed Outlet Temperature
FW/VO = Fixed Water Flow, Variable Outlet Temperature

VW/FO = Variable Water Flow, Fixed Outlet Temperature
VW/VO = Variable Water Flow, Variable Outlet Temperature

- Variable Outlet allows to change the leaving water temperature at partial load. This reduces the lift required by the chiller, reducing energy use significantly. To provide this rating, chillers must be capable of automatic water temperature reset based on outdoor ambient temperature. With this capability, even projects without advanced building control systems can benefit.
- Variable Flow reduces energy use at part load through reduced waterside pressure drop. Variable Speed Pumps must be fitted to the system to benefit from this savings.
- It is important to note that efficiencies can vary hugely depending on the temperatures and the method of calculation.
- **It is crucial to check the chilled water conditions used to determine the SEER, SEPR and SCOP when comparing the seasonal energy efficiency.**

Regulation 2016/2281 Comfort Cooling



Ecodesign regulation 2016/2281 affects Comfort Cooling Chillers with rated cooling capacity below 2,000 kW with a leaving water temperature equal or larger than 2°C. It's divided into two sub-categories based on the chiller water temperature. Manufacturers must provide a technical datasheet, called a fiche, with the equipment to detail the application(s) in compliance.

Low temperature chillers

Chillers that provide water to fan coil or air handling units using 12 to 7°C as entering and leaving temperatures for the efficiency calculation.

Medium temperature chillers

Chillers that provide water, for instance to cooling floors or chilled beams, using 23 to 18°C as entering and leaving temperatures for the efficiency calculation.

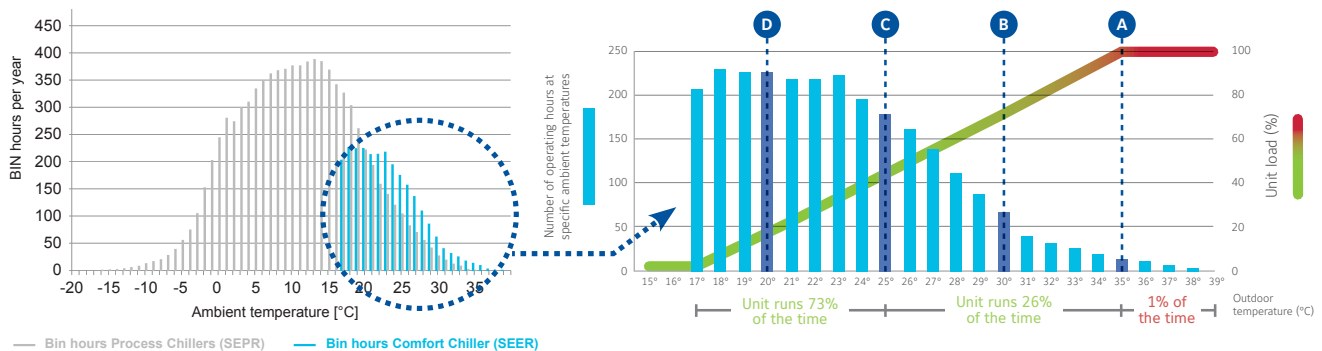
SEER - Seasonal Energy Efficiency Ratio

Ecodesign regulation introduces new Minimum Energy Performance Standards for Comfort Cooling Chillers (SEER) that it's the ratio between the annual cooling demand and the annual electrical input energy over the entire cooling season.

SEER is calculated using standard EN14825, which takes the following into account:

- Seasonal efficiency while the compressor is running (SEERon)
- Electrical consumption when the compressor is not running: crankcase heater, standby or OFF mode

SEER is a better performance indicators for cooling than former ESEER, as it takes into account temperature bins and hours based on weather data from a reference city at central Europe (Strasbourg).



According to the standard EN14825 the number of operating hours for a comfort chiller is 2602h (only 29.7% of the total year hours).

Efficiency requirements set by REGULATION 2016/2281 Comfort Cooling

Regulation 2016/2281 sets seasonal energy efficiency in Etas cool ($\eta_{s,c}$). This value expresses SEER in terms of primary energy and it makes it possible to compare the energy efficiency of units using different energy sources. In Europe, on average 2.5 kW of primary energy is required to generate 1kW of electricity and therefore the next formulas and values are used for the conversion.

$$\eta_{s,c}(\%) = 1/CC \times SEER - \sum F_i$$

CC – Conversion Coefficient

European average coefficient that represents the amount of primary energy required to obtain electricity. CC is defined by the regulation with a constant value of 2,5.

$\sum F_i$ – Correction Factors

Air-cooled chillers $\sum F_i = 3\%$

Water-cooled chillers $\sum F_i = 3\%$

Comfort Chillers	Tier 1 (Jan 2018)		Tier 2 (Jan 2021)	
	$\eta_{s,c}$ %	SEER	$\eta_{s,c}$ %	SEER
Air cooled < 400 kW	149	3.80	161	4.10
Air cooled 400 to 2000 kW	161	4.10	179	4.55
Water cooled < 400 kW	196	4.98	200	5.08
Water cooled 400 to 1500 kW	227	5.75	252	6.38
Water cooled 1500 to 2000 kW	245	6.20	272	6.88

No cooling efficiency requirement is defined by Ecodesign for heat pumps (regulation 813/2011) or for medium temperature industrial or for process chillers (regulation 1095/2015).

Regulation 2016/2281 High Temperature Process Chillers



Regulation 1095/2015 Medium Temperature Process Chillers

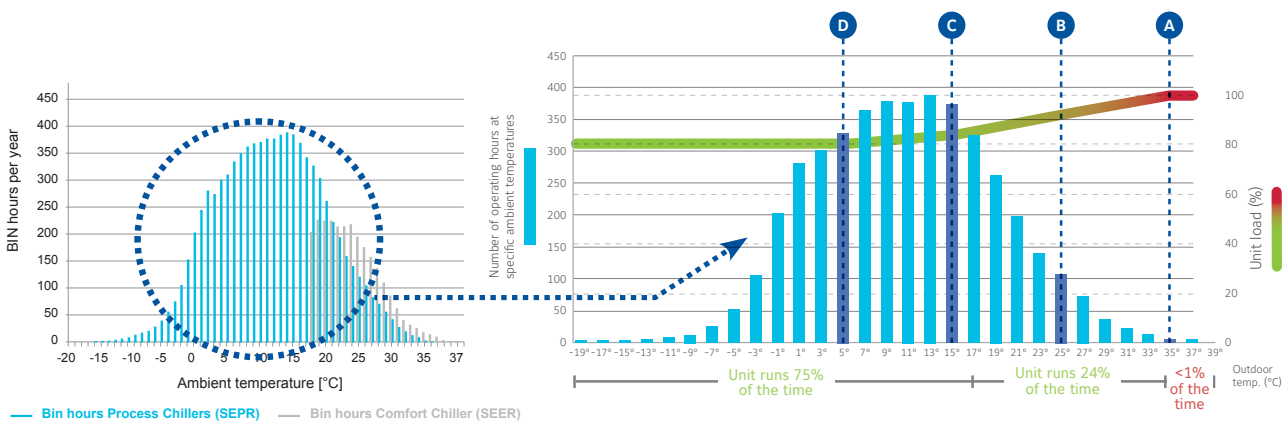


Ecodesign regulation 2016/2281 also applies to High Temperature Process Chillers with rated cooling capacity below 2,000 kW for industrial process applications. High temperature chillers are capable of delivering leaving water temperatures of between 2°C and 12°C. In addition regulation 1095/2015 affects any capacity Process Chillers operating at design capacity that can generate outlet fluid temperature of -8°C (Medium Temperature).

SEPR - Seasonal Energy Performance Ratio

Ecodesign regulation 2016/2281 and 1095/2015 introduces a new indicator called Seasonal Energy Performance Ratio (SEPR), which is the ratio of annual cooling demand to annual electrical energy consumption.

SEPR is calculated from an average climate reference with ambient temperature ranging from -19°C up to 38°C, and with corresponding operating hours at each temperature bin. For Process cooling the operating load ranges from 100% down to 80%.



Note that SEPR is focused on high loads (typical of process cooling applications) and covers the complete 8760 hours of the year.

Efficiency requirements set by REGULATION 2016/2281 High Temperature Process Chillers

Regulation 2016/2281 sets minimum efficiency levels for positive leaving water temperature chillers (high temperature chillers) rated up to 2,000 kW used in industrial process cooling applications.

There is no SEPR_{HT} requirement for chillers and heat pumps that apply to other regulations.

High Temperature Process Chillers	Tier 1 (Jan 2018) / SEPR _{HT} (12/7°C)	Tier 2 (Jan 2021) / SEPR _{HT} (12/7°C)
Air cooled < 400 kW	4.50	5.00
Air cooled 400 to 2000 kW	5.00	5.50
Water cooled < 400 kW	6.50	7.00
Water cooled 400 to 1500 kW	7.50	8.00
Water cooled 1500 to 2000 kW	8.00	8.50

Efficiency requirements set by REGULATION 1095/2015 Medium Temperature Process Chillers

Regulation 2015/1095 sets minimum efficiency levels for chillers with negative leaving water temperature used in industrial process cooling applications. Medium temperature process chillers are defined as units capable of operating at -8°C leaving temperature.

Chillers that applies to this regulation (SEPR_{MT}) are excluded to the other Ecodesign regulations (like 2016/2281)

Medium Temperature Process Chillers	SEPR - 1st July 2016		SEPR - 1st July 2018	
	SEPR _{MT} (GWP > 150)	SEPR _{MT} (GWP < 150)	SEPR _{MT} (GWP > 150)	SEPR _{MT} (GWP < 150)
Air cooled < 300 kW	2.24	2.02	2.58	2.32
Air cooled > 300 kW	2.80	2.52	3.22	2.90
Water cooled < 300 kW	2.86	2.57	3.29	2.96
Water cooled > 300 kW	3.80	3.42	4.37	3.93

Regulation 813/2013 Space Heaters



Published regulation 813/2013 affects all Heat Pumps (both air and water cooled) with a rated heating output below 400 kW (measured at -10°C ambient)

It relates to units used for space heating application that supply hot water and covers two sub-categories based on the leaving water temperature: medium temperature and low temperature.

YORK heat pump units affected by this regulation are classified as Low Temperature because heating outlet fluid temperature can not be supplied at 52°C (measured at -7°C ambient). **"Low-temperature application" means an application where the heat pump space heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 35°C**

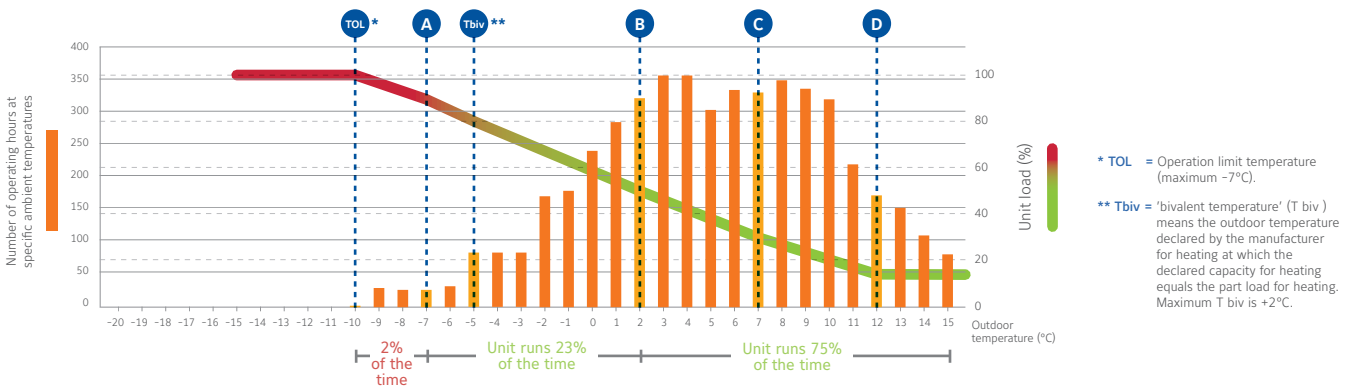
SCOP- Seasonal Coefficient of Performance

Ecodesign regulation 813/2013 introduces a new indicator called Seasonal Coefficient of Performance (SCOP), which is the ratio between the annual heating demand and the annual electrical input energy over the entire heating season.

SCOP is calculated using standard EN14825, which takes the following into account:

- Seasonal efficiency while the compressor is running (SCOPon)
- Electrical consumption when the compressor is not running: crankcase heater, standby or OFF mode
- Backup heater required to achieve the defined heating design load

SCOP takes into account the energy efficiency achieved at each outdoor temperature of an average climate weighted by the number of BIN hours for each of those temperatures.



The number of operating hours for a heat pump covered by SCOP is **4910h (56% of the total year hours)**.

Efficiency requirements set by REGULATION 813/2013 – Heat Pumps

Regulation 813/2013 sets seasonal energy efficiency in $\eta_{s,h}$ heat ($\eta_{s,h}$). This value expresses SCOP in terms of primary energy and it makes it possible to compare the energy efficiency of units using different energy sources.

$$\eta_{s,h}(\%) = 1/CC \times SCOP - \sum F_i$$

CC = Conversion Coefficient = 2.5

$\sum F_i$ = Correction Factor

Air source heat pumps = 3%

Water source heat pumps = 8%

Heat Pumps	Tier 1 (Oct 2015)		Tier 2 (Oct 2017)	
	$\eta_{s,h}$ %	SCOP	$\eta_{s,h}$ %	SCOP
Air to water low temperature heat pumps < 400	115	2.95	125	3.20
Water to water low temperature heat pumps < 400	115	3.08	125	3.33

Energy Labelling Regulation 811/2013

Heat Pumps with capacities below 70 kW are classified by the **European Energy Labelling regulation 811/2013** with the objective to inform to the end-user about which is the efficiency level of the heat pump acquired.



Product Information

Manufacturers are to provide to installers and end users instruction and access to a website that makes available (for free) a new "Technical Data Sheet" document summarizing the values used for the efficiency ($\eta_{s,c}$, SEPR or $\eta_{s,h}$) calculation.

Below is an example of the "Technical Data Sheet" as it appears in regulation 2016/2281:

Information requirements for comfort chillers							
Model(s): Information to identify the model(s) to which the information relates.							
Outdoor side heat exchanger of chiller: (select which: air or water/brine)							
Indoor side heat exchanger chiller: (default: water)							
Type: compressor driven vapour compression or sorption process							
If applicable: driver of compressor: (electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine)							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	x,x	kW	Seasonal space cooling energy efficiency	$\eta_{s,c}$	x,x	%
Declared cooling capacity for part load at given outdoor temperature T_j				Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperature T_j			
$T_j = +35^\circ\text{C}$	P_{dc}	x,x	kW	$T_j = +35^\circ\text{C}$	$\frac{EER_d \text{ or } GUE_{c,bin}}{AEF_{c,bin}}$	x,x	%
$T_j = +30^\circ\text{C}$	P_{dc}	x,x	kW	$T_j = +30^\circ\text{C}$	$\frac{EER_d \text{ or } GUE_{c,bin}}{AEF_{c,bin}}$	x,x	%
$T_j = +25^\circ\text{C}$	P_{dc}	x,x	kW	$T_j = +25^\circ\text{C}$	$\frac{EER_d \text{ or } GUE_{c,bin}}{AEF_{c,bin}}$	x,x	%
$T_j = +20^\circ\text{C}$	P_{dc}	x,x	kW	$T_j = +20^\circ\text{C}$	$\frac{EER_d \text{ or } GUE_{c,bin}}{AEF_{c,bin}}$	x,x	%
Degradation coefficient for chillers (*)	C_{dc}	x,x	-				
Power consumption in modes other than "active mode"							
Off mode	P_{OFF}	x,xxx	kW	Crankcase heater mode	P_{CH}	x,xxx	kW
Thermostat off mode	P_{TO}	x,xxx	kW	Standby mode	P_{SB}	x,xxx	kW
Other items							
Capacity control	fixed / staged / variable			For air-to-water comfort chillers: air flow rate, outdoor measured	-	x	m ³ /h
Sound power level, outdoor	L_{WA}	x,x/x,x	dB	For air-to-water comfort chillers: air flow rate, outdoor measured	-	x	m ³ /h
Emissions of nitrogen oxides (if applicable)	NO_x (**)	x	mg/kWh input GCV				
GWP of the refrigerant			kg CO ₂ eq (100 years)				
Standard rating conditions used: (low temperature application/medium temperature application)							
Contact details	Name and address of the manufacturer or of its authorised representative						

(*) If C_{dc} is not determined by measurement then the default degradation coefficient of chillers shall be 0.9.
(**) From 26 September 2018

General Information:
Unit name, Air/Water cooled, type compressor

Mode "On" information:
Capacity, efficiency at different temperatures for partial load points A,B,C and D

Mode "Off" information:
Power input Auxiliaries (crankcase heater, stand-by mode, etc)

Other information:
Sound, GWP, flow rates, application:
• Floor heating/fancoils
• Fancoils/Chilled beams

Compliance

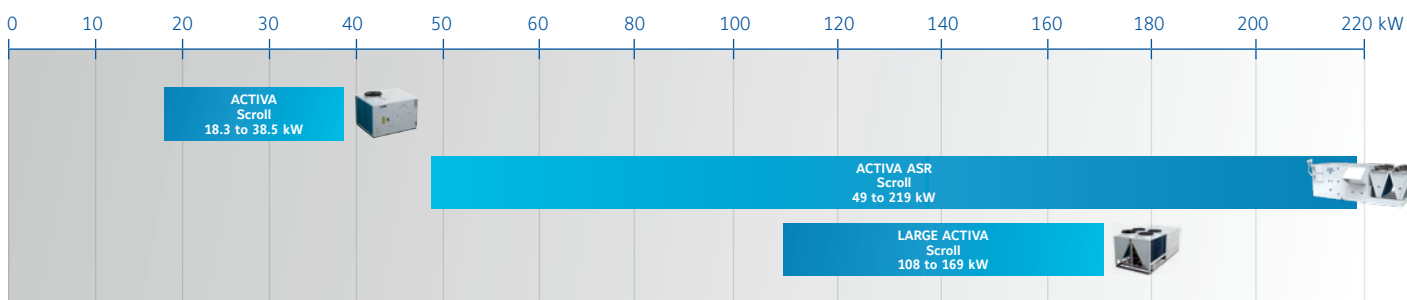
All YORK products on the EU market comply with applicable Ecodesign regulations. In many cases YORK products offer significantly better energy efficiency than required by regulation, resulting in an attractively low cost of operation and lighter environmental footprint.



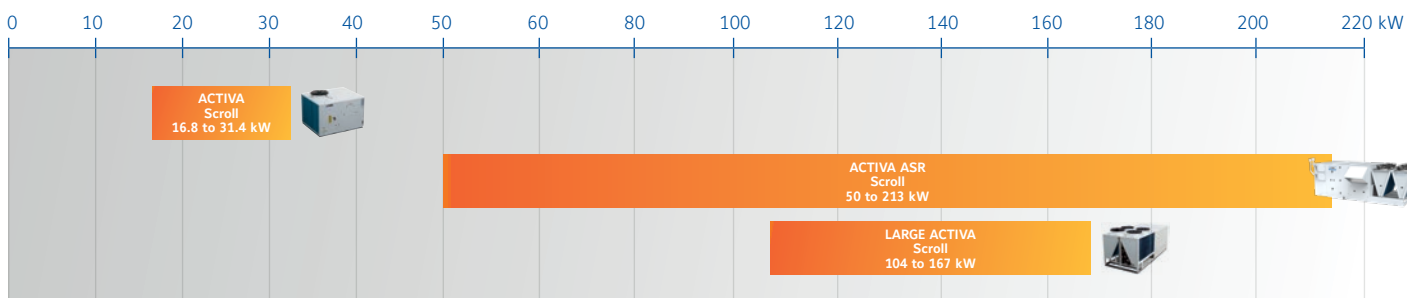
Rooftop Equipment

YORK offers a complete range of rooftop equipments within **18 kW to 219 kW capacities**, to cover all customer needs, maintaining the highest efficiency levels and operative performances.

YORK Rooftop Cooling Only Units



YORK Rooftop Heat Pump Units



Three different Energy Recovery systems with the new ASR Rooftop range

RECO system recovery Economiser with 3 dampers

The factory-mounted economiser with 3 dampers, is equipped with an EC plug fan return fan as a standard. The economiser increases the partial load operation of the compressors and improves the seasonal efficiency thanks to a proportional-action control function.

The economiser with 3 combined dampers, with proportional modulation of the outdoor-recycled-extracted air allows an extraction up to 100% of the total air flow (in equivalent quantity to the intake of outdoor air).

It provides real energy savings by regulating the air renewal.

TRECO system recovery Thermodynamic Energy Recovery

This option is available only on the ASR rooftop equipped with 3 dampers (not compatible with the FRECO system).

This thermodynamic system for recovering energy between the exhaust air and fresh air is delivered entirely mounted and factory tested.

It is composed of an independent refrigeration circuit and a dedicated control.

FRECO system recovery From the food refrigeration system

The ASR rooftop provided with a FRECO system uses the heat generated by the condensers of the refrigeration systems of a supermarket as a free source of heat.

The refrigerated cabinets of the store extract heat on a water loop. A water/water chiller transfers that heat on a secondary water loop.

In standard, that heat is removed by a dry-cooler.

The FRECO coil enables to valorize that heat for thermal comfort application and it will moderate the use of the ASR rooftop thermodynamic circuit.

ACTIVA Rooftop

ARC-ARG-ARH-ARD

A complete range from 18.3 kW up to 38.5 kW

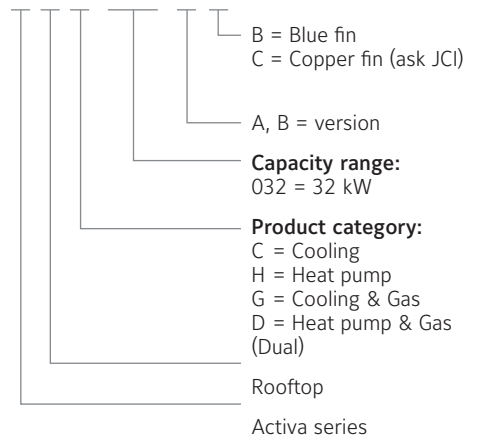


YKN2open

Features

- High efficiency EER and COP
- Ecodesign ErP 2021 compliant
- Low noise level
- EC supply fan
- All configurations: Cooling only, Cooling + gas, Heating, Heating + Gas
- BMS connection as standard (N2Open protocol)
- Compact design
- Energy recovery (enthalpy wheel)
- External HP & LP access
- Filters G4, F6 & F7 available

ARC 032 AB Nomenclature



ACTIVA Rooftop

ARC-ARG-ARH-ARD 017 to 040 AB/BB



Technical features

Cooling only models		ARC 017 AB	ARC 022 AB	ARC 032 AB	ARC 040 AB	
Net cooling capacities	kW	18.3	22.3	31	38.5	
Power input	kW	5.3	7.0	8.67	14.1	
SEER		3.82	3.85	4.06	3.93	
η _{s,c}		149.6	151.1	159.4	154	
Working range (full load / partial load)	°C	7°C ~ 46°C / -10°C ~ 52°C				
Heat pump models		ARH 017 BB	ARH 022 BB	ARH 032 AB	-	
Net cooling capacities	kW	18.3	22.3	31	-	
Power input in cooling	kW	5.3	7.0	8.67	-	
Heating capacities (1)	kW	16.8	22.1	31.4	-	
Power input in heating	kW	4.7	5.9	8.72	-	
SCOP		3.23	3.24	3.27	-	
η _{s,h}		126	127	128	-	
Working range (full load / partial load)	°C	-10°C ~ 46°C / -10°C ~ 52°C				
Cooling only + Gas heating models		ARG 017 AB	ARG 022 AB	ARG 032 AB	ARG 040 AB	
Net cooling capacities	kW	18.3	22.3	31	38.5	
Cooling power input	kW	5.3	7.0	8.67	14.1	
Standard Heating capacities (1) NET	kW	23	23	41	41	
Natural gas 2ND-H, G20	m ³ /h	2.5	2.5	4.5	4.5	
Working range (full load / partial load)	°C	-15°C ~ 46°C / -15°C ~ 52°C				
Heat pump + Gas heating models		ARD 017 BB	ARD 022 BB	ARD 032 AB	-	
Net cooling capacities	kW	18.3	22.3	31	-	
Power input in cooling	kW	5.3	7.0	8.67	-	
Heating capacities (1)	kW	16.8	22.1	31.4	-	
Power input in heating	kW	4.7	5.9	8.72	-	
Standard Heating capacities (1) NET	kW	23	23	41	-	
Natural gas 2ND-H, G20	m ³ /h	2.5	2.5	4.5	-	
Working range (full load / partial load)	°C	-15°C ~ 46°C / -15°C ~ 52°C				
Common characteristics						
Power supply		400V/3 + N/ 50Hz				
Main switch	A	20	25	40	50	
Main cable	Nbr. x mm ²	5 x 4	5 x 6	5 x 10	5 x 16	
Cable to thermostat	Nbr. x mm ²	10 x 0.22				
Number of circuits / Compressor type		1 / 1 x Scroll		1 (Tandem) / 2 x Scroll		
Evaporator fan at nominal airflow	Airflow	m ³ /h	3400	4300	5700	7400
	ASP	Pa	600	600	600	600
Nett dimensions	Height	mm	1 420	1 420	1 420	1 420
	Length	mm	1 866	1 866	2 135	2 135
	Depth	mm	1 540	1 540	1 850	1 850
Nett weight ARC / ARG		kg	420 / 462	440 / 482	581 / 642	585 / 646
Nett weight ARH / ARD		kg	425 / 467	445 / 487	587 / 648	-

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

(1) Add indoor fan motor consumption to know total heating capacity.

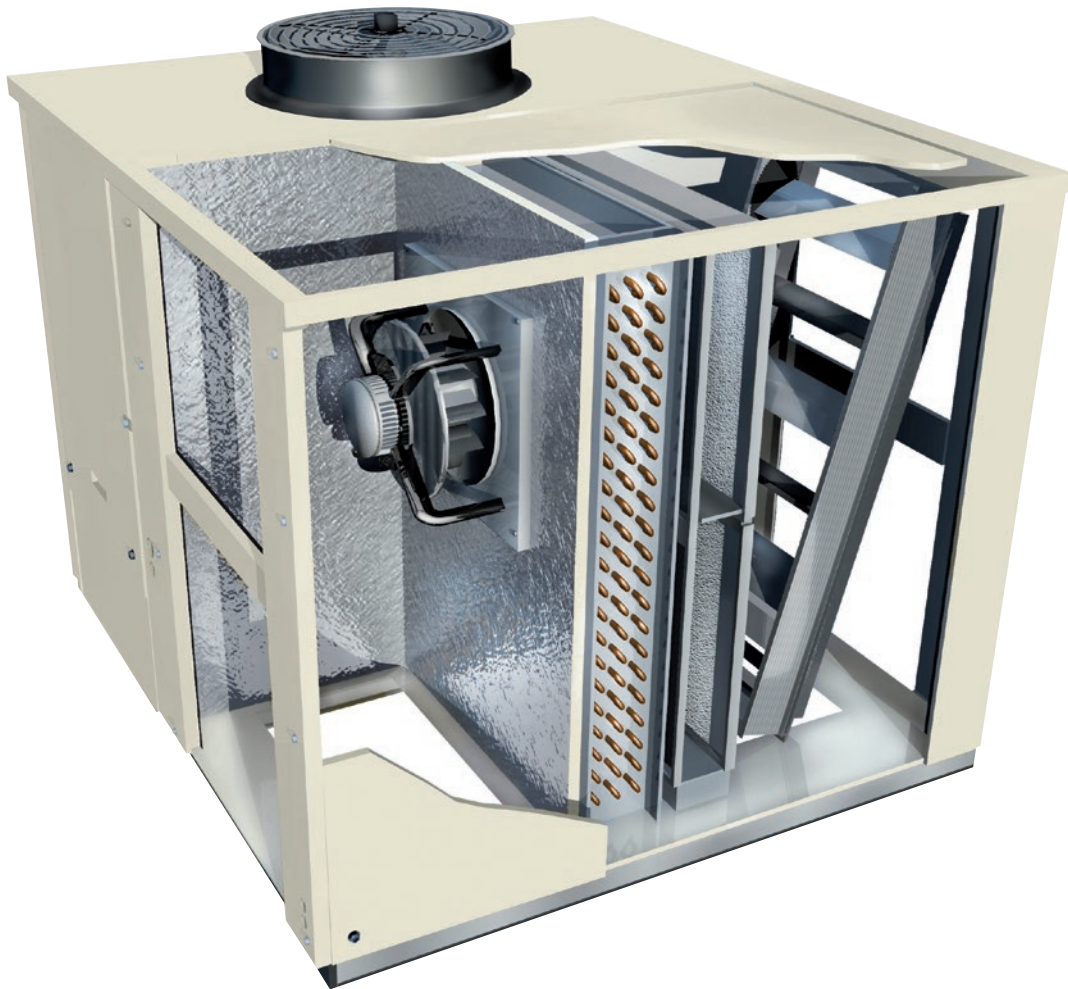
Codes

Cooling only models	ARC 017 AB	ARC 022 AB	ARC 032 AB	ARC 040 AB
	S661752110	S661752120	S661752130	S661752150
Heat pump models	ARH 017 BB	ARH 022 BB	ARH 032 AB	-
	S661752513	S661752127	S661752133	-
Cooling only + Gas heating models	ARG 017 AB	ARG 022 AB	ARG 032 AB	ARG 040 AB
	S661752111	S661752121	S661752131	S661752151
Heat pump + Gas heating models	ARD 017 BB	ARD 022 BB	ARD 032 AB	-
	S661752118	S661752128	S661752132	-
Thermostat				
to be ordered separately			DPC-1	



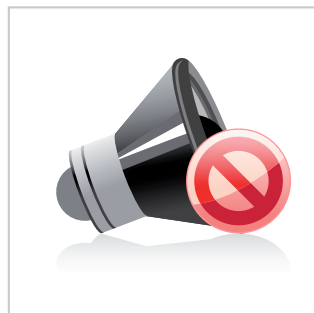
Manufacturer reserves the rights to change specifications without prior notice.

Activa rooftop details and features



High Efficiency

High efficiency compressor and fans managed by an smart control allows the unit to achieve and maintain the level of comfort required in the most efficient way, reducing therefore the energy bill.



Low Noise

Ultra quiet fans and optimized airflow reduces the noise level increasing the comfort. Compressors are mounted on shock absorbers and anti-vibration springs are available to avoid vibration transmissions into de building.



Easy Installation and Maintenance

The high level of usability of the control, the internal solutions adopted (like direct driven fans with variable speed) and the easy access to components simplify and reduce the need of external interventions. Full information on commissioning and maintenance plan are provided to help to ensure unit keeps running always in optimal conditions.



Compact Design

The refrigerant circuit layout has been redesigned and high efficiency exchangers been used to reduce the footprint and improve the transport and handling. Transition roofcurbs are available to fit in existing installations.

Accessories and options

	Code	Cooling only				Heat pump			Cooling + gas heating				Heat pump + gas heating		
		017	022	032	040	017	022	032	017	022	032	040	017	022	032
Thermostat DPC-1	S603786044	A	A	A	A	A	A	A	A	A	A	A	A	A	A
YNK2Open Gateway BACnet / IP - JCI Metasys N2	S606791244	A	A	A	A	A	A	A	A	A	A	A	A	A	A
YNK2Open Gateway Modbus TCP / IP - JCI Metasys N2	S606791245	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Dry bulb triple input economizer or motorized air damper with rain hood	S611752301	O	O			O	O		O	O			O	O	
	S611752311			O	O			O			O	O			O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Power Exhaust	S611752302	A	A			A	A		A	A			A	A	
	S611752312			A	A			A			A	A			A
Barometric relief damper and rain hood	S611752472	A	A			A	A		A	A			A	A	
	S611752473			A	A			A			A	A			A
Fresh air damper and rain hood (2)	S611752303	A	A			A	A		A	A			A	A	
	S611752313			A	A			A			A	A			A
Low ambient kit	S611752381	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Roofcurb adapter (3)	S611752886	A	A			A	A		A	A			A	A	
	S611752887			A	A			A			A	A			A
Fixed roof curb	S611752881	A	A			A	A		A	A			A	A	
	S611752882			A	A			A			A	A			A
Adjustable roof curb	S611752883	A	A			A	A		A	A			A	A	
	S611752884			A	A			A			A	A			A
Dirty filter switch	S613990085	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Smoke detector	S613995382	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Fire detection thermostat	S613903003	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Hot water coil	S611752351	O	O			O	O								
	S611752352			O	O			O							
Electric heaters	16 kW	S611752516	O	O			O	O							
	16 kW	S611752616			O	O			O						
	25 kW	S611752525	O	O			O	O							
	25 kW	S611752625			O	O			O						
	37 kW	S611752537			O	O			O						
Propane conversion Kit	S611752780								A	A	A	A	A	A	A
Filter kit F6	S611752401	O	O			O	O		O	O			O	O	
	S611752402			O	O			O			O	O			O
Filter kit F7	S611752411	O	O			O	O		O	O			O	O	
	S611752412			O	O			O			O	O			O
Grill condenser coil protection	S611752451	O	O			O	O		O	O			O	O	
	S611752452			O	O			O			O	O			O
Antivibration mounting kit	S611752461	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Energy recovery	S611752501	A	A			A	A		A	A			A	A	
	S611752511			A	A			A			A	A			A
Filter kit F6 for energy recovery	S611755506	O	O			O	O		O	O			O	O	
	S611755516			O	O			O			O	O			O
Filter kit F7 for energy recovery	S611752507	O	O			O	O		O	O			O	O	
	S611752517			O	O			O			O	O			O
Alarm relay board	S606791243	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Copper-copper coil	Contact us	O	O	O	O	O	O	O	O	O	O	O	O	O	O

O=Option (factory fitted). A=Accessory (supplied loose). O/A=If you want this item factory fitted, precise it in the order form.

(1) Energy recovery accessory includes: economizer, rain hood, indoor air quality sensor and G4 filters.

(2) Fresh air damper can not be installed if economizer or motorized damper is fitted.

(3) Transition roofcurbs to fit in D_IC/D_IG/B_IG existing installations (090-150 kbtu/h).

ACTIVA ASR Rooftop

Cooling capacity from 49.6 kW up to 219.1 kW

Heating capacity from 50.7 kW up to 212.6 kW



Consult us for available models



This new generation of high efficiency rooftop units have been thought and designed to reach the Ecodesign 2021 threshold. It reaches the energy class A. The ACTIVA ASR units are available in cooling-only (L) or reversible (H) versions and with a wide range of options.

Features

- High efficiency EER and COP
- Ecodesign ErP 2021 compliant
- H version (Cooling and Heating) or L version (Cooling only)
- 2 independent circuits & frigorific insulated box
- Many air inlet/outlet configurations
- Double skin as standard
- AC/EC Plug Fans for supply and extract air
- Removable drain pan
- Leak detection according to BREEM standard

Options and Accessories

- EC plug fans
- Sides, Top or Bottom supply/return air
- 2 filters stage G4+F7/F9 (flat type)
- Hot water coil or Electric Heater
- Gas burner
- 2 Dampers mixing section / Freecooling / IAQ (indoor air quality control)
- Food Refrigeration Heat Recovery (FRECO)
- Return fan & 3 Dampers (RECO)
- Return fan & 3 Dampers & Heat Recovery (TRECO)

ACTIVA ASR Rooftop

ASR 50 to 210



Technical features

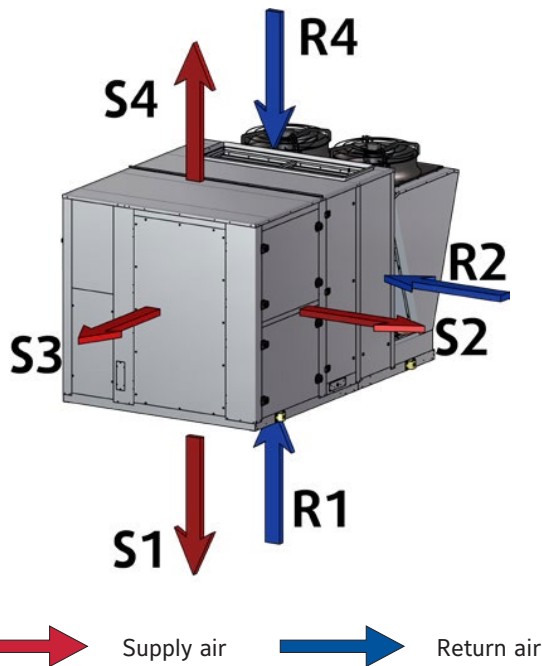
Cooling Only models		ASR 50 L	ASR 65 L	ASR 80 L	ASR 95 L	ASR 105 L	ASR 120 L	ASR 140 L	ASR 160 L	ASR 190 L	ASR 210 L	
Nominal cooling capacities	kW	49.57	62.81	78.99	95.13	111.08	119.87	142.09	164.98	197.06	219.12	
Power input in cooling	kW	15.81	19.46	23.23	30.66	33.56	37.10	47.09	51.19	60.61	71.54	
SEER (1)		3.57	3.58	3.74	3.54	3.66	3.57	3.52	3.91	3.94	3.71	
$\eta_{s,c}$ (1)		140	140	147	138	143	140	138	154	154	145	
Heat Pump models		ASR 50 H	ASR 65 H	ASR 80 H	ASR 95 H	ASR 105 H	ASR 120 H	ASR 140 H	ASR 160 H	ASR 190 H	ASR 210 H	
Nominal cooling capacities	kW	48.12	60.95	76.67	92.34	107.81	116.34	137.88	160.10	191.21	212.6	
Power input in cooling	kW	15.81	19.46	23.23	30.66	33.56	37.10	45.69	51.19	60.61	70.47	
SEER (1)		3.53	3.52	3.63	3.52	3.55	3.52	3.52	3.80	3.82	3.65	
$\eta_{s,c}$ (1)		138.15	138	142.23	138	139.17	138	138	148.92	149.82	143.15	
Heating capacities	kW	50.65	59.65	76.63	90.66	106.95	117.10	148.70	157.90	187.31	214.37	
Power input in heating	kW	14.81	17.49	21.77	26.59	30.38	34.14	42.85	46.17	54.29	62.68	
SCOP (2)		3.20	3.22	3.22	3.23	3.22	3.21	3.20	3.19	3.23	3.19	
$\eta_{s,h}$ (2)		125	126	126	126	126	125	125	125	126	125	
Common characteristics												
Nominal airflow rate	m ³ /h	9 720	11 500	15 500	17 500	19 200	21 580	25 500	28 000	30 000	32000	
Nominal ESP	Pa	220	220	225	240	240	240	240	240	240	240	
Sound power level	dB(A)	81.5	85.0	82.0	83.0	85.4	87.4	91.3	90.5	91.5	92.4	
Refrigerant type		R410A										
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2	2	
Compressor type		Scroll										
Number of compressors		2	2	2	2	2	2	2	4	4	4	
Step of capacity	%	0-50-100						0-25-50-75-100				
Glasswool thickness casing	mm	25	25	25	25	25	25	25	25	25	25	
Fire resistance		MO										
Weight standard unit	kg	1 085	1 155	1 225	1 470	1 685	1 805	1 855	2 350	2 555	2 705	

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

(1) According to EN 14511. (2) According to EN 14825.

Aeraulic configurations



Many possibilities of configurations for Supply and Return air

Supply air	S1. Down supply air
	S2. Left supply air *
	S3. Front supply air
	S4. Up supply air*
Return air	R1. Down return air
	R2. Left return air
	R4. Up return air **

* S2 and S4 configurations not available with the gas burner option

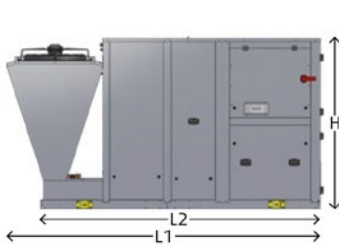
** R4 configuration not available with RECO and TRECO options



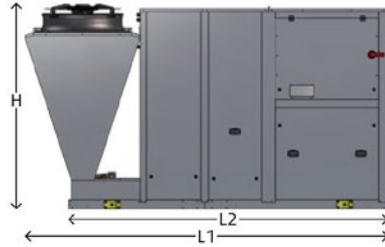
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Dimensions and Weights

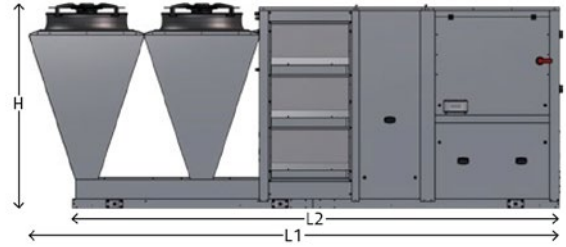
ASR 50-80



ASR 95-140



ASR 160-210



Dimensions

ASR models - Standard unit		50	65	80	95	105	120	140	160	190	210
(L1) Overall length	mm	3 250	3 250	3 250	3 740	3 740	3 740	3 740	5 505	5 505	5 505
(L2) Base frame length	mm	2 895	2 895	2 895	3 295	3 295	3 295	3 295	5 050	5 050	5 050
Width	mm	2 030	2 030	2 030	2 285	2 285	2 285	2 285	2 285	2 285	2 285
(H) Height	mm	1 800	1 800	1 800	2 110	2 110	2 110	2 110	2 110	2 110	2 110
ASR models - 3 Dampers		50	65	80	95	105	120	140	160	190	210
(L1) Overall length	mm	3 918	3 918	3 918	4 430	4 430	4 430	4 430	5 966	5 966	5 966
(L2) Base frame length	mm	3 525	3 525	3 525	3 980	3 980	3 980	3 980	5 470	5 470	5 470
Width	mm	2 626	2 626	2 626	2 760	2 760	2 760	2 760	3 044	3 044	3 044
(H) Height	mm	1 800	1 800	1 800	2 110	2 110	2 110	2 110	2 110	2 110	2 110
ASR models - Gas burner		50	65	80	95	105	120	140	160	190	210
(L1) Overall length	mm	3 395	3 395	3 395	3 892	3 892	3 892	3 892	6 015	6 015	6 015
(L2) Base frame length	mm	2 895	2 895	2 895	3 295	3 295	3 295	3 295	5 525	5 525	5 525
Width	mm	2 682	2 682	2 682	3 040	3 040	3 040	3 040	3 151	3 151	3 151
(H) Height	mm	2 080	2 080	2 080	2 285	2 285	2 285	2 285	2 110	2 110	2 110
ASR models - 3 Dampers + gas burner		50	65	80	95	105	120	140	160	190	210
(L1) Overall length	mm	4 022	4 022	4 022	4 566	4 566	4 566	4 566	6 466	6 466	6 466
(L2) Base frame length	mm	3 525	3 525	3 525	3 980	3 980	3 980	3 980	5 972	5 972	5 972
Width	mm	2 626	2 626	2 626	3 042	3 042	3 042	3 042	3 151	3 151	3 151
(H) Height	mm	1 935	1 935	1 935	2 454	2 454	2 454	2 454	2 110	2 110	2 110

Weights

ASR models - Standard unit		50	65	80	95	105	120	140	160	190	210
Unit weight	kg	1 085	1 155	1 225	1 470	1 685	1 805	1 855	2 350	2 555	2 705
Filters	G4	kg	30	30	30	45	45	45	45	45	45
	G4 + F7	kg	40	40	40	65	65	65	65	65	65
	G4 + F9	kg	40	40	40	65	65	65	65	65	65
2 Dampers	kg	95	95	95	115	115	115	115	165	165	165
3 Dampers RECO	kg	375	385	415	430	430	450	450	515	515	515
TRECO	kg	125	125	125	165	165	165	165	215	215	215
FRECO	kg	25	25	25	30	30	30	30	30	30	30
Electric heater	kg	25	25	25	30	30	30	30	50	50	50
Hot water coil	kg	25	25	25	30	30	30	30	30	30	30
Epoxy	kg	40	40	40	50	50	50	50	95	95	95
Gas Burner	kg	65	80	80	105	105	105	105	460	460	460

Energy recovery systems

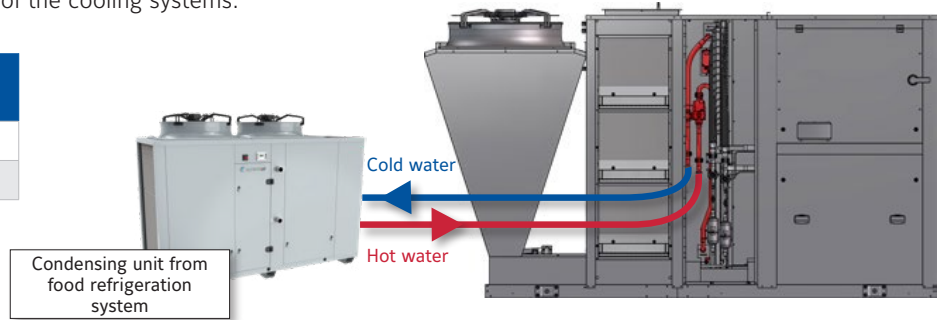
FRECO - Food refrigeration energy RECOvery

In supermarkets, FRECO technology allows our rooftop units to recover the heat generated out from the condensers of the cooling systems.

Heating mode

	Additional heating capacity
Mixed air $T^\circ = 20^\circ\text{C}$	+60%
Mixed air $T^\circ = 0^\circ\text{C}$	+130%

Water +30% Glycol 45/40°C



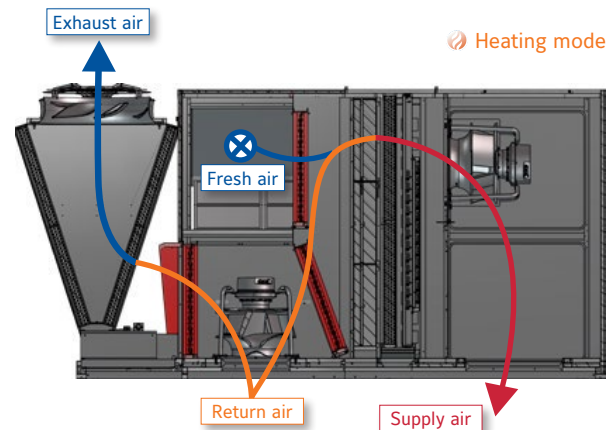
RECO - Standard energy RECOvery (3 Dampers)

Energy recovery on the exhaust air.

Heating mode

	Pc	EER	Ph	COP
3 dampers + RECO 30% fresh air	+1%	+2%	+7%	+4%
3 dampers + RECO 60% fresh air	+2%	+4%	+14%	+8%

According to Eurovent conditions



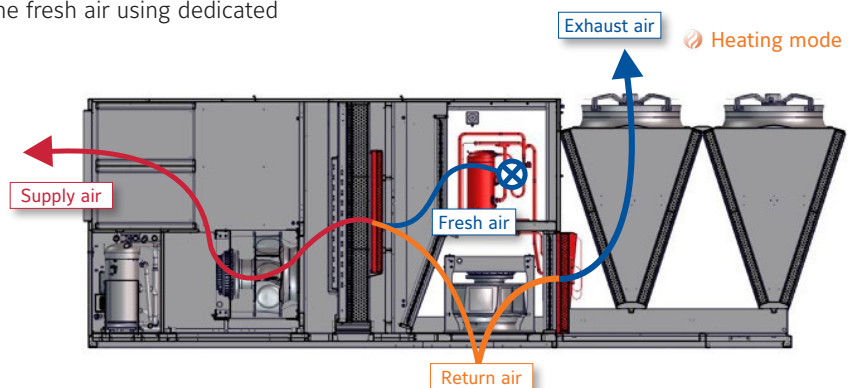
TRECO - Thermodynamic energy RECOvery (3 Dampers)

Active energy recovery between the exhaust air and the fresh air using dedicated thermodynamic system.

Heating mode

	Pc	EER	Ph	COP
3 dampers + TRECO 20% fresh air	+21%	0%	+20%	+3%
3 dampers + TRECO 60% fresh air	+20%	-2%	+21%	+4%

According to Eurovent conditions



Large ACTIVA Rooftop

ARC-ARH 100 to 175 AB

A complete range from 108 kW up to 169 kW

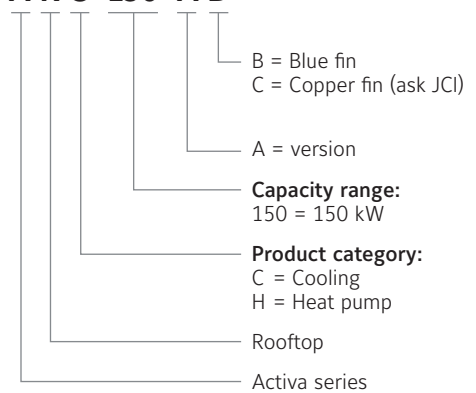


YKN2open

Features

- High efficiency EER and COP
- Ecodesign ErP 2021 compliant
- Quiet operation
- Configurations: Cooling only and Heating
- BMS communication as standard (N2Open protocol)
- Partial loads
- Extended working range (up to 52°C outdoor temperature)
- F6 & F7 filters available as option (G4 standard)
- Energy recovery (ask JCI for availability)

ARC 150 AB Nomenclature



Large ACTIVA Rooftop

ARC-ARH 100 to 175 AB



Technical features

Cooling only models		ARC 100 AB	ARC 125 AB	ARC 150 AB	ARC 175 AB	
Net cooling capacities	kW	108.1	121.8	149.3	169.0	
Power input	kW	34	41	59	64	
SEER		4.95	4.58	3.72	3.53	
η _{s,c}		195.0	180.1	145.7	138	
Working range (full load / partial load) *	°C	7°C ~ 46°C / -10°C ~ 52°C				
Heat pump models		ARH 100 AB	ARH 125 AB	ARH 150 AB	ARH 175 AB	
Net cooling capacities	kW	108.1	121.8	149.3	169.0	
Power input in cooling	kW	34	41	59	64	
Heating capacities (1)	kW	104.6	118.4	147.0	167.0	
Power input in heating	kW	33	37	53	61	
SCOP		3.58	3.44	3.44	3.44	
η _{s,h}		140.2	134.5	134.6	134.5	
Working range (full load / partial load) *	°C	-10°C ~ 46°C / -10°C ~ 52°C				
Common characteristics						
Power supply	400V / 3 / 50Hz					
Main switch	A	100	125	160	200	
Main cable	Nbr. x mm ²	3 x 35	3 x 50	3 x 50	3 x 70	
Cable to thermostat	Nbr. x mm ²	10 x 0,22				
Number of circuits / Compressor type	2 (tandem) / 4 x scroll					
Evaporator fan at nominal airflow	Airflow	m ³ /h	19 000	21 000	27 000	31 000
	Power input	kW	3.0	3.3	8.3	9.1
Nett dimensions	Height	mm	2 142		2 142	
	Length	mm	4 036			5 085
	Depth	mm	2 250		2 250	
Nett weight ARC	kg	1 737	1 744	2 074	2 090	
Nett weight ARH	kg	1 765	1 772	2 135	2 150	

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

(1) Add indoor fan motor consumption to know total heating capacity.

* With Premium kit (full load / partial load): -10°C ~ 50°C / -10°C ~ 52°C

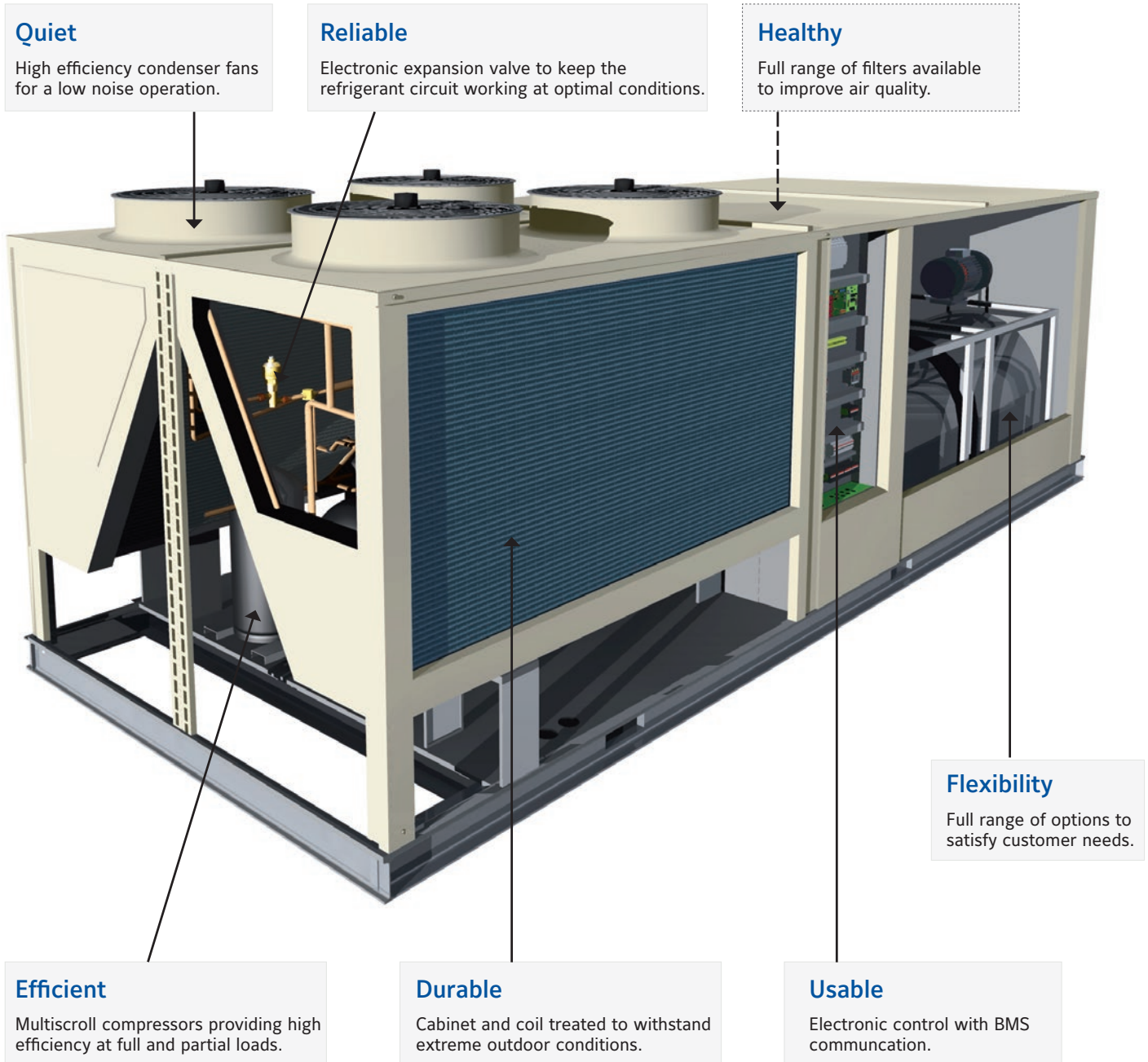
Codes

Cooling only models	ARC 100 AB	ARC 125 AB	ARC 150 AB	ARC 175 AB
	S661852400	S661852420	S661852450	S661852480
Heat pump models	ARH 100 AB	ARH 125 AB	ARH 150 AB	ARH 175 AB
	S661852403	S661852423	S661852453	S661852483
Thermostat				
to be ordered separately	DPC-1			



Manufacturer reserves the rights to change specifications without prior notice.

Large Activa rooftop details



Accessories and options

	Code	Cooling only				Heat pump			
		100	125	150	175	100	125	150	175
Thermostat DPC-1	S603786044	A	A	A	A	A	A	A	A
YNK2Open Gateway BACnet / IP - JCI Metasys N2	S606791244	A	A	A	A	A	A	A	A
YNK2Open Gateway Modbus TCP / IP - JCI Metasys N2	S606791245	A	A	A	A	A	A	A	A
Dry bulb triple input economizer or motorized air damper with rain hood	S611751011	O	O			O	O		
	S611751511			O	O			O	O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Power Exhaust	S611751021	A	A			A	A		
	S611751521			A	A			A	A
Barometric relief damper	S611751031	A	A			A	A		
	S611751531			A	A			A	A
Fresh air damper	S613751021	A	A			A	A		
	S613751521			A	A			A	A
High pressure drive	7.5 kW (IE3)	S611751091	O	O			O	O	
	11 kW (IE3)	S611751093	O	O			O	O	
	5.5 kW (IE3)	S611751591			O				O
	7.5 kW (IE3)	S611751592			O	O			O
Side duct supply	S611751061	O	O			O	O		
	S611751561			O	O			O	O
Soft start indoor fan	5.5 kW	S606744690	O	O	O	O	O	O	O
	11.5 kW	S606744691	O	O	O	O	O	O	O
Premium Kit (LAK included) *	S611751071	O	O	O	O	O	O	O	O
Fixed roof curb	S611751081	A	A			A	A		
	S611751581			A	A			A	A
Adjustable roof curb	S611751082	A	A			A	A		
	S611751582			A	A			A	A
Dirty filter switch	S613990085	O	O	O	O	O	O	O	O
Smoke detector	S613995382	O	O	O	O	O	O	O	O
Fire detection thermostat	S613903003	O	O	O	O	O	O	O	O
Hot water coil	S611751051	O	O			O	O		
	S611751551			O	O			O	O
Electric heaters	37 kW	S611751037	O	O	O	O	O	O	O
	50 kW	S611751050	O	O	O	O	O	O	O
	60 kW	S611751060	O	O	O	O	O	O	O
Filter kit F6	S611751046	O	O			O	O		
	S611751546			O	O			O	O
Filter kit F7	S611751047	O	O			O	O		
	S611751547			O	O			O	O
Grill condenser coil protection	S611751041	O	O			O	O		
	S611751541			O	O			O	O
Antivibration mounting kit 100/125	S613751011	O	O			O	O		
Antivibration mounting kit 150/175	S613751511			O	O			O	O
Alarm relay board	S606791243	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Copper-copper coil	Contact us	O	O	O	O	O	O	O	O

O=Option (factory fitted). A=Accessory (supplied loose). O/A=If you want this item factory fitted, precise it in the order form.

(1) = Energy recovery accessory includes: economizer, rain hood, indoor air quality sensor and G4 filters.

* Features: increased efficiency by 0.15, extended max outdoor temperature up to +50°C at full load, Low ambient kit.



Air Handling Systems and Terminal Devices

Air Handling Units

Fan Coil Units

Close Control Units

Factory Fitted Controls

Your tailored AHU solution: From fully customized to compact standard

We recognise that your reputation depends on the quality of the products you choose and how well they are installed. That's why we work hard to make selecting, installing and operating our products as easy as possible. Our comprehensive range includes a number of additional options that make YORK Air Handling Units the professional's choice.

YORK Air Handling Units & Indoor Air Quality Options

CUSTOMIZED



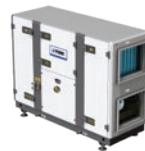
YMA
Customized
Airflow range: 1,000-200,000 m³/h



COMPACT



YKR
Compact
Rotary Heat Exchanger
Airflow range: 600-10,600 m³/h



YKC
Compact
Counter-flow Plate Heat Exchanger
Airflow range: 1,500-7,360 m³/h



YKL
Compact
Counter-flow Plate Heat Exchanger
Airflow range: 65-620 m³/h



MODULAR



YMB
Modular
Airflow range: 700-100,000 m³/h

RESIDENTIAL

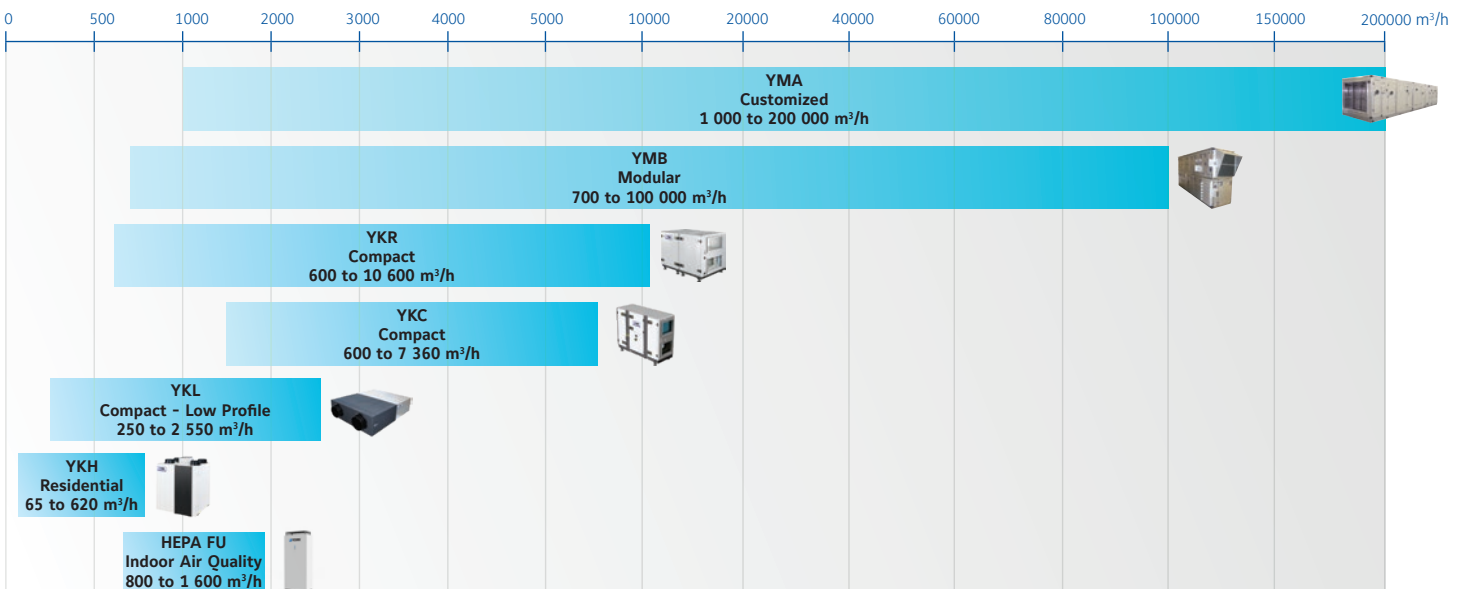


YKH
Residential
Counter-flow Plate Heat Exchanger
Airflow range: 65-620 m³/h



YORK MOBILE HEPA FILTER UNIT
Compact
Indoor Air Quality Options
Filtration Units
Airflow range: 800-1,600 m³/h

YORK Air Handling Units flowchart



Introducing the YMA range of Air Handling Units



The YORK YMA range encompasses our extensive knowledge of air-handling, offering a highly reliable, economical and energy efficient product capable of addressing all of your needs.

Features

The YMA family of air handling units consists of a range of models having air volumes ranging from 1.000 - 200.000 m³/h and total static pressures as high as 2000 Pascal: to ensure maximum flexibility and the best solution for your application, units are available in increments of 40mm in height and 50mm in width.

YMA Air Handling Units can be manufactured in varied configurations, with a wide selection of components, to meet customer requirements. Units are also available in line with the requirements of hospital sector specifications.

Dimensional flexibility. Space constraints are a reality on most construction projects. YORK AHU's design is based on variable aspect ratios, so the unit can be specified to fit the application and space.

Material flexibility. Different environments require different materials so we offer a number of construction materials, including galvanized steel, pre-coated steel, stainless steel, and aluminium.

Component flexibility. To meet any AHU requirement, our units offer every available air-handling component. And as applicable technology creates new capabilities, Johnson Controls will apply this to our product range.

Over the past 50 years we have supplied air handling units for:

- **Commercial space:** office buildings, cinemas, concert halls
- **Institutional space:** schools, universities, churches
- **Industrial manufacturing:** automotive, aerospace, chemical, petrochemical
- **Hygienic systems:** hospitals, life sciences, R&D facilities, food processing, clean rooms
- **Process manufacturing:** pharmaceutical, electronics, semiconductor

Equipment Life Cycle. Each YMA unit has a designated suffix ('S', 'T', or 'R') that identifies the factory of origin. This makes it easier to identify and locate production and technical data to assist in advising on spare parts, as well as supporting the customer with any post installation modifications or upgrades that may be requested during the life of the unit.

YMA Custom Air Handling Units

A complete range from 1,000 m³/h – 200,000 m³/h



Features

The YMA family of air handling units consists of a range of models having air volumes ranging from 1,000 – 200,000 m³/h and total static pressures as high as 2,000 Pascal: to ensure maximum flexibility and the best solution for your application, units are available in increments of 40mm in height and 50mm in width.

YMA Air Handling Units can be manufactured in varied configurations, with a wide selection of components, to meet customer requirements.

Units are also available in line with the requirements of hospital sector specifications.

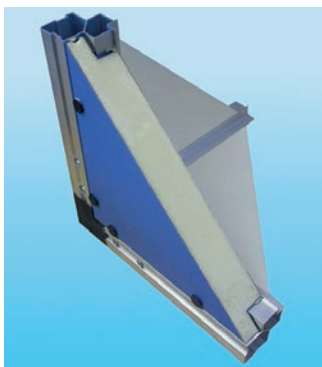


Units may include combinations of any of the following:

- Single or double decked units.
- Indoor or outdoor applications – Outdoor units are available with a flat or sloping roof, louvres, rainhoods, birdscreens and special finishes.
- Site assembled units.
 - Where space constraints restrict the size of a single item modules can easily be aligned and locked together by gaskets and stainless steel bolts inserted into factory predrilled assembly holes.
- Air mixing boxes and various filter options.
- Gas fired burners.
- Cooling and heating coils.
- Humidifiers
- Heat recovery systems.
- UV sterilising lamps.
- Dessicant and thermal wheels.
- Sound attenuation.
- ATEX Certification.
- Factory fitted controls and sensors.
 - These include all necessary piping, wiring, controls and refrigeration equipment to provide a complete central air conditioning plant.
- Hygienic construction option for hygiene sensitive environments.

The Frame

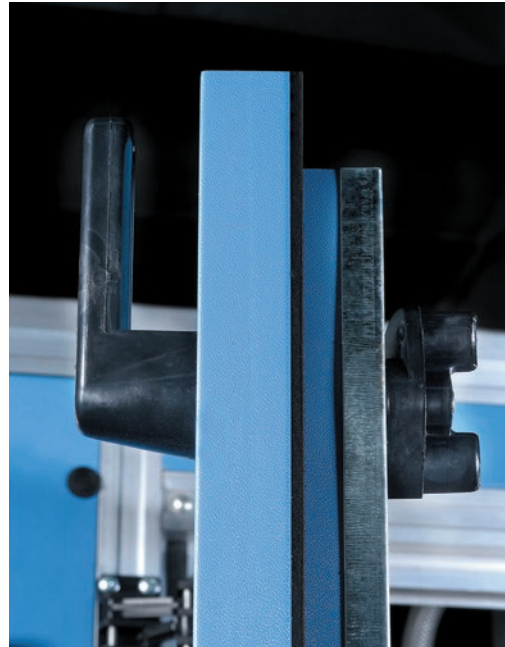
- Low weight, corrosion resistant, marine aluminium alloy twin box section profile, designed to provide strength and stability
- Gaskets between the frameworks' panels and profiles, to allow efficient cleaning and prevent trapping and harmful bacteria growth
- Optional thermal bridge free profile
- Unit sections mounted on a 3mm thick galvanized steel bolted base frame



Standard Construction



Cold Bridge Free Construction



Panels

- Standard 60mm thick (40mm optional) double skinned galvanized panels
- 0.7mm internal and external skins with 40kg/m³ density pressure injected polymerised polyurethane foam insulation
- Returned "K" value of 0.2W/m²°C
- Optional panels manufacturing from pre-plastic coated steel, pre-painted metal or stainless steel
- Mineral wool infill panel of 100kg/m³ density available
- 88mm panels available upon request

Access

- Fully removable panels
- Access doors equipped with half turn nylon handles and cam locks
- Fibreglass reinforced plastic hinges with stainless steel pivots
- Double glazed viewing portholes (optional)

Mechanical characteristics- EN 1886:2009

EUROVENT DIPLOMA 08.05.289 YMA (T), 09.11.443 YMA (R), 05.02.314 YMA (S) APPLIES

Model	Casing Strength Class	Casing Air Leakage Class at 400 Pa	Casing Air Leakage Class at 700 Pa	Thermal Leakage Class	Filter Bypass Transmittance Class	Thermal Bridging Factor Class
PU6055ST	D1(M)	L1(M)	L1(M)	F9(M)	T2	TB3
PU6040TB	D1(M)	L1(M)	L1(M)	F9(M)	T1	TB2
RW6055ST	D2(M)	L2(M)	L2(M)	F9(M)	T2	TB3
RW6055TB	D1(M)	L1(M)	L2(M)	F9(M)	T2	TB2
PU6055TB	D1(M)	L1(M)	L1(M)	F9(M)	T1	TB2



Manufacturer reserves the rights to change specifications without prior notice.

YMB Modular Air Handling Units

A complete range from 700 m³/h – 100,000 m³/h

Building and indoor climate requirements are constantly evolving. They can be influenced by many factors: energy legislation, occupancy churn, lighting, IT infrastructures... all important reasons that highlight the need for reliable, efficient Air Handling units.

Suitable for use in either new building developments or upgrades and refitting of existing buildings, our **YMB** range of AHU is a range of modular, Fixed Aspect Ratio units designed with efficiency and cost in mind to meet the needs of more 'commercial' installations.

Our knowledge, flexibility and commitment to the customer address four primary requirements of building owners and designers—efficiency, flexibility, sustainability, and confidence.



YMBS/YMBD Modular Air Handling Unit characteristics

Available sizes	21	
Airflow range (m ³ /h)	700 ~ 100 000	
Application	<ul style="list-style-type: none"> • housing and retail construction industry • public utility buildings • industrial facilities construction • leisure facilities 	
Basic options	<ul style="list-style-type: none"> • G4 class filters • F5, F7, F9 class filters • heat recovery • water/steam/glycol/electric heater • water/glycol/freon cooler • humidification, fan and attenuation section 	
Additional options	<ul style="list-style-type: none"> • sub-assemblies manufactured as explosion-proof • swimming pool version • hygienic version • YORK Factory Fitted Controls 	
Heat recovery	<ul style="list-style-type: none"> • recirculation • cross-flow heat exchanger • rotary heat exchanger 	<ul style="list-style-type: none"> • heat pipe • glycol recovery system • heat pump
Installation type	<ul style="list-style-type: none"> • indoors (YMBS) / outdoors (YMBD) 	

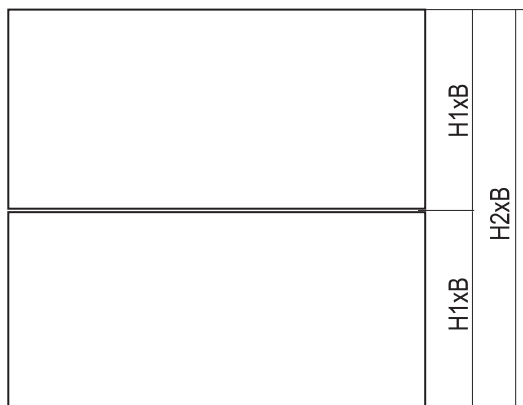
YMB is available for indoor installation called YMBS and outdoor installation called YMBD



YMBS/YMBD performances

YMBS/YMBD*				
Unit size	Airflow range [m³/h]	Width B	Height H1	Height H2
Insulation 50 mm				
MINI	700 - 1800	640	490	980
1	1000 - 3000	650	600	1200
2	2600 - 4100	700	700	1440
3	3900 - 6100	940	700	1440
4	6000 - 9400	940	1010	2020
1	1000 - 3000	690	640	1280
2	2600 - 4100	740	740	1480
3	3900 - 6100	980	740	1480
3-BIS	5000 - 8000	1290	740	1480
4	6000 - 9400	980	1050	2100
5	8000 - 12600	1290	1050	2100
6	9600 - 15100	1290	1250	2500
5-BIS	11000 - 17000	1580	1050	2100
6-BIS	1200 - 21000	1580	1250	2500
7	13500 - 21300	1580	1370	2740
7-BIS	18000 - 28000	1885	1370	2740
8	21300 - 33700	1885	1670	3340
9	26000 - 41000	1885	2020	4040
8-BIS	30000 - 46000	2400	1670	3340
10	34000 - 53000	2400	2020	4040
8A-BIS	38000 - 59000	3000	1670	3340
11	43000 - 69000	2400	2500	5000
10-BIS	46000 - 71500	3000	2020	4040
12	57000 - 90000	3000	2500	5000
12-BIS	68000 - 100000	4800	2020	-

* YMBD is only in 50 mm thick insulation available (optionally, YMBS and YMBD in 70 mm thick insulation)



YMBS/YMBD



YMB range is DIN1946-4 certified

YKR Compact Air Handling Units with Rotary Heat Exchanger

A complete range from 600 m³/h to 10,600 m³/h

NEW



Rotary Heat Recovery

YKR heat recovery ventilation units have high efficient rotary heat recovery exchangers. The exchanger transfers sensible heat and moisture between supply and exhaust air. Thus, it is also possible to transfer latent heat. With the optimization of heat exchanger, temperature and humidity efficiency is increased, pressure drop is decreased. Optionally, condensation rotor can be used for sensible heat transfer and sorption rotor can be used for humidity transfer.

Control System Plug&Play

YORK control unit is developed for controlling of heat recovery units' equipments, meeting the demands coming from the customers and is user friendly designed. The control unit is capable of controlling the standard equipments and optional accessories. YORK control unit can perform the basic functions. Besides, the control unit can be switched on/off via BMS, gets fault signals and controls all the functions via ModBus. Alternative controllers are listed in "Control System" part.

Exhaust and Supply Air Filters

To increase indoor air quality and to protect the equipments used in unit, F class filter (according to EN 779 standard) is used for supply air streams; M class filter is used for exhaust air streams. A choice of pre-filters (G3-G4) and final filters (M5-F9) are available optionally. Increased filter classification reduce the available static pressure of the unit.

Exhaust and Supply Air Fans

The fans in Compact Air Handling Units are equipped with innovative Electronically Commutated EC motor technology. EC motors have higher efficiency and simple speed control. Fan blades have high aerodynamic efficient backward curved design. EC motors reduce the energy consumption and increase the energy efficiency of the unit. With EC Fans, maintenance costs are reduced as the fans are directly connected to the motors; the belt and pulley problems are eliminated.

Casing & Insulation

The unit's casing is made up of double skinned high corrosion resistive 200 gr/m² galvanize coated steel. 50 mm thickness and 70kg/m³ density of Rockwool insulation between the walls is used for thermal and sound insulation. The case of unit is painted by electrostatic powdered paint. The unit is constructed in sections to ease transportation, mounting and commissioning. Every section has its own basis and transport slots.

Accessories

- Duct Type Electric Heaters
- Duct Type Heating / Cooling and DX Cooling Coil
- Duct Type Sound Attenuator

Compact Air Handling Units with Rotary Heat Exchanger

YKR-H Horizontal connection units

YKR-V Vertical connection units

Technical features

		YKR-H 100	YKR-H 200	YKR-H 300	YKR-H 400	YKR-H 500	YKR-H 700	YKR-H 900	YKR-H 1100
		YKR-V 100	YKR-V 200	YKR-V 300	YKR-V 400	YKR-V 500	YKR-V 700	YKR-V 900	YKR-V 1100
Declared typology		NRVU							
Type of drive installed or intended to be installed		variable speed drive							
Type of HRS (run around, other, none)		regenerative							
Thermal efficiency of heat recovery ¹	%	81.1	78.6	78.4	79.7	78.8	80.6	81.1	80.8
Nominal flow rate	m ³ /h	600	1300	1800	2500	3500	4000	5500	5800
Maximum flow rate	m ³ /h	1100	1700	2450	4050	5350	6800	8900	10600
Effective electric power input	W	376	706	934	1204	1692	2170	2554	2970
SFP _{int} ¹	W(m ³ /s)	1199.3	1179.3	1136.9	1023.2	1061.8	1130.7	935.3	1052.3
Face velocity at design flow rate	m/s	1.3	1.3	1.6	1.8	1.9	2	1.7	1.7
Nominal external pressure ($\Delta P_{s,ext}$) ¹	Pa	200	200	200	200	200	200	200	200
Internal pressure drop of ventilation components ($\Delta P_{s,int}$)	Pa	227	304	311	288	313	275	254	266
Internal pressure drop of non-ventilation components ($\Delta P_{s,add}$)	Pa	There is no "non-ventilation" components							
Static efficiency of fans used in accordance with Regulation (EU) No. 327/2001		38	52	55	56	59	49	54	51
Declared max. external leakage rate	%	Less than %3	3	2.9	0.9	Less than %3			
Declared max. internal leakage rate	%	NA							
Energy classification of the filters (Energy performance)	kWh	826	826	1331	1667	1835	2003	1499	1499
Description of visual filter warning for NRVUs intended for use with filters ²		www.solutionnavigator.com							
Sound power level (LWA)	dB(A)	57	52	46	49	61	61	63	65
Internet adress for pre-/dis-assembly instructions		www.solutionnavigator.com							

¹ Measured at balanced flow, EN 308.

² Including test pointing out the importance of regular filter changes for performance and energy efficiency of the unit.

Note: F7 class filter at supply side, M5 class filter at exhaust side are used according to EN 779.



Manufacturer reserves the rights to change specifications without prior notice.

YKC

Compact Air Handling Units with Counterflow Plate Heat Exchanger

NEW

A complete range from 1,500 m³/h to 7,360 m³/h



Heat Recovery Exchanger (Aluminum)

YKC heat recovery ventilation units have aluminum counterflow, high efficient plate heat recovery exchangers. Plate heat recovery exchangers have plates that are produced improved surface areas to provide high efficient and leakage free design. With the optimization of exchanger heat transfer is increased and pressure drop is decreased. Heat recovery exchanger has Eurovent certification.

Control System Plug&Play

YORK control unit is developed for controlling of heat recovery units' equipments, meeting the demands coming from the customers and is user friendly designed. The control is capable of controlling the standard equipments and optional accessories. YORK control unit can perform the basic functions. Besides, the control unit can be switched on/off via BMS, gets fault signals and controls all the functions via ModBus. Alternative controllers are listed in "Control System" part.

Exhaust and Supply Air Filters

To increase indoor air quality and to protect the equipments used in unit, F class filter (according to EN 779 standard) is used for supply air streams; M class filter is used for exhaust air streams. A choice of pre-filters (G3-G4) and final filters M5-F9) are available optionally. Increased filter classification reduce the available static pressure of the unit.

Casing & Insulation

The unit's casing is made up of double skinned high corrosion resistive 200 gr/m² galvanize coated steel. 50 mm thickness and 70kg/m³ density of Rockwool insulation between the walls is used for thermal and sound insulation. The case of unit is painted by electrostatic powdered paint. The unit is constructed in sections to ease transportation, mounting and commissioning.

Exhaust and Supply Air Fans

The fans in Compact Air Handling Units are equipped with innovative Electronically Commutated EC motor technology. EC motors have higher efficiency and simple speed control. Fan blades have high aerodynamic efficient backward curved design. EC motors reduce the energy consumption and increase the energy efficiency of the unit. With EC Fans, maintenance costs are reduced as the fans are directly connected to the motors; the belt and pulley problems are eliminated.

Accessories

- Duct Type Electric Heaters
- Duct Type Heating / Cooling and DX Cooling Coil

Compact Air Handling Units with Counterflow Plate Heat Exchanger

YKC-H Horizontal connection units

YKC-V Vertical connection units

Technical features

		YKC-H 200	YKC-H 300	YKC-H 400	YKC-H 500	YKC-H 700
		YKC-V 200	YKC-V 300	YKC-V 400	YKC-V 500	YKC-V 700
Declared typology		NRVU				
Type of drive installed or intended to be installed		variable speed drive				
Type of HRS (run around, other, none)		regenerative				
Thermal efficiency of heat recovery ¹	%	78	78	79	78	79
Nominal flow rate	m ³ /h	1500	2000	3000	3500	4500
Maximum flow rate	m ³ /h	2240	2690	4410	5350	7360
Effective electric power input	W	723	1023	1344	1570	2245
SFP _{int} ¹	W(m ³ /s)	960.5	1075.7	916.1	930.6	1891.4
Face velocity at design flow rate	m/s	1.5	1.6	1.6	1.9	2.3
Nominal external pressure ($\Delta P_{s,ext}$) ¹	Pa	200	200	200	200	200
Internal pressure drop of ventilation components ($\Delta P_{s,int}$)	Pa	238	271	253	262	197
Internal pressure drop of non-ventilation components ($\Delta P_{s,add}$)	Pa	There is no "non-ventilation" components				
Static efficiency of fans used in accordance with Regulation (EU) No. 327/2001		51.5	52	57.3	58.4	44.9
Declared max. external leakage rate	%	Less than %3				
Declared max. internal leakage rate	%	NA				
Energy classification of the filters (Energy performance) ²	kWh	NA				
Description of visual filter warning for NRVUs intended for use with filters ³		www.solutionnavigator.com				
Sound power level (LWA)	dB(A)	NA				
Internet adress for pre-/dis-assembly instructions		www.solutionnavigator.com				

¹ Measured at balanced flow, EN 308.

² Declared information about the calculated annual energy consumption.

³ Including test pointing out the importance of regular filter changes for performance and energy efficiency of the unit.



Manufacturer reserves the rights to change specifications without prior notice.

YKL

Compact Low Profile Air Handling Unit with Counterflow Plate Heat Exchanger



A complete range from 250 m³/h to 2,550 m³/h



Heat Recovery Exchanger (Aluminum)

YKL heat recovery ventilation units have aluminum counterflow, high efficient plate heat recovery exchangers. Plate heat recovery exchangers have plates that are produced improved surface areas to provide high efficient and leakage free design. With the optimization of exchanger heat transfer is increased and pressure drop is decreased. Heat recovery exchanger has Eurovent certification.

By-Pass

YKL units have by-pass ventilation as standard. During by-pass ventilation, no heat transfer occurs between exhaust and fresh air stream. In transition periods and at nights in summer, by-pass module helps to cool down (free-cooling) and heat up (free-heating) the building without any energy expense.

Control System Plug&Play

YORK control unit is developed for controlling of heat recovery units' equipments, meeting the demands coming from the customers and is user friendly designed. The control is capable of controlling the standard equipments and optional accessories. YORK control unit can perform the basic functions. Besides, the control unit can be switched on/off via BMS, gets fault signals and controls all the functions via ModBus. Alternative controllers are listed in "Control System" part.

Exhaust and Supply Air Filters

To increase indoor air quality and to protect the equipments used in unit, G class filters (according to EN 779 standard) are used for both exhaust and supply air streams. F class filters can be also used optionally in the unit. F class filters reduce the available static pressure of the unit for the nominal air flow rate.

Casing & Insulation

High corrosion resistive 200 gr/m² galvanize coated steel is used for the casing. Inside of outdoor air stream is insulated with 10 mm, outside of outdoor air stream is insulated with 5 mm; inside of indoor air stream is insulated with 10 mm non-flammable acoustics foam against sound and thermal conduction.

The YKL-D unit's casing is made up of double skinned high corrosion resistive 200 gr/m² galvanize coated steel. 30 mm thickness and 50kg/m³ density of Rockwool insulation between the walls is used for thermal and sound insulation. Non-flammable EPS modules are used for directing the air flow homogeneously. Density of EPS is 40 kg/m³.

Exhaust and Supply Air Fans

The fans in heat recovery units are equipped with innovative Electronically Commutated EC motor technology. EC motors have higher efficiency and simple speed control. Fan blades have high aerodynamic efficient backward curved design. Using the EC motors reduce the energy consumption and increase the energy efficiency of the unit. With EC Fans, maintenance costs are reduced as the fans are directly connected to the motors; the belt and pulley problems are eliminated.

Accessories

- Duct Type Electric Heaters
- Ventilation on Demand
- Sound Attenuator for Circular Ducts
- Final Filter (F Class - Optional)

Compact Low Profile Air Handling Unit with Counterflow Plate Heat Exchanger

YKL/YKL-D Low Profile Unit

Technical features

		YKL 250	YKL 500	YKL 800	YKL 1000	YKL 1500	YKL 2000
		YKL-D 250	YKL-D 500	YKL-D 800	YKL-D 1000	YKL-D 1500	YKL-D 2000
Declared typology		NRVU					
Type of drive installed or intended to be installed		variable speed drive					
Type of HRS (run around, other, none)		other					
Thermal efficiency of heat recovery ¹	%	85	82	82	82	80	83
Nominal flow rate	m ³ /h	250	500	750	1000	1500	1900
Maximum flow rate	m ³ /h	392	760	869	1288	2450	2550
Effective electric power input	W	58	144	242	277	495	678
SFP _{int} ¹	W(m ³ /s)	340	591	729	622	837	947
Face velocity at design flow rate	m/s	1	1.3	1.4	1.5	1.9	1.8
Nominal external pressure ($\Delta P_{s,ext}$) ¹	Pa	100	100	100	100	100	100
Internal pressure drop of ventilation components ($\Delta P_{s,int}$)	Pa	69	133	187	143	239	280
Internal pressure drop of non-ventilation components ($\Delta P_{s,add}$)	Pa	There is no "non-ventilation" components					
Static efficiency of fans used in accordance with Regulation (EU) No. 327/2001		39	45	50	49	57	59
Declared max. external leakage rate	%	1.4	0.1	0.2	0.3	0.8	0.6
Declared max. internal leakage rate	%	5.4	1.9	1.6	2.3	2.4	2.1
Energy classification of the filters (Energy performance)	kWh	NA					
Description of visual filter warning for NRVUs intended for use with filters ²		www.solutionnavigator.com					
Sound power level (LWA) ³	dB(A)	42	44	48	47	43	58
Internet adress for pre-/dis-assembly instructions		www.solutionnavigator.com					

¹ Measured at balanced flow, EN 308.

² Including test pointing out the importance of regular filter changes for performance and energy efficiency of the unit.

³ Sound power level values are valid for YKL units.



Manufacturer reserves the rights to change specifications without prior notice.

YKH

Residential Type Heat Recovery Unit with Plastic Counterflow Plate Heat Exchanger



A complete range from 65 m³/h to 620 m³/h



Heat Recovery Exchanger

YKH heat recovery ventilation units have plastic counterflow, high efficient plate heat recovery exchangers. Plate heat recovery exchangers have plates that are produced improved surface areas to provide high efficiency and leakage free design. With the optimisation of exchanger heat transfer is increased and pressure drop is decreased.

Control System Plug&Play

ENECON PLUS control unit is developed for controlling of heat recovery units' equipments, meeting the demands coming from the customers and is user friendly designed. ENECON is capable of controlling the standard equipments and optional accessories. ENECON PLUS Control unit can perform the basic functions without any control panel; it is more functional used with Standart Panel. Besides, the control unit can switch on/off via BMS and controls all the functions via ModBus. Alternatives different from Enecon Plus controller are listed in "Control System" part.

Exhaust and Supply Air Filters

To increase indoor air quality and to protect the equipments used in unit, G class filters (according to EN 779 standard) are used for both exhaust and supply air streams. F class filters can be also used optionally in the unit. F class filters reduce the available static pressure of the unit for the nominal air flow rate.

Casing

High corrosion resistive 200 gr/m² galvanize coated steel is used for the casing. The case of unit is painted by electrostatic powdered paint. Non-flammable EPS modules are used for directing the air flow homogeneously. Density of EPS is 40 kg/m³.

By-Pass

During by-pass ventilation, no heat transfer occurs between exhaust and fresh air stream. In transition periods and at nights in summer, by-pass module helps to cool down (free-cooling) and heat up (free-heating) the building without any energy expense.

Exhaust and Supply Air Fans

The fans in heat recovery units are equipped with innovative Electronically Commutated EC motor technology. EC motors have higher efficiency and simple speed control than AC motors and connect the AC mains. Fan blades have high aerodynamic efficient backward curved design. Using the EC motors reduce the energy consumption and increase the energy efficiency of the unit. With EC Fans it is also possible to reduce maintenance costs as the fans are direct drive; free of belt and pulley.

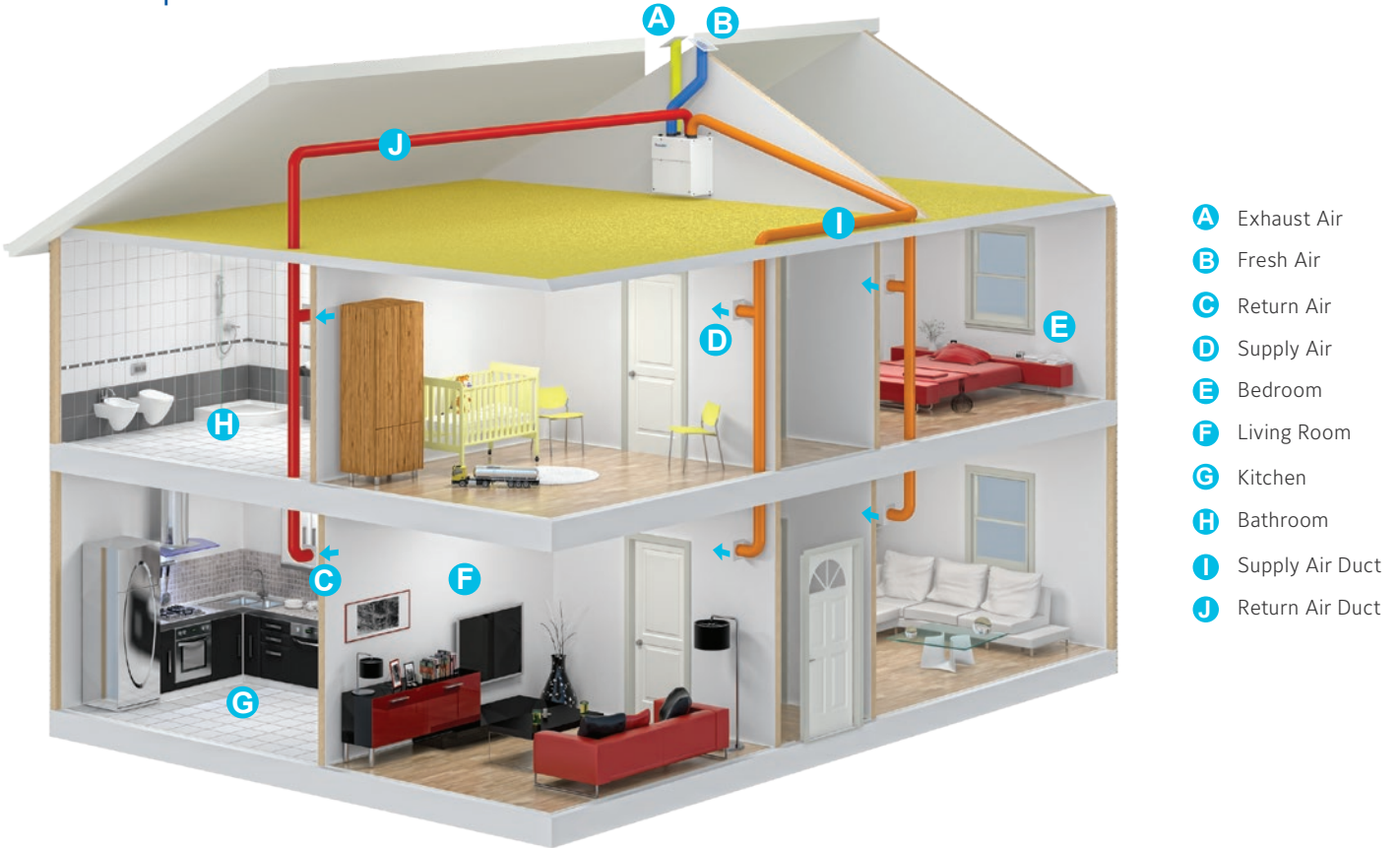
Accessories

- Duct Type Electric Heaters
- Ventilation on Demand
- Final Filter (F Class - Optional)

Residential Type Heat Recovery Unit with Plastic Counterflow Plate Heat Exchanger

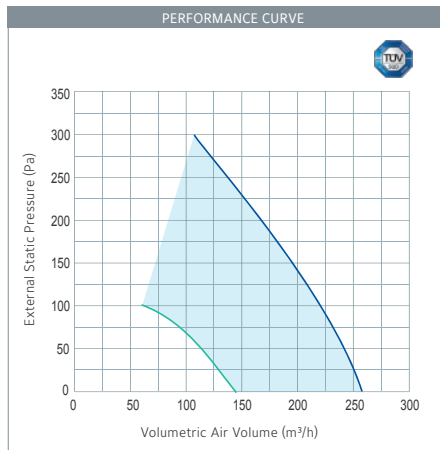
YKH

Technical Specifications

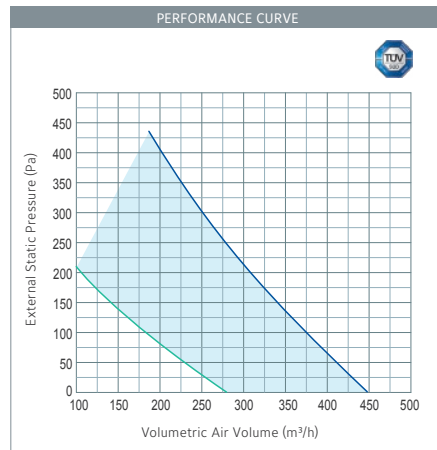


Fresh air is introduced to the ventilation system with fresh air duct. Fresh air is filtered with G class filter in the inlet of the unit. Fresh air is preconditioned through the counter-flow heat exchanger in the unit and then delivered to the demanded spaces in the house. Return air is exhausted from kitchen, bathroom, toilet and similar spaces where odours, steam etc. is created and delivered to the unit with return air ducts. To prevent fouling of the counter-flow heat exchanger G class filters are introduced to the unit. Return air is then exhausted outdoors after transferring its energy to fresh air.

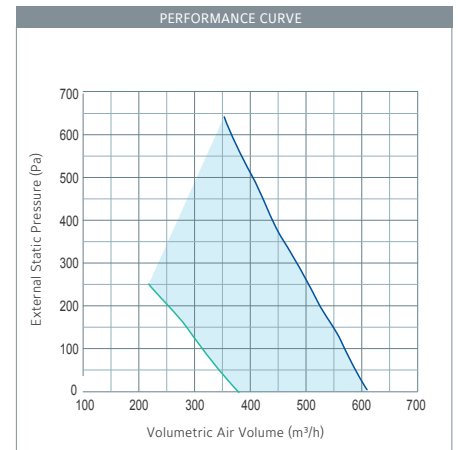
YKH 300



YKH 500



YKH 700



Manufacturer reserves the rights to change specifications without prior notice.

YORK Fan Coil units

Driven by innovative trends and modern technology, the YORK Fan Coil Units have been designed around a platform of models, versions and accessories, which have been independently tested and certified by Eurovent. The YORK Fan Coil range meets today's demanding requirements of performance, size, acoustics, low energy, ease of installation and maintenance.



An extensive offering

- One of the **most versatile** ranges of fan coils on the market today. Wall and ceiling mounted units, exposed or concealed with centrifugal fan, are included, and with cooling capacities ranging from 0.6 kW to 9.7 kW.
- Dramatic **electrical consumption reduction** of up to 40% comparative to previous models. This is achieved thanks to the supply of all YORK Fan Coil Units equipped with centrifugal fans and electric motors, and with 6 speed motors as standard to offer greater flexibility in the selection of products.
- **Energy saving brushless motor** technology option available. Its combination with a dedicated frequency inverter and unit controller to regulate the fan speed enables higher efficiencies, even at low rotational speeds, lower unit noise, constant speed characteristics and an increase in motor lifetime expectancy. In comparison to the traditional units equipped with asynchronous three-speed-motors, units with brushless motors can obtain a considerable energy saving, by reducing the power consumption by up to 70%.
- A full range of **factory fitted Johnson Controls valve and pre-configured control options** is offered. This in addition to a patented 'wireless' control option - offering greater flexibility in the installation of units, with the highest precision in monitoring and maintaining the desired comfort conditions.
- Many of our ranges are available configured for use with 60Hz voltage, and specially designed cooling coils for **District Cooling applications**.
- **High pressure 'Blower' units** are also available. They can offer up to 29.4 kW of cooling at External Static Pressures of up to 250Pa, and are complemented with a full range of options and accessories covering items such as electrical heating battery, air inlet/outlet diffusers and condensate pumps.



Iconography



Infrared or
Wired control



Wired
control



Dry mode



Timer



Auto
Restart



Sleep
mode



Auto
Sweep



Ducted
Installation



4 Way
Air Flow



Air Filter

YFCN Fan Coil Unit with centrifugal fan

2 & 4 pipe system

A complete range from 0.7 kW to 7.4 kW



YFCN is a range of Fan Coil Units that continues the YORK tradition based on high reliability and low noise levels. It is the result of great commitment in terms of energy and resources to offer a more modern product from every angle, while still delivering the convenience of easy access to the filters in all models.

Moreover each version has the same internal structure, identical in both horizontal and vertical models, in order to standardise production and guarantee a greater flexibility in distribution and installation.



Selection software

Wired controls



T9000 Series

Red Dot Product Design Award Winner 2020

- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



T7600 Series

- LCD Screen Display
- 2 or 4 pipes FCU
- On/off or proportional
- 3-speed motors or ECM motors
- Modbus RTU



Infrared control



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible

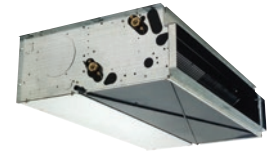


Features

- New casing, improved aesthetics, suitable for any modern indoor ambient
- Full range for all needs: 9 sizes suitable for horizontal or vertical mounting with or without casing
- Low noise operation
- 3 fan speeds (possible choice between 6 fan speeds)
- Single piece discharge grid
- Several coil choices.
 - Single: 3 or 4 rows; Dual: 3 rows cooling and 2 rows heating
- Electrical heater optional
- Suction and discharge plenum optional
- Factory fitted valve (on/off or modulating) and controller packages
- Painted back panel option
- 4 available versions in all range:
 - VC = Vertical Discharge with Casing
 - VCB = Vertical Discharge with Casing (floor installation)
 - HC = Horizontal Discharge with Casing
 - CD = Concealed unit without Casing
- EUROVENT Certified

YFCN Fan Coil Unit with centrifugal fan

0.7 kW to 7.4 kW



Technical features

YFCN model (2 pipes)		140	240	340	440	540	640	740	840	940	
Total cooling capacity [kW]	(1)	max	1.20	1.78	2.53	3.08	4.03	4.71	5.48	6.34	7.42
		med	1.00	1.41	1.87	2.25	3.21	3.81	4.56	5.63	6.41
		min	0.65	1.00	1.63	1.81	2.17	2.79	3.51	3.97	4.79
Sensible cooling capacity [kW]	(1)	max	0.94	1.35	1.86	2.30	3.01	3.52	4.13	4.93	5.87
		med	0.77	1.05	1.36	1.65	2.36	2.81	3.39	4.33	4.98
		min	0.49	0.73	1.18	1.32	1.58	2.03	2.57	2.98	3.63
Pressure drop in cooling [kPa]	(1)	max	5.6	13.9	11.5	15.5	31.3	36.2	27.7	32.2	23.2
		med	4	9.1	6.7	9	20.8	24.8	20	26.0	17.8
		min	1.9	4.9	5.3	6.1	10.4	14.4	12.5	14.0	10.6
Heating capacity [kW]	(2)	max	1.31	1.83	2.59	3.14	4.01	4.92	5.59	7.20	8.52
		med	1.07	1.43	1.87	2.27	3.16	3.90	4.62	6.27	7.18
		min	0.69	0.99	1.62	1.80	2.10	2.82	3.49	4.26	5.23
Pressure drop in heating [kPa]	(2)	max	5.3	11.8	9.8	12.8	25.2	31.8	23.2	31.7	23.7
		med	3.7	7.6	5.4	7.2	16.6	21.1	16.6	24.9	17.6
		min	1.7	4.0	4.2	5.0	8.1	11.9	10.1	12.8	10.0
Air flow [m³/h]		max	220	295	385	485	650	760	925	1 200	1 500
		med	175	220	270	335	495	590	735	1 020	1 210
		min	105	145	235	265	315	415	535	655	830
Fan [W]		max	33	32	41	44	46	78	103	130	176
		med	25	22	25	28	39	55	79	105	134
		min	16	14	20	21	22	37	54	62	92
Sound power level [dB(A)]		max	45	47	49	47	48	52	56	60	64
		med	39	40	40	39	41	46	51	56	58
		min	32	30	36	33	31	37	42	45	50
Sound pressure level [dB(A)]	(4)	max	36	38	40	38	39	43	47	51	55
		med	30	31	31	30	32	37	42	47	49
		min	23	21	27	24	22	28	33	36	41
Power supply [V-ph-Hz]		230 / 1 / 50 + E									
Dimensions *	Height	mm	530	530	530	530	530	530	530	530	530
	Width	mm	670	770	985	985	1 200	1 200	1 415	1 415	1 415
	Depth	mm	225	225	225	225	225	225	225	255	255

YFCN model (4 pipes)		140+1	240+1	340+1	440+1	540+1	640+1	740+1	840+1	940+1	
Total cooling capacity [kW]	(1)	max	1.20	1.78	2.53	3.08	4.03	4.71	5.48	6.34	7.42
		med	1.00	1.41	1.87	2.25	3.21	3.81	4.56	5.63	6.41
		min	0.65	1.00	1.63	1.81	2.17	2.79	3.51	3.97	4.79
Sensible cooling capacity [kW]	(1)	max	0.94	1.35	1.86	2.30	3.01	3.52	4.13	4.93	5.87
		med	0.77	1.05	1.36	1.65	2.36	2.81	3.39	4.33	4.98
		min	0.49	0.73	1.18	1.32	1.58	2.03	2.57	2.98	3.63
Pressure drop in cooling [kPa]	(1)	max	5.6	13.9	11.5	15.5	31.3	36.2	27.7	32.2	23.2
		med	4	9.1	6.7	9	20.8	24.8	20	26.0	17.8
		min	1.9	4.9	5.3	6.1	10.4	14.4	12.5	14.0	10.6
Heating capacity [kW]	(3)	max	0.91	1.33	1.99	2.33	3.00	3.33	4.20	4.75	5.46
		med	0.77	1.09	1.56	1.81	2.50	2.79	3.59	4.26	4.79
		min	0.55	0.83	1.40	1.52	1.84	2.19	2.89	3.16	3.71
Pressure drop in heating [kPa]	(3)	max	1.3	3.1	7.8	10.3	2.6	3.8	6.7	8.3	10.7
		med	1.0	2.2	5.1	6.6	2.3	2.8	5.1	6.9	8.5
		min	0.5	1.3	4.2	4.9	1.3	1.8	3.5	4.1	5.4
Air flow [m³/h]		max	330	515	505	735	720	890	875	1 395	1 365
		med	220	350	340	495	475	610	585	945	910
		min	120	210	200	305	290	400	380	605	575

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

(2) Room temperature 20°C - Water temperature 45/40 °C. (3) Room temperature 20°C - Water temperature 65/55 °C.

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

* Dimensions refer to the units with casing.

Data shown is for 4 row cooling version.

For performance of 3 row cooling version please contact your local Johnson Controls sales office.



Manufacturer reserves the rights to change specifications without prior notice.

ECM Technology



Running costs. Energy consumption. Life cycle.

These are 3 issues that are becoming more and more important in the choice of Fan Coil Units. With these criteria in mind, Johnson Controls offers the ECM range of FCU.

ECM technology comprises a **brushless motor** combined to a **dedicated electronic device** (inverter). In comparison to conventional units equipped with asynchronous three-speed motors, the fancoil and cassette units with brushless motors can obtain a considerable energy saving, by **reducing power consumption up to 70%**.

Air flow rate can be varied in continuous by means of a 0-10V signal generated both by our controls or by independent controls systems. The continuous air flow control improves the **acoustic comfort** and allows a more punctual reply to the variation of the thermal loads, enhancing the **stability of ambient temperature**.

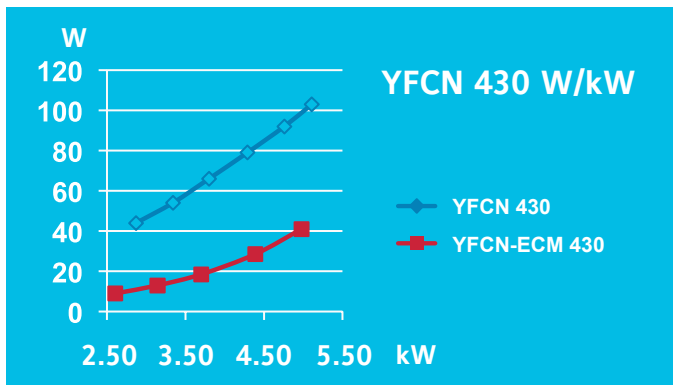
Technology

ECM technology consists of a brushless motor combined with an inverter managed by specific regulators. The controller uses a 0-10 VDC modulating signal to regulate the fan speed.

The brushless electric motor is composed of a rotor having permanent magnets, whose magnetic fields interact with the ones produced by the stator winding. The **transfer of current is no longer by mechanical commutator** (sliding contacts) **but by an electronic commutation system**: one electronic controller (inverter) powers the motor's stator and generates rotating magnetic fields, that in turn determine the rotor's speed.

Brushless motor develop much less heat than the traditional brushed motors and they have much lower mechanical resistance than the standard asynchronous maintenance. The absence of brushes eliminates also the main source of electromagnetic noise.

Power consumption: YFCN versus YFCN-ECM (W/kW)

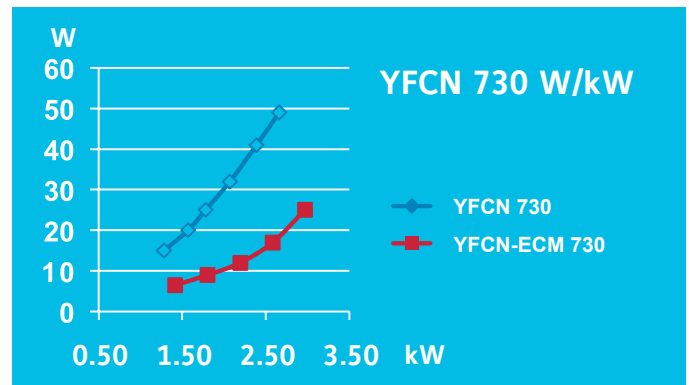


Features

- Brushless motor with inverter.
- 0-10VDC control signal.
- Low mechanical resistance and heat gain
- Continuous regulation of the fan speed.
- Specifically designed electronic and digital regulators, also for BMS systems.
- Possibility to manually set the desired three fan speeds (MIN/MED/MAX).

Advantages (compared to traditional brushed motors)

- Energy saving: electrical absorption reduced up to 70%.
- Higher efficiency: possibility to adapt the air volume and the capacities accordingly to the actual room loads.
- Higher comfort: reduced variation of the temperature and relative humidity in the room.
- Extremely quiet operation.
- Reduced wear and higher reliability.
- Longer life expectancy of the motor.



YFCN-ECM Inverter Fan Coil Unit with centrifugal fan

0.7 kW to 7.1 kW



Technical features

YFCN-ECM model (2 pipes)			230	240	430	440	630	640	730	740	930	940
Total cooling capacity [kW]	(1)	max 10v	1.59	1.86	2.95	3.17	3.96	4.51	4.94	5.30	6.26	7.04
		med 5v	1.18	1.32	2.18	2.27	2.93	3.19	3.68	3.82	4.82	5.21
		min 1v	0.73	0.77	1.41	1.43	1.96	2.05	2.60	2.61	3.45	3.59
Sensible cooling capacity [kW]	(1)	max	1.28	1.42	2.26	2.39	3.08	3.38	3.80	3.99	5.10	5.53
		med	0.92	0.98	1.64	1.67	2.22	2.34	2.77	2.82	3.79	3.99
		min	0.55	0.56	1.03	1.03	1.46	1.48	1.92	1.90	2.63	2.69
Pressure drop in cooling [kPa]	(1)	max	8.6	14.8	28.9	16.1	19	33	32.6	25.6	25.9	20.8
		med	5.1	8	17	8.9	11.1	17.8	19.4	14.3	16.1	12.1
		min	2.2	3.2	7.9	4	5.5	8.2	10.5	7.3	8.9	6.3
Heating capacity [kW]	(2)	max	1.80	1.98	3.14	3.32	4.14	4.68	5.08	5.43	7.38	7.93
		med	1.29	1.37	2.26	2.30	3.00	3.23	3.72	3.84	5.41	5.63
		min	0.77	0.78	1.42	1.42	1.96	2.02	2.56	2.57	3.74	3.76
Pressure drop in heating [kPa]	(2)	max	7.0	13.6	26.7	13.7	17.0	29.1	28.3	22.0	24.2	20.9
		med	3.9	7.1	14.9	7.3	9.6	15.1	16.4	12.0	14.0	11.4
		min	1.6	2.6	6.6	3.1	4.5	6.6	8.5	5.9	7.3	5.6
Air flow [m³/h]		max	330	325	515	505	735	720	890	875	1 395	1 365
		med	220	210	350	340	495	475	610	585	945	910
		min	120	115	210	200	305	290	400	380	605	575
Fan [W]		max	21	21	25	25	32	32	41	41	99	99
		med	11	11	12	12	15	15	19	19	41	41
		min	7	7	6	6	7	7	9	9	16	16
Sound power level [dB(A)]		max	51	51	51	51	54	54	57	57	64	64
		med	41	41	42	42	44	44	48	48	55	55
		min	30	30	30	32	33	33	37	37	44	44
Sound pressure level [dB(A)]	(4)	max	42	42	42	42	45	45	48	48	55	55
		med	32	32	33	33	35	35	39	39	46	46
		min	21	21	21	23	24	24	28	28	35	35
Power supply [V-ph-Hz]			230 / 1 / 50 + E									
Dimensions *	Height	mm	530	530	530	530	530	530	530	530	530	530
	Width	mm	770	770	985	985	1 200	1 200	1 415	1 415	1 415	1 415
	Depth	mm	225	225	225	225	225	225	225	225	255	255

YFCN-ECM model (4 pipes)			230+1	240+1	430+1	440+1	630+1	640+1	730+1	740+1	930+1	940+1
Total cooling capacity [kW]	(1)	max 10v	1.59	1.86	2.95	3.17	3.96	4.51	4.94	5.30	6.26	7.04
		med 5v	1.18	1.32	2.18	2.27	2.93	3.19	3.68	3.82	4.82	5.21
		min 1v	0.73	0.77	1.41	1.43	1.96	2.05	2.60	2.61	3.45	3.59
Sensible cooling capacity [kW]	(1)	max	1.28	1.42	2.26	2.39	2.88	3.38	3.80	3.99	5.10	5.53
		med	0.92	0.98	1.64	1.67	2.08	2.34	2.77	2.82	3.79	3.99
		min	0.55	0.56	1.03	1.03	1.37	1.48	1.92	1.90	2.63	2.69
Pressure drop in cooling [kPa]	(1)	max	9.40	14.8	28.10	16.1	23.30	33	31.80	25.6	25.90	20.8
		med	5.40	8.0	16.00	8.9	13.20	17.8	18.40	14.3	16.10	12.1
		min	2.30	3.2	7.30	4.0	6.40	8.2	9.70	7.3	8.90	6.3
Heating capacity [kW]	(3)	max	1.43	1.43	2.41	2.41	3.22	3.22	4.06	4.06	5.24	5.24
		med	1.08	1.08	1.85	1.85	2.45	2.45	3.13	3.13	4.05	4.05
		min	0.71	0.71	1.29	1.29	1.76	1.76	2.33	2.33	2.99	2.99
Pressure drop in heating [kPa]	(3)	max	3.5	3.5	11.0	3.5	3.6	3.6	6.3	6.3	9.9	9.9
		med	2.1	2.1	6.9	2.1	2.2	2.2	4.0	4.0	6.3	6.3
		min	1.0	1.0	3.6	1.0	1.2	1.2	2.4	2.4	3.7	3.7
Air flow [m³/h]		max	330	325	515	505	735	720	890	875	1 395	1 365
		med	220	210	350	340	495	475	610	585	945	910
		min	120	115	210	200	305	290	400	380	605	575

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water temperature 45/40 °C

(3) Room temperature 20°C - Water temperature: 65/55°C

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

* Dimensions refer to the units with casing



Manufacturer reserves the rights to change specifications without prior notice.

Options/Accessories

Compatibility table / Codes

Model	YFCN AC motor control devices		
	VC/VCB model Vertical with casing	HC model Horizontal with casing	CD model Without casing
Controls for style VC (supplied with separate packaging)			
Three speed control MV-3V (1)	9060130	-	-
Three speed control + electronic thermostat and S/W switch TMV-S (2)	9060140	-	-
Three speed control + electronic thermostat and centralized S/W - TMV-C (2)	9060133	-	-
Automatic speed control with electronic thermostat and S/W switch TMV-AUT (2)	9066319	-	-
Controls for style HC/CD (supplied with separate packaging)			
Remote three speed control WM-3V (1) (4)	-	9066642	9066642
Remote three speed control + electronic thermostat JWC-T and manual S/W switch (2)	-	9066630K	9066630K
Remote three speed control + electronic thermostat and centralized/manual S/W switch JWC-TQR (2) (3)	-	9066631K	9066631K
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (2) (3)	-	9066632K	9066632K
Automatic remote control with electronic thermostat, S/W switch and liquid crystall display T-MB (to be used with UPM-AU and UP-AU) (2) (3)	-	9066331E	9066331E
Automatic speed control with electronic thermostat to be mounted in the light wall box WM-503-AC-EC (to be used with UP-503-AC-EC only)	-	9066686E	9066686E
Electromechanical thermostat T2T (4) (5)	-	9060174	9060174
Power unit UPM-AU for JWC-AU and T-MB remote controls, fitted on the unit	9066641	9066641	9066641
Power unit UP-AU for JWC-AU and T-MB remote controls, not fitted on the unit	9066640	9066640	9066640
Power unit UP-503-AC-EC for WM-503-AC-EC remote control only, not fitted on the unit	9066687	9066687	9066687
Controls accessories for all versions (supplied with separate packaging)			
Low temperature cut-out for controls TME	3021091	3021091	3021091
Low temperature cut-out for controls TMV-S, WM-3V and JWC-T	9053048	9053048	9053048
Low temperature cut-out for controls TMV-AUT, TMV-AUT-E, JWC-TQR, WM-503-AC-EC and UP-AU power unit	3021090	3021090	9053049
T2 sensor to be used as Change-over for controls TMV-AUT, TMV-AUT-E and UP-AU power unit	9025310	9025310	9025310
Change-over 15-25 for control TMV-C and JWC-TQR	9053049	9053049	9053049
Receiving speed selector for centralized control (slave) SEL-V (for VC/VCB units)	9060136	-	-
Receiving speed selector for centralized control (slave) SEL-CR (for HC/CD units)	9066311	9066311	9066311
Terminal board adaptor kit KIT	9060103	-	-
Controls for style VC + additional electric resistance (supplied with separate packaging)			
Three speed control with electronic thermostat and S/W switch TMV-R-IAQ	9063006	-	-
Automatic speed control with electronic thermostat and S/W switch TMV-AUT-E (2) (3)	9066643	-	-
Controls for style HC/CD + additional electric resistance (supplied with separate packaging)			
Remote three speed control + electronic thermostat and centralized/manual S/W switch JWC-TQR (2) (3)	-	9066631K	9066631K
Automatic speed control with electronic thermostat and centralized S/W - JWC-AU (for UP-AU) (2) (3)	-	9066632K	9066632K
Automatic remote control with electronic thermostat, S/W switch and liquid crystall display T-MB (for UP-AU) (2) (3)	-	9066331E	9066331E

WARNING

(1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out. (3) Can be used with Change Over.
 (4) Not suitable with -E electric heater. (5) To be used with valve and not to be used with low temperature cut-out.

Options/Accessories

Compatibility table / Codes

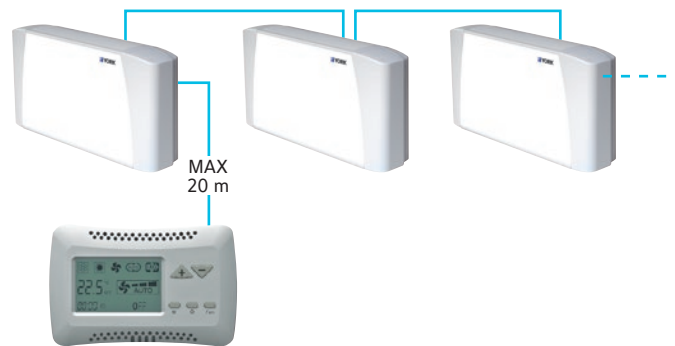
Model	YFCN AC motor control devices
Versions	ALL VERSIONS: VC/VCB - Vertical w. casing + HC - Horizontal with casing + CD without casing ALL VERSIONS: VC/VCB + HC + CD with electric heater
Controls and accessories for all versions	
Mounted power unit MB-M	9066332
Not mounted power unit MB-S	9066333
Wall control T-MB	9066331E
IR remote control and mounted IR receiver RM-RT03	9066336
IR remote control and not mounted IR receiver RS-RT03	9066337
IR remote control RT03	3021203
Mounted IR receiver RM	9066339
Not mounted IR receiver RS	9066338
Multifunction wall control up to 60 units PSM-DI	3021293
T2 sensor (to be used as Change-over or minimum temp. Sensor)	9025310
Management system for a network of fan coils with MB electronic board	
Hardware/software supervisory system (to be used with MB board only) NET	9079118
Router-S for NET (default) or for BMS systems not provided by YORK	3021290
Relay output board SIOS	3021292

With T-MB wall control

One control for each unit
(Maximum length of the connection cable = 20 m)



One control for more units in master/slave configuration (20 units max.)
(Maximum total length of the connection cable = 800 m)



With RT03 Infra-red remote control

One control for each unit



One control for more units in master/slave configuration (20 units max.)
(Maximum total length of the connection cable = 800 m)

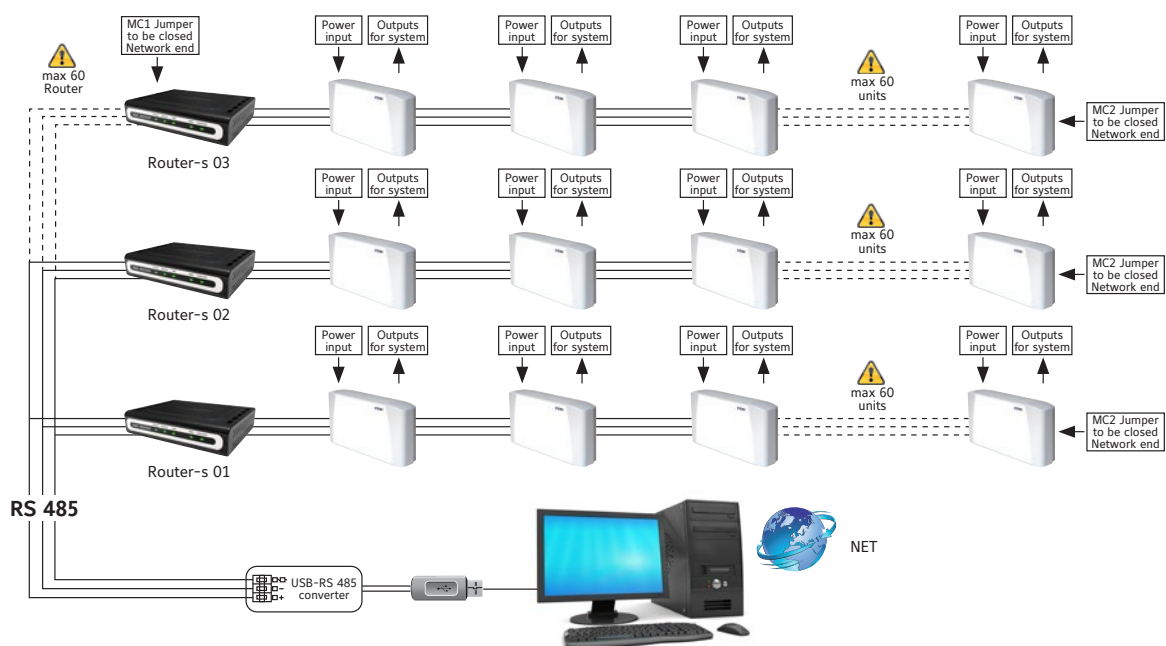


Options/Accessories

Compatibility table / Codes

Model	YFCN ECM motor control devices		
	VC/VCB model Vertical with casing	HC model Horizontal with casing	CD model Without casing
Controls accessories for all versions (supplied with separate packaging)			
Low temperature cut out NTC for control TMV-T-ECM, WM-S-ECM and UP-AU power unit		3021090	
T2 sensor to be used as Change-over for UP-AU power unit		9025310	
Change over CH 15-25 for control TMV-T-ECM		9053049	
Controls for style VC (supplied with separate packaging)			
Continuous fan speed control with electronic thermostat and S/W switch TMV-T-ECM (for standalone units - not for MB)	9060141	-	-
Controls for style HC/CD (supplied with separate packaging)			
JWC-AU Automatic speed control with electronic thermostat and centralized S/W switch (not for MB) (1) (2)	-	9066632K	9066632K
T-MB Automatic remote control with electronic thermostat, S/W switch and liquid crystall display (1) (2)	-	9066331E	9066331E
WM-S-ECM Continuous fan speed control with S/W switch and liquid crystall display (for standalone units - not for MB)	-	9066644	9066644
UPM-AU power unit for JWC-AU and T-MB remote controls, fitted on the unit (not MODBUS)	9066641	9066641	9066641
UP-AU power unit for JWC-AU and T-MB remote controls, not fitted on the unit (not MODBUS)	9066640	9066640	9066640
Accessories of controls for VC, HC-VCB and CD models (supplied with separate packaging)			
MB-ECM-M mounted power unit for ECM fan coil	9066334	9066334	9066334
MB-ECM-S not mounted power unit for ECM fan coil	9066335	9066335	9066335
Wall control T-MB	9066331E	9066331E	9066331E
IR remote control and mounted IR receiver RM-RT03	9066336	9066336	9066336
IR remote control and not mounted IR receiver RS-RT03	9066337	9066337	9066337
IR remote control RT03	3021203	3021203	3021203
Mounted IR receiver RM	9066339	9066339	9066339
Not mounted IR receiver RS	9066338	9066338	9066338
Multifunction wall control up to 60 units PSM-DI	3021293	3021293	3021293
T2 sensor (to be used as Change-over or minimum temperature Sensor)	9025310	9025310	9025310
Management system for a network of fan coils with MB electronic board			
Hardware / software supervisory system Net	9079118	9079118	9079118
Router-S for NET (default) or for BMS systems not provided by YORK	3021290	3021290	3021290
Relay output board SIOS	3021292	3021292	3021292

(1) Can be used with valves and/or low temperature cut-out. (2) Can be used with Change Over.



Options/Accessories

Compatibility table / Codes

Model	YFCN General accessories								
	130/140	230/240	330/340	430/440	530/540	630/640	730/740	830/840	930/940
Valves all versions									
3 way double valve kit for 4 tube installation and single coil + kit fitted on the unit	9066572W								
3 way double valve kit for 4 tube installation and single coil + kit not fitted on the unit	9066562W								
Kit 3 way valve mounted	9066561			9060471					
Kit 3 way valve additional battery mounted	9060472								
Kit 3 way valve not mounted	9066560			9060474					
Kit 3 way valve additional battery not mounted	9060475								
Kit 2 way valve primary and/or additional battery mounted (*)	9060476			9060476 (*)					
Kit 2 way valve primary battery mounted	9060477								
Kit 2 way valve primary and/or additional battery not mounted (*)	9060478			9060478 (*)					
Kit 2 way valve primary battery not mounted	9060479								
Valves CD versions only									
Simplified 3-way valve kit for CD version fitted	9066571			9060484					
Simplified 3-way valve kit for CD version not fitted	9066570			9060481					
Simplified 3-way valve kit for CD version fitted - additional battery	9060483								
Simplified 3-way valve kit for CD version not fitted - additional battery	9060480								
Electric heater VC/VCB/CH version									
El. resistance and relays fitted on the unit (700 W) VC/HC	9066491E	-							
El. resistance and relays fitted on the unit (400 W) VC/HC	-	9066472E	-						
El. resistance and relays fitted on the unit (600 W) VC/HC	-	9066482E	9066473E	-					
El. resistance and relays fitted on the unit (750 W) VC/HC	-		9066475E			-			
El. resistance and relays fitted on the unit (900 W) VC/HC	-	9066483E		-					
El. resistance and relays fitted on the unit (1000 W) VC/HC	-	9066492E	-			9066477E			
El. resistance and relays fitted on the unit (1250 W) VC/HC	-		9066485E			-			
El. resistance and relays fitted on the unit (1500 W) VC/HC	-	9066493E		-			9066487E		
El. resistance and relays fitted on the unit (2000 W) VC/HC	-		9066495E			-			
El. resistance and relays fitted on the unit (2500 W) VC/HC	-		9066497E						
Electric heater CD version									
El. resistance and relays fitted on the unit (700 W) CD	9066611	-							
El. resistance and relays fitted on the unit (400 W) CD	-	9066592	-						
El. resistance and relays fitted on the unit (600 W) CD	-	9066602	9066593	-					
El. resistance and relays fitted on the unit (750 W) CD	-		9066595			-			
El. resistance and relays fitted on the unit (900 W) CD	-	9066603		-					
El. resistance and relays fitted on the unit (1000 W) CD	-	9066612	-			9066597			
El. resistance and relays fitted on the unit (1250 W) CD	-		9066605			-			
El. resistance and relays fitted on the unit (1500 W) CD	-	9066613		-			9066607		
El. resistance and relays fitted on the unit (2000 W) CD	-		9066615			-			
El. resistance and relays fitted on the unit (2500 W) CD	-		9066617						

(*) For additional battery sizes 6 to 9.

Options/Accessories

Compatibility table / Codes

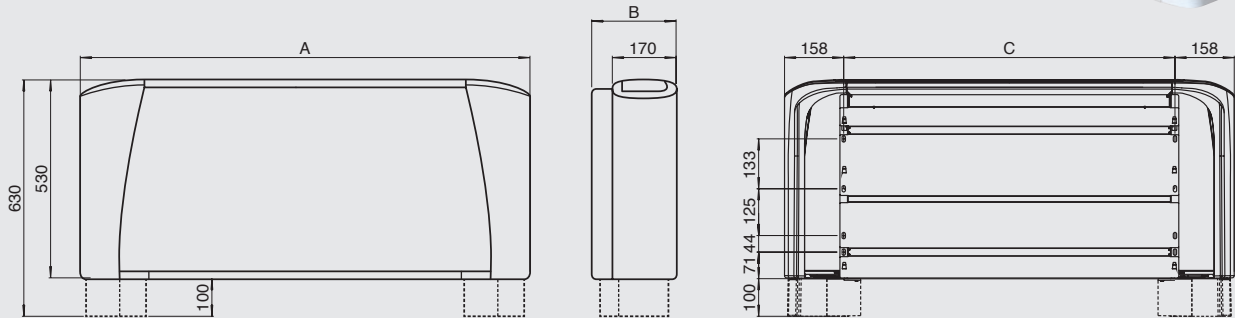
Model	YFCN General accessories								
	130/140	230/240	330/340	430/440	530/540	630/640	730/740	830/840	930/940
Accessories for all versions									
Pair feet	9060150						9060151		
Vertical auxiliary condensate tray	6060400								
Horizontal auxiliary condensate tray for HC (left connections)	6060402								
Horizontal auxiliary condensate tray for HC (right connections)	6060403								
Horizontal auxiliary condensate tray for CD	6066039								
Condensate pump for VC - VCB - CD fitted on the unit auxiliary condensate collection tray included (vertical installation)	9066297								
Condensate pump for VC - VCB - CD not fitted on the unit auxiliary condensate collection tray included (vertical installation)	9066296								
Condensate pump for CD fitted on the unit auxiliary condensate collection tray to be ordered separately (horizontal installation)	9066298								
Condensate pump for CD not fitted on the unit auxiliary condensate collection tray included (horizontal installation)	9066180								
Condensate drain pipe	6060420								
Damper for CD model	9066531	9066532	9066533	9066535	9066537	9066538			
Damper for VC model	9076331	9076332	9076333	9076335	9076337	9076338			
Kit breeze	-	9076452	9076453	9076455	-				
Recessed box for kit breeze	-	9076462	9076463	9076465	-				
Rear closing panel VC	9062005	9060180	9060181	9060182	9060183				
Rear closing panel HC	9060187	9060190	9060191	9060192	9060193	9060194			
Frontal air intake CD mounted	9066501	9066502	9066503	9066505	9066507	9066508			
Intake grid for VC with feet	9066541	9066542	9066543	9066545	9066547				
Accessories only for concealed version CD									
Outlet flange 90° FM90	9066381	9066382	9066383	9066385	9066387	9066388			
Inlet flange 90° FR90	9066441	9060710	9060711	9060712	9060713	9060714			
Straight inlet flange FRD	9066451	9060720	9060721	9060722	9060723	9060724			
Straight outlet flange FMD	9066371	9066372	9066373	9066375	9066377	9066378			
Outlet spigot diffuser PMC	9066361	9066362	9066363	9066365	9066367	9066368			
Air outlet grid BMA	9066411	9060750	9060751	9060752	9060753				
Air inlet grid GRAG	9066431	9060764	9060765	9060766	9060767				
Air inlet grid GRAP	9066421	9060760	9060761	9060762	9060763				
Air inlet spigot plenum PRC	9066461	9066462	9066463	9066465	9066467	9066468			
Intake grid with filter (to be used in combination with inlet flange 90°) GRAFP	9066391	9060770	9060771	9060772	9060773				
Intake grid with filter (to be used in combination with straight inlet flange) GRAFG	9066401	9060774	9060775	9060776	9060777				
Silencer Plenum BXS	-	-	9069081	9069082	9069083				
Hotel box kit for concealed installation for horizontal model (frontal return and air supply) CHK	-	-	9066783	9066785	9066787	-	-		

Dimensions

YFCN/YFCN-ECM 130 to 940 (with casing)



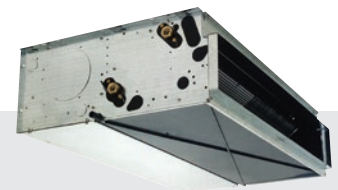
VC, VCB and HC models



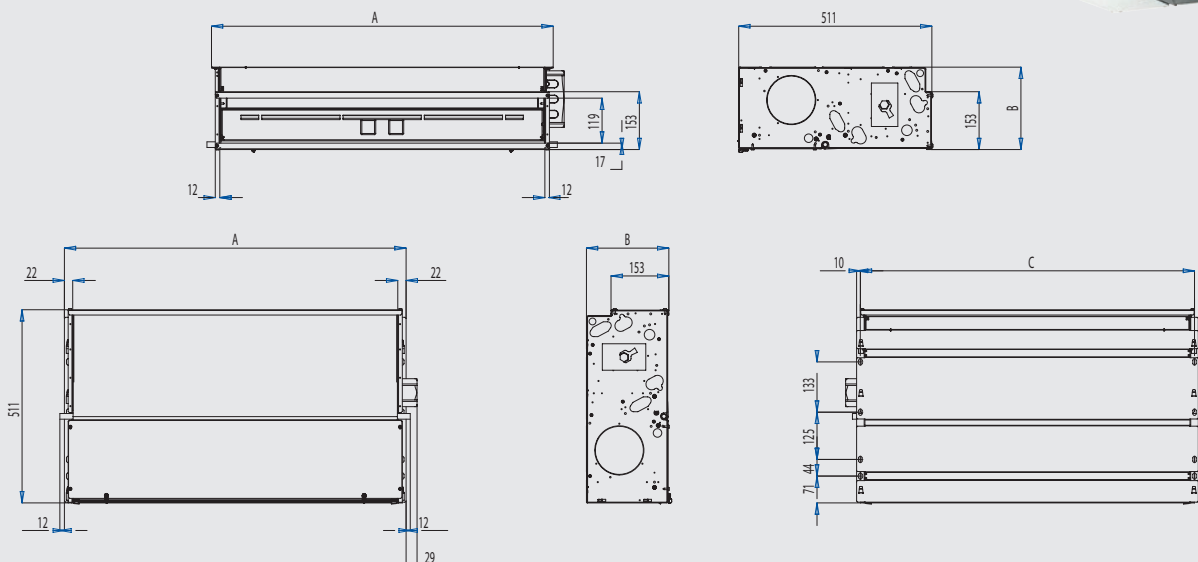
All dimensions in mm. Drawings not a scale.

Model	130 / 140	230 / 240	330 / 340	430 / 440	530 / 540	630 / 640	730 / 740	830 / 840	930 / 940
A	670	770	985	985	1 200	1 200	1 415	1 415	1 415
B	225	225	225	225	225	225	225	255	255
C	354	454	669	669	884	884	1 099	1 099	1 099

YFCN/YFCN-ECM 130 to 940 (without casing)



CD models



All dimensions in mm. Drawings not a scale.

Model	130 / 140	230 / 240	330 / 340	430 / 440	530 / 540	630 / 640	730 / 740	830 / 840	930 / 940
A	374	474	689	689	904	904	1 119	1 119	1 119
B	218	218	218	218	218	218	218	248	248
C	354	454	669	669	884	884	1 099	1 099	1 099

YFTS-ECM

Fan Coil Unit inverter with tangential fan

2 pipe system

A complete range from 0.4 kW to 3.81 kW



The YFTS-ECM fan coil unit combines a reduced dimension with a modern aesthetic, while maintaining great performances in terms of sound and consumption.

YFTS-ECM includes the VC version for wall installation and the CDV version for concealed installation; the VC version combines a reduced dimension, until 126 mm depth only, with a modern aesthetic that perfectly suits with any kind of furnishing, while maintaining great performances in terms of sound and consumption.



Selection software

Wired controls

T9000 Series

Red Dot Product Design Award Winner 2020

- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



T7600 Series

- LCD Screen Display
- 2 or 4 pipes FCU
- On/off or proportional
- 3-speed motors or ECM motors
- Modbus RTU



Infrared control



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



Features

- Modern casing, improved aesthetics, suitable for any modern indoor ambient
- Full range for all needs: 5 sizes suitable for vertical mounting with or without casing
- Low noise operation
- 3 fan speeds (possible choice between 6 fan speeds)
- EC motor with inverter at low energy consumption
- Breeze frame kit and recessed box for wall concealed installation in option
- Factory fitted 2 or 3 way valve (on/off) and controller packages
- Fan assembly made of plastic
- Tangential fan with anti-vibration fins
- 2 available versions in all range:
 - VC = Vertical Discharge with Casing
 - CDV = Concealed unit without Casing
- EUROVENT Certified

YFTS-ECM Fan Coil Unit inverter with tangential fan

0.4 kW to 3.81 kW



ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Technical features

YFTS-ECM model (2 pipes)		10	20	30	40	50	
Total cooling capacity [kW]	(1)	max	0.92	1.62	2.61	3.36	3.81
		med	0.66	1.15	1.91	2.50	2.92
		min	0.40	0.67	0.92	1.14	1.44
Sensible cooling capacity [kW]	(1)	max	0.75	1.28	1.99	1.99	2.83
		med	0.52	0.88	1.41	1.41	2.10
		min	0.30	0.50	0.67	0.67	1.04
Pressure drop in cooling [kPa]	(1)	max	14.7	7.4	18.6	39.1	16.9
		med	9.1	4.9	11.5	23.7	11.2
		min	4.9	3.1	4.5	7.3	4.6
Heating capacity [kW]	(2)	max	1.10	1.81	2.90	3.62	4.20
		med	0.78	1.32	2.10	2.58	3.00
		min	0.55	0.97	1.52	1.79	2.19
Pressure drop in heating [kPa]	(2)	max	16.2	7.3	18.2	36.2	16.2
		med	9.6	5.0	11.0	20.6	9.7
		min	6.1	3.7	7.1	11.7	6.4
Air flow [m³/h]		max	205	305	470	575	645
		med	130	205	315	380	430
		min	75	125	190	220	255
Fan [W]		max	10.3	14.0	21.6	25.4	29.5
		med	5.2	6.3	8.6	9.9	11.4
		min	3.2	3.7	4.1	4.7	5.3
Sound power level [dB(A)]		max	50	52	53	55	55
		med	40	42	43	45	46
		min	31	30	32	33	34
Sound pressure level [dB(A)]	(3)	max	41	43	44	46	46
		med	31	33	34	36	37
		min	22	21	23	24	25
Power supply [V-ph-Hz]		230 / 1 / 50 + E					
Dimensions *	Height	mm	580	580	580	580	580
	Width	mm	640	840	1040	1240	1440
	Depth	mm	126	126	126	126	126
Weight *		kg	10.1	13.2	16.4	19.6	23.0

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

(2) Room temperature 20°C - Water temperature 45/40 °C.

(3) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

* Dimensions refer to the units with casing. Feet not included.



Manufacturer reserves the rights to change specifications without prior notice.

YFTS-ECM

Fan Coil Unit inverter with tangential fan

Compatibility tables



Model YFTS-ECM	10	20	30	40	50
Accessories (supplied loose)					
Feet PAP-F			9071074		
Breeze frame kit for wall concealed installation CBF-A	-	9071162	-	-	-
Breeze frame kit for wall concealed installation CBF-B	-	-	9071163	-	-
Breeze frame kit for wall concealed installation CBF-C	-	-	-	9071164	-
Recessed box for wall concealed installation IBF 2	-	9071152	-	-	-
Recessed box for wall concealed installation IBF 3	-	-	9071153	-	-
Recessed box for wall concealed installation IBF 4	-	-	-	9071154	-
2 way valve ON-OFF 230 V with electric motor and mounting kit			9071090		
3 way water valve ON-OFF 230 V and mounting kit			9071091		
Controls for YFTS-ECM models					
CB-E control fitted on the unit (1)			9071060		
CB-Touch control fitted on the unit (2)			9071061		
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (3) (4)			9066632K		
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display T-MB (to be used with UPM-AU and UP-AU only) (3) (4)			9066331E		
UP-ECO power unit for CB-E control			9071064		
UP-Touch power unit for CB-Touch, JWC-AU and T-MB controls			9071065		
WM-503-AC-ECM Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display			9066686		
Power unit UPM-AU for JWC-AU and T-MB remote controls, fitted on the unit			9066641		
Power unit UP-AU for JWC-AU and T-MB remote controls, not fitted on the unit			9066640		
UP-503-AC-EC Power unit for WM-503-AC-EC control			9066687		
KIT 503-KNX Mounting kit for power unit UP-503-AC-EC			9071076		
T2 sensor (to be used as Change-over or minimum temperature Sensor)			9025310		

- (1) The control must always be connected with UP-ECO power unit (separately delivered).
- (2) The control must always be connected with UP-Touch power unit (separately delivered).
- (3) Can be used with valves and/or low temperature cut-out.
- (4) Can be used with Change Over.



CB-E control fitted on the unit

- Set the unit ON or stand-by
- Set the fan speed
- Fan OFF and valve closing when the SETPOINT selected with the centralized thermostat (programmable thermostat) is reached.
- Button lock controller and regulation of LED brightness

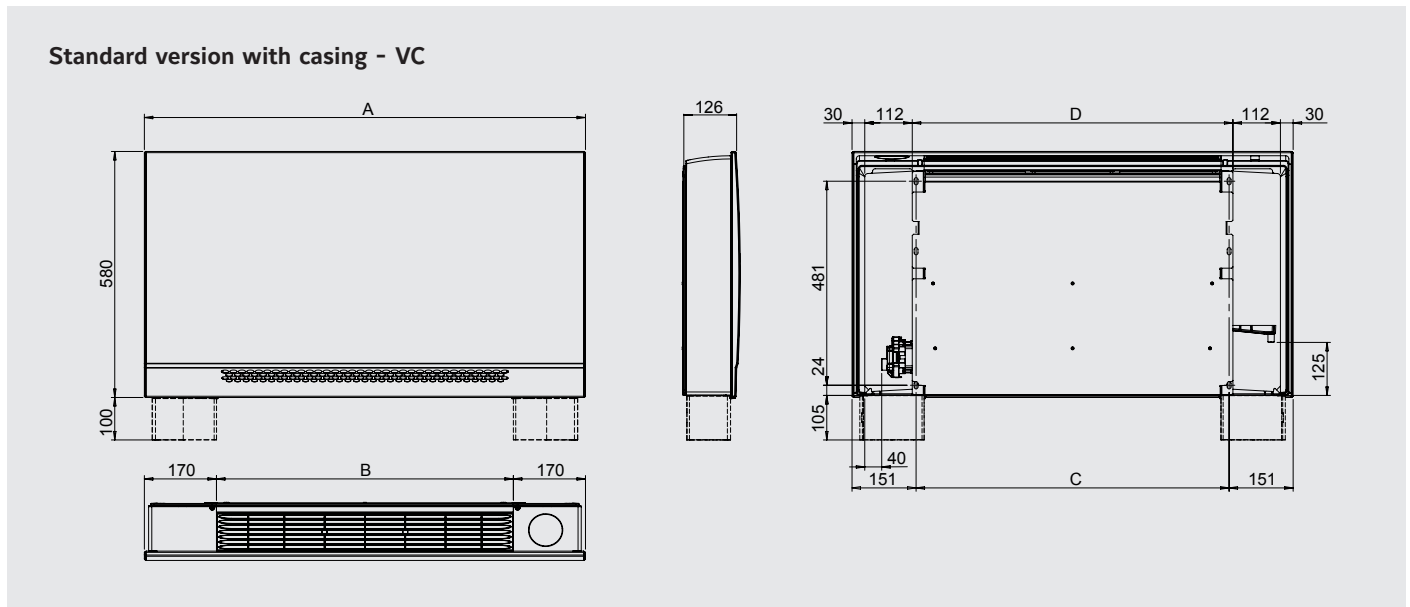


CB-Touch control fitted on the unit

- Set the unit ON or stand-by
- Operation mode (Summer/Winter/Ventilation)
- Set the fan speed / automatic fan speed
- Possibility to use the T1 sensor as return air probe (mounted on the power unit)
- Possibility to use the T3 sensor as low temperature cut-out thermostat (mounted on the power unit)
- It allows to use the T2 sensor as Change-over (mounted on the power unit).
- Night mode, Alarm messages, OFFSET regulation
- Button lock controller and regulation of LED brightness

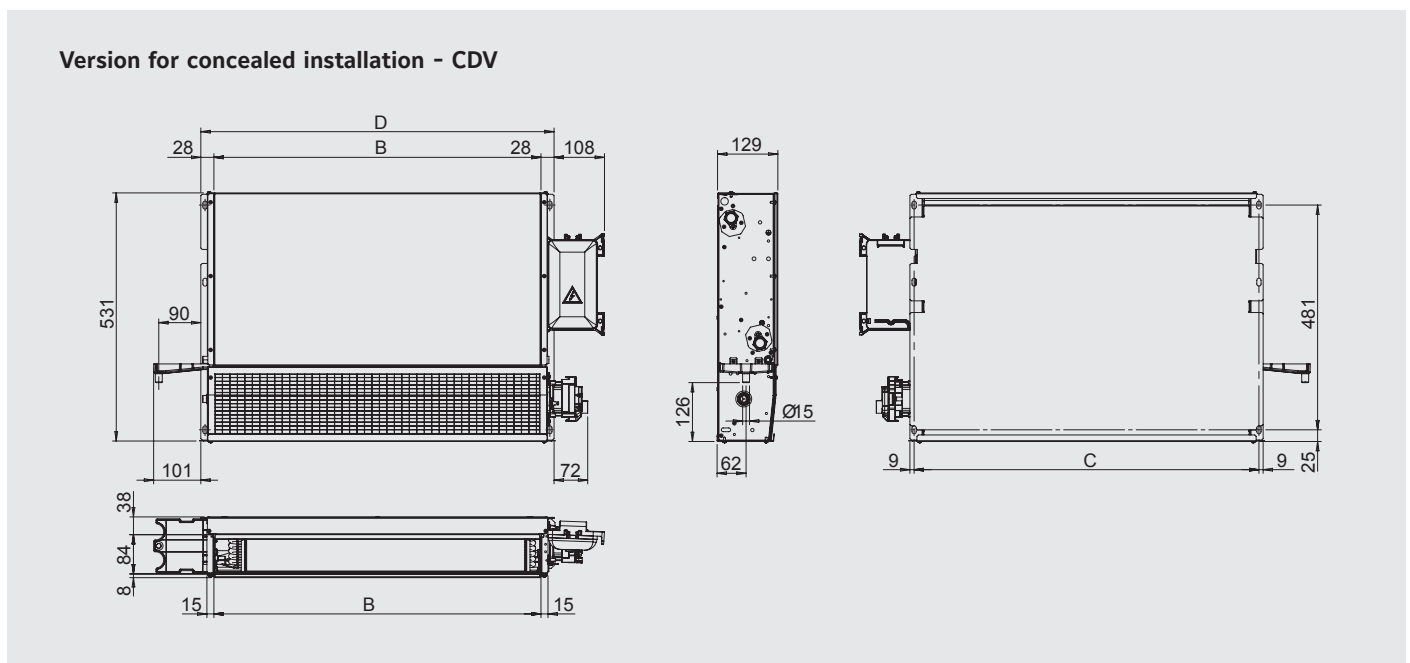
Dimensions

YFCN/YFCN-ECM 130 to 940 (with casing)



All dimensions in mm. Drawings not a scale.

YFCN/YFCN-ECM 130 to 940 (without casing)



All dimensions in mm. Drawings not a scale.

Model	10	20	30	40	50
A	640	840	1040	1240	1440
B	300	500	700	900	1100
C	338	538	738	938	1138
D	356	556	756	956	1156

LASER and LOW BODY Fan Coil Units

2 and 4 pipe system

A complete range from 0.6 kW up to 9.7 kW



TUC03+ Terminal unit controller
BacNET and N2 Metasys network compatible



**CSL00 (Built in)
CSR00 (Wall mounted)**
Fan speed selector



**CEL00 (Built in)
CER00 (Wall mounted)**
Thermostat with manual fan speed and automatic change over



**CEL20 (Built in)
CER20 (Wall mounted)**
Thermostat with auto. fan speed and automatic change over

**CML00 (Built in)
CMR00 (Wall mounted)**
Thermostat with manual fan speed and S/W change over

**CEL30 (Built in)
CER30 (Wall mounted)**
Thermostat with auto. fan speed and automatic change over for modulating valve

LASER fan coil units are simple and elegant, discreet in their design. High standards of quality and reliability, combined with a wide range of accessories ensure a total solution for all comfort cooling and heating requirements.

LOW BODY units are part of the LASER Fan Coils Units family. The reduced height cabinet makes them the ideal solution for new or replacement applications where dimensional limitations apply.

Features

- 6 speed fan
- Cabinet factory fitted
- Valve factory fitted
- Electrical heater factory fitted
- Thermal or modulating valve
- Service valve
- Option front air intake (LASER)
- Optional plenum (LASER)
- ECM inverter option available
- Option for district cooling coil
- EUROVENT Certified



Selection software

LASER and LOW BODY Fan Coil Units

0.6 kW to 9.7 kW



Technical features

Model		LASER: YLV, YLV-AF, YLH, YLH-AF, YLIV, YLIV-AF, YLIH, YLIH-AF										
Sizes		110	112	114	216	218	220	222	224	226	328	
Total cooling capacity [kW]	(1)	max	1.11	1.59	2.14	3.30	3.50	4.44	5.07	6.43	7.25	9.73
		med	0.95	1.31	1.88	2.67	2.99	3.68	4.39	5.75	6.67	8.75
		min	0.76	1.07	1.57	2.20	2.46	2.94	3.84	4.62	5.50	6.36
Sensible cooling capacity [kW]	(1)	max	0.93	1.25	1.90	2.46	3.06	3.53	4.42	5.06	5.70	8.04
		med	0.78	0.99	1.64	1.95	2.51	2.84	3.74	4.44	5.18	7.15
		min	0.61	0.79	1.33	1.56	2.00	2.20	3.20	3.45	4.15	5.03
Water flow in cooling [l/h]	(1)	max	191	274	368	568	602	764	873	1107	1248	1675
		med	164	225	324	460	515	633	756	990	1148	1506
		min	131	184	270	379	423	506	661	795	947	1095
Pressure drop in cooling [kPa]	(1)	max	3.4	7.1	5.8	14.8	13.6	24.1	28.4	18.8	21.0	74.6
		med	2.8	5.0	4.6	12.5	9.8	17.4	21.8	15.5	18.1	61.5
		min	2.0	3.4	3.3	8.5	6.7	11.6	17.2	10.5	12.8	30.8
Heating capacity 2 pipes [kW]	(2)	max	1.37	1.83	2.60	3.46	4.17	4.80	6.04	6.60	7.86	10.54
		med	1.13	1.46	2.07	2.90	3.51	3.89	5.11	5.84	7.17	9.64
		min	0.87	1.14	1.70	2.31	2.83	3.01	4.41	4.58	5.76	6.73
Water flow in heating 2 pipes [l/h]	(2)	max	236	315	448	596	718	826	1040	1136	1353	1814
		med	194	251	356	499	604	669	879	1004	1233	1658
		min	150	196	292	397	487	518	759	788	991	1158
Pressure drop in heating 2 pipes [kPa]	(2)	max	4.9	6.0	6.5	14.7	16.0	23.4	27.7	18.9	25.3	82.4
		med	4.6	6.0	5.1	10.5	11.7	16.3	21.1	15.3	21.6	67.7
		min	3.0	4.1	4.0	6.9	8.1	10.8	16.4	10.3	14.9	29.7
Heating capacity 4 pipes [kW]	(3)	max	0.91	1.31	1.93	2.79	3.20	4.33	4.92	6.16	6.30	8.00
		med	0.83	1.13	1.85	2.40	2.81	3.67	4.33	5.55	5.98	7.43
		min	0.71	0.95	1.51	2.06	2.38	2.99	3.84	4.55	5.03	5.83
Water flow in heating 4 pipes [l/h]	(3)	max	78	113	166	240	275	373	423	530	542	688
		med	71	97	159	207	242	316	373	478	515	639
		min	61	82	130	177	205	257	330	391	433	501
Pressure drop in heating 4 pipes [kPa]	(3)	max	1.3	3.4	6.7	14.7	7.1	10.3	11.7	33.0	31.7	46.5
		med	1.1	2.6	5.8	10.5	5.7	7.7	9.5	23.0	28.9	40.6
		min	0.9	1.8	5.2	9.4	4.0	5.4	7.7	16.3	21.4	24.7
Air flow [m ³ /h]		max	243	317	432	606	754	961	1115	1307	1507	2010
		med	181	253	352	488	616	776	928	1106	1318	1687
		min	136	185	279	377	486	594	742	779	986	1107
Sound power level [dB(A)]		max	48	50	54	53	55	54	60	60	63	67
		med	42	45	49	47	50	48	56	55	60	63
		min	36	38	42	40	43	40	50	47	53	52
Sound pressure level [dB(A)]	(4)	max	39	41	45	44	46	45	51	51	54	58
		med	33	36	40	38	41	39	47	46	51	54
		min	27	29	33	31	34	31	40	38	44	43
Power supply [V-ph-Hz]		230 / 1 / 50 + E										
Power input [W]	max	46	48	57	61	76	90	117	140	162	213	
Absorbed current [A]	max	0.21	0.21	0.25	0.27	0.33	0.39	0.52	0.64	0.71	0.95	
Dimensions	Height	mm	538	538	538	538	538	614	614	614	614	614
	Width	mm	648	773	898	1023	1148	1273	1273	1523	1523	1773
	Depth	mm	224	224	224	224	224	254	254	254	254	254

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 45/40°C

(3) Room temperature 20°C - Water inlet temperature: 65/55°C.

(4) Sound pressure level in a 100 m³ room, at 1.5 m distance and riverberating time of 0.3 s. max = speed 2, med = speed 3, min = speed 5 when using selection software



Manufacturer reserves the rights to change specifications without prior notice.

LASER and LOW BODY Fan Coil Units

0.6 kW to 9.7 kW



Technical features

Model		LOW BODY: YLVR, YLIVR					
Sizes		110	112	114	216	218	
Total cooling capacity [kW]	(1)	max	0.98	1.21	1.87	2.74	3.23
		med	0.81	1.02	1.61	2.35	2.81
		min	0.64	0.80	1.37	1.84	2.37
Sensible cooling capacity [kW]	(1)	max	0.90	1.09	1.62	2.32	2.71
		med	0.73	0.92	1.39	1.97	2.34
		min	0.56	0.71	1.15	1.54	1.95
Water flow in cooling [l/h]	(1)	max	166	207	318	519	614
		med	139	175	274	442	531
		min	109	137	233	346	446
Pressure drop in cooling [kPa]	(1)	max	2.5	3.5	8.4	7.1	10.2
		med	1.9	2.6	6.5	5.4	7.9
		min	1.3	1.8	5.0	3.6	5.9
Heating capacity 2 pipes [kW]	(2)	max	1.18	1.53	2.22	3.16	3.78
		med	0.95	1.29	1.9	2.67	3.25
		min	0.76	1.02	1.58	2.18	2.71
Water flow in heating 2 pipes [l/h]	(2)	max	204	265	384	595	717
		med	163	224	328	501	612
		min	130	176	273	405	506
Pressure drop in heating 2 pipes [kPa]	(2)	max	2.5	4.2	9.3	7.3	11.8
		med	1.7	3.2	7.1	5.4	8.9
		min	1.2	2.1	5.2	3.7	6.4
Heating capacity 4 pipes [kW]	(3)	max	1.12	1.79	1.87	2.54	3.83
		med	0.93	1.54	1.65	2.22	3.37
		min	0.77	1.25	1.42	1.89	2.88
Water flow in heating 4 pipes [l/h]	(3)	max	98	157	165	224	338
		med	81	135	145	196	297
		min	68	109	125	167	254
Pressure drop in heating 4 pipes [kPa]	(3)	max	1.8	4.8	6.5	11.8	5.9
		med	1.3	3.7	5.2	9.4	4.7
		min	1.0	2.5	4.0	7.1	3.6
Air flow [m ³ /h]		max	243	317	432	606	754
		med	181	253	352	488	616
		min	136	185	279	377	486
Sound power level [dB(A)]		max	47	50	53	51	55
		med	41	44	49	45	50
		min	34	38	42	39	43
Sound pressure level [dB(A)]	(4)	max	37	40	44	42	46
		med	31	35	39	36	41
		min	25	29	33	29	34
Power supply [V-ph-Hz]		230 / 1 / 50 + E					
Power input [W]	max	46	48	57	61	76	
Absorbed current [A]	max	0.21	0.21	0.25	0.27	0.33	
Dimensions	Height	mm	430	430	430	430	430
	Width	mm	648	773	898	1023	1148
	Depth	mm	254	254	254	254	224

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 45/40°C

(3) Room temperature 20°C - Water inlet temperature: 65/55°C.

 (4) Sound pressure level in a 100 m³ room, at 1.5 m distance and riverberating time of 0.3 s. max = speed 2, med = speed 3, min = speed 5 when using selection software


Manufacturer reserves the rights to change specifications without prior notice.

Options/Accessories

Compatibility table / Codes

Model		LASER										LOW BODY				
Sizes		110	112	114	216	218	220	222	224	226	328	110	112	114	216	218
With Cabinet																
YLV-YLH	2/3/4 rows	•	•	•	•	•	•	•	•	•	•					
YLV-YLH/AF Front air intake	2/3/4 rows	•	•	•	•	•	•	•	•	•	•					
YLVR	2/3 rows											•	•	•	•	•
Without Cabinet																
YLIV-YLIH	2/3/4 rows	•	•	•	•	•	•	•	•	•	•					
YLIV-YLIH/AF Front air intake	2/3/4 rows	•	•	•	•	•	•	•	•	•	•					
YLIVR	2/3 rows											•	•	•	•	•
Options (Factory fitted)																
Coil and heaters																
1 row heating	BA1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Kit electrical heater (with relay and safety switch)	KREL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Built in thermostat																
Fan speed selector	CSL00															
Thermostat with manual fan speed and S/W change over	CML00															
Thermostat with manual fan speed, dead band, automatic change over	CEL00															
Thermostat with automatic fan speed, dead band, automatic change over	CEL20															
Thermostat with automatic fan speed, dead band, automatic change over for modulating valve	CEL30															
Parallel connection																
For ON/OFF valve one/FCU	CBL20															
For modulating valve one/FCU	CBL30															
3 way valve factory fitted																
For 2 pipe systems ON/OFF	J3A2 (2p)															
For 4 pipe systems ON/OFF	J3A2 (4p)															
3 way modulating valve factory fitted																
For 2 pipe systems Modulating	J3AM (2p)															
For 4 pipe systems Modulating	J3AM (4p)															
Shut off valves factory fitted																
For 2 pipe systems	DT (2p)															
For 4 pipe systems	DT (4p)															
Condensate pump	PC															
WS sensor change over for CEL/CER	WS															
Minimum temperature thermostat	TM															
Accessories (Supplied loose)																
Remote controllers and thermostat (wall mounted)																
Fan speed selector	CSR00															
Thermostat with manual fan speed and S/W change over	CMR00															
Thermostat with manual fan speed, dead band, automatic change over	CER00															
Thermostat with automatic fan speed, dead band, automatic change over	CER20															
Thermostat with automatic fan speed, dead band, automatic change over for modulating valve	CER30															
Feet and panel (1)																
Set of painted feet	CP1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Set of painted feet + frontal socle	ZL1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Vertical painted back panel	PPV1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Horizontal painted back panel	PPH1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Plenums and air intake (1)																
Air intake plenum	PA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Air intake plenum with collars	PAS	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
90° air intake plenum	PA90	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Air intake duct fitting	RCA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Air delivery plenum with collars	PM	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
90° air delivery plenum	PM90	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

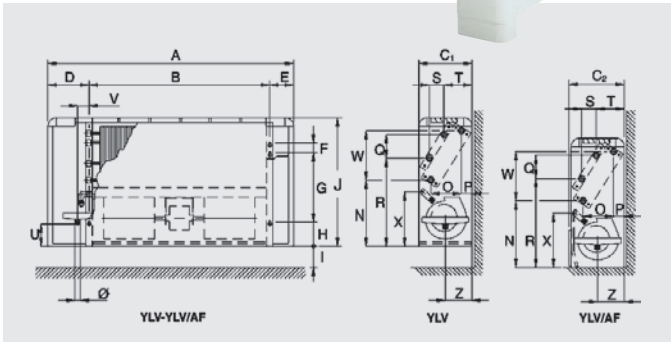
(1) for check compatibility with the models of FCU see compatibility table

Dimensions and Weights

- | | | |
|---|--|---|
| YLV and YLH <ul style="list-style-type: none"> V = vertical H = horizontal | YLV-AF and YLH-AF <ul style="list-style-type: none"> AF = front air intake V = vertical H = horizontal | YLV-R <ul style="list-style-type: none"> R= low body V= vertical |
|---|--|---|

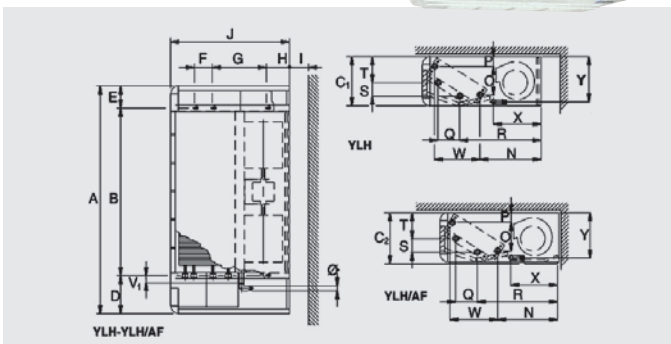
LASER: YLV - YLV/AF

VERTICAL

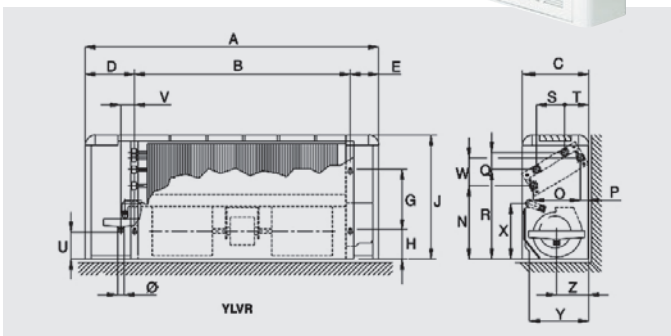


LASER: YLH - YLH/AF

HORIZONTAL



LOW BODY: YLV-R



Dim	110	112	114	216	218	220	222	224	226	328
A	648	773	898	1023	1148	1273	1273	1523	1523	1773
B	374	499	624	749	874	999	999	1249	1249	1499
C1	224	224	224	224	224	254	254	254	254	254
C2	233	233	233	233	233	263	263	263	263	263
D	174	174	174	174	174	174	174	174	174	174
E	100	100	100	100	100	100	100	100	100	100
F	40	40	40	40	40	40	40	40	40	40
G	280	280	280	280	280	356	356	356	356	356
H	101	101	101	101	101	101	101	101	101	101
I	85	85	85	85	85	85	85	85	85	85
J	538	538	538	538	538	614	614	614	614	614
N	266	266	266	266	266	299	299	299	299	299
O	113	113	113	113	113	138	138	138	138	138
P	48	48	48	48	48	53	53	53	53	53
Q	87	87	87	87	87	87	87	87	87	87
R	355	355	355	355	355	409	409	409	409	409
S	50	50	50	50	50	50	50	50	50	50
T	117	117	117	117	117	135	135	135	135	135
U	90	90	90	90	90	116	116	116	116	116
V	47	47	47	47	47	47	47	47	47	47
V1	28	28	28	28	28	28	28	28	28	28
W	195	195	195	195	195	238	238	238	238	238
X	219	219	219	219	219	252	252	252	252	252
Y	205	205	205	205	205	235	235	235	235	235
Z	109	109	109	109	109	122	122	122	122	122
∅	20	20	20	20	20	20	20	20	20	20
kg1	18	20	23	28	31	41	44	52	52	58
kg2	19	21	24	30	32	43	46	54	54	61

Notes: 1=YLV / YLH - 2=YLV/AF / YLH/AF (All dimensions in mm)

Dim	110	112	114	216	218
A	648	773	898	1023	1148
B	374	499	624	749	874
C	254	254	254	254	254
D	174	174	174	174	174
E	100	100	100	100	100
G	170	170	170	170	170
H	101	101	101	101	101
J	430	430	430	430	430
N	245	245	245	245	245
O	154	154	154	154	154
P	31	31	31	31	31
Q	47	47	47	47	47
R	304	304	304	304	304
S	88	88	88	88	88
T	87	87	87	87	87
U	65	65	65	65	65
V	47	47	47	47	47
W	84	84	84	84	84
X	214	214	214	214	214
Z	109	109	109	109	109
∅	20	20	20	20	20
kg	15	17	22	23	26

(All dimensions in mm)

Dimensions & Weights

YLIV and YLIH

- V = vertical
- H = horizontal
- I = without cabinet

YLIV-AF and YLIH-AF

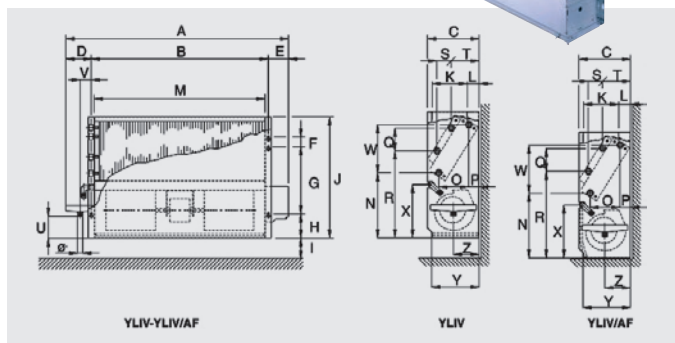
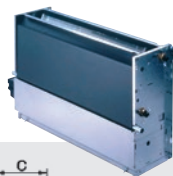
- AF = front air intake
- V = vertical
- H = horizontal
- I = without cabinet

YLIVR

- R = low body
- V = vertical
- I = without cabinet

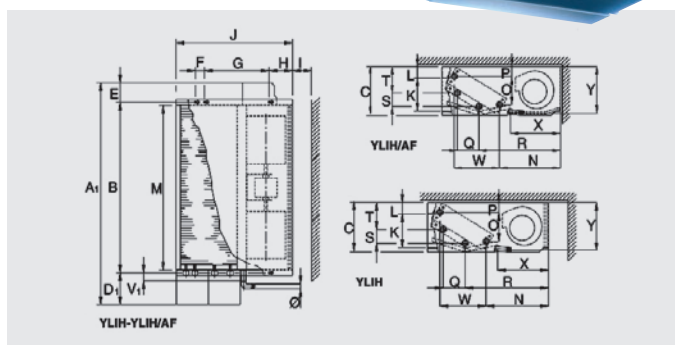
LASER: YLIV - YLIV/AF

VERTICAL

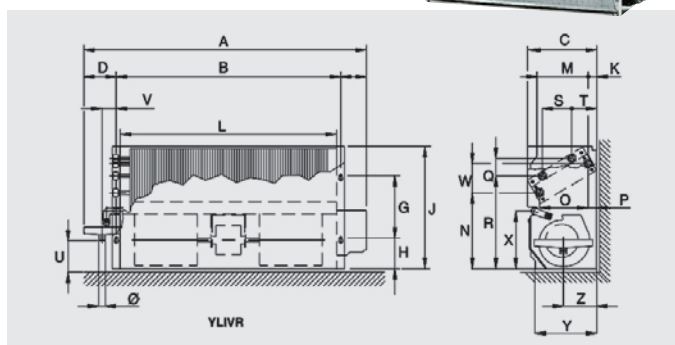


LASER: YLIH - YLIH/AF

HORIZONTAL



LOW BODY: YLIVR



Dim	110	112	114	216	218	220	222	224	226	328
A	555	680	805	930	1055	1180	1180	1430	1430	1680
A1	574	699	824	949	1074	1199	1199	1449	1449	1699
B	374	499	624	749	874	999	999	1249	1249	1499
C	215	215	215	215	215	245	245	245	245	245
D	109	109	109	109	109	109	109	109	109	109
D1	128	128	128	128	128	128	128	128	128	128
E	72	72	72	72	72	72	72	72	72	72
F	40	40	40	40	40	40	40	40	40	40
G	280	280	280	280	280	356	356	356	356	356
H	101	101	101	101	101	101	101	101	101	101
I	85	85	85	85	85	85	85	85	85	85
J	505	505	505	505	505	581	581	581	581	581
K	110	110	110	110	110	125	125	125	125	125
L	55	55	55	55	55	60	60	60	60	60
M	349	474	599	724	849	974	974	1224	1224	1474
N	266	266	266	266	266	299	299	299	299	299
O	113	113	113	113	113	138	138	138	138	138
P	48	48	48	48	48	53	53	53	53	53
Q	87	87	87	87	87	87	87	87	87	87
R	355	355	355	355	355	409	409	409	409	409
S	50	50	50	50	50	50	50	50	50	50
T	117	117	117	117	117	135	135	135	135	135
U	90	90	90	90	90	116	116	116	116	116
V	47	47	47	47	47	47	47	47	47	47
V1	28	28	28	28	28	28	28	28	28	28
W	195	195	195	195	195	238	238	238	238	238
X	219	219	219	219	219	252	252	252	252	252
Y	200	200	200	200	200	230	230	230	230	230
Z	109	109	109	109	109	122	122	122	122	122
∅	20	20	20	20	20	20	20	20	20	20
kg	10	13	16	19	22	29	31	38	38	42

(All dimensions in mm)

Dim	110	112	114	216	218
A	555	680	805	930	1055
B	374	499	624	749	874
C	230	230	230	230	230
D	108	108	108	108	108
E	73	73	73	73	73
G	170	170	170	170	170
H	101	101	101	101	101
J	395	395	395	395	395
K	61	61	61	61	61
L	349	474	599	724	849
M	127	127	127	127	127
N	245	245	245	245	245
O	154	154	154	154	154
P	31	31	31	31	31
Q	47	47	47	47	47
R	304	304	304	304	304
S	88	88	88	88	88
T	87	87	87	87	87
U	65	65	65	65	65
V	47	47	47	47	47
W	84	84	84	84	84
X	214	214	214	214	214
Y	201	201	201	201	201
Z	109	109	109	109	109
∅	20	20	20	20	20
kg	9	11	14	16	19

(All dimensions in mm)

LASER and LOW BODY Fan Coil Units

Compatibility tables



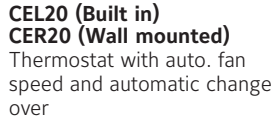
**CSL00 (Built in)
CSR00 (Wall mounted)**
Fan speed selector



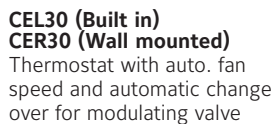
**CEL00 (Built in)
CER00 (Wall mounted)**
Thermostat with manual fan speed and automatic change over



**CML00 (Built in)
CMR00 (Wall mounted)**
Thermostat with manual fan speed and S/W change over



**CEL20 (Built in)
CER20 (Wall mounted)**
Thermostat with auto. fan speed and automatic change over



**CEL30 (Built in)
CER30 (Wall mounted)**
Thermostat with auto. fan speed and automatic change over for modulating valve

Features CEL/CER

- Dead band for change over 5°C or 2°C (factory set 2°C)
- Manual fan speeds or automatic (models 20 and 30)
- Thermostated fan control or continuous fan running
- Option water sensor WS for change over on coil (for 2 pipes)
- Led indicated status summer, winter or dead band
- Temperature setting for 7 to 30°C (comfort 20–25°C)
- Plastic pins for limiting temperature range
- Input for window contact
- Input for Economy/ occupancy mode
- Output for remote alarm
- Filter alarm 600 or 1200 running hours (factory set 1200 hours)
- With electrical heater post ventilation
- With Air sensor in the air intake destratification function (CEL only)

Compatibility table Thermostats / Valves / Heaters / Parallel connection / Water sensor / Minimum temperature thermostat

Factory fitted thermostat (built in)		Valves for 2 pipes		Valves for 4 pipes		Heaters	Parallel connection		Water sensor	Min. Temp. Thermostat
		J3A2 (2p)	J3AM (2p)	J3A2 (4p)	J3AM (4p)		ON/OFF	Modulating		
CSL00	Fan speed selector						•			•
CML00	Thermostat with manual fan speed and S/W change over	•		•			•			•
CEL00	Thermostat with manual fan speed, dead band, automatic change over	•		•		•	•		•	•
CEL20	Thermostat with automatic fan speed, dead band, automatic change over	•		•		•	•		•	•
CEL30	Thermostat with automatic fan speed, dead band, automatic change over for modulating valve		•		•			•	•	•
Remote controllers and thermostats (wall mounted)										
CSR00	Fan speed selector						•			•
CMR00	Thermostat with manual fan speed and S/W change over	•		•			•			•
CER00	Thermostat with manual fan speed, dead band, automatic change over	•		•		•	•		•	•
CER20	Thermostat with automatic fan speed, dead band, automatic change over	•		•		•	•		•	•
CER30	Thermostat with automatic fan speed, dead band, automatic change over for modulating valve		•		•			•	•	•

• Compatible Not compatible

LASER and LOW BODY Fan Coil Units

Compatibility tables



Compatibility Options / Accessories / Models

Code		Designation	STANDARD								LOW BODY	
			LASER				CONCEALED				YLVR	YLIVR
Code	Designation	YLV	YLH	YLV-AF	YLH-AF	YLIV	YLIH	YLIV-AF	YLIIH-AF	YLVR	YLIVR	
Coils and heaters**												
BA1**	Additional 1 row heating	•	•	•	•	•	•	•	•	•	•	
KREL**	Kit electrical heater with safety thermostat and relay	•	•	•	•	•	•	•	•	•	•	
Factory fitted thermostat (built in)												
CSL00	Fan speed selector (built in)	•		•		•		•		•	•	
CML00	Thermostat with manual fan speed and S/W change over	•		•		•		•		•	•	
CEL00	Thermostat with manual fan speed, dead band, automatic change over	Compatible with electrical heaters								•	•	
CEL20	Thermostat with automatic fan speed, dead band, automatic change over	Compatible with electrical heaters								•	•	
CEL30	Thermostat with automatic fan speed, dead band, automatic change over for modulating valves	•		•		•		•		•	•	
CBL20	Parallel connection for ON/OFF valve	•	•	•	•	•	•	•	•	•	•	
CBL30	Parallel connection for modulating valve	•	•	•	•	•	•	•	•	•	•	
Remote controllers and thermostats (wall mounted)												
CSR00	Fan speed selector (wall mounted)	•	•	•	•	•	•	•	•	•	•	
CMR00	Thermostat with manual fan speed and S/W change over	•	•	•	•	•	•	•	•	•	•	
CER00	Thermostat with manual fan speed, dead band, automatic change over	Compatible with electrical heaters								•	•	
CER20	Thermostat with automatic fan speed, dead band, automatic change over	Compatible with electrical heaters								•	•	
CER30	Thermostat with automatic fan speed, dead band, automatic change over for modulating valves	•	•	•	•	•	•	•	•	•	•	
Valves / Condensate pump / Water sensor / Minimum temperature thermostat (Factory fitted)												
J3A2 (2p)	3-way 4-ports on/off valves for 2-pipe systems	•	•	•	•	•	•	•	•	•	•	
J3A2 (4p)	3-way 4-ports on/off valves for 4-pipe systems	•	•	•	•	•	•	•	•	•	•	
J3AM (2p)	3-way 4-ports modulating valves for 2-pipe systems	•	•	•	•	•	•	•	•	•	•	
J3AM (4p)	3-way 4-ports modulating valves for 4-pipe systems	•	•	•	•	•	•	•	•	•	•	
DT (2p)	Shut-off valves for 2-pipe systems (in addition to J3A2/J3AM valves)	•	•	•	•	•	•	•	•	•	•	
DT (4p)	Shut-off valves for 4-pipe systems (in addition to J3A2/J3AM valves)	•	•	•	•	•	•	•	•	•	•	
PC	Condensate pump	•	•	•	•	•	•	•	•	•	•	
WS	Water sensor	Compatible with CEL/CER										
TM	Minimum temperature thermostat	•	•	•	•	•	•	•	•	•	•	
Feet and panels												
CP1	Set of painted feet	•				•						
ZL1	Set of feet + frontal socle	•										
PPV1	Vertical painted back panel	•		•						•		
PPH1	Horizontal painted back panel		•		•							
External air intake												
PA	Air intake plenum						•					
PAS	Air intake plenum collars						•					
PA90	90° air intake plenum						•					
RCA	Air intake duct fitting						•					
PM	Air delivery plenum with collars					•	•	•	•		•	
PM90	90° air delivery plenum					•	•	•	•		•	

- Compatible
- Compatible with conditions
- Not compatible

** Maximum of rows is indicated in the documentation, the maximum number of rows includes the heating row or electrical heater.

LASER ECM and LOW BODY ECM Inverter Fan Coil Units

0.6 kW to 9.2 kW



ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Technical features

Model		LASER ECM							LOW BODY ECM			
Sizes	(*)	512	514	516	520	522	524	528	512	514	516	
Total cooling capacity [kW]	(1)	max ...v	1.98	2.56	3.81	5.05	5.81	7.47	9.18	1.56	2.37	3.40
		med ...v	1.43	1.81	2.53	3.86	4.42	5.64	6.94	1.18	1.78	2.34
		min ...v	0.74	0.93	1.51	2.72	3.05	4.07	4.89	0.61	1.29	1.53
Sensible cooling capacity [kW]	(1)	max	1.65	2.12	3.14	3.79	4.32	6.09	7.51	1.42	2.09	2.93
		med	1.16	1.48	2.01	2.78	3.16	4.42	5.50	1.04	1.54	1.96
		min	0.54	0.78	1.21	1.92	2.11	3.13	3.74	0.53	1.09	1.25
Water flow in cooling [l/h]	(1)	max	341	441	656	869	1000	1286	1580	265	404	644
		med	246	312	435	664	761	971	1194	200	304	440
		min	127	160	260	468	525	701	842	104	220	286
Pressure drop in cooling [kPa]	(1)	max	9.6	9.2	14.6	16.9	36.2	16.8	31.3	8.2	12.6	10.3
		med	5.4	4.8	8.5	10.6	22.0	10.0	18.5	5.1	7.8	5.4
		min	1.7	1.6	3.9	5.6	11.1	5.5	9.7	1.8	4.5	2.6
Heating capacity 2 pipes [kW]	(2)	max	2.05	3.04	4.40	5.76	6.53	8.43	10.4	2.07	2.85	4.00
		med	1.47	2.18	3.05	4.44	4.84	6.22	7.67	1.50	2.09	2.66
		min	0.78	1.15	1.87	3.11	3.37	4.50	5.38	0.8	1.49	1.77
Water flow in heating 2 pipes [l/h]	(2)	max	353	523	757	991	1124	1451	1790	358	495	763
		med	253	375	525	757	833	1071	1320	260	362	499
		min	134	198	322	535	580	775	926	138	258	325
Pressure drop in heating 2 pipes [kPa]	(2)	max	10.8	10.3	17.3	21.8	40.0	17.2	32.2	9.7	14.4	11.2
		med	6.0	5.5	8.6	13.0	23.5	9.8	18.0	5.6	8.4	5.3
		min	2.0	2.0	4.2	6.6	11.5	5.3	9.0	1.9	4.7	2.6
Heating capacity 4 pipes [kW]	(3)	max	1.84	2.39	3.20	5.00	5.55	6.46	7.90	2.19	2.29	3.06
		med	1.37	1.76	2.40	4.12	4.35	5.19	6.30	1.66	1.78	2.22
		min	0.87	1.09	1.77	3.22	3.29	4.09	4.94	0.97	1.36	1.60
Water flow in heating 4 pipes [l/h]	(3)	max	158	206	275	430	478	556	680	194	201	271
		med	118	151	207	355	374	447	542	146	157	196
		min	75	94	152	277	283	352	425	84	119	141
Pressure drop in heating 4 pipes [kPa]	(3)	max	4.7	9.3	15.6	23.3	21.5	36.0	46.2	6.9	9.2	16.5
		med	2.8	5.4	11.0	15.9	14.0	24.2	30.7	4.2	6.0	9.3
		min	1.2	2.4	5.6	9.8	7.7	15.4	19.5	1.0	3.7	5.3
Air flow [m ³ /h]		max	456	574	792	1082	1304	1567	1995	437	608	833
		med	298	373	489	757	904	1080	1370	284	400	486
		min	138	170	287	504	568	715	876	129	259	290
Sound power level [dB(A)]		max	55	59	60	57	62	63	69	55	53	56
		med	44	48	47	48	51	53	59	42	42	44
		min	29	29	33	37	39	43	48	30	33	30
Sound pressure level [dB(A)]	(4)	max	46	50	51	48	53	54	60	46	44	46
		med	35	39	38	37	42	44	50	33	32	34
		min	21	21	24	26	30	34	39	20	24	20
Power supply [V-ph-Hz]		230 / 1 / 50 + E										
Power input [W]	max	31	54	42	46	76	89	168	35	60	38	
Dimensions	Height mm	623	623	623	699	699	699	699	395	395	395	
	Width mm	773	898	1023	1273	1273	1523	1773	680	805	930	
	Depth mm	224	224	224	254	254	254	254	230	230	230	

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 45/40°C

(3) Room temperature 20°C - Water inlet temperature: 65/55°C.

(4) Sound pressure level in a 100 m³ room, at 1.5 m distance and riverberating time of 0.3 s.

(*) 512 - 514 (3v-6v-9v) | 516 (2v-5v-10v) | 520 - 522 - 524 - 528 (3v-6v-10v)



Manufacturer reserves the rights to change specifications without prior notice.

LASER ECM and LOW BODY ECM Inverter Fan Coil Units

Compatibility tables



Compatibility Options / Accessories / Models

Code	Designation	STANDARD								LOW BODY-ECM	
		LASER-ECM				CONCEALED-ECM				YLVR	YLIVR
		YLV	YLH	YLV-AF	YLH-AF	YLIV	YLIV-AF	YLIV-AF	YLIV-AF		
Coils and heaters**											
BA1**	Additional 1 row heating	•	•	•	•	•	•	•	•	•	•
KREL**	Kit electrical heater with safety thermostat and relay	•	•	•	•	•	•	•	•		
Factory fitted thermostat (built in)											
EDCL	Microprocessor control for ECM units	•		•		•		•		•	•
OBV11-ODC711	Omnibus control for ECM units + Analogue Plus console	•		•		•		•		•	•
OBV11-ODC211	Omnibus control for ECM units + Display console	•		•		•		•		•	•
Remote controllers and thermostats (wall mounted)											
EDCR	Microprocessor control for ECM units, for wall installation	•	•	•	•	•	•	•	•	•	•
OBV10+ODC716	Omnibus control for ECM units + Remote Analogue Plus console	•	•	•	•	•	•	•	•	•	•
OBV10+ODC216	Omnibus control for ECM units + Remote Display console	•	•	•	•	•	•	•	•	•	•
Valves / Condensate pump / Water sensor / Minimum temperature thermostat (Factory fitted)											
J3A2 (2p)	3-way 4-ports on/off valves for 2-pipe systems	•	•	•	•	•	•	•	•	•	•
J3A2 (4p)	3-way 4-ports on/off valves for 4-pipe systems	•	•	•	•	•	•	•	•	•	•
J3AM (2p)	3-way 4-ports modulating valves for 2-pipe systems	•	•	•	•	•	•	•	•	•	•
J3AM (4p)	3-way 4-ports modulating valves for 4-pipe systems	•	•	•	•	•	•	•	•	•	•
DT (2p)	Shut-off valves for 2-pipe systems (in addition to J3A2/J3AM valves)	•	•	•	•	•	•	•	•	•	•
DT (4p)	Shut-off valves for 4-pipe systems (in addition to J3A2/J3AM valves)	•	•	•	•	•	•	•	•	•	•
PC	Condensate pump	•	•	•	•	•	•	•	•	•	•
WS	Water sensor	Compatible with all the above listed controllers									
Feet and panels											
CP1	Set of painted feet	•				•					
ZL1	Set of feet + frontal socle	•									
PPV1	Vertical painted back panel	•		•						•	
PPH1	Horizontal painted back panel		•		•						
External air intake											
PA	Air intake plenum							•			
PAS	Air intake plenum collars							•			
PA90	90° air intake plenum							•			
RCA	Air intake duct fitting							•			
PM	Air delivery plenum with collars					•	•	•	•		•
PM90	90° air delivery plenum					•	•	•	•		•

• Compatible

Compatible with conditions

Not compatible

** Maximum of rows is indicated in the documentation, the maximum number of rows includes the heating row or electrical heater.

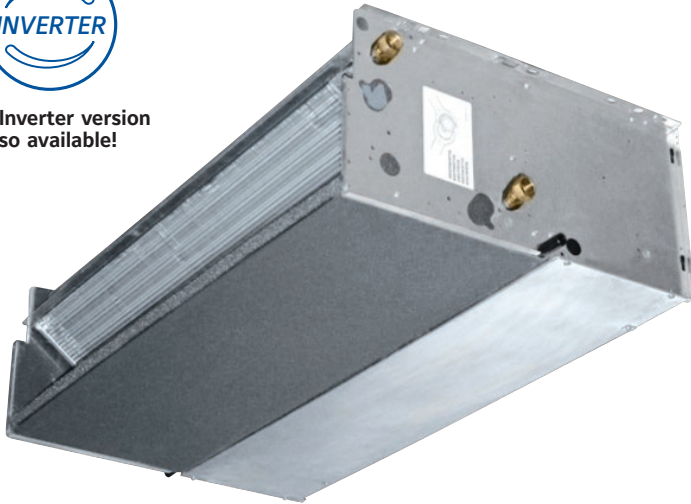
YHPL/YHPL-ECM High Static Pressure Blower

YHPL / YHPL-ECM 130-740 · 2 and 4 pipe system

A complete range from 1.4 kW to 8.6 kW



ECM Inverter version
also available!



YHPL and YHPL-ECM offers a complete range able to satisfy all air conditioning need in working environments such as offices, shops, restaurants and hotel rooms, for ducted installations up to 80 Pa External Static Pressure.

These new ranges replace our earlier YHP-O series, offering lower noise levels, a strengthened structure and wider operating envelope.

The YHPL series comes in 7 sizes from 315 to 1425 m³/h with option of 3 or 4 row cooling coils, offering up to 8.6 kW of cooling, with facility to add 1 or 2 row heating coil and offer a 4 pipe system.

ECM version comes in 4 sizes and covers the airflow capacity of 360 to 1410 m³/h and up to 8.5 kW of cooling.

Wired controls



WM-3V
Remote three speeds controller

JWC-T
WC-3V + Electronic thermostat and Summer/Winter switch

JWC-AU
Automatic JWC-T



T9000 Series

- **Red Dot Product Design Award Winner 2020**
- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



T7600 Series

- LCD Screen Display
- 2 or 4 pipes FCU
- On/off or proportional
- 3-speed motors or ECM motors
- Modbus RTU



TUC03+ Terminal unit controller
BacNET and N2 Metasys network compatible



Features

- 7 sizes
- From 1.4 to 8.6 kW cooling
- Horizontal or vertical version
- Low noise operation
- 5 speed fan
- A wide range of thermostats and accessories
- Available with left or right connections

Optionally the main valve, auxiliary valve (4 tubes), controller and wiring can be assembled from factory, for an easy installation in a centralized management system.



Selection software

YHPL High Static Pressure Blower

1.4 kW to 8.6 kW



Technical features

YHPL model (2 pipes)		130	140	230	240	330	340	430	440	530	540	630	640	730	740
Total cooling capacity [kW] (1)	max	2	2.22	3.6	4.28	4.72	5.36	5.47	5.94	5.72	6.22	7.11	7.82	7.7	8.62
	med	1.88	2.07	3.4	4.01	4.42	4.99	4.97	5.36	5.04	5.44	6.62	7.25	7.11	7.92
	min	1.43	1.54	2.57	2.93	2.68	2.89	3.85	4.1	3.3	3.48	3.99	4.23	5.58	6.1
Sensible cooling capacity [kW] (1)	max	1.44	1.57	2.7	3.04	3.55	3.84	4.22	4.46	4.19	4.52	5.36	5.72	5.89	6.38
	med	1.35	1.46	2.53	2.84	3.3	3.55	3.77	3.97	3.64	3.89	4.94	5.26	5.37	5.8
	min	1.01	1.07	1.85	2.03	1.9	2.0	2.82	2.95	2.31	2.43	2.83	2.96	4.06	4.34
Pressure drop in cooling [kPa] (1)	max	20.00	11.00	19.60	31.30	17.70	36.10	23.20	15.60	33.10	18.10	18.70	15.60	21.70	18.70
	med	17.00	9.70	17.70	27.90	15.70	31.70	19.40	12.90	26.30	14.20	16.40	13.60	18.80	16.10
	min	11.00	5.60	10.60	15.80	6.30	11.80	12.20	7.90	12.20	6.30	6.60	5.10	12.20	10.10
Heating capacity [kW] (2)	max	2.11	2.23	3.98	4.34	5.22	5.42	6.27	6.55	6.25	6.54	7.58	8.34	8.49	9.42
	med	1.96	2.07	3.7	4.02	4.82	4.99	5.56	5.77	5.36	5.57	6.96	7.63	7.73	8.52
	min	1.43	1.49	2.67	2.85	2.71	2.76	4.1	4.22	3.33	3.41	3.94	4.17	5.82	6.3
Pressure drop in heating [kPa] (2)	max	18.00	10.50	18.30	26.20	16.60	28.90	23.00	14.50	30.40	16.70	16.50	15.00	20.20	18.60
	med	16.00	9.20	16.10	22.80	14.30	24.90	18.60	11.50	23.00	12.50	14.20	12.70	17.10	15.60
	min	9.00	5.10	8.90	12.30	5.10	8.60	10.70	6.60	9.70	5.20	5.10	4.30	10.30	9.00
Air flow [m³/h]	max	315	315	625	625	790	790	980	980	970	970	1240	1240	1425	1425
	med	290	290	575	575	720	720	850	850	810	810	1120	1120	1270	1270
	min	205	205	395	395	380	380	600	600	475	475	580	580	905	905
Available static pressure [Pa]	max	58	58	58	58	60	60	65	65	70	70	60	60	63	63
	med	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	min	25	25	26	26	14	14	23	23	18	18	15	15	26	26
Fan [W]	max	51	51	94	94	110	110	148	148	140	140	145	145	186	186
	med	45	45	87	87	96	96	122	122	110	110	125	125	177	177
	min	27	27	59	59	50	50	88	88	65	65	69	69	155	155
Sound power outlet [dB(A)]	max	43	43	49	49	51	51	55	55	53	53	52	52	56	56
	med	42	42	47	47	48	48	52	52	48	48	50	50	53	53
	min	34	34	38	38	36	36	44	44	37	37	38	38	46	46
Sound pressure outlet [dB(A)] (4)	max	34	34	40	40	42	42	46	46	44	44	43	43	47	47
	med	33	33	38	38	39	39	43	43	39	39	41	41	44	44
	min	25	25	29	29	27	27	35	35	28	28	29	29	37	37
Power supply [V-ph-Hz]		230 / 1 / 50 + E													
Power input [W]	max	60	60	115	115	132	132	185	185	185	185	175	175	260	260
Absorbed current [A]	max	0.30	0.30	0.50	0.50	0.60	0.60	0.90	0.90	0.90	0.90	0.80	0.80	1.20	1.20
Dimensions	Height mm	248	248	248	248	248	248	248	248	248	248	248	248	248	248
	Width mm	689	689	904	904	1119	1119	1119	1119	1334	1134	1549	1549	1549	1549
	Depth mm	511	511	511	511	511	511	511	511	511	511	511	511	511	511

YHPL model (4 pipes)		130+1	140+1	230+1	240+1	330+1	340+1	430+1	440+1	530+1	540+1	630+1	640+1	730+1	740+1
Total cooling capacity [kW] (1)	max	2	2.22	3.6	4.28	4.72	5.36	5.47	5.94	5.78	6.22	7.11	7.82	7.7	8.62
	med	1.88	2.07	3.4	4.01	4.42	4.99	4.97	5.36	5.1	5.44	6.62	7.25	7.11	7.92
	min	1.43	1.54	2.57	2.93	2.68	2.89	3.85	4.1	3.32	3.48	3.99	4.23	5.58	6.1
Sensible cooling capacity [kW] (1)	max	1.44	1.57	2.7	3.04	3.55	3.84	4.22	4.46	4.23	4.52	5.36	5.72	5.89	6.38
	med	1.35	1.46	2.53	2.84	3.3	3.55	3.77	3.97	3.67	3.89	4.94	5.26	5.37	5.8
	min	1.01	1.07	1.85	2.03	1.9	2	2.82	2.95	2.33	2.43	2.83	2.96	4.06	4.34
Pressure drop in cooling [kPa] (1)	max	19.5	11	19.6	31.3	17.7	36.1	23.2	15.6	33.7	18.1	18.7	15.6	21.7	18.7
	med	17.4	9.7	17.7	27.9	15.7	31.7	19.4	12.9	26.7	14.2	16.4	13.6	18.8	16.1
	min	10.5	5.6	10.6	15.8	6.3	11.8	12.2	7.9	12.3	6.3	6.6	5.1	12.2	10.1
Heating capacity [kW] (3)	max	1.76	1.76	3.02	3.02	3.91	3.91	4.49	4.49	4.63	4.63	5.8	5.8	6.35	6.35
	med	1.66	1.66	2.85	2.85	3.68	3.68	4.1	4.1	4.11	4.11	5.44	5.44	5.9	5.9
	min	1.3	1.3	2.22	2.22	2.38	2.38	3.26	3.26	2.85	2.85	3.48	3.48	4.72	4.72
Pressure drop in heating [kPa] (3)	max	7.5	7.5	4.8	4.8	7.5	7.5	9.6	9.6	9.1	9.1	15.3	15.3	18.1	18.1
	med	6.8	6.8	4.3	4.3	6.7	6.7	8.2	8.2	7.4	7.4	13.7	13.7	15.8	15.8
	min	4.4	4.4	2.8	2.8	3.1	3.1	5.4	5.4	3.8	3.8	6.1	6.1	10.6	10.6
Air flow [m³/h]	max	315	315	625	625	790	790	980	980	970	970	1240	1240	1425	1425
	med	290	290	575	575	720	720	850	850	810	810	1120	1120	1270	1270
	min	205	205	395	395	380	380	600	600	475	475	580	580	905	905

Referred data at maximum speed fan and 50 Pa available static pressure.

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

(2) Room temperature 20°C - Water temperature 45/40 °C.

(3) Room temperature 20°C - Water temperature 65/55 °C.

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.



Manufacturer reserves the rights to change specifications without prior notice.

YHPL-ECM Inverter High Static Pressure Blower

1.6 kW to 8.5 kW



ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Technical features

YHPL-ECM model (2 pipes)		130	140	230	240	430	440	730	740
Total cooling capacity [kW]	(1) max 10v	2.23	2.48	3.55	4.25	5.43	5.91	7.67	8.47
	med 5v	1.97	2.17	3.21	3.79	4.94	5.34	6.81	7.46
	min 1v	1.64	1.77	2.72	3.14	3.84	4.09	5.66	6.12
Sensible cooling capacity [kW]	(1) max	1.63	1.78	2.68	3.04	4.21	4.45	5.86	6.33
	med	1.42	1.54	2.38	2.68	3.77	3.97	5.11	5.48
	min	1.17	1.25	1.99	2.20	2.83	2.95	4.15	4.40
Pressure drop in cooling [kPa]	(1) max	23	13	19	31	23	15	21	18
	med	19	10	16	25	19	13	17	14
	min	13	7	12	18	12	8	12	10
Heating capacity [kW]	(2) max	2.37	2.52	4.00	4.37	6.27	6.55	8.24	9.35
	med	2.05	2.17	3.51	3.80	5.56	5.77	7.09	7.96
	min	1.65	1.73	2.88	3.08	4.07	4.19	5.69	6.26
Pressure drop in heating [kPa]	(2) max	22	13	18	27	23	14	19	18
	med	17	10	15	21	19	12	15	14
	min	12	7	10	14	11	6	10	9
Air flow [m³/h]	max	360	360	630	630	980	980	1410	1410
	med	305	305	540	540	850	850	1175	1175
	min	240	240	430	430	595	595	900	900
Available static pressure [Pa]	max	68	68	70	70	66	66	72	72
	med	50	50	50	50	50	50	50	50
	min	32	32	34	34	24	24	30	30
Fan [W]	max	39	39	64	64	98	98	155	155
	med	29	29	43	43	67	67	100	100
	min	18	18	26	26	30	30	52	52
Sound power outlet [dB(A)]	max	48	48	49	49	55	55	57	57
	med	44	44	47	47	52	52	54	54
	min	38	38	42	42	44	44	47	47
Sound pressure outlet [dB(A)]	(4) max	39	39	40	40	46	46	48	48
	med	35	35	38	38	43	43	45	45
	min	29	29	33	33	35	35	38	38
Power supply [V-ph-Hz]		230 / 1 / 50 + E							
Power input [W]	max	52	52	134	134	131	131	303	303
Absorbed current [A]	max	0.4	0.4	1.1	1.1	1.1	1.1	1.4	1.4
Dimensions	Height mm	248	248	248	248	248	248	248	248
	Width mm	689	689	904	904	1119	1119	1549	1549
	Depth mm	511	511	511	511	511	511	511	511

YHPL-ECM model (4 pipes)		130+1	140+1	230+1	240+1	430+1	440+1	730+1	740+1
Total cooling capacity [kW]	(1) max 10v	2.23	2.48	3.55	4.25	5.35	5.91	7.67	8.47
	med 5v	1.97	2.17	3.21	3.79	4.88	5.34	6.81	7.46
	min 1v	1.64	1.77	2.72	3.14	3.84	4.09	5.66	6.12
Sensible cooling capacity [kW]	(1) max	1.63	1.78	2.67	3.04	4.13	4.45	5.86	6.33
	med	1.42	1.54	2.38	2.68	3.71	3.97	5.11	5.48
	min	1.17	1.25	1.98	2.20	2.83	2.95	4.15	4.40
Pressure drop in cooling [kPa]	(1) max	23	13	19	31	22	15	21	18
	med	19	10	16	25	18	13	17	14
	min	13	7	12	18	12	8	12	10
Heating capacity [kW]	(3) max	1.92	1.92	3.03	3.03	4.22	4.22	6.31	6.31
	med	1.72	1.72	2.74	2.74	3.87	3.87	5.60	5.60
	min	1.46	1.46	2.36	2.36	3.09	3.09	4.70	4.70
Pressure drop in heating [kPa]	(3) max	9	9	5	5	9	9	18	18
	med	7	7	4	4	7	7	14	14
	min	5	5	3	3	5	5	11	11
Air flow [m³/h]	max	360	360	630	630	960	960	1410	1410
	med	305	305	540	540	835	835	1175	1175
	min	240	240	430	430	595	595	900	900

Referred data at maximum speed fan and 50 Pa available static pressure.

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

(2) Room temperature 20°C - Water temperature 45/40 °C.

(3) Room temperature 20°C - Water temperature 65/55 °C.

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.



Manufacturer reserves the rights to change specifications without prior notice.

YHPL and YHPL-ECM High Static Pressure Blower

Compatibility tables



Compatibility table / Codes

Model YHPL	130-140	230-240	330-340	430-440	530-540	630-640	730-740
Model YHPL-ECM	130-140	230-240	-	430-440	-	-	730-740

Accessories (factory fitted)

Valves (220V On/Off)

3 way valve for main coil VBPM-C G1-5 220V (factory fitted)	9066561				-		
3 way valve for main coil VBPM-C G6-9 220V (factory fitted)	-			9060471			-
3 way valve for main coil VBPM-C G8S 220V (factory fitted)				-			9069208
3 way valve for additional coil VBAM-C G1-9 220V (factory fitted)				9060472			
2 way valve for additional coil V2M-C G1-5 220V (factory fitted)	9060476				-		
2 way valve V2M-C G6-9 220V (factory fitted)	-			9060477			-
2 way valve V2M-C G8S 220V (factory fitted)				-			9069209
Simplified 3-way valve kit for additional coil VSPM-C G1-5 220 V (fitted)	9066571				-		
Simplified 3-way valve kit VSPM-C G6-9 220 V (factory fitted)	-			9060484			-
Simplified 3-way valve kit VSPM-C G8-S 220 V (factory fitted)				-			9069211

Accessories (supplied loose)

Valves (220V On/Off)

3 way valve for main coil VBPS-C G1-5 220V (not fitted)	9066560				-		
3 way valve for main coil VBPS-C G6-9 220V (not fitted)	-			9060474			-
3 way valve for main coil VBPS-C G8S 220V (not fitted)				-			9069206
3 way valve for additional coil VBAS-C G1-9 220V (not fitted)				9060475			
2 way valve for additional coil V2S-C G1-5 220V (not fitted)	9060478				-		
2 way valve V2S-C G6-9 220V (not fitted)	-			9060479			-
2 way valve V2S-C G8S 220V (not fitted)				-			9069207
Simplified 3-way valve kit for additional coil VSPS-C G1-5 220 V (not fitted)	9066570				-		
Simplified 3-way valve kit VSPS-C G6-9 220 V (not fitted)	-			9060481			-
Simplified 3-way valve kit VSPS-C G8-S 220 V (not fitted)				-			9069210
Other type of valves							Contact Johnson Controls

YHPL and YHPL-ECM High Static Pressure Blower

Compatibility tables



Compatibility table / Codes

Model YHPL	130-140	230-240	330-340	430-440	530-540	630-640	730-740
Model YHPL-ECM	130-140	230-240	-	430-440	-	-	730-740

Accessories (supplied loose)

Air inlet plenum PMC	9069191	9069222	9066368	9069195	9069196		
Straight inlet flange	9069371	9038002	9060724	9069375	9079376		
Inlet flange 90°	9069381	9038001	9060714	9069385	9069386		
Intake grid 90°	9060761	9060762	9060763	9068155	9038041		
Straight outlet flange	9069391	9069232	9066378	9069395	9069396		
Outlet flange 90°	9069400	9069242	9066388	9069405	9069406		
Outlet grid	9060751	9060752	9060753	9069415	9038040		
El. resistance and relays fitted on the unit (1500 W) BEL-I G3-4/15	9066613			-			
El. resistance and relays fitted on the unit (900 W) BEL-I G3-4/09	9066603			-			
El. resistance and relays fitted on the unit (600 W) BEL-I G3-4/06	9066593			-			
El. resistance and relays fitted on the unit (2000 W) BEL-I G5-6/20	-	9066615		-			
El. resistance and relays fitted on the unit (1250 W) BEL-I G5-6/12	-	9066605		-			
El. resistance and relays fitted on the unit (750 W) BEL-I G5-6/07	-	9066595		-			
El. resistance and relays fitted on the unit (2500 W) BEL-I G7-9/25		-	9066617		-		
El. resistance and relays fitted on the unit (1500 W) BEL-I G7-9/15		-	9066607		-		
El. resistance and relays fitted on the unit (1000 W) BEL-I G7-9/10		-	9066597		-		
El. resistance and relays fitted on the unit (2750 W) BEL-I SL5/27			-	9038037		-	
El. resistance and relays fitted on the unit (1650 W) BEL-I SL5/16			-	9038038		-	
El. resistance and relays fitted on the unit (1100 W) BEL-I SL5/11			-	9038039		-	
El. resistance and relays fitted on the unit (3500 W) BEL-I SL6-7/35			-			9038047	
El. resistance and relays fitted on the unit (2500 W) BEL-I SL6-7/25			-			9038048	
El. resistance and relays fitted on the unit (1000 W) BEL-I SL6-7/10			-			9038049	
NC auxiliary condensate tray ACT-NC			6066039				
Mounted condensate pump DRCV - vertical units (auxiliary condensate tray included)			9066297				
Not mounted condensate pump DRCV - vertical units (auxiliary condensate tray included)			9066296				
Not mounted condensate pump DRPI-C - only horizontal installation (auxiliary condensate tray included)			9066180				
Condensate drain pipe SCR			6060420				
Front air intake KAF	9069361	9069072	9069073	9069365	9069366		

YHPL and YHPL-ECM High Static Pressure Blower

Compatibility tables



Compatibility table / Codes

Controls for YHPL models	130-140	230-240	330-340	430-440	530-540	630-640	730-740
Remote three speed control WM-3V (1) (4)				9066642			
Remote three speed control + electronic thermostat and manual S/W switch JWC-T (2)				9066630K			
Remote three speed control + electronic thermostat and centralized/manual S/W switch JWC-TQR (2) (3)				9066631K			
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (2) (3)				9066632K			
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display T-MB (2) (3)				9066331E			
Automatic speed control with electronic thermostat to be mounted in the light wall box WM-503-AC-EC (to be used with UP-503-AC-EC only)				9066686			
Electromechanical thermostat T2T (4) (5)				9060174			
Power unit UPM-AU for JWC-AU and T-MB remote controls, fitted on the unit				9066641			
Power unit UP-AU for JWC-AU and T-MB remote controls, not fitted on the unit				9066640			
Power unit UP-503-AC-EC for WM-503-AC-EC remote control only, not fitted on the unit				9066687			
Control accessories for all versions (supplied with separate packaging)							
Low temperature cut-out for controls WM-3V and JWC-T				9053048			
Low temperature cut-out for controls JWC-TQR, WM-503-AC-EC and UP-AU power unit				3021090			
T2 sensor to be used as Change-over for UP-AU power unit				9025310			
Change-over 15-25 for control JWC-TQR				9053049			
Receiver board for control JWC-T and JWC-TQR				9066311			
Controls for YHPL-ECM models	130-140	230-240	-	430-440	-	-	730-740
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (2) (3)				9066632K			
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display T-MB (to be used with UPM-AU and UP-AU only) (2) (3)				9066331E			
WM-S-ECM Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display				9066644			
Power unit UPM-AU for JWC-AU and T-MB remote controls, fitted on the unit				9066641			
Power unit UP-AU for JWC-AU and T-MB remote controls, not fitted on the unit				9066640			

(1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out.

(3) Can be used with Change Over. (4) Not suitable with -E electric heater. (5) Can be used with valve and not to be used with low temperature cut-out.

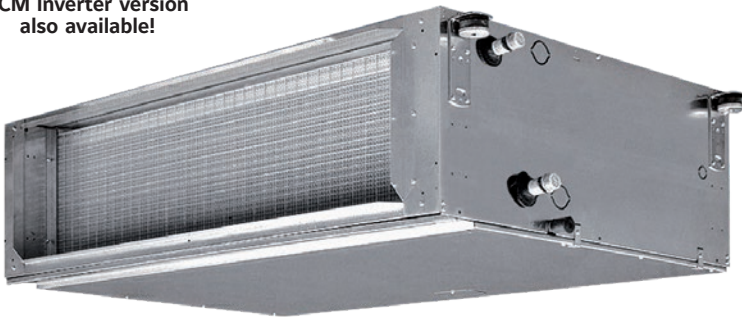
RFHP-O/RFHPO-ECM High static pressure blower with centrifugal fan

RFHP-O/RFHPO-ECM 14 - 74+2 · 2 & 4 pipe system

A complete range from 4.1 kW to 30.6 kW



ECM Inverter version also available!



RFHP-O and RFHPO-ECM ranges are designed and built for concealed installations. With small dimensions, they are very silent and offers elevated air flow rates and up to 250 Pa External Static Pressure.

They are suitable for climate control for small and medium commercial and sports environments or for large civil environments and integrate perfectly in regular false ceilings.

The RFHP-O range is available with the combination of either 3 or 4 row coils (sizes 1÷5) with the possibility to add a 1 or 2 row coil (3+1, 4+1, 3+2, 4+2 versions for 4 pipe systems), and 4 or 6 row coils (sizes 6-7) with the possibility to add a 2 row coil (4+2, 6+2 versions for 4 pipe systems).

ECM version comes in 5 sizes and its ability to continuously vary the air flow gives great regulation and control flexibility, at the same time ensuring excellent environmental conditions and extremely low electrical consumption.

Wired controls



WM-3V

Remote three speeds controller

JWC-T

WC-3V + Electronic thermostat and Summer/Winter switch

JWC-AU

Automatic JWC-T



T9000 Series

• Red Dot Product Design Award Winner 2020

- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



T7600 Series

- LCD Screen Display
- 2 or 4 pipes FCU
- On/off or proportional
- 3-speed motors or ECM motors
- Modbus RTU



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



Features

- 7 sizes
- From 4.0 to 30.63 kW cooling
- Concealed version
- Low noise operation
- 5 speed fan
- A wide range of thermostats and accessories
- Available with left or right connections

Optionally the main valve, auxiliary valve (4 tubes), controller and wiring can be assembled from factory, for an easy installation in a centralized management system.



Selection software

RFHP-O High static pressure blower

4.1 kW to 30.6 kW



Technical features

RFHP-O model 2 pipes (4 row coil)		14	24	34	44	54 (*)	64 (*)	74 (*)	
Total cooling capacity [kW]	(1)	max	5.92	8.15	10.71	13.60	17.76	22.89	30.63
		med	5.21	7.01	9.76	12.40	16.19	18.73	25.33
		min	4.17	4.99	8.71	10.90	14.54	12.42	21.54
Sensible cooling capacity [kW]	(1)	max	5.03	6.62	8.65	10.90	14.37	17.98	24.53
		med	4.26	5.48	7.68	9.70	12.80	14.16	19.46
		min	3.25	3.66	6.67	8.25	11.21	8.88	16.05
Pressure drop in cooling [kPa]	(1)	max	9.6	16.8	23.4	20.9	19.4	22.6	27.6
		med	7.6	12.7	19.8	17.7	16.3	15.3	19.3
		min	5.1	6.9	16.0	13.9	13.3	7.4	14.4
Heating capacity [kW]	(2)	max	7.67	10.10	13.19	16.53	22.93	43.60	61.14
		med	6.44	8.27	11.75	14.92	20.32	33.52	47.85
		min	4.98	5.57	10.20	12.79	17.67	20.86	39.34
Pressure drop in heating [kPa]	(2)	max	11.3	18.3	24.8	21.3	22.8	14.7	18.8
		med	8.2	17.0	23.0	17.7	18.3	9.1	12.1
		min	5.2	6.2	15.6	13.4	14.2	3.9	8.5
Air flow [m³/h]		max	1410	1825	2440	3020	3850	4800	7100
		med	1125	1410	2075	2580	3280	3385	5070
		min	790	840	1710	2070	2740	1880	3925
Fan [W]		max	191	285	470	570	760	1304	2460
		med	154	230	420	490	617	778	1758
		min	115	170	350	390	500	574	1518
Available pressure [Pa]		max	58	61	65	66	70	77	81
		med	52	56	62	63	67	71	75
		min	44	44	57	59	63	63	71
Sound power outlet [dB(A)]		max	49	52	56	57	61	68	72
		med	43	47	53	54	58	62	66
		min	35	35	48	50	54	54	62
Sound pressure outlet [dB(A)]	(4)	max	75	80	70	70	70	150	150
		med	50	50	50	50	50	150	150
		min	25	15	30	35	35	150	150
Power supply [V-ph-Hz]		230 / 1 / 50 + E							
Dimensions	Height	mm	310	310	360	360	435	488	588
	Width	mm	1133	1133	1133	1445	1445	1535	1535
	Depth	mm	698	698	698	853	853	1100	1100
RFHP-O model 4 pipes (with additional coil)		14+1	24+1	34+1	44+1	54+1 (*)	64+2 (*)	74+2 (*)	
Total cooling capacity [kW]	(1)	max	5.79	8.03	10.58	13.46	16.73	22.52	30.36
		med	5.11	6.95	9.67	12.34	15.31	18.56	25.25
		min	4.09	4.99	8.61	10.85	13.75	12.33	21.53
Sensible cooling capacity [kW]	(1)	max	4.87	6.49	8.51	10.72	13.56	17.62	24.28
		med	4.16	5.42	7.60	9.61	12.13	14.02	19.39
		min	3.18	3.66	6.58	8.21	10.62	8.81	16.05
Pressure drop in cooling [kPa]	(1)	max	9.20	16.30	22.90	20.50	17.40	22.00	27.10
		med	7.30	12.50	19.40	17.40	14.70	15.00	19.10
		min	4.90	6.90	15.70	13.80	12.00	7.30	14.40
Heating capacity [kW]	(3)	max	5.47	7.16	9.20	12.00	15.28	37.13	51.31
		med	4.87	6.28	8.47	11.07	14.00	29.78	41.88
		min	3.96	4.63	7.62	9.83	12.67	19.81	35.50
Pressure drop in heating [kPa]	(3)	max	21.0	31.9	22.3	39.5	36.3	37.0	46.1
		med	17.0	25.2	19.3	34.1	31.1	24.9	32.0
		min	11.7	14.5	15.9	27.6	26.0	11.9	23.8
Air flow [m³/h]		max	1350	1775	2390	2960	3800	4680	6980
		med	1090	1390	2045	2545	3245	3330	5040
		min	770	840	1680	2055	2700	1860	3920
Fan [W]		max	191	285	470	570	760	1327	2376
		med	154	230	420	490	617	750	1727
		min	115	170	350	390	500	565	1499

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

(2) Room temperature 20°C - Water temperature 45/40 °C.

(3) Room temperature 20°C - Water temperature 65/55 °C.

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

* Models not covered by EUROVENT certification program.



Manufacturer reserves the rights to change specifications without prior notice.

RFHPO-ECM Inverter high static pressure blower

4.0 kW to 18.2 kW



ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Technical features

RFHPO-ECM model 2 pipes (4 row coil)		14	24	34	44	54 (*)	
Total cooling capacity [kW]	(1)	max	5.61	7.94	10.81	13.99	18.17
		med	5.11	6.86	9.70	12.39	16.70
		min	4.14	5.44	7.87	10.47	13.73
Sensible cooling capacity [kW]	(1)	max	4.72	6.44	8.72	11.23	14.75
		med	4.18	5.36	7.61	9.65	13.26
		min	3.24	4.08	5.93	7.90	10.46
Pressure drop in cooling [kPa]	(1)	max	8.7	15.8	21.6	21.7	21.4
		med	7.2	11.8	17.4	16.9	17.9
		min	4.9	7.7	11.7	12.2	12.3
Heating capacity [kW]	(2)	max	7.76	10.62	13.06	18.08	23.25
		med	6.80	8.64	11.25	15.15	20.51
		min	5.18	6.42	8.64	12.13	15.90
Pressure drop in heating [kPa]	(2)	max	11.1	18.8	21.4	23.9	25.4
		med	8.7	12.9	16.4	17.4	20.3
		min	5.3	7.5	10.1	11.6	12.8
Air flow [m³/h]		max	1310	1780	2390	3080	3920
		med	1100	1360	1950	2440	3320
		min	780	940	1380	1840	2400
Fan [W]		max	144	225	340	530	702
		med	88	110	195	253	383
		min	40	44	80	110	166
Sound power outlet [dB(A)]		max	59	61	64	67	71
		med	52	55	60	62	67
		min	45	45	52	55	58
Sound pressure outlet [dB(A)]	(4)	max	50	52	55	58	62
		med	43	46	51	53	58
		min	36	36	43	46	49
Available pressure [Pa]		max	72	85	75	80	68
		med	50	50	50	50	50
		min	26	24	25	28	26
Power supply [V-ph-Hz]		230 / 1 / 50 + E					
Dimensions	Height mm	310	310	360	360	435	
	Width mm	1133	1133	1133	1445	1445	
	Depth mm	698	698	698	853	853	

RFHPO-ECM model 4 pipes (with additional coil)		14+1	24+1	34+1	44+1	54+1 (*)	
Total cooling capacity [kW]	(1)	max	5.46	7.87	10.70	13.90	18.00
		med	4.94	6.79	9.59	12.27	16.62
		min	4.04	5.36	7.76	10.36	13.66
Sensible cooling capacity [kW]	(1)	max	4.55	6.35	8.61	11.13	14.58
		med	4.01	5.30	7.51	9.53	13.19
		min	3.14	4.01	5.83	7.79	10.39
Pressure drop in cooling [kPa]	(1)	max	8.3	15.5	21.2	21.4	19.4
		med	6.8	11.6	17.1	16.6	16.3
		min	4.6	7.5	11.4	12.0	11.2
Heating capacity [kW]	(3)	max	4.62	6.25	8.02	10.75	13.77
		med	4.18	5.42	7.20	9.48	12.67
		min	3.43	4.33	5.90	8.06	10.53
Pressure drop in heating [kPa]	(3)	max	16.0	26.4	17.3	33.0	29.9
		med	13.4	20.4	14.3	26.3	25.7
		min	9.4	13.6	9.9	19.6	18.5
Air flow [m³/h]		max	1250	1750	2350	3040	3860
		med	1040	1340	1920	2400	3300
		min	750	920	1350	1810	2380
Fan [W]		max	144	225	340	530	695
		med	88	115	200	253	384
		min	40	44	80	110	168

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

(2) Room temperature 20°C - Water temperature 45/40 °C.

(3) Room temperature 20°C - Water temperature 65/55 °C.

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

* Models not covered by EUROVENT certification program.



Manufacturer reserves the rights to change specifications without prior notice.

RFHP-O and RFHPO-ECM

High static pressure blower with centrifugal fan

Compatibility tables



Compatibility table / Codes

Controls for RFHP-O models	14	24	34	44	54	64	74
Remote three speed control WM-3V (1) (4)				9066642			
Remote three speed control + electronic thermostat and manual S/W switch JWC-T (2)				9066630K			
Remote three speed control + electronic thermostat and centralized/manual S/W switch JWC-TQR (2) (3)				9066631K			
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (2) (3)				9066632K			
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display T-MB (2) (3)				9066331E			
Receiving board for centralized control SEL-S				9079109			
Power unit UPOM1-AU for JWC-AU and T-MB remote controls, fitted on the unit	9034170				-		
Power unit UPOM3-AU for JWC-AU and T-MB remote controls, fitted on the unit	-				9034180		
Power unit UPO1-AU for JWC-AU and T-MB remote controls, not fitted on the unit	9034169				-		
Power unit UPO3-AU for JWC-AU and T-MB remote controls, not fitted on the unit	-				9034179		
Electronic controls for MB boards							
Mounted power unit MB-M (T-MB wall control included)				9066332			
Not mounted power unit MB-S (T-MB wall control included)				9066333			
Multifunction wall control up to 60 units PSM-DI				3021293			
Change-over 15-25 for control JWC-TQR				9053049			
Receiver board for control JWC-T and JWC-TQR				9066311			
Management system for a network of fan coils with MB electronic board							
Hardware/software supervisory system (to be used with MB board only) NET				9079118			
Router-S for NET (default) or for BMS systems no provided by YORK				3021290			
Relay output board SIOS				3021292			
Controls for RFHPO-ECM models							
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (2) (3)				9066632K			
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display T-MB (to be used with UPM-AU and UP-AU only) (2) (3)				9066331E			
Power unit UPOM1-AU for JWC-AU and T-MB remote controls, fitted on the unit				9034170			
Power unit UPO1-AU for JWC-AU and T-MB remote controls, not fitted on the unit				9034169			
Electronic controls for MB boards							
Mounted power unit MB-M (T-MB wall control included)				9066332			
Not mounted power unit MB-S (T-MB wall control included)				9066333			
Multifunction wall control up to 60 units PSM-DI				3021293			
Change-over 15-25 for control JWC-TQR				9053049			
Receiver board for control JWC-T and JWC-TQR				9066311			
Management system for a network of fan coils with MB electronic board							
Hardware/software supervisory system (to be used with MB board only) NET				9079118			
Router-S for NET (default) or for BMS systems no provided by YORK				3021290			
Relay output board SIOS				3021292			

(1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out.
 (3) Can be used with Change Over. (4) Not suitable with -E electric heater. (5) Can be used with valve and not to be used with low temperature cut-out.

Model RFHP-O	14	24	34	44	54	64	74
Model RFHPO-ECM	14	24	34	44	54	-	-
Accessories (supplied loose)							
Main coil valve kit (220V On/Off)	9034255	9034256		9034257		9034259	
Auxiliary coil valve kit (220V On/Off)				-		9034258	
Main coil 3 way valve kit 24V actuator	9034250	9034251		9034252		9034270	9034272
Auxiliary coil 3 way valve kit 24V actuator		9034253		9034254		9034271	9034273
External auxiliary condensate collection tray				9034029			
Electric heater 230V	9034201	9034210			-		
Electric heater 400V	9034202	9034211	9034222	9034232	9034242	9034204	9034205
Intake/supply spigot plenum	9034200		9034220	9034230	9034240	9034280	9034290
ePM10 50% - G4 class synthetic filter	6034050		6034052	6034053	6034054	6034056	6034057
ePM10 70% - F6 class Synthetic Filter			-			6034197	6034198
Antivibrating connection	6034200		6034201	6034202	6034203	6034204	6034205

YEFB High static pressure blower

2 and 4 pipe system

A complete range from 4.3 kW up to 27.5 kW



CSR00 (Wall mounted)
Fan speed selector



CMR00 (Wall mounted)
Thermostat with manual fan speed and S/W change over



CER00 (Wall mounted)
Thermostat with manual fan speed and automatic change over

CER20 (Wall mounted)
Thermostat with auto. fan speed and automatic change over

CER30 (Wall mounted)
Thermostat with auto. fan speed and automatic change over for modulating valve



TUC03+ Terminal unit controller
BacNET and N2 Metasys network compatible



YEFB Blower units are available in 6 sizes for horizontal concealed installations: thanks to their high ESP fans that can handle up to 250Pa, they are the ideal solution for air conditioning large spaces.



Selection software

Features

- 6 unit sizes for horizontal mounting
- Handles high external static pressure up to 250Pa
- Choice of 2 or 4 pipe systems
- Twin centrifugal fans
- Horizontal air return
- Air distribution plenum
- Electric heater option
- Optional paint finish
- F5 grade filter option
- 5 Row cooling coil option on sizes 060, 070
- EUROVENT Certified

YEFB High static pressure blower

4.3 kW to 27.5 kW



Unit performance at different Pa external static pressure, with 4 row cooling coil

Model YEFB		020-4	030-4	040-4	050-4	060-4*	070-4*
Total cooling capacity [kW]	(1) max	6.95	9.49	11.77	13.72	23.83	27.52
	med	5.90	8.23	10.35	12.6	21.59	25.55
	min	4.30	7.11	8.91	11.36	17.15	23.56
Sensible cooling capacity [kW]	(1) max	4.99	7.91	9.94	11.80	18.89	22.00
	med	4.14	6.7	8.61	10.60	16.84	20.27
	min	2.98	5.68	7.17	9.44	12.93	18.54
Water flow in cooling [l/h]	(1) max	1195	1632	2024	2360	4099	4699
	med	1015	1416	1780	2167	3714	4361
	min	740	1223	1533	1954	2950	4018
Pressure drop in cooling [kPa]	(1) max	17.4	31.5	30.6	40.4	28.0	37.5
	med	12.2	24.1	23.3	33.8	23.2	33.0
	min	6.5	18.4	17.9	28.3	15.1	28.7
Heating capacity 2 pipes [kW]	(2) max	7.08	11.40	14.32	17.4	28.08	33.85
	med	6.20	9.62	12.19	15.53	24.95	30.95
	min	4.55	8.20	10.4	13.85	18.9	28.09
Water flow in heating 2 pipes [l/h]	(2) max	1219	1962	2465	2727	4495	5855
	med	1067	1656	2098	2673	4034	5354
	min	783	1411	1788	2392	3047	4858
Pressure drop in heating 2 pipes [kPa]	(2) max	13.3	34.0	36.1	51.0	30.2	49.6
	med	10.3	25.7	26.9	41.3	23.5	42.4
	min	4.8	19.2	20.0	33.4	14.6	35.7
Air flow [m³/h]	max	1145	1910	2680	3250	4120	5512
	med	920	1520	2130	2870	3610	4936
	min	620	1205	1655	2470	2580	4383
Sound power level [dB(A)]	max	64.0	65.0	69.0	72.0	77.0	81.0
	med	58.0	61.0	63.0	68.0	74.0	79.0
	min	48.0	57.0	57.0	65.0	65.1	76.0
Sound pressure level [dB(A)]	(3) max	53.0	54.0	58.0	61.0	66.0	70.0
	med	47.0	50.0	52.0	57.0	63.0	68.0
	min	37.0	46.0	46.0	54.0	54.0	65.0
Power supply [V-ph-Hz]		230 / 1 / 50					
Power input [W]	max	171	352	451	588	1007	1 781
Absorbed current [A]	max	0.74	1.62	2.05	2.83	4.47	7.90
Dimensions	Height mm	407.6	407.6	407.6	407.6	517.6	517.6
	Width mm	902	902	902	902	1 160	1 160
	Depth mm	989.6	989.6	1 239.6	1 239.6	1 634.6	1 634.6

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 45/40°C

(3) Lp= Total sound pressure level in open field at 1 m from the source

For each unit size there are 2, 3 and 4 row coils available; for 4 pipe systems it is possible to install a 2 or 3 row coil. It is therefore possible to have a combination of maximum 7 rows (4 row cooling + 3 row heating). For models 060 and 070 are also 5 row coils available, which can be combined with additional 2 or 3 row coils.

* Models not covered by EUROVENT certification program.



Manufacturer reserves the rights to change specifications without prior notice.

YEFB-ECM Inverter high static pressure blower

2 and 4 pipe system

A complete range from 4.2 kW up to 23.8 kW



YEFB-ECM high pressure ducted fan coils with energy saving motors, are specifically designed for ducted installations, with external static pressure up to 300 Pa. Their high pressure fan decks permit to satisfy every request of heating and cooling application in big environments.

The YEFB-ECM high pressure fan coil units are available in 5 sizes for concealed horizontal installation, in 2 and 4 pipe systems. For each unit size there are 2, 3 and 4 row coils available and models 060 are also 5 row coils available, which can be combined with additional 2 or 3 row coils.



Selection software



EDCR (Wall mounted)

Thermostat with manual or automatic fan speed and automatic change over for modulating valve



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



Features

- 5 unit sizes for horizontal mounting
- Handles high external static pressure up to 300Pa
- Choice of 2 or 4 pipe systems
- Twin centrifugal fans
- Horizontal air return
- Air distribution plenum
- Electric heater option
- Optional paint finish
- F5 grade filter option
- 5 Row cooling coil option on size 060
- EUROVENT Certified

YEFB-ECM Inverter high static pressure blower

4.2 kW to 23.8 kW



ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Unit performance at different Pa external static pressure, with 4 row cooling coil

Model YEFB		020-4	030-4	040-4	050-4	060-4*	
Total cooling capacity [kW]	(1)						
	max	6.75	9.94	13.64	14.40	23.82	
	med	5.62	8.13	11.22	13.25	20.32	
Sensible cooling capacity [kW]	(1)						
	max	5.27	7.98	11.17	11.94	18.76	
	med	4.30	6.34	10.82	10.82	15.78	
Water flow in cooling [l/h]	(1)						
	max	1162	1711	2348	2478	4088	
	med	812	1399	1931	2281	3488	
Pressure drop in cooling [kPa]	(1)						
	max	16.5	35.4	45.0	50.9	30.8	
	med	11.6	24.0	30.6	42.9	23.4	
Heating capacity 2 pipes [kW]	(2)						
	max	7.07	11.52	16.24	18.07	28.00	
	med	5.65	9.07	12.87	16.25	23.25	
Water flow in heating 2 pipes [l/h]	(2)						
	max	1217	1983	2795	3110	4866	
	med	972	1561	2215	2797	4041	
Pressure drop in heating 2 pipes [kPa]	(2)						
	max	15.4	39.1	53.2	65.7	32.1	
	med	10.4	25.4	34.8	54	23.2	
Air flow [m³/h]							
	max	1040	1948	2848	3217	4521	
	med	796	1471	2160	2834	3599	
Sound power level [dB(A)]							
	max	65	68	71	75	76	
	med	58	61	66	72	77	
Sound pressure level [dB(A)]	(3)						
	max	54	57	60	64	70	
	med	47	50	55	61	66	
Power supply [V-ph-Hz]		230 - 1 - 50/60 **					
	Power input [W]	max	161	261	405	478	926
	Absorbed current [A]	max	1.08	1.12	1.85	2.17	4.16
Dimensions	Height	mm	407.6	407.6	407.6	407.6	517.6
	Width	mm	902	902	902	902	1 160
	Depth	mm	989.6	989.6	1 239.6	1 239.6	1 634.6

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 45/40°C

(3) Lp= Total sound pressure level in open field at 1 m from the source

4 pipe system not available with 4R heating coil

* Models not covered by EUROVENT certification program.

** For a correct selection at 60 Hz of the units, pls use the YORK software for selection.



Manufacturer reserves the rights to change specifications without prior notice.

YEFB Hydro Blower

YEFB-ECM Inverter Hydro Blower

Compatibility tables

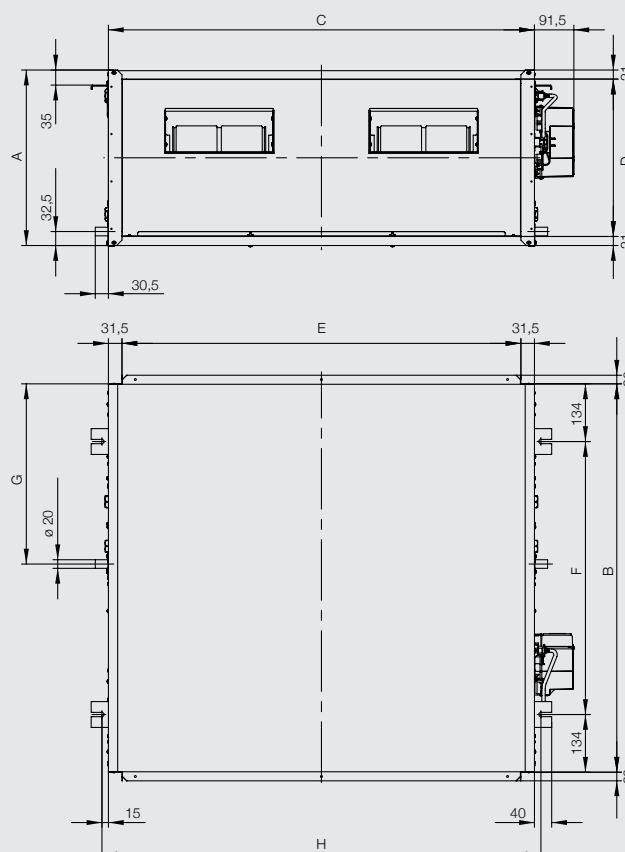


Compatibility Options / Accessories / Models

Code	Designation	YEFB / YEFB-ECM					
		020	030	040	050	060	070
Coils and heaters**							
BA2	Additional 2 row heating	•	•	•	•	•	•
BA3	Additional 3 row heating	•	•	•	•	•	•
KREL	Kit electrical heater with safety thermostat and relay	•	•	•	•	•	•
Factory fitted electric box							
CBL10	Transformer 230/24V	•	•	•	•	•	•
CBL20	Parallel connection for ON/OFF valve	•	•	•	•	•	•
CBL30	Parallel connection for modulating valve	•	•	•	•	•	•
Remote controllers and thermostats (wall mounted)							
CSR00	Fan speed selector (wall mounted)	•	•	•	•	•	•
CMR00	Thermostat with manual fan speed and S/W change over	•	•	•	•	•	•
CER00	Thermostat with manual fan speed, dead band, automatic change over	Compatible with electrical heaters					
CER20	Thermostat with automatic fan speed, dead band, automatic change over	Compatible with electrical heaters					
CER30	Thermostat with automatic fan speed, dead band, automatic change over for modulating valves	•	•	•	•	•	•
EDCR	Thermostat with manual or automatic fan speed, dead band, automatic change over for modulating valves - Only for ECM models	Compatible with electrical heaters					
OxT+OC716	Omnibus control + Remote Analogue Plus	Compatible with electrical heaters					
OxT+OC216	Omnibus control + Remote Display console	Compatible with electrical heaters					
Valves (Supplied loose) / Condensate pump / Water sensor (Factory fitted)							
J3B2 (2p)	3-way 4-ports on/off valves for 2-pipe systems	•	•	•	•		
J3B2 (4p)	3-way 4-ports on/off valves for 4-pipe systems	•	•	•	•		
J3C2 (2p)	3-way 4-ports on/off valves for 2-pipe systems					•	•
J3C2 (4p)	3-way 4-ports on/off valves for 4-pipe systems					•	•
J3BM (2p)	3-way 4-ports modulating valves for 2-pipe systems	•	•	•	•		
J3BM (4p)	3-way 4-ports modulating valves for 4-pipe systems	•	•	•	•		
J3CM (2p)	3-way 4-ports modulating valves for 2-pipe systems					•	•
J3CM (4p)	3-way 4-ports modulating valves for 4-pipe systems					•	•
J2B2 (2p)	2-way on/off valves for 2-pipe systems	•	•	•	•		
J2B2 (4p)	2-way on/off valves for 4-pipe systems	•	•	•	•		
J2C2 (2p)	2-way modulating valves for 2-pipe systems					•	•
J2C2 (4p)	2-way modulating valves for 4-pipe systems					•	•
DTB (2p)	Shut-off valves for 2-pipe systems supplied loose in addition to J3B2 and J3BM valves	•	•	•	•		
DTB (4p)	Shut-off valves for 4-pipe systems (in addition to J3B2/J3BM valves)	•	•	•	•		
PC	Condensate pump	•	•	•	•	•	•
AS	Air sensor	•	•	•	•	•	•
WS	Water sensor	Compatible with CEL/CER/EDCR					
Plenums							
PAS	Air intake plenum collars	•	•	•	•	•	•
PM	Air delivery plenum with collars	•	•	•	•	•	•
PM + Grill	Air delivery plenum painted with air outlet grill	•	•	•	•	•	•

- Compatible
- ◻ Compatible with conditions
- ◻ Not compatible

Dimensions & Weights



All dimensions in mm. Drawings not in scale.

Model YEFB / YEFB-ECM		020-4	030-4	040-4	050-4	060-4	070-4
A	mm	407.6	407.6	407.6	407.6	517.6	517.6
B	mm	902	902	902	902	1160	1160
C	mm	989.6	989.6	1239.6	1239.6	1634.6	1634.6
D	mm	365.6	365.6	365.6	365.6	475.6	475.6
E	mm	926.6	926.6	1176.6	1176.6	1571.6	1571.6
F	mm	634	634	634	634	892	892
G	mm	418.5	418.5	418.5	418.5	446.5	446.5
H	mm	1019.6	1019.6	1269.6	1269.6	1664.6	1664.6
Weight (3R - 3 rows)	kg	64.3	64.3	79.3	79.3	126.0	126.0

Model YEFB		(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4-5 rows)	(2-3-4-5 rows)
Weight of the coil	kg	4.8 - 5.8 - 7.6	4.8 - 5.8 - 7.6	5.6 - 7.4 - 9.6	5.6 - 7.4 - 9.6	9.4 - 12.8 - 17.4 - 21.5	9.4 - 12.8 - 17.4 - 21.5
Water connection		G1/2" F	G1/2" F	G1/2" F	G1/2" F	G1" M	G1" M
Model YEFB-ECM		(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4-5 rows)	-
Weight of the coil	kg	4.8 - 5.8 - 7.6	4.8 - 5.8 - 7.6	5.6 - 7.4 - 9.6	5.6 - 7.4 - 9.6	9.4 - 12.8 - 17.4 - 21.5	-
Water connection		G1/2" F	G1/2" F	G1/2" F	G1/2" F	G1" M	-

Model YEFB		(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4-5 rows)	(2-3-4-5 rows)
Water content	l	1.4 - 2.2 - 2.9	1.4 - 2.2 - 2.9	1.9 - 2.8 - 3.8	1.9 - 2.8 - 3.8	3.4 - 5.0 - 6.7 - 8.4	3.4 - 5.0 - 6.7 - 8.4
Model YEFB-ECM		(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4-5 rows)	-
Water content	l	1.5 - 2.2 - 2.9	1.4 - 2.2 - 2.9	1.9 - 2.8 - 3.8	1.9 - 2.8 - 3.8	3.4 - 5.0 - 6.7 - 8.4	-

YKEY and YKEY900 Hydro Cassette

2 and 4 pipe system

A complete range from 1.1 kW to 10 kW



The YORK YKEY Cassette units are designed for installation on a false ceiling, suitable for cooling and heating applications.

The ambient air drawn through the central air intake grill is blown into the circular heat exchanger, composed by copper pipes and aluminium fins, and then it comes out from the 4 sides of the cassette unit. Thanks to the special combination of air intake/air outlet grilles it is possible to obtain the pleasant COANDA effect.



CSR00 (Wall mounted)
Fan speed selector



CER00 (Wall mounted)
Thermostat with manual fan speed and automatic change over



CMR00 (Wall mounted)
Thermostat with manual fan speed and S/W change over

CER20 (Wall mounted)
Thermostat with auto. fan speed and automatic change over

CER30 (Wall mounted)
Thermostat with auto. fan speed and automatic change over for modulating valve

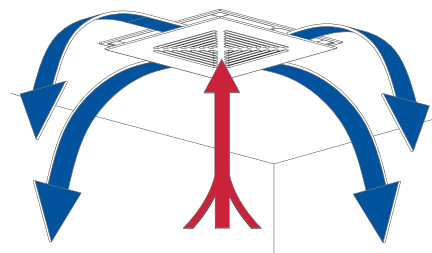


TUC03+ Terminal unit controller
BacNET and N2 Metasys network compatible



Features

- Cooling duty from 1.4 to 10 kW
- 2 and 4 pipes systems in all range
- Central air intake grill
- 4 sides air outlet plenum
- 2 panel sizes: 600 x 600 & 900 x 900
- Possible choice between 6 fan speeds
- Condensate pump integrated in all range
- 2/3 way valves fitted or supplied loose in all range
- Coloured versions, possible to change the colour of the grill and the frame
- Possible to select a complete range of controls
- Electric heater fitted as an option for 2 pipe range
- All metal parts insulated to avoid condensations
- EUROVENT Certified



COANDA effect

The particular shape of the air outlet plenum is designed specifically in order to obtain the Coanda effect, a phenomenon for which the air outlet flow tends to adhere to the ceiling and falls down smoothly, without blowing directly towards people in the room: the optimal solution for an uniform and pleasant air diffusion.



YKEY/M Special version with micro-drilled metallic grill



YKEY/H-Special version with natural condensate water discharge



Selection software

YKEY and YKEY900 Hydro Cassette

1.1 kW to 10 kW



Technical features

YKEY model -2 pipes			621	622	623	921	922
Total cooling capacity [kW]	(1)	max	2.52	3.68	4.72	8.63	9.99
		med	1.78	2.84	3.82	6.49	8.24
		min	1.42	2.27	2.51	3.86	5.65
Sensible cooling capacity [kW]	(1)	max	2.12	2.79	3.7	6.1	7.64
		med	1.4	2.06	2.89	4.49	6.2
		min	1.08	1.63	1.81	2.61	4.13
Water flow in cooling [l/h]	(1)	max	433	633	812	1484	1718
		med	306	488	657	1116	1417
		min	244	390	432	664	972
Pressure drop in cooling [kPa]	(1)	max	7.8	10.9	16.5	20.1	26
		med	4.6	7.3	11.5	12.3	19
		min	3.2	5.2	6	4.5	9
Heating capacity [kW]	(2)	max	2.66	3.65	4.89	8.33	10.18
		med	1.78	2.7	3.8	5.7	7.91
		min	1.38	2.09	2.39	3.25	5.04
Water flow in heating [l/h]	(2)	max	458	628	841	1433	1751
		med	306	464	654	980	1361
		min	237	359	411	559	867
Pressure drop in heating [kPa]	(2)	max	7	9.4	14.9	12.1	17.4
		med	3.4	5.3	9.5	6.1	11
		min	2.2	2	4.1	2.2	4.9
Water content [l]			1.34	2.12	2.12	4.26	4.26

YKEY model -4 pipes			641	642	643	941	942
Total cooling capacity [kW]	(1)	max	1.76	3.11	3.88	7.49	9.04
		med	1.34	2.48	3.23	5.67	7.5
		min	1.1	2.04	2.25	3.41	5.2
Sensible cooling capacity [kW]	(1)	max	1.62	2.49	3.24	5.98	7.46
		med	1.17	1.91	2.61	4.42	6.08
		min	0.94	1.52	1.73	2.58	4.08
Water flow in cooling [l/h]	(1)	max	303	535	667	1288	1555
		med	230	427	556	975	1290
		min	189	351	387	587	894
Pressure drop in cooling [kPa]	(1)	max	7.5	11.2	16.7	23.2	32
		med	4.8	7.8	11.9	14.1	23
		min	3.6	5.7	6.6	5	12
Heating capacity [kW]	(3)	max	2.01	2.69	3.31	6.66	7.86
		med	1.47	2.2	2.84	5.32	6.75
		min	1.23	1.82	2.01	3.49	4.95
Water flow in heating [l/h]	(3)	max	173	231	285	573	676
		med	126	189	244	458	581
		min	106	157	173	300	426
Pressure drop in heating [kPa]	(3)	max	5.8	10.6	15.2	25	33.2
		med	3.3	7.4	11.8	15.9	25.6
		min	2.4	5.2	6.3	7.9	14.7
Water content [l]			1.34	2.12	2.12	4.26	4.26

Common features			641	642	643	941	942
Air flow [m³/h]		max	566	566	717	1420	1530
		med	351	351	525	813	960
		min	182	182	308	410	477
Sound power level [dB(A)]		max	49	49	58	54	63
		med	34	40	50	45	55
		min	30	34	37	30	40
Sound pressure level [dB(A)]		max	39.5	39.5	48.5	44.5	53.5
		med	24.5	30.5	40.5	35.5	45.5
		min	20.5	24.5	27.5	20.5	30.5
Power supply [V-ph-Hz]				230 /1 /50			
Power input [W]	max	52	52	86	127	161	
Absorbed current [A]	max	0.25	0.25	0.38	0.62	0.68	
Dimensions	Height	mm	328	328	328	360	360
	Width	mm	575	575	575	820	820
	Depth	mm	575	575	575	820	820

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water temperature: 45/40 °C

(3) Room temperature 20°C - Water inlet temperature: 65/55°C

The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

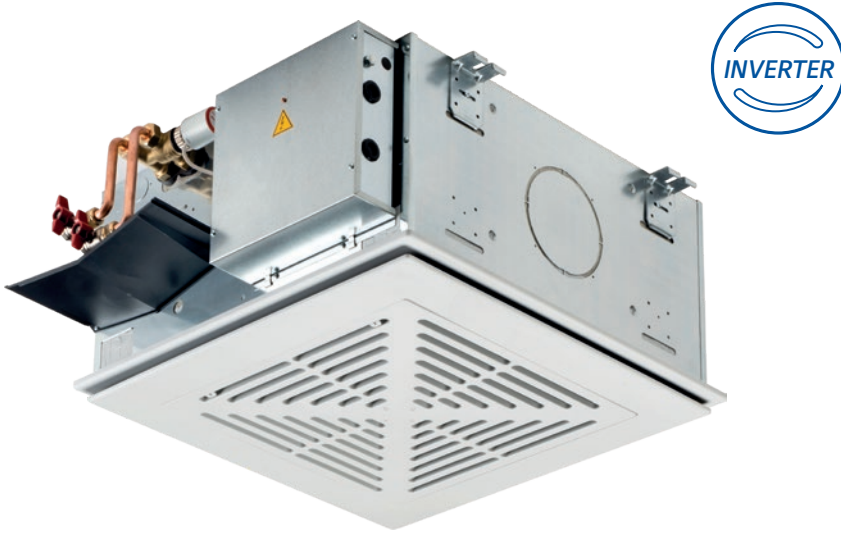


Manufacturer reserves the rights to change specifications without prior notice.

YKEY-ECM and YKEY900-ECM Inverter Cassette

2 and 4 pipe system

A complete range from 1.2 kW to 10.2 kW



EDCR (Wall mounted)

Thermostat with manual or automatic fan speed and automatic change over for modulating valve



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



The YORK YKEY-ECM Cassette units, with energy saving motors, are designed for installation on a false ceiling, suitable for cooling and heating applications.

The ambient air drawn through the central air intake grill is blown into the circular heat exchanger, composed by copper pipes and aluminium fins, and then it comes out from the 4 sides of the cassette unit. Thanks to the special combination of air intake/air outlet grilles it is possible to obtain the pleasant COANDA effect.

Features

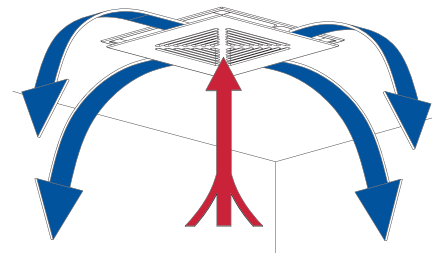
- Cooling duty from 1.2 to 10.2 kW
- Brushless motor and inverter technology
- 2 and 4 pipes systems in all range
- Central air intake grill
- 4 sides air outlet plenum
- 2 panel sizes: 600 x 600 & 900 x 900
- Possible choice between 6 fan speeds
- Condensate pump integrated in all range
- 2/3 way valves fitted or supplied loose in all range
- Coloured versions, possible to change the colour of the grill and the frame
- Possible to select a complete range of controls
- Electric heater fitted as an option for 2 pipe range
- All metal parts insulated to avoid condensations
- EUROVENT Certified



YKEY/M-ECM Special version with micro-drilled metallic grill



YKEY/H-ECM Special version with natural condensate water discharge



COANDA effect

The particular shape of the air outlet plenum is designed specifically in order to obtain the Coanda effect, a phenomenon for which the air outlet flow tends to adhere to the ceiling and falls down smoothly, without blowing directly towards people in the room: the optimal solution for an uniform and pleasant air diffusion.



Selection software

YKEY-ECM and YKEY900-ECM Inverter Cassette

1.2 kW to 10.2 kW



ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Technical features

YKEY-ECM model -2 pipes			621	622	624	922.1
Total cooling capacity [kW]	(1)	max	2.85	4.85	5.43	10.15
		med	2.37	3.64	3.99	7.61
		min	1.63	2.56	2.76	4.66
Sensible cooling capacity [kW]	(1)	max	2.42	3.79	4.17	7.87
		med	1.93	2.69	2.98	5.66
		min	1.26	1.85	1.99	3.34
Water flow in cooling [l/h]	(1)	max	491	835	935	1747
		med	408	627	687	1310
		min	281	441	475	802
Pressure drop in cooling [kPa]	(1)	max	9.2	17.2	40.5	23.2
		med	6.9	10.6	23.2	13.9
		min	3.9	6.1	12.3	5.8
Heating capacity [kW]	(2)	max	2.99	4.91	5.44	10.31
		med	2.38	3.52	3.98	7.51
		min	1.59	2.33	2.62	4.45
Water flow in heating [l/h]	(2)	max	515	845	936	1775
		med	410	606	686	1293
		min	274	401	455	766
Pressure drop in heating [kPa]	(2)	max	9	16.2	35.7	21.0
		med	5.9	8.9	20.4	12.0
		min	2.9	4.2	9.5	4.5
Water content [l]		1.34	2.12	2.15	4.26	

YKEY-ECM model -4 pipes			641	642	644	942.1
Total cooling capacity [kW]	(1)	max	1.87	3.52	4.30	9.10
		med	1.68	2.75	3.30	6.85
		min	1.22	2.03	2.32	4.32
Sensible cooling capacity [kW]	(1)	max	1.73	3.32	3.53	7.34
		med	1.52	2.5	2.58	5.33
		min	1.08	1.73	1.71	3.21
Water flow in cooling [l/h]	(1)	max	322	678	740	1566
		med	289	530	568	1179
		min	210	391	399	744
Pressure drop in cooling [kPa]	(1)	max	7.9	17	19.8	24.3
		med	6.6	11	12.5	14.5
		min	4.1	6.7	7.3	6.3
Heating capacity [kW]	(3)	max	2.21	3.3	3.72	7.48
		med	1.84	2.64	2.98	6.13
		min	1.37	2.04	2.23	4.41
Water flow in heating [l/h]	(3)	max	190	284	320	644
		med	158	227	256	528
		min	118	176	192	380
Pressure drop in heating [kPa]	(3)	max	7.1	15.6	19.6	26.2
		med	5.2	10.5	13.4	18.5
		min	3	6.6	8.1	10.2
Water content [l]		1.34	2.12	2.12	4.26	

Common features			641	642	644	942.1
Air flow [m³/h]		max	605	734	809	1497
		med	425	492	536	867
		min	235	260	260	384
Sound power level [dB(A)]		max	55	59	62	62
		med	47	49	51	51
		min	32	39	39	34
Sound pressure level [dB(A)]		max	45.6	49.6	52.6	52.6
		med	37.6	39.6	41.6	41.6
		min	22.6	29.6	29.6	24.6
Power supply [V-ph-Hz]			230 / 1 / 50			
Power input [W]	max	27	43	53	98	
Absorbed current [A]	max	0.25	0.39	0.46	0.80	
Dimensions	Height	mm	328	328	328	360
	Width	mm	575	575	575	820
	Depth	mm	575	575	575	820

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water temperature: 45/40 °C

(3) Room temperature 20°C - Water inlet temperature: 65/55°C

The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.



Manufacturer reserves the rights to change specifications without prior notice.

YKEY and YKEY900 Cassette

YKEY-ECM and YKEY900-ECM Inverter Cassette

Compatibility tables

Compatibility Options / Accessories / Models

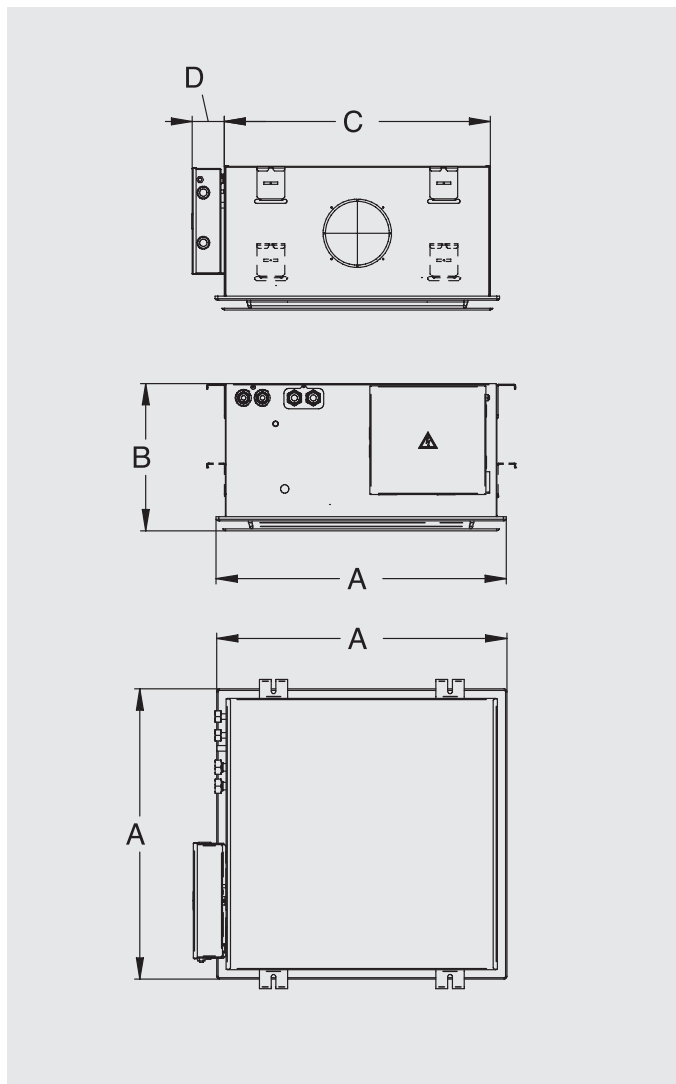
Code	Designation	YKEY models					YKEY-ECM models																			
		621	622	623	-	921	922	641	642	643	-	941	942	621	622	-	624	-	922	641	642	-	644	-	942	
Heaters																										
KREL	Kit electrical heater with safety thermostat and relay	•	•	•	•	•	•	•																		
Remote controllers and thermostats (wall mounted)																										
CSR00	Fan speed selector (wall mounted) (not for ECM models)	•	•	•				•	•	•	•	•												•	•	
CMR00	Thermostat with manual fan speed and S/W change over (not for ECM models)	•	•	•				•	•	•	•	•												•	•	
CER00	Thermostat with manual fan speed, dead band, automatic change over (not for ECM models)	Compatible with electrical heaters																								
CER20	Thermostat with automatic fan speed, dead band, automatic change over (not for ECM models)	Compatible with electrical heaters																								
CER30	Thermostat with automatic fan speed, dead band, automatic change over for modulating valves (not for ECM models)	•	•	•				•	•	•	•	•												•	•	
EDCR	Thermostat with manual or automatic fan speed, dead band, automatic change over for modulating valves - Only for ECM models	Compatible with electrical heaters																								
OxU+OC716	Omnibus control + Remote Analogue Plus	Compatible with electrical heaters																								
OxU+OC216	Omnibus control + Remote Display console	Compatible with electrical heaters																								
Valves (Supplied loose) / Condensate pump / Air sensor / Water sensor (Factory fitted)																										
DTH2B2 (2p)	2-way on/off valves for 2-pipe systems, 230V	•	•	•	•	•	•																			
DTH2B2 (4p)	2-way on/off valves for 4-pipe systems, 230V												•	•	•	•	•	•	•	•	•	•	•	•	•	•
DTH3B2 (2p)	3-way 4-ports on/off valves for 2-pipe systems, 230V	•	•	•	•	•	•																			
DTH3B2 (4p)	3-way 4-ports on/off valves for 4-pipe systems, 230V												•	•	•	•	•	•	•	•	•	•	•	•	•	•
DTH2B0 (2p)	2-way on/off valves for 2-pipe systems, 24V	•	•	•	•	•	•																			
DTH2B0 (4p)	2-way on/off valves for 4-pipe systems, 24V												•	•	•	•	•	•	•	•	•	•	•	•	•	•
DTH3B0 (2p)	3-way 4-ports on/off valves for 2-pipe systems, 24V	•	•	•	•	•	•																			
DTH3B0 (4p)	3-way 4-ports on/off valves for 4-pipe systems, 24V												•	•	•	•	•	•	•	•	•	•	•	•	•	•
DTJ2BM (2p)	2-way modulating valves for 2-pipe systems, 24V	•	•	•	•	•	•																			
DTJ2BM (4p)	2-way modulating valves for 4-pipe systems, 24V												•	•	•	•	•	•	•	•	•	•	•	•	•	•
DTJ3BM (2p)	3-way 4-ports modulating valves for 2-pipe systems, 24V	•	•	•	•	•	•																			
DTJ3BM (4p)	3-way 4-ports modulating valves for 4-pipe systems, 24V												•	•	•	•	•	•	•	•	•	•	•	•	•	•
QEC10	230V/24V transformer	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
QEC20	Relay box for parallel connection for 230V actuators (not for ECM models)	•	•	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
QEC30	Relay box for parallel connection for 24V actuators (not for ECM models)	•	•	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DT (2p)	Shut-off valves for 2-pipe systems supplied loose	•	•	•	•	•	•																			
DT (4p)	Shut-off valves for 4-pipe systems supplied loose												•	•	•	•	•	•	•	•	•	•	•	•	•	•
AS	Air sensor	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
WS	Water sensor	Compatible with CEL/CER/EDCR																								

- Compatible
- Compatible with conditions
- Not compatible

Dimensions and Weights



YKEY600 and YKEY600-ECM

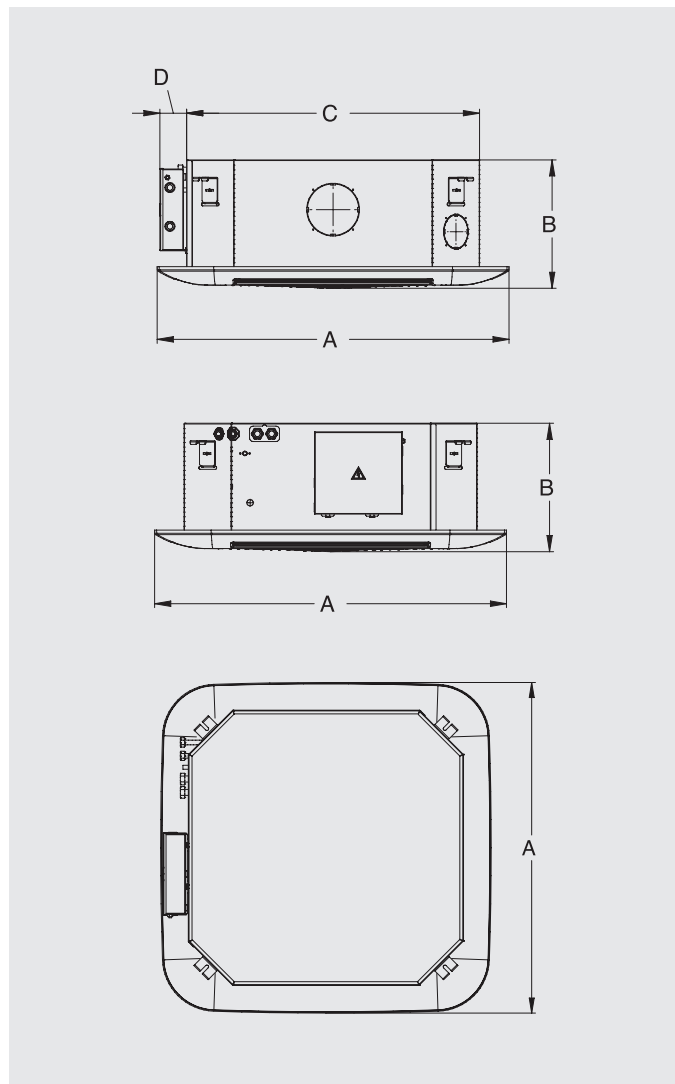


Model YKEY		621-641	622-642	623-643
A	mm	615	615	615
B	mm	328	328	328
C	mm	575	575	575
D	mm	75	75	75
Weight	kg	24 - 25,6	24 - 25,6	24 - 25,6

2 pipes installation	621	622	623
Water inlet	3/4 F	3/4 F	3/4 F
Water outlet	3/4 F	3/4 F	3/4 F

4 pipes installation	641	642	643
Cooling water inlet	3/4 F	3/4 F	3/4 F
Cooling water outlet	3/4 F	3/4 F	3/4 F
Heating water inlet	1/2 F	1/2 F	1/2 F
Heating water outlet	1/2 F	1/2 F	1/2 F

YKEY900 and YKEY900-ECM



Model YKEY		921-941	922-942
A	mm	985	985
B	mm	360	360
C	mm	820	820
D	mm	75	75
Weight	kg	45	45

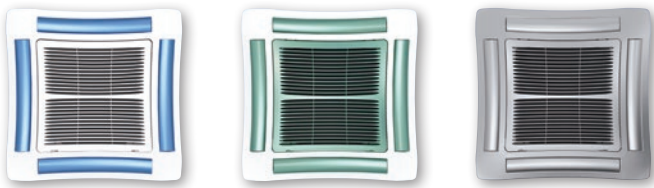
2 pipes installation	621	622
Water inlet	3/4 F	3/4 F
Water outlet	3/4 F	3/4 F

4 pipes installation	641	642
Cooling water inlet	3/4 F	3/4 F
Cooling water outlet	3/4 F	3/4 F
Heating water inlet	1/2 F	1/2 F
Heating water outlet	1/2 F	1/2 F

YHK Hydro Cassette

2 and 4 pipe system

A complete range from 1.3 kW to 11 kW



Coloured versions available as an option

YHK Hydro Cassette units are simple and elegant, discreet in their design. High standards of quality and reliability, combined with a wide range of accessories ensure a total solution for all comfort cooling and heating requirements.



Selection software

Wired controls



T9000 Series

Red Dot Product Design Award Winner 2020

- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



T7600 Series

- LCD Screen Display
- 2 or 4 pipes FCU
- On/off or proportional
- 3-speed motors or ECM motors
- Modbus RTU



Infrared control



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



Features

- Cooling duty from 1.3 to 11 kW
- 2 and 4 pipes systems in all range
- 2 sizes: 600 x 600 & 800 x 800
- Possible choice between 6 fan speeds
- Condensate pump integrated in all range
- 2/3 way valves fitted or supplied loose in all range
- Coloured versions, possible to change the colour of the grill and the frame
- Possible to select a complete range of controls
- Electric heater fitted as an option for all range (2 pipe only)
- All metal parts insulated to avoid condensations
- EUROVENT Certified

YHK Hydro Cassette

1.3 kW to 11 kW



Technical features

YHK model -2 pipes		20-2	25-2	40-2	50-2	65-2	95-2	110-2	
Total cooling capacity [kW]	(1)	max	1.92	2.64	4.26	4.93	6.08	9.39	10.93
		med	1.60	2.31	3.30	3.82	4.86	6.72	8.36
		min	1.25	1.82	2.23	2.91	4.18	5.27	5.27
Sensible cooling capacity [kW]	(1)	max	1.58	2.00	3.11	3.65	4.51	6.36	8.08
		med	1.29	1.72	2.35	2.75	3.53	4.42	6.00
		min	0.99	1.33	1.55	2.05	3.00	3.42	3.67
Water flow in cooling [l/h]	(1)	max	340	461	745	863	1 060	1 636	1 909
		med	280	402	574	667	845	1 166	1 453
		min	219	316	387	506	724	913	913
Pressure drop in cooling [kPa]	(1)	max	10	9.7	20.9	19.7	21.6	26.9	35.6
		med	7	7.6	13.0	12.4	14.3	14.7	21.8
		min	4.5	4.9	6.4	7.5	10.9	9.4	9.4
Heating capacity [kW]	(2)	max	2.24	2.80	4.37	5.15	6.50	9.23	11.72
		med	1.80	2.42	3.28	3.85	5.03	6.40	8.55
		min	1.38	1.85	2.12	2.85	4.27	4.92	5.12
Water flow in heating [l/h] *	(2)	max	340	461	745	863	1 060	1 636	1 909
		med	280	402	574	667	845	1 166	1 453
		min	219	316	387	506	724	913	913
Pressure drop in heating [kPa]	(2)	max	10.7	9.0	10.2	17.8	15.0	22.0	33.8
		med	7.2	6.9	6.1	10.6	9.4	11.4	19.2
		min	4.4	4.3	2.8	6.2	7.0	7.1	7.6
Heating capacity [kW]	(3)	max	4.6	5.7	9.3	10.6	13.1	19.8	23.7
		med	3.7	4.9	7	8.3	10.7	13.4	17.3
		min	2.8	4.2	4.9	6.1	8.6	10.3	10.3
Water flow in heating [l/h]	(3)	max	393	488	795	914	1 130	1 699	2 037
		med	315	422	598	709	874	1 155	1 484
		min	240	360	415	524	741	882	882
Pressure drop in heating [kPa]	(3)	max	9.9	8.4	12.5	16	17.5	20.9	28.9
		med	6.5	6.4	7.6	10	11.3	10.6	16
		min	4	4.8	4	5.9	8.4	6.7	6.7
Water content [l]		0.8	1.4	2.1	2.1	3.0	4.0	4.0	

YHK model -4 pipes		20-4	25-4	40-4	40-6	50-4	50-6	65-4	95-4	95-6	110-4	110-6	
Total cooling capacity [kW]	(1)	max	2.27	2.66	3.27	3.86	3.72	4.44	6.26	7.59	8.65	8.72	9.69
		med	1.93	2.33	2.61	3.02	2.96	3.47	4.98	5.60	6.27	6.84	7.75
		min	1.49	1.83	1.83	2.07	2.33	2.69	4.11	4.48	4.95	4.48	4.95
Sensible cooling capacity [kW]	(1)	max	1.84	1.94	2.49	2.88	2.88	3.37	4.61	5.71	6.37	6.67	7.26
		med	1.52	1.68	1.94	2.20	2.23	2.56	3.60	4.09	4.49	5.09	5.64
		min	1.13	1.32	1.32	1.47	1.72	1.94	2.93	3.21	3.49	3.21	3.49
Water flow in cooling [l/h]	(1)	max	401	464	574	664	655	764	1 090	1 326	1 488	1 529	1 667
		med	337	406	456	519	519	597	865	974	1 078	1 192	1 333
		min	260	318	318	355	406	462	712	777	851	777	851
Pressure drop in cooling [kPa]	(1)	max	13.5	8.8	13.4	10.5	17	14.0	18.9	26.9	25.0	34.7	32.0
		med	10	6.9	8.8	7.0	11.2	9.0	12.5	15.4	14.0	22.1	20.0
		min	6	4.6	4.6	4.0	7.2	6.0	8.8	10.3	9.0	10.3	9.0
Heating capacity [kW]	(4)	max	2.66	3.04	3.86	2.91	4.19	3.29	8.02	9.66	7.50	11.16	9.48
		med	2.23	2.66	3.04	2.71	3.33	2.66	6.33	7.15	5.63	8.80	6.78
		min	1.72	2.13	2.13	1.73	2.61	2.14	5.21	5.69	4.59	5.69	4.59
Water flow in heating [l/h] *	(4)	max	261	298	378	250	426	283	783	946	645	1 092	815
		med	219	260	298	233	341	229	618	697	484	858	583
		min	169	209	209	149	267	184	508	555	395	555	395
Pressure drop in heating [kPa]	(4)	max	11.4	8.7	13.3	6.7	15.0	8.4	17.2	24.0	11.8	31.2	15.0
		med	8.3	6.8	8.7	4.6	9.9	5.7	11.2	14.0	7.0	20.3	9.9
		min	5.2	4.6	4.6	2.6	6.4	3.9	7.9	9.3	4.9	9.3	4.9
Cooling water content [l]		1.0	1.4	1.4	1.7	1.4	1.7	3.0	3.0	3.6	3.0	3.6	
Heating water content [l]		0.6	0.7	0.7	0.5	0.7	0.5	1.4	1.4	1.0	1.4	1.1	

Common features		20-4	25-4	40-4	40-6	50-4	50-6	65-4	95-4	95-6	110-4	110-6
Air flow [m³/h]	max	610	520	710	710	880	880	1 140	1 500	1 500	1 820	1 820
	med	420	420	500	500	610	610	820	970	970	1 280	1 280
	min	310	310	320	320	430	430	630	710	710	710	710
Sound power level [dB(A)]	max	49	45	53	53	59	59	48	53	53	58	58
	med	40	40	45	45	49	49	40	40	40	48	48
	min	33	33	33	33	41	41	33	34	34	34	34
Sound pressure level [dB(A)]	max	40	36	44	44	50	50	39	44	44	49	49
	med	31	31	36	36	40	40	31	31	31	39	39
	min	24	24	24	24	32	32	24	25	25	25	25
Power supply [V-ph-Hz]		230 /1 /50										
Power input [W]	max	69.5	56.5	80.5	80.5	102.5	102.5	89.5	132.5	132.5	182.5	182.5
Absorbed current [A]	max	0.40	0.35	0.45	0.45	0.60	0.60	0.50	0.65	0.65	0.90	0.90
Dimensions	Height mm	275	275	275	275	275	275	303	303	303	303	303
	Width mm	575	575	575	575	575	575	820	820	820	820	820
	Depth mm	575	575	575	575	575	575	820	820	820	820	820

- (1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C (2) Room temperature 20°C - Water temperature: 45/40 °C
 (3) Room temperature 20°C - Water inlet temperature: 70/60°C (4) Room temperature 20°C - Water inlet temperature: 65/55°C
 (5) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.
 * Water flow values as Cooling, accordingly to the EUROVENT standards and UNI ENV 1397

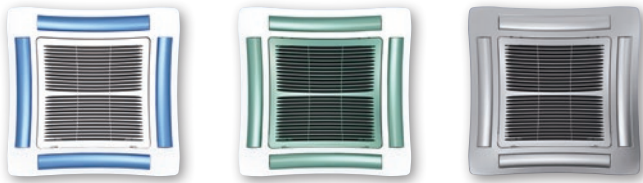


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YHK-ECM Inverter Hydro Cassette

2 and 4 pipe system

A complete range from 1.8 kW to 15.1 kW



Coloured versions available as an option

YHK ECM water cassette is the result of significant technical and design research focused on providing an avant-garde product in terms of performance, low noise and control flexibility. YHK ECM series uses an innovative brushless electric motor controlled by an inverter card that varies the air flow continuously by means of a 1-10 V signal. The extreme efficiency, also at a low speed, makes it possible to greatly reduce electrical consumption (more than 75% less in comparison to a traditional motor) with absorption values, under normal operating conditions, that are no greater than 10 Watt in the entire range.

Wired controls



T9000 Series

- **Red Dot Product Design Award Winner 2020**
- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



T7600 Series

- LCD Screen Display
- 2 or 4 pipes FCU
- On/off or proportional
- 3-speed motors or ECM motors
- Modbus RTU



Infrared control



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



Features

- Cooling duty from 1.8 to 15.1 kW
- YHK: models with infrared control (standard)
- YHK-MP: models with wired control (accessory)
- 2 (-2) & 4 (-4 or -6) pipes systems
- 3 sizes: 600 x 600, 800 x 800 & 870 x 870
- Condensate pump integrated in all range
- 2/3 way valves fitted or supplied loose in all range
- Coloured versions, possible to change the colour of the grid and the frame
- All metal parts insulated to avoid condensations
- Inverter fan motor for a very quiet operation
- Electrical consumption reduced by up to 75%
- Specific range of controllers with master-slave function
- EUROVENT Certified



Selection software

YHK-ECM Inverter Hydro Cassette

1.8 kW to 15.1 kW



ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Technical features

YHK-ECM model -2 pipes			25-2	40-2	50-2	65-2	95-2	125-2	150-2
Total cooling capacity [kW]	(1)	max 10v	2.73	4.30	4.96	6.30	10.69	12.60	15.13
		med 5v	2.16	3.04	3.85	5.13	7.69	9.43	11.38
		min 1v	1.84	2.24	2.55	4.20	5.28	6.36	7.86
Sensible cooling capacity [kW]	(1)	max	2.07	3.15	3.68	4.69	7.83	9.31	11.41
		med	1.60	2.16	2.79	3.75	5.50	6.77	8.30
		min	1.35	1.57	1.80	3.02	3.68	4.45	5.58
Water flow in cooling [l/h]	(1)	max	473	744	864	1 089	1 848	2167	2602
		med	373	524	666	885	1 328	1622	1957
		min	317	385	441	723	909	1094	1352
Pressure drop in cooling [kPa]	(1)	max	10.1	15.1	19.7	22.7	33.0	22.7	31.8
		med	6.6	9.4	12.4	15.6	18.5	13.4	18.8
		min	4.9	4.6	5.9	10.9	9.4	6.6	9.6
Heating capacity [kW]	(2)	max	2.87	4.36	5.15	6.70	10.56	13.39	16.40
		med	2.22	2.98	3.85	5.30	7.34	9.59	11.86
		min	1.85	2.12	2.46	4.27	4.90	6.18	7.82
Pressure drop in heating [kPa]	(2)	max	9.4	13.2	17.8	21.6	28.1	21.5	31.0
		med	5.9	6.6	10.6	14.2	14.6	11.8	17.3
		min	4.3	3.6	4.7	9.6	7.0	5.4	8.2
Water content [l]			1.4	2.1	2.1	3.0	4.0	4.6	4.6

YHK-ECM model -4 pipes			25-4	40-6	50-6	65-4	95-6	125-4	150-4
Total cooling capacity [kW]	(1)	max	2.75	3.90	4.47	6.48	9.76	11.61	13.59
		med	2.17	2.81	3.51	5.29	7.14	8.86	10.59
		min	1.85	2.09	2.37	4.29	4.97	6.07	7.45
Sensible cooling capacity [kW]	(1)	max	2.06	2.92	3.40	4.80	7.29	8.87	10.68
		med	1.59	2.03	2.60	3.82	5.17	6.53	7.96
		min	1.34	1.49	1.70	3.07	3.51	4.33	5.4
Water flow in cooling [l/h]	(1)	max	476	676	779	1 120	1 697	1997	2337
		med	375	483	608	908	1 233	1524	1821
		min	318	359	409	740	856	1044	1281
Pressure drop in cooling [kPa]	(1)	max	9.5	10.3	13.1	19.8	30.1	22.6	30.4
		med	6.2	5.6	8.4	13.6	17.0	13.8	19.1
		min	4.6	3.3	4.1	9.4	8.8	7.0	10.1
Heating capacity [kW]	(3)	max	3.18	2.91	3.29	8.24	8.33	10.55	12.17
		med	2.51	2.20	2.66	6.65	6.27	8.4	9.8
		min	2.13	1.73	1.92	5.41	4.58	6.01	7.19
Water flow in heating [l/h]	(3)	max	311	288	326	805	818	907	1047
		med	245	217	263	649	616	722	843
		min	209	170	189	528	449	517	618
Pressure drop in heating [kPa]	(3)	max	9.4	6.7	8.4	18.1	14.3	19.9	25.7
		med	6.1	4.1	5.7	12.3	8.6	13.2	17.4
		min	4.6	2.6	3.2	8.5	4.9	7.2	10.0

Common features			25-4	40-6	50-6	65-4	95-6	125-4	150-4
Air flow [m³/h]		max	535	710	880	1 165	1 770	1 905	2480
		med	380	445	610	870	1 130	1 290	1 650
		min	310	310	360	630	710	790	1 025
Sound power level [dB(A)]		max	47	54	60	48	57	58	64
		med	39	43	50	39	47	49	55
		min	33	33	37	33	34	38	44
Sound pressure level [dB(A)]	(4)	max	38	45	51	39	48	49	55
		med	30	34	41	30	38	40	46
		min	24	24	28	24	25	29	35
Power supply [V-ph-Hz]					230 /1 /50				
Power input [W]									
Absorbed current [A]		max	28.5	44.0	81.0	43.5	126.0	105.0	195.0
		max	0.25	0.40	0.70	0.40	1.10	0.80	1.30
Dimensions		Height mm	275	275	275	303	303	304	304
		Width mm	575	575	575	820	820	869	869
		Depth mm	575	575	575	820	820	869	869

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water temperature: 45/40 °C

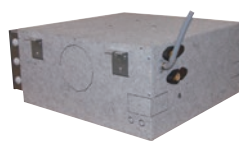
(3) Room temperature 20°C - Water inlet temperature: 65/55°C

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

* Water flow values as Cooling, accordingly to the EUROVENT standards and UNI ENV 1397



Condensate pump integrated in all sizes



Metal parts insulated to avoid condensation



2 or 3 way valves fitted or supplied loose in all sizes



Outer casing as an option to integrate the water cassette into any environment



Manufacturer reserves the rights to change specifications without prior notice.

Compatibility table / Codes

Model with AC motor (without air diffuser)		YHK 20	YHK 25	YHK 40	YHK 50	YHK 65	YHK 95	YHK 110	-	-
Cassette YHK	2 pipe system	0079100K	0079000K	0079001K	0079002K	0079003K	0079004K	0079005K	-	-
	4 pipe system	0079110K	0079010K	0079011K	0079012K	0079013K	0079014K	0079015K	-	-
Cassette YHK-MP (IR remote control and sensor NOT included)	2 pipe system	0079170K	0079171K	0079172K	0079173K	0079174K	0079175K	0079176K	-	-
	4 pipe system	0079180K	0079181K	0079182K	0079183K	0079184K	0079185K	0079186K	-	-
Cassette YHK-E - with electric resistance	2 pipe system	-	0079060K	0079061K	0079062K	0079063K	0079064K	0079065K	-	-
Cassette YHK-MP-E - with electric resistance	2 pipe system	-	0079191K	0079192K	0079193K	0079194K	0079195K	0079196K	-	-
Cassette YHK-REB with remote electric board	2 pipe system	0079120K	0079020K	0079021K	0079022K	0079023K	0079024K	0079025K	-	-
	4 pipe system	0079130K	0079030K	0079031K	0079032K	0079033K	0079034K	0079035K	-	-
Model with ECM motor (without air diffuser)		-	YHK 25	YHK 40	YHK 50	YHK 65	YHK 95	-	YHK 125	YHK 150
Cassette YHK-ECM - basic model	2 pipe system	-	0079801K	0079802K	0079803K	0079804K	0079805K	-	0079807K	0079808K
	4 pipe system	-	0079811K	0079812K	0079813K	0079814K	0079815K	-	0079817K	0079818K
Cassette YHK-MP-ECM (IR remote control and sensor NOT included)	2 pipe system	-	0079911K	0079912K	0079913K	0079914K	0079915K	-	0079917K ⁽⁶⁾	0079918K ⁽⁶⁾
	4 pipe system	-	0079921K	0079922K	0079923K	0079924K	0079925K	-	0079927K ⁽⁶⁾	0079928K ⁽⁶⁾
Cassette YHK-ECM-E - with electric resistance	2 pipe system	-	0079841K	0079842K	0079843K	0079844K	0079845K	-	0079847K	0079848K
Cassette YHK-ECM-MP-E - with electric resistance	2 pipe system	-	0079901K	0079902K	0079903K	0079904K	0079905K	-	0079907K	0079908K

Mandatory accessories (units cannot work without them)

Air diffuser - intake grid, frame and louvres in RAL 9003 white colour	AKPA 600	AKPA 800	AKPA 900
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Accessories (factory fitted)

Valves (220V On/Off)			
3 way valve + mounting kit for 2 pipe models (factory fitted)	9079510	9079511	9079923
3 way valve + mounting kit for 4 pipe models (factory fitted)	9079512	9079513	9079933
2 way valve + mounting kit for 2 pipe models (factory fitted)	9079515	9079516	9079921
2 way valve + mounting kit for 4 pipe models (factory fitted)	9079517	9079518	9079931
2 way DN 15 balance valve for main coil + connection kit (fact. fitted) *	9079771	9079791	-
2 way DN 20 balance valve for main coil + connection kit (fact. fitted) *	-	9079792	-
2 way DN 15 balance valve for additional coil + connection kit (fact. fitted) *	9079773	9079793	-

Accessories (supplied loose)

Air diffusers / Panels	
Air diffuser - other colours (*)	Contact Johnson Controls

Valves (220V On/Off)			
3 way valve + mounting kit for 2 pipe models (not fitted)	9079500	9079501	9079922
3 way valve + mounting kit for 4 pipe models (not fitted)	9079502	9079503	9079932
2 way valve + mounting kit for 2 pipe models (not fitted)	9079505	9079506	9079920
2 way valve + mounting kit for 4 pipe models (not fitted)	9079507	9079508	9079930
2 way DN 15 balance valve for main coil + connection kit (not fitted) *	9079761	9079781	-
2 way DN 20 balance valve for main coil + connection kit (not fitted) *	-	9079782	-
2 way DN 15 balance valve for additional coil + connection kit (not fitted) *	9079763	9079783	-
Other type of valves	Contact Johnson Controls		

Other Accessories			
Outer casing OCA 600	9079240	-	-
Outer casing OCA 800	-	9079250	-
3 way valve + mounting kit for units with outer casing OCA (not fitted)	9079155	9079221	-
Fresh air duct FAD	6078005	-	-
Fresh air kit 1 way not suitable for units with outer casing OCA - FAK 600	9079230	-	-
Fresh air kit 1 way not suitable for units with outer casing OCA - FAK 800	-	9079231	-
Fresh air kit 1 way not suitable for units with outer casing OCA - FAK 900	-	-	9079235
MD-600 Metal Grid	9079420	-	-
MD-800 Metal Grid	-	9079417	-

CONTROLS for YHK (AC versions)	
Remote three speed control WM-3V (1) (4)	9066642
Remote three speed control + electronic thermostat and manual S/W switch JWC-T (2)	9066630K
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (2) (3)	9066632K
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display T-MB (to be used with UPM-AU and UP-AU only) (2) (3)	9066331E
Automatic speed control with electronic thermostat to be mounted in the light wall box WM-503-AC-EC (to be used with UP-503-AC-EC only)	9066686
Electromechanical thermostat T2T (4) (5)	9060174
Power unit UPM-AU for JWC-AU and T-MB remote controls, fitted on the unit	9066641
Power unit UP-AU for JWC-AU and T-MB remote controls, not fitted on the unit	9066640
Power unit UP-503-AC-EC for WM-503-AC-EC remote control only, not fitted	9066687

Control accessories for all versions (supplied with separate packaging)	
Low temperature cut-out for control JWC-T	9053048
Low temperature cut-out for controls JWC-TQR, WM-503 and UP-AU power unit	3021090
T2 sensor to be used as Change-over for UP-AU power unit	9025310
Change-over 15-25 for control JWC-TQR	9053049
Receiver SEL2M	9079109

* For 4 pipes unit must consider both the valve for main coil than the valve for additional coil.
 (1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out.
 (3) Can be used with Change Over. (4) Not suitable with -E electric heater. (5) Not to be used with low temperature cut-out. (6) Receiver included.

Compatibility table / Codes

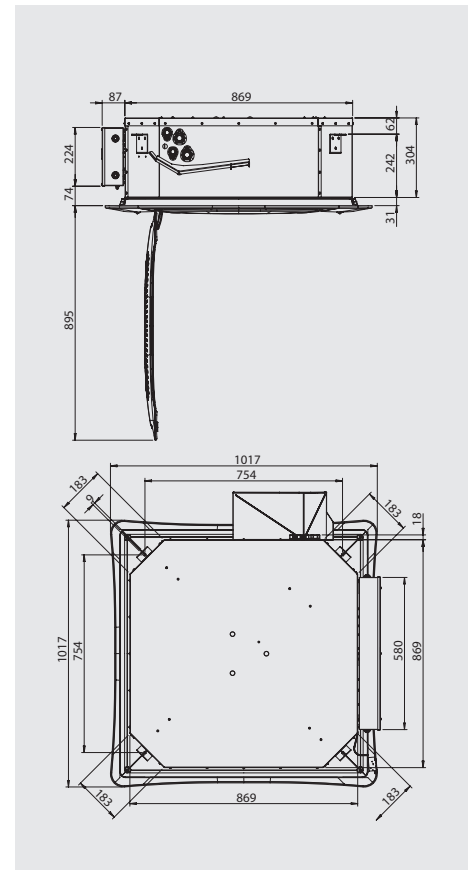
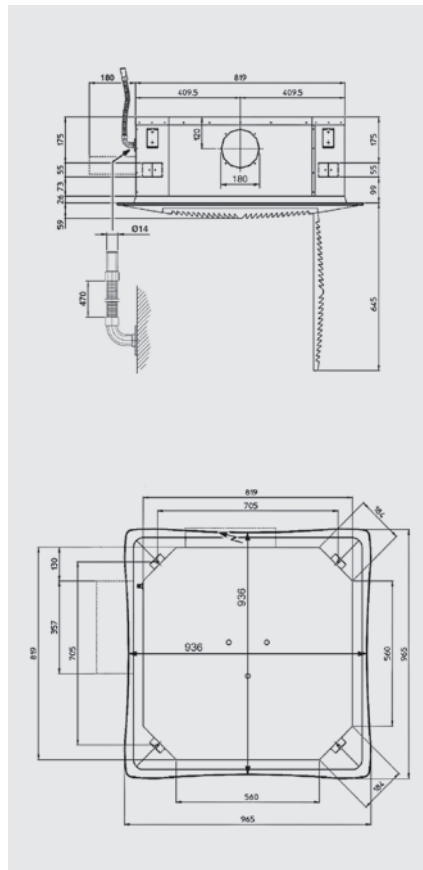
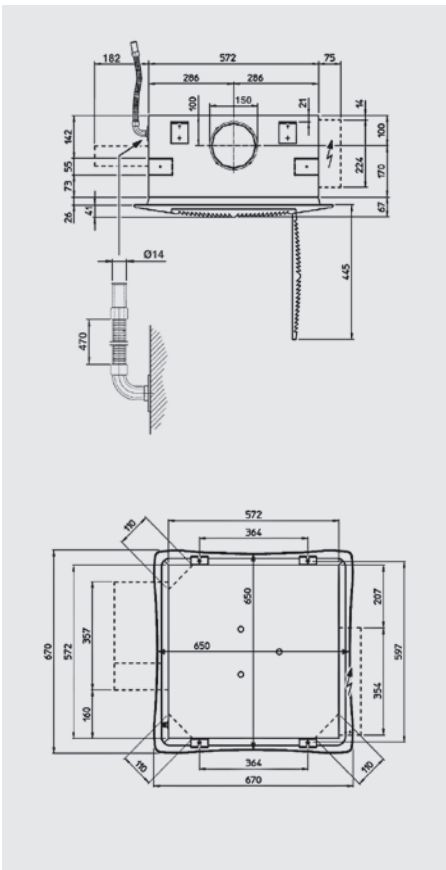
CONTROLS for YHK-MP (AC versions)	YHK 20	YHK 25	YHK 40	YHK 50	YHK 65	YHK 95	YHK 110	YHK 125	YHK 150
Wall control T-MB				9066331E					-
Wire, receiver and IR remote control kit RCS-RT03				9079117					-
Infra red remote control RT-03				3021203					-
Wire and receiver kit RCS				9079116					-
Receiver for IR remote control for metal grid MD600 and MD800 RS		9066338				9066338			-
Multifunction control PSM-DI					3021293				
T2 sensor (to be used as change over or min.temp. sensor) T2					9025310				
CONTROLS for YHK-ECM (ECM motor)									
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with UPM-AU and UP-AU only) (2) (3)		9066632K				9066632K		9066632K	
Automatic remote control with electronic thermostat, S/W switch and liquid crystall display T-MB (to be used with UPM-AU and UP-AU only) (2) (3)		9066331E				9066331E		9066331E	
WM-S-ECM Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display					9066644				
Power unit UPM-AU for JWC-AU and T-MB remote controls, fitted on the unit					9066641				
Power unit UP-AU for JWC-AU and T-MB remote controls, not fitted on the unit					9066640				
Control accessories for all versions (supplied with separate packaging)									
Low temperature cut-out for UP-AU power unit					3021090				
T2 sensor to be used as Change-over for UP-AU power unit					9025310				
CONTROLS for YHK-MP-ECM (ECM motor)									
Wall control T-MB					9066331E				
Wire, receiver and IR remote control kit RCS-RT03				9079117					-
Infra red remote control RT-03					3021203				
Wire and receiver kit RCS					9079116				
Receiver for IR remote control for metal grid MD600 and MD800 RS				9066338					-
Multifunction control PSM-DI					3021293				
T2 sensor (to be used as change over or min.temp. sensor) T2					9025310				
Management system for a network of fan coils with MB electronic board									
Hardware / software supervisory system Net					9079118				
Router-S for NET (default) or for BMS systems no provided by YORK					3021290				
Relay output board SIOS					3021292				

Dimensions

Sizes 20 to 50
(Version 600 x 600)

Sizes 65 to 110
(Version 800 x 800)

Sizes 125 to 150
(Version 870 x 870)



All dimensions in mm. Drawings not a scale.

YHVP and YHVP-ECM Hydro High Wall

2 pipe system

A range from 1.17 kW to 3.81 kW



Wired Control T9000 Series

- Red Dot Product Design Award Winner 2020
- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



Electronic Infrared Control



TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



2 Way Valve ON/OFF

with thermoelectric actuator.
Suitable for the connection with Ø 12 mm pipes

Features

- Available with standard AC motors or low energy EC motors
- Wired control or infrared control
- Automatic air sweep (-T and -MB variants only)
- Choice of 2 or 3 way valves fitted
- Condensate collection tray
- Air filter included
- Heat exchange coil
- EUROVENT Certified

Wired control (YHVP)

- 4 operation modes (Cool/Heat/Auto/Fan)
- Room temperature and setting
- Fan speed selector (Auto, low, medium and high)

Infrared control (YHVP-T)

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep Mode
- Room Temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display

Note: model shown is -T variant with automatic air sweep function

YHVP and YHVP-ECM Hydro High Wall

1.17 kW to 3.81 kW



Technical features

Model		YHVP 1	YHVP 2	YHVP 3	YHVP 4	
Total cooling capacity [kW]	(1)	max	1.85	2.16	3.00	3.76
		med	1.49	1.82	2.30	3.23
		min	1.23	1.42	1.87	2.60
Sensible cooling capacity [kW]	(1)	max	1.44	1.73	2.24	2.93
		med	1.13	1.41	1.67	2.44
		min	0.91	1.06	1.33	1.91
Heating capacity [kW]	(2)	max	2.18	2.62	3.23	4.28
		med	1.68	2.13	2.37	3.53
		min	1.34	1.58	1.89	2.73
Air flow [m³/h]		max	375	480	545	790
		med	270	365	375	610
		min	205	250	280	440
Sound power level [dB(A)]		max	48	53	48	57
		med	41	47	40	51
		min	35	39	35	43
Sound pressure level [dB(A)]	(3)	max	39	44	39	48
		med	32	38	31	42
		min	26	30	26	34
Power supply [V-ph-Hz]		230V/1ph/50Hz				
Power input [W]	max	30	32	46	48	
Absorbed current [A]	max	0.16	0.16	0.23	0.23	
Dimensions	Height	mm	322	322	322	322
	Width	mm	880	880	1 185	1 185
	Depth	mm	212	212	212	212

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 45/40°C.

(3) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

ECM the Energy Saving Technology

Brushless motor with inverter managed by dedicated controls. It permits to maintain extremely low electrical absorption and a continuous modulation of the air flow.

Technical features

Model		YHVP-ECM 1	YHVP-ECM 2	YHVP-ECM 3	YHVP-ECM 4	
Total cooling capacity [kW]	(1)	max 10v	1.98	2.24	3.27	3.72
		med 5v	1.57	1.86	2.52	3.03
		min 1v	1.16	1.46	1.82	2.33
Sensible cooling capacity [kW]	(1)	max	1.56	1.81	2.48	2.89
		med	1.19	1.45	1.85	2.27
		min	0.85	1.09	1.30	1.69
Heating capacity [kW]	(2)	max	2.35	2.74	3.57	4.20
		med	1.78	2.18	2.63	3.26
		min	1.26	1.63	1.83	2.40
Air flow [m³/h]		max	415	510	620	770
		med	290	375	420	550
		min	190	260	270	375
Sound power level [dB(A)]		max	52	55	53	57
		med	46	47	45	49
		min	35	40	37	43
Sound pressure level [dB(A)]	(3)	max	43	46	44	48
		med	37	38	36	40
		min	26	31	28	34
Power supply [V-ph-Hz]		230V/1ph/50Hz				
Power input [W]	max	15	21	20	30	
Absorbed current [A]	max	0.14	0.19	0.18	0.26	
Dimensions	Height	mm	322	322	322	322
	Width	mm	880	880	1 185	1 185
	Depth	mm	212	212	212	212

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 45/40°C.

(3) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.



Manufacturer reserves the rights to change specifications without prior notice.

Codes high wall fan coil units YHVP				
Unit without IR control without valve	YHVP 1	YHVP 2	YHVP 3	YHVP 4
Unit codes	0025001K	0025002K	0025003K	0025004K
Unit without IR control with 2 way valve	YHVP-2V 1	YHVP-2V 2	YHVP-2V 3	YHVP-2V 4
Unit codes	0025101K	0025102K	0025103K	0025104K
Unit without IR control with 3 way valve	YHVP-3V 1	YHVP-3V 2	YHVP-3V 3	YHVP-3V 4
Unit codes	0025201K	0025202K	0025203K	0025204K
Unit with IR control without valve	YHVP-T 1	YHVP-T 2	YHVP-T 3	YHVP-T 4
Unit codes	0025021K	0025022K	0025023K	0025024K
Unit with IR control with 2 way valve	YHVP-T-2V 1	YHVP-T-2V 2	YHVP-T-2V 3	YHVP-T-2V 4
Unit codes	0025121K	0025122K	0025123K	0025124K
Unit with IR control with 3 way valve	YHVP-T-3V 1	YHVP-T-3V 2	YHVP-T-3V 3	YHVP-T-3V 4
Unit codes	0025221K	0025222K	0025223K	0025224K
Unit with MB board without valve	YHVP-MB 1	YHVP-MB 2	YHVP-MB 3	YHVP-MB 4
Unit codes	0025011K	0025012K	0025013K	0025014K
Unit with MB board with 2 way valve	YHVP-MB-2V 1	YHVP-MB-2V 2	YHVP-MB-2V 3	YHVP-MB-2V 4
Unit codes	0025111K	0025112K	0025113K	0025114K
Unit with MB board with 3 way valve	YHVP-MB-3V 1	YHVP-MB-3V 2	YHVP-MB-3V 3	YHVP-MB-3V 4
Unit codes	0025211K	0025212K	0025213K	0025214K
Unit without IR control without valve with electrical coil	YHVP-E 1	YHVP-E 2	YHVP-E 3	YHVP-E 4
Unit codes	0025031K	0025032K	0025033K	0025034K
Unit without IR control with 2 way valve with electrical coil	YHVP-E-2V 1	YHVP-E-2V 2	YHVP-E-2V 3	YHVP-E-2V 4
Unit codes	0025131K	0025132K	0025133K	0025134K
Unit without IR control with 3 way valve with electrical coil	YHVP-E-3V 1	YHVP-E-3V 2	YHVP-E-3V 3	YHVP-E-3V 4
Unit codes	0025231K	0025232K	0025233K	0025234K
Unit with IR control without valve with electrical coil	YHVP-T-E 1	YHVP-T-E 2	YHVP-T-E 3	YHVP-T-E 4
Unit codes	0025041K	0025042K	0025043K	0025044K
Unit with IR control with 2 way valve with electrical coil	YHVP-T-E-2V 1	YHVP-T-E-2V 2	YHVP-T-E-2V 3	YHVP-T-E-2V 4
Unit codes	0025141K	0025142K	0025143K	0025144K
Unit with IR control with 3 way valve with electrical coil	YHVP-T-E-3V 1	YHVP-T-E-3V 2	YHVP-T-E-3V 3	YHVP-T-E-3V 4
Unit codes	0025241K	0025242K	0025243K	0025244K
Unit with MB board without valve with electrical coil	YHVP-MB-E 1	YHVP-MB-E 2	YHVP-MB-E 3	YHVP-MB-E 4
Unit codes	0025051K	0025052K	0025053K	0025054K
Unit with MB board with 2 way valve with electrical coil	YHVP-MB-E-2V 1	YHVP-MB-E-2V 2	YHVP-MB-E-2V 3	YHVP-MB-E-2V 4
Unit codes	0025151K	0025152K	0025153K	0025154K
Unit with MB board with 3 way valve with electrical coil	YHVP-MB-E-3V 1	YHVP-MB-E-3V 2	YHVP-MB-E-3V 3	YHVP-MB-E-3V 4
Unit codes	0025251K	0025252K	0025253K	0025254K

Controls	
WM-3V Wall control	9066642
JWC-T Wall control	9066630K
JWC-TQR Wall control	9066631K
T2T Wall control	9060174
T-MB Wall control (to be used with MB board only)	9066331E
RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)	9025301
RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)	3021203
Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)	9025300
PSM-DI Multifunction control (to be used with MB board only)	3021293
SEL-CVP Speed switch for controls: JWC-T and JWC-TQR	9025302
Electronic control accessories	
NTC low temperature cut-out thermostat for control JWC-TQR	3021090
TMM low temperature cut-out thermostat for control JWC-T	9053048
Change-Over CH 15-25 for control JWC-TQR	9053049
T2 Sensor (to be used as change-over or low temperature cut-out - for MB only)	9025310
Management system for a network of fan coils with MB electronic board	
Hardware / software supervisory system Net	9079118
Router-S for NET (default) or for BMS systems no provided by YORK	3021290
Relay output board SIOS	3021292

Codes high wall fan coil units YHVP-ECM

Unit without IR control without valve	YHVP-ECM 1	YHVP-ECM 2	YHVP-ECM 3	YHVP-ECM 4
Unit codes	0025501K	0025502K	0025503K	0025504K
Unit without IR control with 2 way valve	YHVP-ECM-2V 1	YHVP-ECM-2V 2	YHVP-ECM-2V 3	YHVP-ECM-2V 4
Unit codes	0025601K	0025602K	0025603K	0025604K
Unit without IR control with 3 way valve	YHVP-ECM-3V 1	YHVP-ECM-3V 2	YHVP-ECM-3V 3	YHVP-ECM-3V 4
Unit codes	0025701K	0025702K	0025703K	0025704K
Unit with IR control without valve	YHVP-ECM-T 1	YHVP-ECM-T 2	YHVP-ECM-T 3	YHVP-ECM-T 4
Unit codes	0025521K	0025522K	0025523K	0025524K
Unit with IR control with 2 way valve	YHVP-ECM-T-2V 1	YHVP-ECM-T-2V 2	YHVP-ECM-T-2V 3	YHVP-ECM-T-2V 4
Unit codes	0025621K	0025622K	0025623K	0025624K
Unit with IR control with 3 way valve	YHVP-ECM-T-3V 1	YHVP-ECM-T-3V 2	YHVP-ECM-T-3V 3	YHVP-ECM-T-3V 4
Unit codes	0025721K	0025722K	0025723K	0025724K
Unit with MB board without valve	YHVP-ECM-MB 1	YHVP-ECM-MB 2	YHVP-ECM-MB 3	YHVP-ECM-MB 4
Unit codes	0025511K	0025512K	0025513K	0025514K
Unit with MB board with 2 way valve	YHVP-ECM-MB-2V 1	YHVP-ECM-MB-2V 2	YHVP-ECM-MB-2V 3	YHVP-ECM-MB-2V 4
Unit codes	0025611K	0025612K	0025613K	0025614K
Unit with MB board with 3 way valve	YHVP-ECM-MB-3V 1	YHVP-ECM-MB-3V 2	YHVP-ECM-MB-3V 3	YHVP-ECM-MB-3V 4
Unit codes	0025711K	0025712K	0025713K	0025714K
Unit without IR control without valve with electrical coil	YHVP-ECM-E 1	YHVP-ECM-E 2	YHVP-ECM-E 3	YHVP-ECM-E 4
Unit codes	0025531K	0025532K	0025533K	0025534K
Unit without IR control with 2 way valve with electrical coil	YHVP-ECM-E-2V 1	YHVP-ECM-E-2V 2	YHVP-ECM-E-2V 3	YHVP-ECM-E-2V 4
Unit codes	0025631K	0025632K	0025633K	0025634K
Unit without IR control with 3 way valve with electrical coil	YHVP-ECM-E-3V 1	YHVP-ECM-E-3V 2	YHVP-ECM-E-3V 3	YHVP-ECM-E-3V 4
Unit codes	0025731K	0025732K	0025733K	0025734K
Unit with IR control without valve with electrical coil	YHVP-ECM-T-E 1	YHVP-ECM-T-E 2	YHVP-ECM-T-E 3	YHVP-ECM-T-E 4
Unit codes	0025541K	0025542K	0025543K	0025544K
Unit with IR control with 2 way valve with electrical coil	YHVP-ECM-T-E-2V 1	YHVP-ECM-T-E-2V 2	YHVP-ECM-T-E-2V 3	YHVP-ECM-T-E-2V 4
Unit codes	0025641K	0025642K	0025643K	0025644K
Unit with IR control with 3 way valve with electrical coil	YHVP-ECM-T-E-3V 1	YHVP-ECM-T-E-3V 2	YHVP-ECM-T-E-3V 3	YHVP-ECM-T-E-3V 4
Unit codes	0025741K	0025742K	0025743K	0025744K
Unit with MB board without valve with electrical coil	YHVP-ECM-MB-E 1	YHVP-ECM-MB-E 2	YHVP-ECM-MB-E 3	YHVP-ECM-MB-E 4
Unit codes	0025551K	0025552K	0025553K	0025554K
Unit with MB board with 2 way valve with electrical coil	YHVP-ECM-MB-E-2V 1	YHVP-ECM-MB-E-2V 2	YHVP-ECM-MB-E-2V 3	YHVP-ECM-MB-E-2V 4
Unit codes	0025651K	0025652K	0025653K	0025654K
Unit with MB board with 3 way valve with electrical coil	YHVP-ECM-MB-E-3V 1	YHVP-ECM-MB-E-3V 2	YHVP-ECM-MB-E-3V 3	YHVP-ECM-MB-E-3V 4
Unit codes	0025751K	0025752K	0025753K	0025754K

Controls

WM-S-ECM continuous fan speed control with S/W switch and liquid crystal display	9066644
T-MB Wall control (to be used with MB board only)	9066331E
RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)	9025301
RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)	3021203
Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)	9025300
PSM-DI Multifunction control (to be used with MB board only)	3021293
Electronic control accessories	
T2 Sensor (to be used as change-over or low temperature cut-out - for MB only)	9025310
Management system for a network of fan coils with MB electronic board	
Hardware / software supervisory system Net	9079118
Router-S for NET (default) or for BMS systems no provided by YORK	3021290
Relay output board SIOS	3021292

YORK Close Control units

Maintaining a constant temperature, purity and humidity of air is essential for ensuring a stable environment for critical electronic and computer equipment, this is why there is the need for close control air conditioning. Unlike comfort air conditioning, close control systems must operate constantly 24/7 requiring high reliability and minimal power consumption. Johnson Controls knows that no two close control requirements are the same, this is why the YORK range of custom close control units offers quiet, compact and energy efficient equipment that can be configured to needed requirements.



An extensive offering

- cooling capacities of **up to 160 kW (chilled water) or 94 kW (direct expansion)** with optional free cooling models. Up flow or down flow configuration, either as self-contained packaged units or suitable for connection to remote condensers, are also available
- **optional direct expansion units** fitted with scroll compressors, which have much lower noise and energy consumption than reciprocating compressors
- **R410A** refrigerant units available
- optional **Free Cooling coil** to reduce energy consumption required through use of mechanical cooling
- plug fan with **Electronically Commuted 'EC' fans** option, to allow fully modulating control of airflow
- **low component face velocities**, for a lower total pressure drop and reduced energy consumption
- **minimised dimensions**, enabling one of the market's greatest ratios between sensible cooling capacity and base foot print



YORK YC-P Series Close Control Air Conditioners

A complete range from 8.2 kW up to 160 kW



High energy efficiency and minimum environmental impact

"P" Series air conditioners for close control applications are specialised machines with design and operating features which clearly differentiate them from standard air conditioning units.

The **"P" Series** air conditioners offer very high energy efficiency values in all operating conditions which translates into less CO₂ emissions and particularly low running costs. Though optimised for use in data centers and telephone exchanges, they are equally valid in special applications such as measurement laboratories, TV recording studios, museums, control rooms for electricity power stations and railway junctions and other areas where there are prevalent sensible thermal loads and crowding is negligible.

Their application is also ideal in widely varied industrial sectors: optics, electronics, electromedical equipment, electronic equipment production, musical instrument production etc.

Optimal efficiency

Johnson Controls' **"P" Series** design offers the highest sensible cooling capacity with the minimum footprint possible, which translates into optimal ratio levels of cooling capacity to footprint area. This is an important feature in reducing the space needed by machinery, allowing more room in the space for IT equipment. This advantage is especially important given the progressive increases in capacity required by data centers and other computer applications which, over time, need the addition of extra air conditioners.

Clean efficiency is also ensured by the use of the R410A refrigerant, respectful to the ozone layer.

Features and performance

Brushless DC compressors with inverter technology

- Adapting cooling capacity to the real requirements of the plant is one of the principal conditions of guaranteeing the flexibility required by the most advanced systems. By incorporating **BRUSHLESS DC INVERTER** technology into the compressors it is possible to maximize the performance of the motor, especially at partial loads, the control of which is integrated in the microprocessor.
- The cooling coils of the downflow units (**YC-UP**), both in chilled water and direct expansion versions, have aluminium fins with a hydrophilic treatment that alleviates the risk of condensation and the coil face being covered with water, which would compromise the thermal performance and therefore the air conditioning capacity.
- The use of the environmentally friendly refrigerant HFC R410A does not contribute to the depletion of the ozone layer.
- Thanks to its larger surface area, the filter on the coil allows lower face velocity, which results in lower pressure drop.
- The lower energy consumption of these air conditioners, at the same efficiency, results in a much reduced TEWI (Total Equivalent Warming Impact). The application of EC plug fans reduces both energy consumption and noise levels.

Microprocessor regulation

The Standard digital microprocessor

- allows management of all typical air-conditioning functions: cooling, heating, humidification, dehumidification and filtering
- ensures a regular and optimised operation as to both performance and consumption, providing as well alarm management and self-diagnosis.

Cooling circuit

The air conditioners with direct expansion coil have a frigorific circuit equipped with: scroll compressor with all necessary protective devices, high pressure (manual reset) and low pressure (automatic reset) switches, dehydrating filter with refrigerant sight glass.

YC-OPA, YC-UPA models for pairing with remote condensers, are already equipped with a pressurisation nitrogen charge. The refrigerant charge, and the oil top-up (if required), shall be made by the installer on site.

YC-OPA and **YC-UPA** air conditioners in self-contained packaged format with built-in water-cooled condensers (accessory), are supplied with full refrigerant and oil charge.

Local network management or remote control

YORK YC-P Series air conditioners are capable of standalone operation, local private network with multiple units (up to 12) or fully integrated with Metasys Building Management System from Johnson Controls.

The **YORK YC-P Series** are equipped with an innovative local network monitoring (LAN) system that simplifies management, simplifies maintenance, and optimizes operational safety.

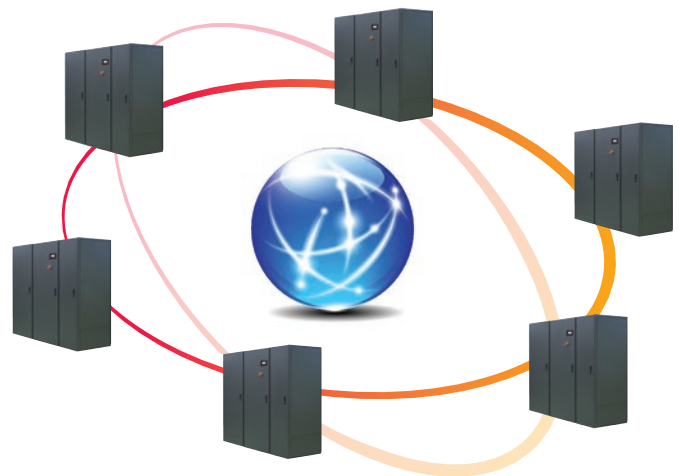
The innovative smart net system allows to revolutionize the local network concept. In fact, taking advantage of the modulation capabilities of the components, this system allows you to actively share the workload between all units in the local network.

Thanks to the breakdown of the workload, it is possible to increase the efficiency of the system by partially requesting the main components such as fans, compressors, electric batteries and humidifiers.

This partitioning translates directly into energy savings of up to 60% compared to redundant networks. In fact, instead of having active units that work 100% of their performance while one (or more) machines are stationary, the smart net system allows the entire unit group to have 50 or 60% of their maximum workload.

In remote applications, the machines can be controlled from remote positions interfacing with common Building Management Protocols such as BacNET, LON and Modbus, either via GSM Modem or TCP/IP Internet Protocol.

For total integration with Johnson Control Metasys Building Management Systems (BMS) the units are equipped with an RS485 card working with BacNET MS/TP protocol.



Manufacturer reserves the rights to change specifications without prior notice.

Electronic expansion valve

Electronic expansion valves are one of the most recent pieces of equipment that enable us to improve the energy efficiency at partial loads of direct expansion machines. These valves are installed at the inlet of the evaporator, substituting the traditional thermostatic expansion ones: this allows more precise control of the quantity of refrigerant entering the evaporator, and guarantees good capacity regulation, typically between 100% and 50%. Electronic expansion valves also allows control of the amount of overheated gas at the outlet of the evaporator, thus allowing a significant reduction of the condensation pressure during winter or night-time operation whilst maintaining the evaporation pressure unchanged. Adoption of the electronic expansion valve (optional) guarantees a significant increase of the EER values.

One or two completely independent compressors

Models with "1" as the last digit of the unit model number have a single circuit and a single compressor. Those with "2" as the last digit on the other hand have two completely independent refrigerant circuits and two compressors.

The circuits are fitted with all the safety and regulation devices necessary for efficient and reliable operation.

The evaporator coil can be single or double circuit depending on the number of compressors.

Hydraulic circuit

Air conditioners with chilled water coil, **YC-OPU** and **YC-UPU**, include a finned coil and a three-way motorised valve for water flow regulation. The hydraulic circuit is provided with copper tubes. The coils are optimised for both water with a temperature of 7/12 and for higher ones such as 15/20.

Modulating regulation of the cooling capacity

If a very precise regulation and high response speed are required, a modulating valve is installed as standard. This valve is recommended in case of functionment with a lot of fresh air.

Control Panel

All the units are equipped with a complete control panel with main isolator switch. Magnetothermic switches, contactors, and all necessary protection is provided, as required by legal codes and standards.

The control panel of the units equipped with compressors ("A" as third letter of the identification code) has as standard a phase sequencer, which prevents the compressor from getting damaged when counter running. Also, the control panel has 4 configurable input and output for remote signalling, as well as two terminals for starting up and stopping the unit from remote position.

The condenser fan speed controller (accessory) is installed in the unit and controlled with a 0-10V signal from the microprocessor. All the control parameter are managed by the microprocessor.

The controller is valid for all the AC 230V motors.

EC fans control and power lines available as alternatives.



Modulating controller display and keypad

Large surface filters

The units are equipped with self-extinguishing media class G4 filters. The filters are installed inclined before the cooling coil in order to offer a larger surface and allow lower air crossing speeds, with lower energy consumption.

M5 or F7 filters ON COILS available as accessories.

Design suitable to civil environments

YORK YC-P Series air conditioners have a pleasant and functional design, suitable for installation in civil environments. Their structure consists of aluminium profiles and closing panels hinged on them. Both panels and profiles are epossidic painting RAL 7024.

Two versions are available for up flow units (**YC-OP**): front grille & top air discharge (standard), or blind front panel, suction from the bottom and top discharge (optional).

Fan section

New generation of electronic fans

The ever-growing necessity to save energy has made the use of high-performance EC Plug Fans indispensable in reducing plant costs. The fans installed in **YC-P** close control air conditioners are fitted with **BRUSHLESS EC** (Electronically Commutated) **MOTORS** and a composite-material impeller to maximize performance.

Important advantages obtained as a result include:

- Power drawn by the fans is reduced by over 25% compared to fans using traditional AC technology.
- Power drawn by the fans is reduced by about 15% compared to the previous generation of EC fans.
- Noise levels are reduced by over 5 dB(A) at partial loads.
- Risk to the plant is reduced as the mechanical parts are subjected to less use.

Thanks to integration with the microprocessor, the EC fans can be controlled to:

- Reduce rotation speed and therefore air quantity as the cooling capacity requirement decreases, thus making possible a 50% energy saving, operating at partial loads, compared to a constant velocity system.
- Maintain constant air quantity controlled in real time by differential pressure sensors, optimal control if F7 filters are installed.
- Maintain constant air pressure in the raised floor or in the compartmented areas in order to optimize air distribution avoiding hot spots and guarantee maximum modularity of the plant.

Downflow supply (UPA-UPU models)



Standard version with suction with upper air intake and downflow, with raised floor stand.



Suction with upper air intake and front air outlet with distribution plenum with adjustable grilles.



Suction with upper air intake and front air delivery with grid front panel.

Regulation Options

Johnson Controls provides four different alternatives for the regulation of the airflow of the EC fans depending on the requirements of the installation:

1. Constant fan rotation speed. The available high static pressure is ideal for most applications. The effective air flow depends on the real pressure drop of the aerodynamic system of the installation, however it can be calculated through Johnson Controls computerised selection program.
2. Constant airflow independent of the pressure drop of the system. In order to maintain a constant airflow, an internal sensor guides the microprocessor management system to vary the airflow handled by the fan, depending on the degree of the system. This ensures that insufficient cooling does not occur due to reduced airflow arising from dirty filters.
3. Variable airflow depending on the cooling capacity required by the installation. This is the classic VAV (Variable Air Volume) plant arrangement which responds to increased demand by a proportionate increase in airflow and vice versa. This type of plant offers interesting energy advantages at partial loads, which occur extensively throughout the year, especially at night.
4. Airflow as a function of pressure in the raised floor. This regulation alternative is envisaged for plants with raised floors where the air is distributed under the floor itself. The microprocessor management system maintains constant under-floor pressure. In particular, in very large areas subdivided into multiple local zones with partition dampers driven by individual thermostats, constant regulation of the pressure is necessary to avoid imbalances in the distribution of the air.

Upflow supply (OPA-OPU models)



Standard version with front air intake and upflow air delivery.



Front air intake and front air outlet delivery with distribution plenum with adjustable grilles.



Bottom air intake with raised floor support, blind front panel and upflow air delivery.

Special versions

“Water to air free cooling”: using renewable energy sources

YC-OPA.../FC, YC-UPA.../FC air conditioners are equipped with a “Free cooling” system consisting of an additional chilled-water cooling coil integrated in the aluminium fins of the unit’s direct expansion one, with a three-way modulating valve controlled by the controller. As long as the outside conditions allow the water to respond totally or partially to the cooling request, the controller cuts out or minimises the compressors’ intervention, so reducing substantially the energy consumption.

The water cooled condensers of the frigorific circuit are equipped with a pressostatic system for the regulation of the condensing pressure (flooding valves).

The pumps and the expansion tank are not included in Johnson Control’s supply. The system widely uses the outdoor air—a renewable energy source—in lieu of or in addition to the mechanical cooling.

‘Two Sources’ option utilising excess energy from building HVAC systems

This system consists of the same chilled-water cooling coil as the “Free cooling”, but fed by the building water chiller. A built in frigorific circuit enters in operation in case of lack of chilled water. The result is the maximum security or a remarkable reduction of both consumption and running costs. This system can also use the direct-expansion coil circuit as primary cooling source and, in case of an emergency, the chilled-water coil connected with the tap water network.

The “Two Sources” version is available for units with direct expansion circuit **YC-OPA..../TS, YC-UPA..../TS** as well as units with built in water cooled condenser (accessory) and with double chilled water coil **YC-OPU.../TS, YC-UPU.../TS**: one for district water and the other for tap water or water from a chiller (emergency).

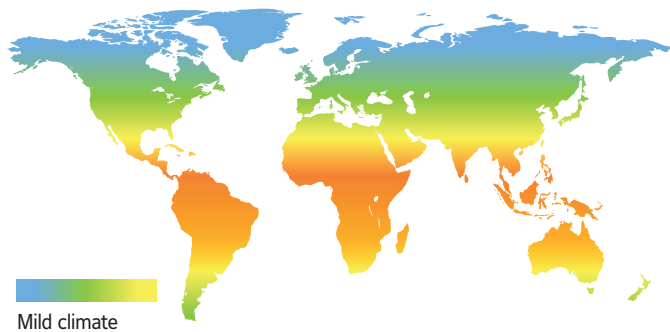
Focus on Free Cooling

High energy saving air conditioning unit

Using renewable energy sources is required to reduce the environmental impact of systems. Our innovative free cooling systems are able to achieve energy savings of over 50% compared to a conventional air conditioner.

Free Cooling from renewable sources

Using **outside air to cool environments** is the primary source of energy savings available in temperate climate areas.



YORK can now offer a range of **FREE COOLING** close control air conditioning units which ensure high energy savings combined with the efficiency and reliability that distinguish this type of product.

Intelligent energy saving

The high number of hours per year in which **FREE COOLING** systems can be used ensures that the air conditioning system energy consumption can be **reduced by over 50%**.

This is reflected in an immediate environmental sustainability increase, thanks to a significant reduction in CO2 emissions, and the system operating costs.

Free Cooling operating hours per year

	Amsterdam	Athens	Belgrade	Berlin	Brussels
Nbr. hours(1)	5,641	4,491	5,105	5,583	5,545
% (2)	64%	51%	58%	64%	63%

	Bucharest	Budapest	Copenhagen	Dublin	Helsinki
Nbr. hours(1)	5,503	5,279	5,861	7,161	5,796
% (2)	63%	60%	67%	82%	71%

	Istanbul	London	Madrid	Milan	Moscow
Nbr. hours(1)	4,779	5,575	4,643	5,281	6,046
% (2)	55%	64%	53%	60%	71%

	Oslo	Paris	Prague	Reykjavik	Vienna
Nbr. hours(1)	6,202	5,187	5,619	7,743	5,651
% (2)	73%	59%	64%	88%	65%

(1) Number of hours with temperatures lower than or equal to 18°C.
 (2) Percentage calculated on a total of 8,760 hours per year.

Indirect Free Cooling

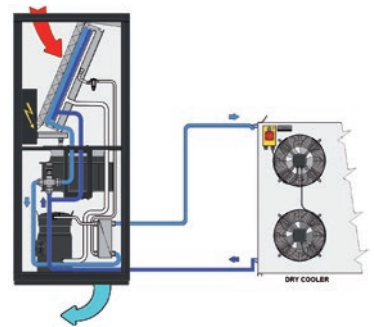
The indirect **FREE COOLING** system is characterised by a **hybrid unit**, consisting of a primary water circuit and a secondary direct expansion or chilled water circuit. The primary water circuit is connected to a dry cooler that uses outside air – a source of renewable energy – to cool water. The secondary circuit on the other hand exploits the mechanical cooling.

Optimised operating procedures

Depending on the outside air temperatures, three possible operating procedures are possible:

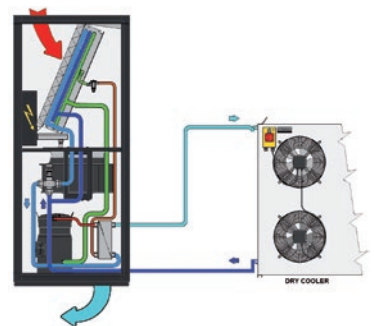
Total Free Cooling

The unit completely operates in **FREE COOLING** without triggering mechanical cooling.



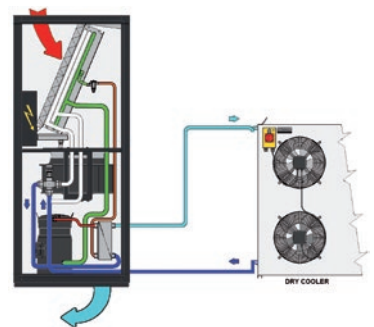
Partial Free Cooling

In addition to operating the **FREE COOLING** circuit, mechanical cooling can be triggered for the time strictly necessary to meet the demand for cooling.



No Free Cooling

Regulation is completely entrusted to mechanical cooling, excluding the **FREE COOLING** circuit.



Self-adaptive set-point of the dry cooler

In order to maximise the efficiency of the **FREE COOLING** system, the unit can handle the regulation of the dry cooler coupled to it directly. **Thanks to the self-adaptive set-point function, the fan speed can be regulated so that the water always has a temperature consistent with the outside air conditions.**

This leads to an **increase in the system efficiency**, allowing you to maximise the performance of both the **FREE COOLING** circuit and the direct expansion circuit, ensuring low condensing temperatures. In addition, the fans of the dry cooler will partially operate even with high temperatures, thereby increasing the energy savings of the system.

Focus on Two Sources

Dual circuit system

Some critical applications often require safety devices that prevent discontinuity of operation due to system failure. To allow for such an eventuality, YORK can offer **“Two Source” systems provided with two totally independent cooling sources.**

High operational safety

In an air conditioning system, the main cooling source may be insufficient to guarantee suitable environmental conditions. This may be due to an overload of the system, maintenance, possible seasonal closures or any type of emergency that may arise.

A reduction in the machine cooling capacity can lead to great instability in the system, reducing the ability to control the system thermo-hygrometric conditions.

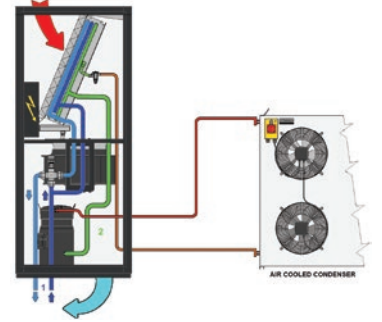
So as to avoid these problems, specific **TWO SOURCES (TS)** units have been developed providing a second source of cooling, complete with its own control valve and totally independent from the primary one.

A safe, flexible system

The Two Sources system is very flexible and allows three different types of systems:

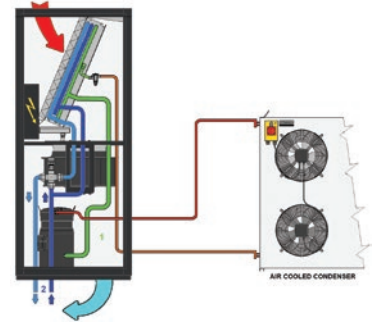
Chilled water + direct expansion Two Sources

The chilled water primary source of the unit is connected to a building chiller or to District Cooling, whereas the secondary, emergency, and direct expansion one is connected to remote air or in-built water condensers.



Direct expansion + chilled water Two Sources

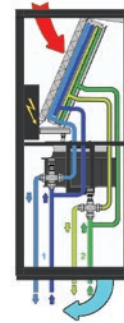
The direct expansion primary source of the unit is connected to remote air or in-built water condensers, whereas the secondary, emergency, and water one is connected to a dedicated chiller, to a groundwater/aqueduct water distribution network or to District Cooling.



Chilled water + chilled water Two Sources

Both sources of the unit are chilled water coils. The primary one is normally connected to a building chiller or to District Cooling.

The emergency source can be connected to a dedicated chiller or a groundwater/aqueduct water distribution network.



Fittings and accessories

Numerous accessories and options are available for the **"P"** Series air conditioners to personalise the installation depending on the requirements of the plant and its design. Divided by function, they include:

Free cooling or two sources

- Additional Free cooling circuit.
- Additional Two sources circuit.

Alarms

- Water alarm (supplied loose).
- Out-of-range air discharge temperature alarm (standard).
- Smoke/fire alarm terminals (standard).

Water cooled condensers and pressostatic valves

- Welded stainless steel water cooled plate condenser.
- 2 way modulating valve (only if the water condenser is selected).

Sound proofing devices

- Sound damped duct for air suction or discharge (h=550 mm). Allows a reduction of approx 4 dB(A) of the SPL of the unit.

Panels and base

- Blind front panel (OP) and open base for bottom air intake.
- Front panel with grille in the lower part (UP) and closed base.

Plenum

- Plenum (h=550 mm) for air discharge or intake with adjustable grille.

Direct expansion unit cooling capacity regulation

- Electronic expansion valve (standard).
- INVERTER compressor available.

Heating, reheating and humidification

- Single-step or double-step low thermal inertia electrical heating/reheating coil.
- Immersed-electrode modulating humidifier and dehumidification control.
- Humidity sensor for the single control of dehumidification.
- Humidity sensor and control signal for external humidification control not supplied by Johnson Controls.

Boards and sensors

- RS 485 communication board.

Dampers

- Gravity-operated overpressure dampers on the air outlet (OP series).
- Motorised overpressure dampers on the air intake (UP series).

Under bases

- Adjustable under base (OP only).
- Adjustable under base with air deflector (UP only).

Fans and filters

- Electronic EC fans with incorporated inverter for constant rotation speed regulation (standard).
- Electronic EC fans with incorporated inverter for the regulation of air flow in relation to the required cooling capacity (standard).
- Electronic EC fans with incorporated inverter for the regulation of constant pressure in the raised floor.
- M5 or F7 on the COIL.
- Monophase condenser-fan rotation speed variator

Performance at Johnson Controls test conditions*

Technical Characteristics

YC-OPA: direct expansion air conditioners with air cooled or water condensers and up-flow air supply															
Models		71	141	211	251	301	321	322	361	461	422	512	662	852	932
Performances															
Total cooling capacity	kW	8.2	14.7	21.0	26.1	33.2	35.2	33.8	38.1	48.1	43.7	54.8	67.3	84.4	94.4
Sensible cooling capacity	kW	7.9	12.9	21.0	25.2	32.0	35.2	33.8	38.1	46.8	43.7	52.2	66.2	73.7	86.3
EER		3.83	3.40	3.30	3.25	3.17	3.13	3.34	3.57	3.63	3.47	3.45	3.26	3.27	3.64
Airflow	m³/h	2 200	3 200	7 000	7 000	8 700	12 000	12 000	14 000	14 000	14 000	14 000	18 000	17 000	21 000
Sound pressure level	dB(A)	51	59	56	57	60	67	67	58	58	58	59	61	61	61
Dimensions & weight															
Lenght	mm	750	750	860	860	1 410	1 410	1 410	1 750	1 750	1 750	1 750	2 300	2 300	2 640
Depth	mm	601	601	880	880	880	880	880	880	880	880	880	880	880	880
Height	mm	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990
Net weight	kg	170	225	280	305	320	385	430	460	470	535	540	685	705	745
Air free cooling		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Water free cooling		○	○	○	○	○	●	○	○	●	○	○	●	●	○
Two Sources		○	○	●	○	●	●	○	○	●	○	●	●	●	●

* Performance refers to: R410A refrigerant; condensing temperature 45°C; incoming air 24°C-45%Rh; water 7/12°C; external static pressure 30 Pa. The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.
 EER (Energy Efficiency Ratio) = total cooling capacity / compressors power consumption + fans power consumption (air cooled condensers excluded).
 Sound levels at a 2 m distance, in a free field, as per UNI EN ISO 3744:2010.

Technical Characteristics

YC-UPA: direct expansion air conditioners with air cooled or water condensers and down-flow air supply															
Models		71	141	211	251	301	321	322	361	461	422	512	662	852	932
Performances															
Total cooling capacity	kW	8.2	14.7	21.0	26.1	33.2	35.2	33.8	38.1	48.1	43.7	54.8	67.3	84.4	94.4
Sensible cooling capacity	kW	7.9	12.9	21.0	25.2	32.0	35.2	33.8	38.1	46.8	43.7	52.2	66.2	73.7	86.3
EER		3.83	3.40	3.30	3.25	3.17	3.13	3.34	3.57	3.63	3.47	3.45	3.26	3.27	3.64
Airflow	m³/h	2 200	3 200	7 000	7 000	8 700	12 000	12 000	14 000	14 000	14 000	14 000	18 000	17 000	21 000
Sound pressure level	dB(A)	51	59	56	57	60	67	67	58	58	58	59	61	61	61
Dimensions & weight															
Lenght	mm	750	750	860	860	1 410	1 410	1 410	1 750	1 750	1 750	1 750	2 300	2 300	2 640
Depth	mm	601	601	880	880	880	880	880	880	880	880	880	880	880	880
Height	mm	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990
Net weight	kg	170	225	280	305	320	385	430	460	470	535	540	685	705	745
Air free cooling		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Water free cooling		○	○	○	○	○	●	○	○	●	○	○	●	●	○
Two Sources		○	○	●	○	●	●	○	○	●	○	●	●	●	●

* Performance refers to: R410A refrigerant; condensing temperature 45°C; incoming air 24°C-45%Rh; water 7/12°C; external static pressure 30 Pa. The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.
 EER (Energy Efficiency Ratio) = total cooling capacity / compressors power consumption + fans power consumption (air cooled condensers excluded).
 Sound levels at a 2 m distance, in a free field, as per UNI EN ISO 3744:2010.

Performance at JOHNSON CONTROLS test conditions*

Technical Characteristics

YC-OPU: with chilled water coil and up-flow air supply											
Models		10	20	30	50	60	70	80	110	160	220
Performances											
Total cooling capacity	kW	9.9	17.2	30.4	41.0	52.8	63.1	65.4	80.0	110.0	160.0
Sensible cooling capacity	kW	9.3	14.9	27.8	36.2	47.4	54.2	61.8	73.0	99.7	146.0
EER		38.26	29.13	30.00	24.53	22.75	24.17	24.79	24.29	29.33	24.17
Airflow	m ³ /h	2 200	3 200	7 000	8 000	12 000	12 000	16 000	17 000	24 000	36 000
Sound pressure level	dB(A)	51	59	56	60	67	68	61	61	62	65
Dimensions & weight											
Lenght	mm	750	750	860	860	1 410	1 410	1 750	1 750	2 640	3 495
Depth	mm	601	601	880	880	880	880	880	880	880	880
Height	mm	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990
Net weight	kg	125	150	245	250	270	280	375	410	690	810
Water free cooling		○	○	○	●	○	●	○	●	●	○
Two Sources		○	○	○	●	○	●	○	●	●	○

* Performance refers to: R410A refrigerant; condensing temperature 45°C; incoming air 24°C-45%Rh; water 7/12°C; external static pressure 30 Pa. The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.

EER (Energy Efficiency Ratio) = total cooling capacity / compressors power consumption + fans power consumption (air cooled condensers excluded).

Sound levels at a 2 m distance, in a free field, as per UNI EN ISO 3744:2010.

Technical Characteristics

YC-UPU: with chilled water coil and down-flow air supply											
Models		10	20	30	50	60	70	80	110	160	220
Performances											
Total cooling capacity	kW	9.9	17.2	30.4	41.0	52.8	63.1	65.4	80.0	110.0	160.0
Sensible cooling capacity	kW	9.3	14.9	27.8	36.2	47.4	54.2	61.8	73.0	99.7	146.0
EER		38.26	29.13	30.00	24.53	22.75	24.17	24.79	24.29	29.33	24.17
Airflow	m ³ /h	2 200	3 200	7 000	8 000	12 000	12 000	16 000	17 000	24 000	36 000
Sound pressure level	dB(A)	51	59	56	60	67	68	61	61	62	65
Dimensions & weight											
Lenght	mm	750	750	860	860	1 410	1 410	1 750	1 750	2 640	3 495
Depth	mm	601	601	880	880	880	880	880	880	880	880
Height	mm	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990
Net weight	kg	125	150	245	250	270	280	375	410	690	810
Water free cooling		○	○	○	●	○	●	○	●	●	○
Two Sources		○	○	○	●	○	●	○	●	●	○

* Performance refers to: R410A refrigerant; condensing temperature 45°C; incoming air 24°C-45%Rh; water 7/12°C; external static pressure 30 Pa. The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.

EER (Energy Efficiency Ratio) = total cooling capacity / compressors power consumption + fans power consumption (air cooled condensers excluded).

Sound levels at a 2 m distance, in a free field, as per UNI EN ISO 3744:2010.

YORK YC-G Series Close Control Air Conditioners

A complete range from 43.3 kW up to 170.2 kW



Applications

“G” Series YORK air conditioners consist of a family of units specially designed to exploit the plant characteristics of the latest generation of large Data Centres.

In the design of air conditioning equipment for large Data Centres, the necessities of cable housing and for the distribution of the enormous quantities of air required to cool the servers have made it necessary to raise the height of the false floor to now reach the current 600–800 millimetres. This creates an ample space below the air conditioner destined to the installation of the plinth. This large space under the raised floor was therefore considered as the housing for the discharge fans. The air conditioners are supplied in two separate sections: the under-base containing the discharge fans to be installed under the floating floor, and the treatment unit with the exchanger coil, filters and the electrical panel.

This large space under the raised floor is used to house the supply air fans. The air conditioners are therefore supplied in two separate sections:

- The treatment unit with enlarged heat exchanger coil, filters and electrical panel.
- The plinth containing the supply air fans, to be installed under the raised floor. The plinth with the fans is supplied to match the height indicated in the order from the customer.

The two sections, shipped separately, are easy to install on-site as they require only electrical connection of the two junction boxes in the air conditioner and the plinth.

Downflow supply



Standard version for perimeter installation inside the Data Centre: the height of the raised floor must be minimum 550 mm.



Version for perimeter installation inside the Data Centre with raised floor height less than 550 mm. In this case, the plinth with fixed height of 550 mm is supplied with lateral closure panels and must be installed above the floor. It is essential to check that the height of the ceiling is sufficient to ensure good air suction.



Version for installation outside the Data Centre, without raised floor, rear air supply. In this case the plinth (fixed height 550 mm) is supplied with side closure panels and rear supply air grilles. Installation of the plenum with rear re-intake system is optional, if there is no ductwork.

Technical Characteristics

YC-UGA: direct expansion air conditioners with air-cooled or water-cooled condensers and downflow air supply				
Models		461	612	932
Total cooling capacity (1)	kW	50.6	63.4	95.6
Sensible cooling capacity (1)	kW	50.4	57	95.6
EER (2)		3.98	3.32	3.8
Airflow	m ³ /h	9 500	10 000	19 000
Sound pressure level (3)	dB(A)	57	58	59
Length	mm	1.490	1 490	2 390
Depth	mm	921	921	921
Height	mm	1 990	1 990	1 990
Net weight	kg	630	680	870

YC-UGU: chilled water coil air conditioners with downflow air supply					
Models		70	150	230	300
Total cooling capacity (1)	kW	43.3	85.1	123	170.2
Sensible cooling capacity (1)	kW	43.3	85.1	123	170.2
EER (2)		31.15	32.48	34.55	39.13
Airflow	m ³ /h	9 500	19 000	28 500	38 000
Sound pressure level (3)	dB(A)	57	59	61	60
Length	mm	1 320	2 220	3 120	4 020
Depth	mm	921	921	921	921
Height	mm	1 990	1 990	1 990	1 990
Net weight	kg	610	750	930	1 250

(1) Performance refers to: R410A refrigerant; condensing temperature 45°C; incoming air 32°C-30%Rh; water 15/20°C; external static pressure 30 Pa.

The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.

(2) EER (Energy Efficiency Ratio) = total cooling capacity / compressors power consumption + fans power consumption (air cooled condensers excluded).

(3) Sound levels at a 2 m distance, in a free field, as per UNI EN ISO 3744:2010.



Manufacturer reserves the rights to change specifications without prior notice.

YORK YC-R Series Close Control Air Conditioners

A complete range from 21.9 kW up to 36 kW



Applications

“R” Series YORK air conditioners consist of a family of units specially designed and constructed to have the same dimensions as the racks.

In the design of air conditioning plant for large Data Centres, the reduction of energy consumption is of ever increasing importance. For this reason the following concepts have become consolidated international standard practice:

- The racks containing the servers are more often positioned according to the “hot corridor aisle” and “cold corridor/aisle” layout.
- The working air temperatures are now allowed to go up to 30–35°C in the hot corridor and 20–25°C in the cold one, with very low humidity (never above 30%). Consequently, also the water temperature is allowed to rise up to 20–28°C, using the Free Cooling system to the best effect.
- Server capacities keep going up while their dimensions keep going down. This means that more servers can be installed in a rack so that some of these racks, remaining empty, can be removed. At the same time the heat dissipated rises and more capacity is required from the air conditioners.
- The servers work day and night albeit with a night time reduction of their capacity. It is therefore essential for the air conditioning installation to have an efficient modulating cooling capacity control and to be designed for minimum energy consumption and minimum environmental impact.

Horizontal supply



Version for in-row installation with front and lateral air supply.

Technical Characteristics

YC-HRA: direct expansion air conditioners with air-cooled or water-cooled condensers and horizontal air supply			
Models		231	361
Total cooling capacity (1)	kW	21.9	35.1
Sensible cooling capacity (1)	kW	21.8	33.9
EER (2)		3.52	3.75
Airflow	m ³ /h	6 000	6 800
Sound pressure level (3)	dB(A)	52	54
Length	mm	600	600
Depth	mm	1 222	1 222
Height	mm	1 985	1 985
Net weight	kg	215	215
Free Cooling		●	○
Two Sources		●	○

YC-HRU: chilled water coil air conditioners with horizontal air supply			
Models		20	40
Total cooling capacity (1)	kW	24.1	36
Sensible cooling capacity (1)	kW	24.1	36
EER (2)		18.12	29
Airflow	m ³ /h	6 000	9 000
Sound pressure level (3)	dB(A)	56	61
Length	mm	300	600
Depth	mm	1 200	1 222
Height	mm	1 970	1 985
Net weight	kg	120	190
Free Cooling		○	●
Two Sources		○	●

(1) Performance refers to: R410A refrigerant; condensing temperature 45°C; incoming air 32°C-30%Rh; water 15/20°C; external static pressure 30 Pa.

The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.

(2) EER (Energy Efficiency Ratio) = total cooling capacity / compressors power consumption + fans power consumption (air cooled condensers excluded).

(3) Sound levels at a 2 m distance, in a free field, as per UNI EN ISO 3744:2010.



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YORK YC-H Series Close Control Air Conditioners

A complete range from 32.3 kW up to 141 kW



The **YORK YC-H Series** units, in their standard configuration, are complete with all adjustment components (heat recovery system, cooling, pre- and post-heating, humidification and dehumidification), sized for the treatment of full fresh air or with partial recirculation.

A flexible configuration and a high number of accessories guarantee the use of **YC-H Series** units for applications such as: operating theatres, laboratories and clean rooms, image diagnosis rooms, wards and intensive care.

Features

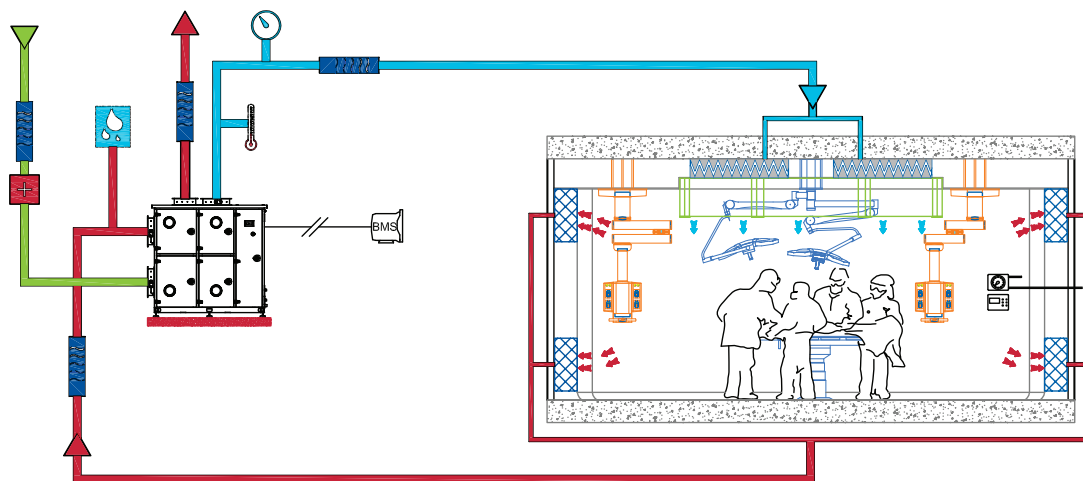
- Compatibility with European Regulation 1253/2014/EU ErP NRVU 2018
- TÜV certification according to DIN1946/4
- EC fans
- R410A scroll compressors with inverter-controlled brushless DC motor
- RS485 Modbus RTU slave board for interface with BMS (Building Management System)
- Single block painted structure with epoxy resins 60µ RAL 9010
- Panels with thermal and acoustic insulation system using 50mm thick self-extinguishing material, equipped with handles with safety closing system and inspection window
- Motorised dampers on external air intake and gravitational ones on exhaust
- High levels of static pressure available based on the need for installing absolute terminal filters
- Section for air suction from the rooms, partial recycle or total exhaust to the outside
- Static or dynamic management of overpressure or depression in the controlled room compared to a reference environment
- Room emergency negative pressure activation system
- Three air filtration stages (external, supply and return). Tight seal filter and differential pressure switch supports for each filter
- Easy to sanitise and sterilise. No risk for Legionella Pneumophila
- Condensate drains of the independent sections and fitted with syphon that can be inspected
- Electrical panel complete with adjustment and safety devices
- Control microprocessor with graphical display
- Hydronic heat recovery system with inverter-controlled pump with thermal by-pass function
- Electronic expansion valves EEV
- Modulating 3-way valves
- Anti-freeze safety system
- Submerged electrode humidifier
- Nighttime machine standby and load reduction system for UPS power supply

Technical Characteristics

YC-H Models		2500	3800	4800	7000	9200	11200
Chilled water performance (YC-OHU)							
Total cooling capacity	(1) kW	32,3	-	64,1	104,5	117,2	141,0
Direct expansion performance (YC-OHA)							
Water cooling capacity	(2) kW	27,1	45,7	53,3	86,6	110,7	118,8
Air circulation							
Air flow	(3) m ³ /h	2500	3800	4800	7000	9200	11200
Sound quality							
Sound pressure level	(4) dB(A)	58	59	61	61	63	65
Dimensions and weights							
Length	mm	2600	2800	2800	2800	2800	2800
Depth	mm	930	1180	1180	1470	1820	2100
Height	mm	1740	2080	2080	2080	2080	2080
Net weight	kg	900	1200	1250	1600	1800	2000

- (1) The performances, declared according to UNI EN 14511-1:2018, do not consider the heat generated by the fans which must be added to the thermal load of the system. The performances refer to the following conditions: incoming air: 35°C-40% UR; heat recovery with glycol at 27%; water: 7/12°C.
- (2) The performances, declared according to UNI EN 14511-1:2018, do not consider the heat generated by the fans which must be added to the thermal load of the system. The performances refer to the following conditions: incoming air: 35°C-40% UR; heat recovery with glycol at 27%; R410A refrigerant; condensation temperature: 45°C.
- (3) External static pressure: 800 Pa
- (4) The sound pressure levels at a distance of 2 m, 1.5 m height, free field and with ducted supply outlets, declared according to UNI EN ISO 3744:2010.

Air conditioning plant for surgical room with unidirectional air filtration ceiling



Accessories

- Rectangular silencers for duct installation designed for hospital environments and clean rooms
- Motorised dampers on all outlets
- Motorised air recirculation damper
- Execution for external installation
- Modulating two-way valves instead of three-way
- Booster pump with anti-freeze function, for low outdoor temperatures
- Direct expansion post-cooling circuit for cardiac surgery
- System for regulating and distributing network steam
- Constant pressure control in supply and return ducts
- Remote or duct installation room temperature and humidity probes
- Supply humidity probe
- Display system showing the percentage of filter clogging
- User terminal for remote installation
- LED lighting inside the compartments and electrical panel
- Power supply line with speed regulator for remote condenser
- Condensation regulation with 0-10V signal for remote condenser with EC fans

NEW EUROPEAN REGULATION ON NON-RESIDENTIAL VENTILATION ErP NRvU - Ecodesign Directive - European Regulation 1253/2014/EU

Within the legislative framework of the European Community ErP (Energy-related Products) 2009/125/EC, also called Ecodesign Directive, Regulation 1253/2014/EU came into force on 26 November 2014. This regulation concerns non-residential ventilation units (NRvU) and establishes the specific ecodesign requirements to be met before placing them on the market or putting them into service.

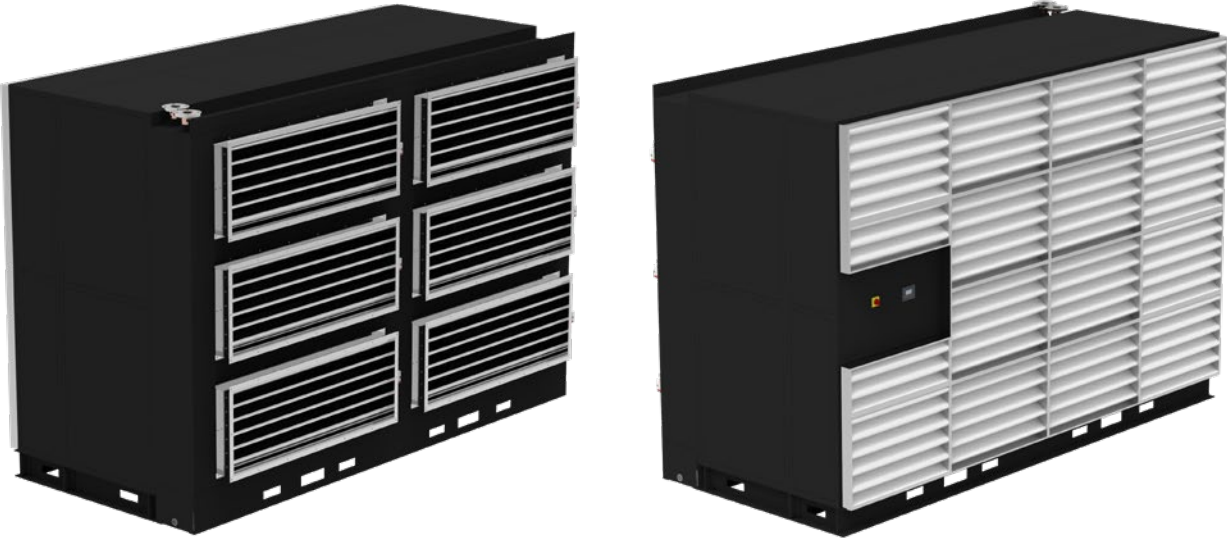


Manufacturer reserves the rights to change specifications without prior notice.

YC-W Series Fan Wall Units

A range from 100 kW to 350 kW

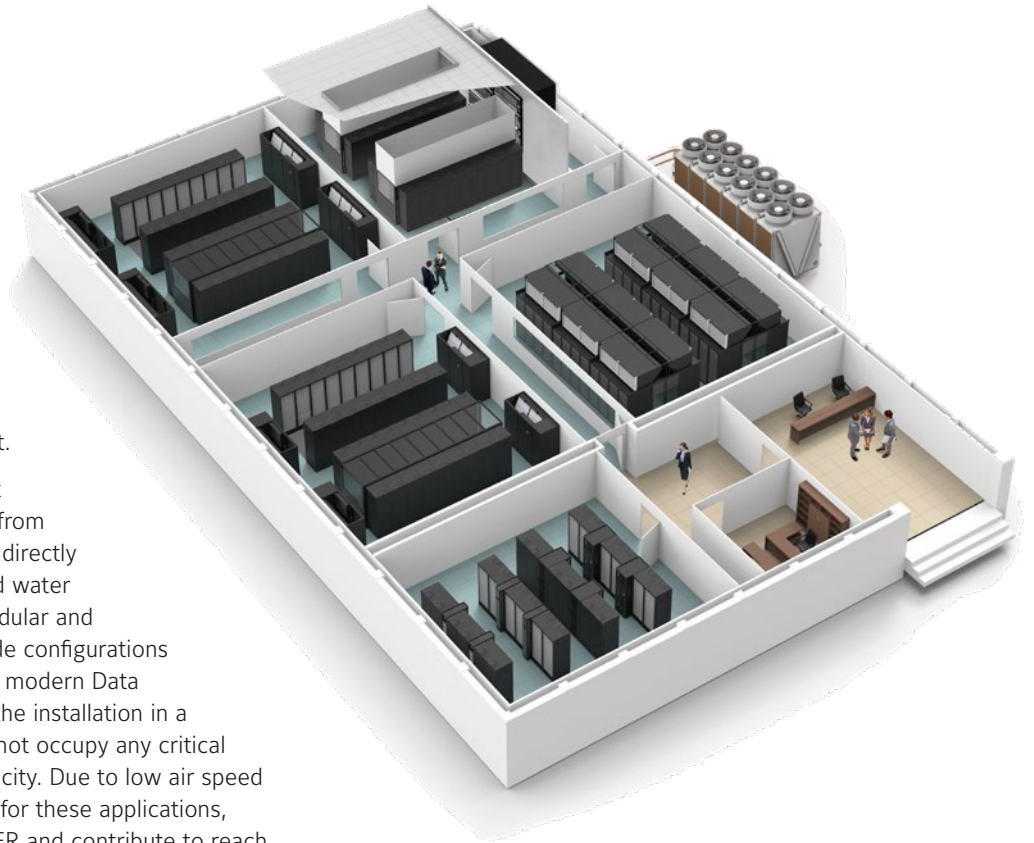
NEW



Features

YORK Fan Wall Air Conditioners provide sensible cooling for the heat generated by the equipment installed inside the racks. The W series have constructional and operating characteristics suitable for meet the design criteria of last-generation large Data Centers, when a technical service corridor is present.

The unit are designed to take the hot air generated by the servers coming from the hot aisle and blow the cooled air directly into the Data Hall. This type of chilled water unit is specifically designed to be modular and customizable, with several tailor-made configurations available, to meet the architecture of modern Data Centers. Its minimized footprint and the installation in a technical aisle allow the W series to not occupy any critical space, maximizing the Data Hall capacity. Due to low air speed ventilation cooling system optimized for these applications, YORK W Series ensure a very high EER and contribute to reach very low mechanical PUE values.



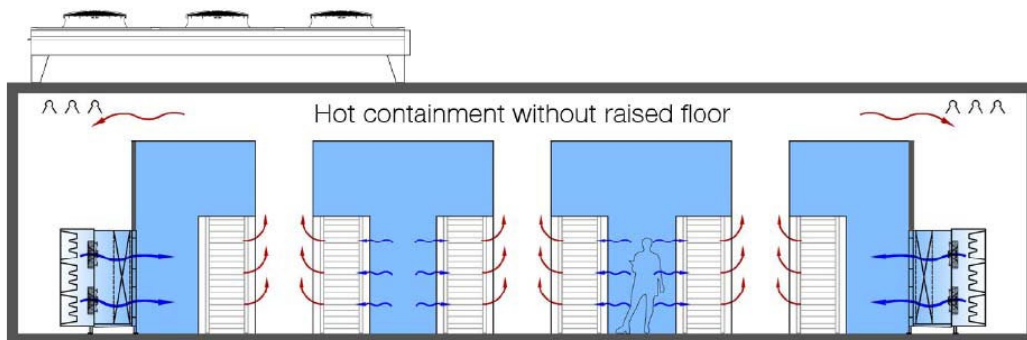
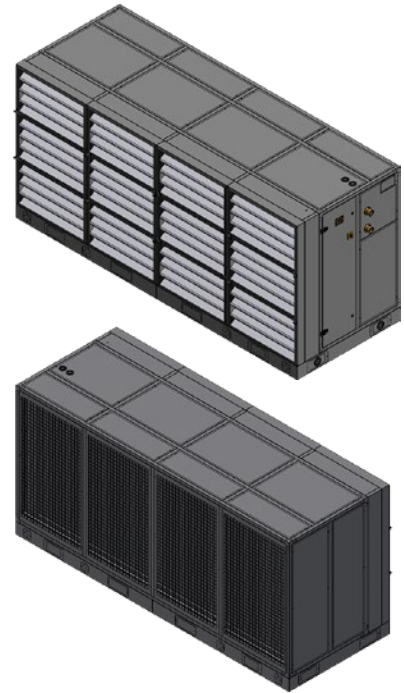
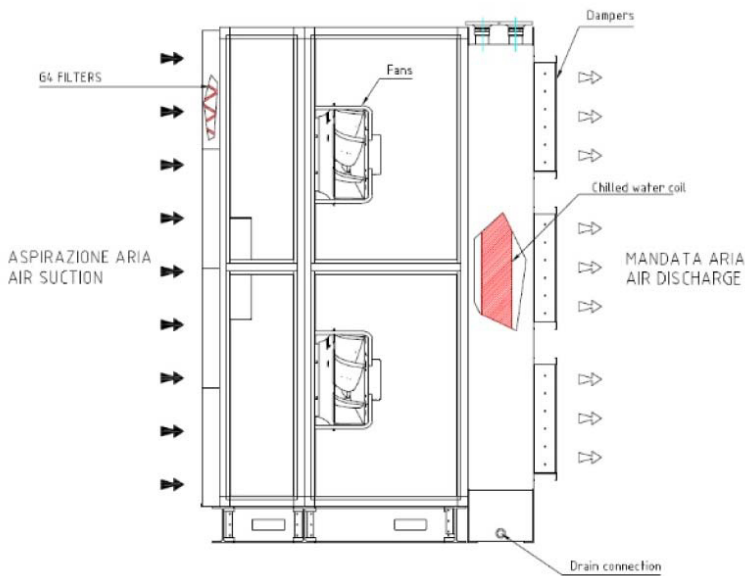
YC-W Series

100 kW to 350 kW



Technical Characteristics

Model	YC-W	
Cooling capacity range	kW	100 - 350
Air volume range	mc/h	35 000 - 85 000
Refrigerant		Water
Fan type		EC Modbus control
Filter		G4
Controller		RS485 / Modbus® card
BMS connection		BACnet MS/TP or PI card
Height	mm	2 900
Length	mm	4 200
Net weight	kg	215
Options		ATS
		Ultracapacitor
		Water leak detector



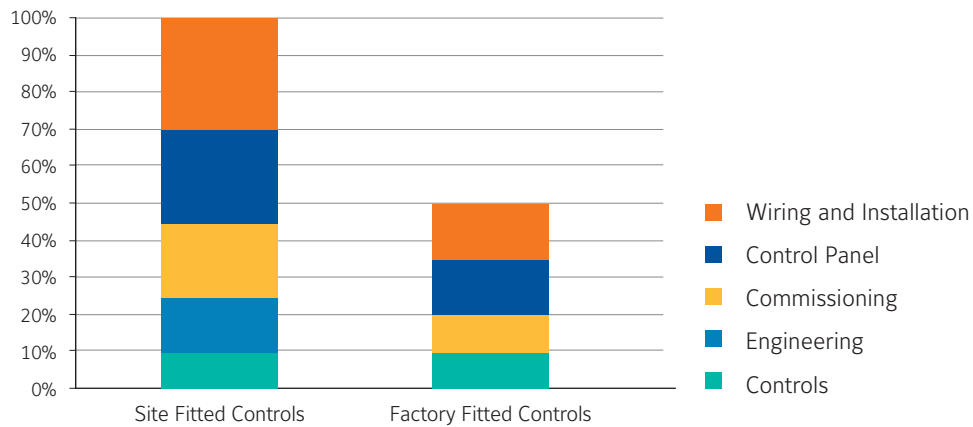
Manufacturer reserves the rights to change specifications without prior notice.

Factory fitted controls

As the need for ever more connected buildings and controls grows, and the Internet of Things approaches, factory fitted controls from Johnson Controls offers control solutions that reduce cost, enhance quality and optimise commissioning time.

Once on site, the equipment can be started immediately. Commissioning time is dramatically reduced, allowing to better control the project costs through simplifying equipment installation and commissioning.

Quality is ensured through application and testing to European Installation regulations at the factory. Pre-installed software is configured to deliver air at the specified volume, temperature and humidity.



Plug-and-Play Experience



Factory fitted controls for YORK Air Handling units

The Air Handling Unit arrives on site **ready to connect** to the site network, and final commissioning is simplified through the unit's keypad and display.

Panel Power wiring, controls wiring, Variable Speed Drive, pre-engineered controller and required peripheral devices are all supplied, factory fitted and tested.



Factory fitted controls for YORK Fan Coil units

YORK Fan Coil Units are available with factory fitted controls and numerous options for controllers and valves **to allow reduced installation time on site.**

A range of standard configurable or fully programmable controllers are offered along with a choice of Industry standard protocols. Valve requirements can also be met with a wide range of modulating and on/off actuators and isolation valves available and factory fitted.

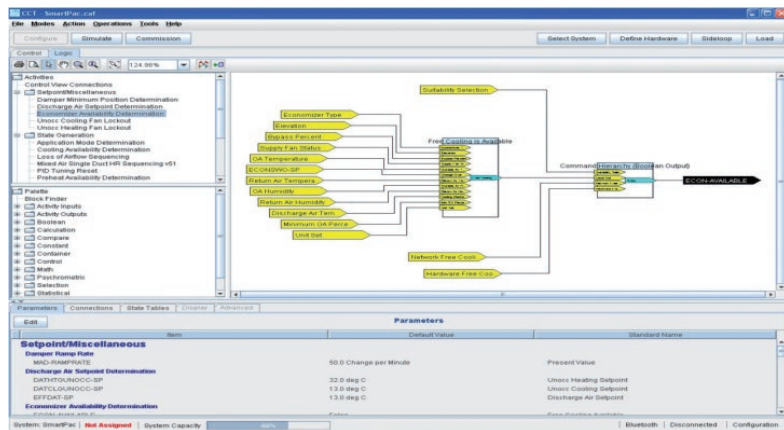


Factory fitted controls for YORK Rooftop and Close Control units

Factory fitted controls' solution enable, to **dramatically reduce on-site commissioning costs.** Both are delivered to site with pre-installed controls, factory tested and ready to apply the power.

YORK Standard Control panel

Furthermore, Variable Speed Drives give **extra efficiency communicating** with the Johnson controller using industry standard protocols and providing for seamless communications with existing BAS control systems.



Advanced Control Made Easy

Comfort, productivity and up to half of the energy used in your building – these are all factors affected by how your chiller operates and how it interacts with other components in your HVAC&R system. To help maximize efficiency and keep you in control, some of our YORK Airside equipment is available with integrated SMART EQUIPMENT. This technology allows the equipment to connect seamlessly to building controls like our world-class Verasys system, where smart-enabled equipment can self-identify and interoperate. Verasys provides a truly plug-and-play experience, with no programming or commissioning tools required. Remote access over a secure internet connection and alarm notifications via email or text are

possible through Verasys. The user-friendly graphical interface provides easy access to critical equipment and facility information to help minimize the risk of unplanned downtime and costly repairs. Verasys also provides enhanced energy efficiency control, allowing a facility owner to potentially move from an average Class D efficiency classification to a Class A efficiency classification according to the EN 15232 standard. The key to this efficiency is demand control, where Verasys routes the energy requirements of a room or space to the heating and cooling equipment – matching the demand-side and the supply-side to provide greater overall energy efficiency.



Air Distribution Products

By driving the efficient flow of air through the entire building, our air system products deliver healthy, comfortable, and visually appealing environments that increase work productivity and job satisfaction.

Johnson Controls offers a variety of air distribution products that will increase the performance of your HVAC system and deliver healthy, energy efficient environments.

RVP-C Series Circular VAV Terminal Boxes

A complete range from 37 m³/h to 12842 m³/h



FX-PCV1630-1

Regulator with 8 physical points; 3UI, 3BO, 2CO; Integrated 4 Nm transducer and motor, 24 V AC power supply

FX-PCV1930-0

IP port controller for Bacnet IP communication (number 2) with 8 physical points; 3UI, 3BO, 2CO; Integrated 4 Nm transducer and motor, 24 V AC power supply.

NS-ATV7003-0

Room sensor for flow calibration

PCV Accessories (must be ordered separately)

VAV terminal boxes are capable of regulating and maintaining environmental comfort in a variable flow system by controlling the air flow in the best way.

This type of system allows you to control ventilation and air conditioning directly in rooms, according to the real flow needs and the cool-heat requirements.

This allows significant savings, especially in applications such as offices, classrooms and hotel rooms where there are large load differences during the various time intervals.

Features

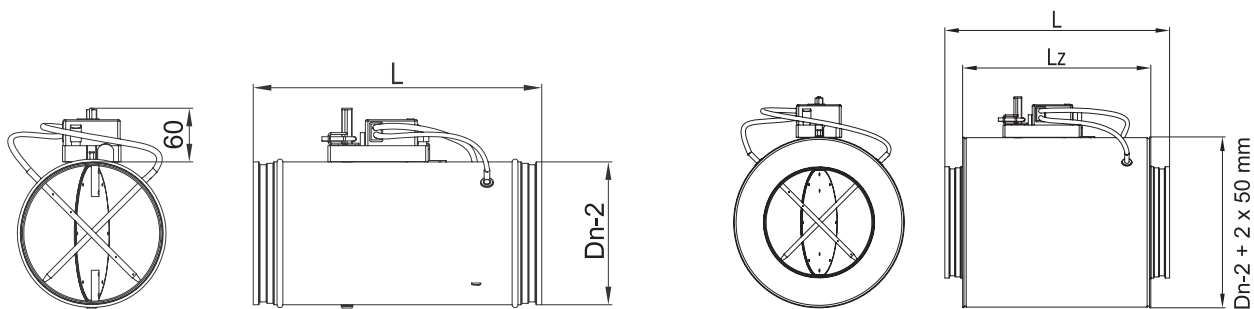
- Continuous flow regulation according to the set point.
- Assembled with factory calibrated FX-CVM regulators
- High adjustment accuracy
- No maintenance required
- Possibility of use with constant or variable flow
- Master-slave mode
- BACnet and N2Open protocols
- Adjustment of maximum-minimum cold flow, hot flow and k factor from the bus probe equipped with display and parameter adjustment knob. It is not necessary to reach the regulator itself, just connect this device to the bus probe cable

VAV Controller, PCV

The PCV family controllers are equipped with the BACnet protocol in accordance with all ASHRAE specifications. They are equipped with SA Bus and with various input/output configurations.

The regulator includes the differential air pressure transducer to calculate the flow rate and the 4 Nm rotary motor to control the damper. This regulator has been designed for the regulation of VAV terminal boxes with variable flow.

- Support peer to peer communication
- PID control with self-adaptive calculation of the regulation parameters
- Tested by BACnet Testing Labs (BTL)
- BACnet or N2open protocol selectable by software
- SA bus



Special configurations

The isolated version is also available, increase the radius by ~ 50 mm

Dimensions Circular VAV

Model	Dn-2 [mm]	L [mm]	Volume min [m³/h]	Volume max [m³/h]
BPN-RVP-C-F100	100	400	37	343
BPN-RVP-C-F125	125	400	54	540
BPN-RVP-C-F160	160	400	90	900
BPN-RVP-C-F200	200	400	145	1459
BPN-RVP-C-F250	250	500	217	2215
BPN-RVP-C-F315	315	600	380	3680
BPN-RVP-C-F355	355	600	482	4275
BPN-RVP-C-F400	400	600	615	6047
BPN-RVP-C-F500	500	750	973	9484
BPN-RVP-C-F630	630	850	1435	12482

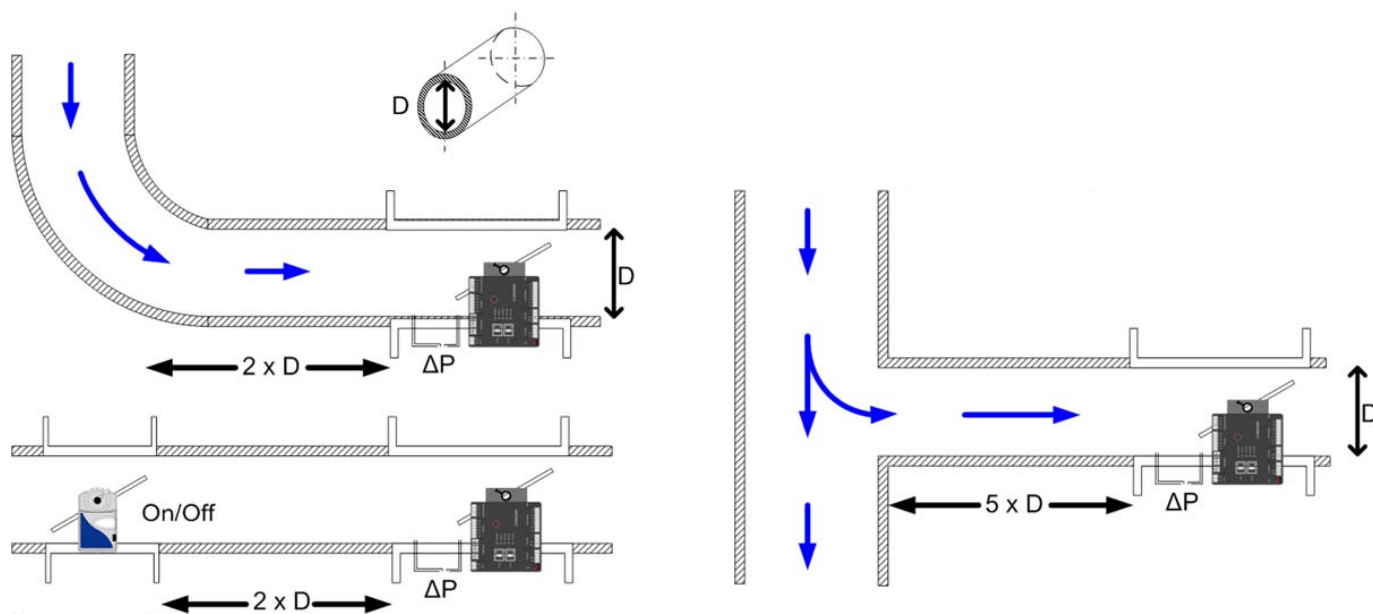


Table of order codes

BPN-RVP- C – F1x0 models

Code	BPN-RVP-C-F100	BPN-RVP-C-F125	BPN-RVP-C-F160
MS-PCV1630	BPN-RVP-C-F100-PCV1630	BPN-RVP-C-F125-PCV1630	BPN-RVP-C-F160-PCV1630

BPN-RVP- C – F2x0 models

Code	BPN-RVP-C-F200	BPN-RVP-C-F250
MS-PCV1630	BPN-RVP-C-F200-PCV1630	BPN-RVP-C-F250-PCV1630

BPN-RVP- C – F3x5 models

Code	BPN-RVP-C-F315	BPN-RVP-C-F355
MS-PCV1630	BPN-RVP-C-F315-PCV1630	BPN-RVP-C-F355-PCV1630

BPN-RVP- C – F400 models

Code	BPN-RVP-C-F100
MS-PCV1630	BPN-RVP-C-F400-PCV1630

BPN-RVP- C – F500 models

Code	BPN-RVP-C-F100
MS-PCV1630	BPN-RVP-C-F500-PCV1630

BPN-RVP- C – F630 models

Code	BPN-RVP-C-F100
MS-PCV1630	BPN-RVP-C-F630-PCV1630



Manufacturer reserves the rights to change specifications without prior notice.

RVP-P Series Rectangular VAV Terminal Boxes

A complete range from 130 m³/h to 36000 m³/h



FX-PCV1630-1

Regulator with 8 physical points; 3UI, 3BO, 2CO; Integrated 4 Nm transducer and motor, 24 V AC power supply

FX-PCV1930-0

IP port controller for Bacnet IP communication (number 2) with 8 physical points; 3UI, 3BO, 2CO; Integrated 4 Nm transducer and motor, 24 V AC power supply.

NS-ATV7003-0

Room sensor for flow calibration

PCV Accessories (must be ordered separately)

VAV terminal boxes are capable of regulating and maintaining environmental comfort in a variable flow system by controlling the air flow in the best way.

This type of system allows you to control ventilation and air conditioning directly in rooms, according to the real flow needs and the cool-heat requirements.

This allows significant savings, especially in applications such as offices, classrooms and hotel rooms where there are large load differences during the various time intervals.

Features

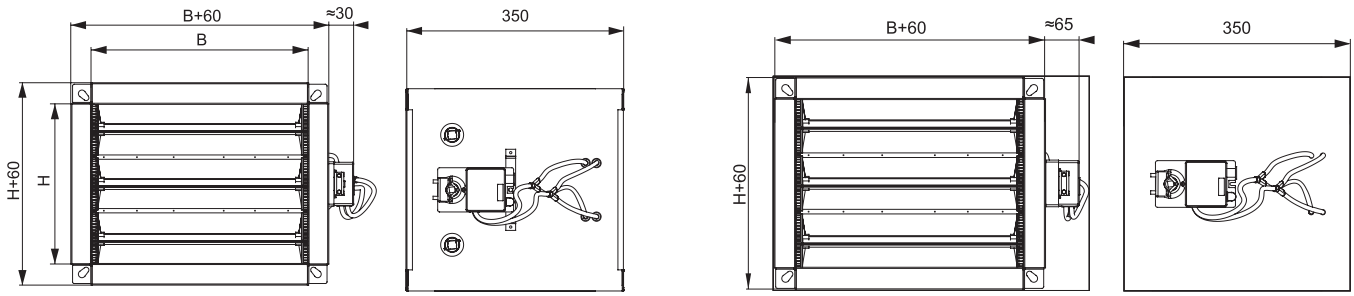
- Continuous flow regulation according to the set point.
- Assembled with factory calibrated FX-CVM regulators
- High adjustment accuracy
- No maintenance required
- Possibility of use with constant or variable flow
- Master-slave mode
- BACnet and N2Open protocols
- Adjustment of maximum-minimum cold flow, hot flow and k factor from the bus probe equipped with display and parameter adjustment knob. It is not necessary to reach the regulator itself, just connect this device to the bus probe cable

VAV Controller, PCV

The PCV family controllers are equipped with the BACnet protocol in accordance with all ASHRAE specifications. They are equipped with SA Bus and with various input/output configurations.

The regulator includes the differential air pressure transducer to calculate the flow rate and the 4 Nm rotary motor to control the damper. This regulator has been designed for the regulation of VAV terminal boxes with variable flow.

- Support peer to peer communication
- PID control with self-adaptive calculation of the regulation parameters.
- Tested by BACnet Testing Labs (BTL)
- BACnet or N2open protocol selectable by software
- SA bus



Special configurations

The isolated version is also available with ~ 60 mm thickness

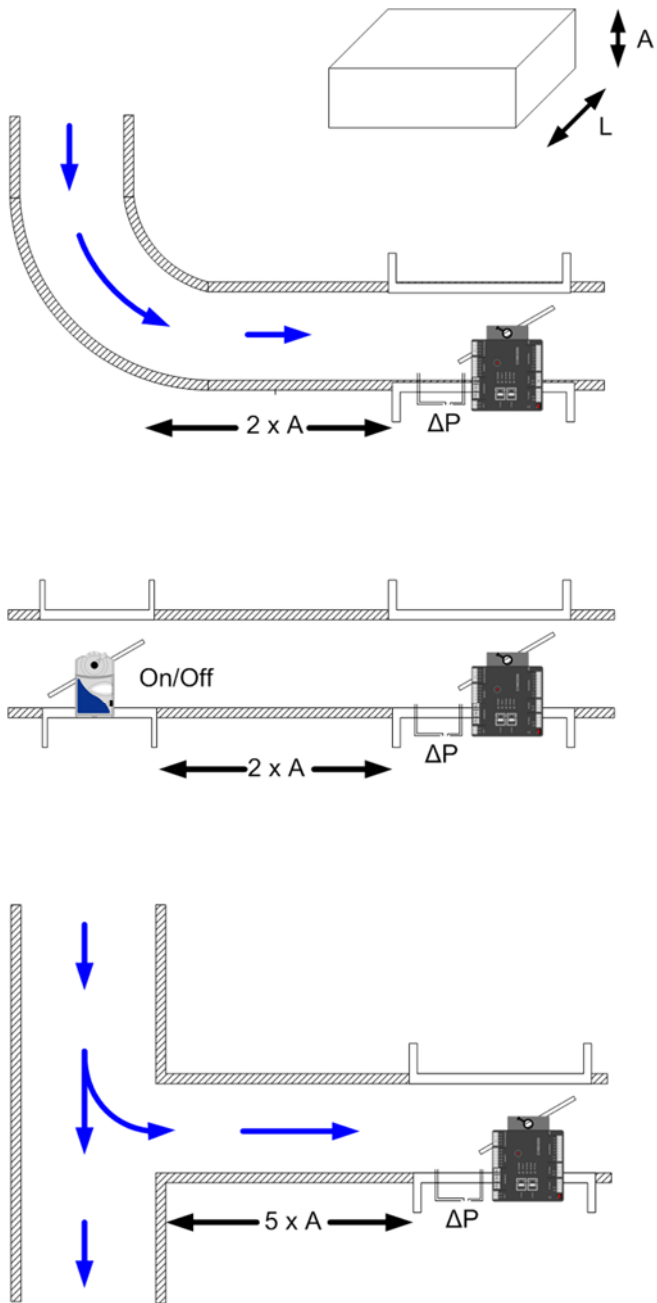
Dimensions Rectangular VAV

Model	Dimensions	Volume min [m ³ /h]	Volume max [m ³ /h]
BPN-RVP-P-200x100	200 mm x 100 mm	130	720
BPN-RVP-P-300x100	300 mm x 100 mm	190	1,080
BPN-RVP-P-400x100	400 mm x 100 mm	255	1,440
BPN-RVP-P-500x100	500 mm x 100 mm	315	1,800
BPN-RVP-P-600x100	600 mm x 100 mm	380	2,160
BPN-RVP-P-200x200	200 mm x 200 mm	255	1,440
BPN-RVP-P-300x200	300 mm x 200 mm	380	2,160
BPN-RVP-P-400x200	400 mm x 200 mm	505	2,880
BPN-RVP-P-500x200	500 mm x 200 mm	630	3,600
BPN-RVP-P-600x200	600 mm x 200 mm	755	4,320
BPN-RVP-P-700x200	700 mm x 200 mm	880	4,320
BPN-RVP-P-800x200	800 mm x 200 mm	1,005	5,040
BPN-RVP-P-300x300	300 mm x 300 mm	570	3,240
BPN-RVP-P-400x300	400 mm x 300 mm	755	4,320
BPN-RVP-P-500x300	500 mm x 300 mm	940	5,400
BPN-RVP-P-600x300	600 mm x 300 mm	1,130	6,480
BPN-RVP-P-700x300	700 mm x 300 mm	1,320	7,560
BPN-RVP-P-800x300	800 mm x 300 mm	1,505	8,640
BPN-RVP-P-900x300	900 mm x 300 mm	1,695	9,720
BPN-RVP-P-1000x300	1000 mm x 300 mm	1,880	10,800
BPN-RVP-P-400x400	400 mm x 400 mm	1,005	5,760
BPN-RVP-P-500x400	500 mm x 400 mm	1,255	7,200
BPN-RVP-P-600x400	600 mm x 400 mm	1,505	8,640
BPN-RVP-P-700x400	700 mm x 400 mm	1,755	10,080
BPN-RVP-P-800x400	800 mm x 400 mm	2,005	11,520
BPN-RVP-P-900x400	900 mm x 400 mm	2,260	12,960
BPN-RVP-P-1000x400	1000 mm x 400 mm	2,510	14,400
BPN-RVP-P-500x500	500 mm x 500 mm	1,570	9,000
BPN-RVP-P-600x500	600 mm x 500 mm	1,880	10,800
BPN-RVP-P-700x500	700 mm x 500 mm	2,195	12,600
BPN-RVP-P-800x500	800 mm x 500 mm	2,510	14,400
BPN-RVP-P-900x500	900 mm x 500 mm	2,820	16,200
BPN-RVP-P-1000x500	1000 mm x 500 mm	3,135	18,000
BPN-RVP-P-600x600	600 mm x 600 mm	2,260	12,960
BPN-RVP-P-700x600	700 mm x 600 mm	2,635	15,120
BPN-RVP-P-800x600	800 mm x 600 mm	3,010	17,280
BPN-RVP-P-900x600	900 mm x 600 mm	3,385	19,440
BPN-RVP-P-1000x600	1000 mm x 600 mm	3,760	21,600
BPN-RVP-P-700x700	700 mm x 700 mm	3,070	17,640
BPN-RVP-P-800x700	800 mm x 700 mm	3,510	20,160
BPN-RVP-P-900x700	900 mm x 700 mm	3,950	22,680
BPN-RVP-P-1000x700	1000 mm x 700 mm	4,385	25,200
BPN-RVP-P-800x800	800 mm x 800 mm	4,010	23,040
BPN-RVP-P-900x800	900 mm x 800 mm	4,510	25,920
BPN-RVP-P-1000x800	1000 mm x 800 mm	5,015	28,820
BPN-RVP-P-900x900	900 mm x 900 mm	5,075	29,160
BPN-RVP-P-1000x900	1000 mm x 900 mm	5,640	32,400
BPN-RVP-P-1000x1000	1000 mm x 1000 mm	6,265	36,000



Manufacturer reserves the rights to change specifications without prior notice.

Installation with duct from top to bottom



Flat duct installation

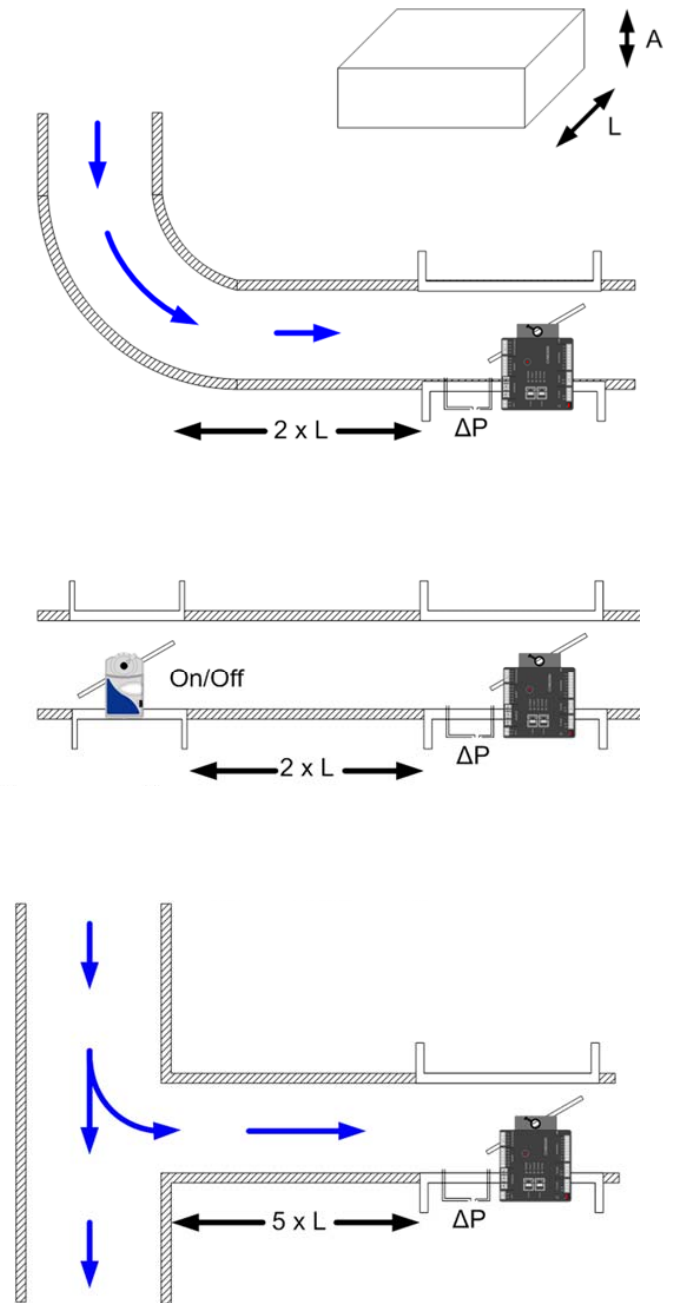


Table of order codes

BPN-RVP-Px00 x 100 models

Code	BPN-RVP-P-200x100	BPN-RVP-P-300x100	BPN-RVP-P-400x100
FX-PCV1630-1	BPN-RVP-P-200x100-PCV1630	BPN-RVP-P-300x100-PCV1630	BPN-RVP-P-400x100-PCV1630

Code	BPN-RVP-P-500x100	BPN-RVP-P-600x100
FX-PCV1630-1	BPN-RVP-P-500x100-PCV1630	BPN-RVP-P-600x100-PCV1630

BPN-RVP-Px00 x 200 models

Code	BPN-RVP-P-200x200	BPN-RVP-P-300x200	BPN-RVP-P-400x200
FX-PCV1630-1	BPN-RVP-P-200x200-PCV1630	BPN-RVP-P-300x200-PCV1630	BPN-RVP-P-400x200-PCV1630

Code	BPN-RVP-P-500x200	BPN-RVP-P-600x200	BPN-RVP-P-700x200
FX-PCV1630-1	BPN-RVP-P-500x200-PCV1630	BPN-RVP-P-600x200-PCV1630	BPN-RVP-P-700x200-PCV1630

Code	BPN-RVP-P-800x200
FX-PCV1630-1	BPN-RVP-P-800x200-PCV1630

BPN-RVP-Px00 x 300 models

Code	BPN-RVP-P-300x300	BPN-RVP-P-400x300	BPN-RVP-P-500x300
FX-PCV1630-1	BPN-RVP-P-300x300-PCV1630	BPN-RVP-P-400x300-PCV1630	BPN-RVP-P-500x300-PCV1630

Code	BPN-RVP-P-600x300	BPN-RVP-P-700x300	BPN-RVP-P-800x300
FX-PCV1630-1	BPN-RVP-P-600x300-PCV1630	BPN-RVP-P-700x300-PCV1630	BPN-RVP-P-800x300-PCV1630

Code	BPN-RVP-P-900x300	BPN-RVP-P-1000x300
FX-PCV1630-1	BPN-RVP-P-900x300-PCV1630	BPN-RVP-P-1000x300-PCV1630

BPN-RVP-Px00 x 400 models

Code	BPN-RVP-P-400x400	BPN-RVP-P-500x400	BPN-RVP-P-600x400
FX-PCV1630-1	BPN-RVP-P-400x400-PCV1630	BPN-RVP-P-500x400-PCV1630	BPN-RVP-P-600x400-PCV1630

Code	BPN-RVP-P-700x400	BPN-RVP-P-800x400	BPN-RVP-P-900x400
FX-PCV1630-1	BPN-RVP-P-700x400-PCV1630	BPN-RVP-P-800x400-PCV1630	BPN-RVP-P-900x400-PCV1630

Code	BPN-RVP-P-1000x400
FX-PCV1630-1	BPN-RVP-P-1000x400-PCV1630

BPN-RVP-Px00 x 500 models

Code	BPN-RVP-P-500x500	BPN-RVP-P-600x500	BPN-RVP-P-700x500
FX-PCV1630-1	BPN-RVP-P-500x500-PCV1630	BPN-RVP-P-600x500-PCV1630	BPN-RVP-P-700x500-PCV1630

Code	BPN-RVP-P-800x500	BPN-RVP-P-900x500	BPN-RVP-P-1000x500
FX-PCV1630-1	BPN-RVP-P-800x500-PCV1630	BPN-RVP-P-900x500-PCV1630	BPN-RVP-P-1000x500-PCV1630

BPN-RVP-Px00 x 600 models

Code	BPN-RVP-P-600x600	BPN-RVP-P-700x600	BPN-RVP-P-800x600
FX-PCV1630-1	BPN-RVP-P-600x600-PCV1630	BPN-RVP-P-700x600-PCV1630	BPN-RVP-P-800x600-PCV1630

Code	BPN-RVP-P-900x600	BPN-RVP-P-1000x600
FX-PCV1630-1	BPN-RVP-P-900x600-PCV1630	BPN-RVP-P-1000x600-PCV1630

BPN-RVP-Px00 x 700 models

Code	BPN-RVP-P-700x700	BPN-RVP-P-800x700	BPN-RVP-P-900x700
FX-PCV1630-1	BPN-RVP-P-700x700-PCV1630	BPN-RVP-P-800x700-PCV1630	BPN-RVP-P-900x700-PCV1630

Code	BPN-RVP-P-1000x700
FX-PCV1630-1	BPN-RVP-P-1000x700-PCV1630

BPN-RVP-Px00 x 800 models

Code	BPN-RVP-P-800x800	BPN-RVP-P-900x800	BPN-RVP-P-1000x800
FX-PCV1630-1	BPN-RVP-P-800x800-PCV1630	BPN-RVP-P-900x800-PCV1630	BPN-RVP-P-1000x800-PCV1630

BPN-RVP-Px00 x 900 models

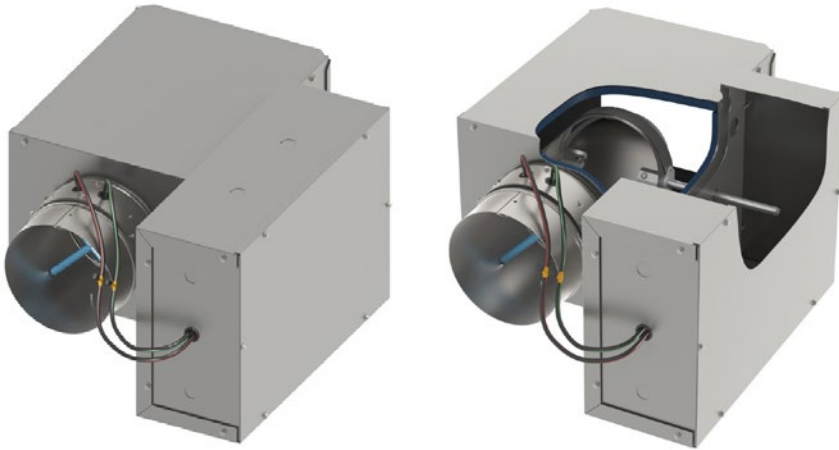
Code	BPN-RVP-P-900x900	BPN-RVP-P-1000x900
FX-PCV1630-1	BPN-RVP-P-900x900-PCV1630	BPN-RVP-P-1000x900-PCV1630

BPN-RVP-P- x00 x 1000 models

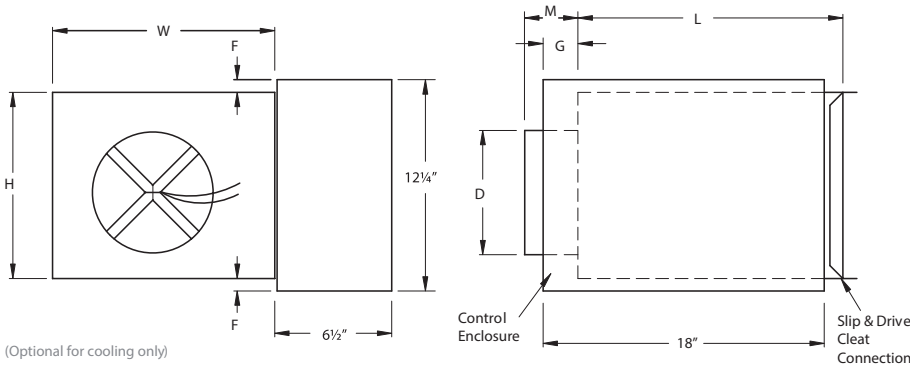
Code	BPN-RVP-P-1000x1000
FX-PCV1630-1	BPN-RVP-P-1000x1000-PCV1630

DESV Series VAV Single Duct Terminals

A complete range from 382 m³/h to 13600 m³/h



Cutaway view of DESV terminal unit



(Optional for cooling only)

Overview

Single duct terminals are the fundamental building blocks of Variable Air Volume (VAV) systems. Their primary function is to regulate airflow to a zone in response to zone temperature requirements. The Titus DESV is a unique as it incorporates many design features that increase performance, decrease service and installation costs, while offering increased value over and above this basic function.

DESV/Digital Electronic

- DESV can be installed horizontally, vertically or at any angle - unit operation is not affected by position
- Choice of right- or left-hand control location
- Standard AeroCross multi-point center averaging velocity sensor
- Standard dual-density insulation
- Controls supplied by Titus are factory calibrated for a quicker start-up
- Standard 22-gauge casing with slip and drive connection

DESV unit dimensions

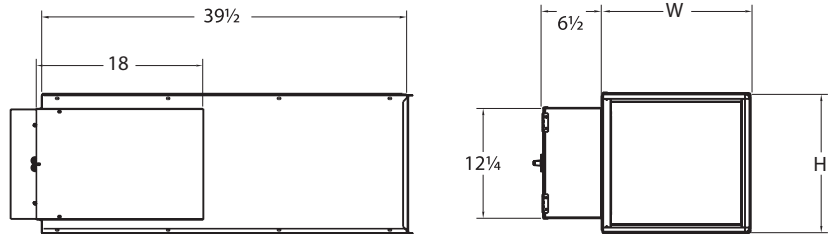
Inlet Size Inch (mm)	m ³ /h Range	D Inch (mm)	F Inch (mm)	G Inch (mm)	H Inch (mm)	L Inch (mm)	M Inch (mm)	W Inch (mm)
4 (100)	0-382	3 ¹ / ₈ (98)	2 ¹ / ₈ (54)	7 ⁷ / ₈ (187)	8 (203)	15 ¹ / ₂ (394)	5 ³ / ₈ (137)	12 (305)
5 (125)	0-595	4 ⁷ / ₈ (124)	2 ¹ / ₈ (54)	7 ⁷ / ₈ (187)	8 (203)	15 ¹ / ₂ (394)	5 ³ / ₈ (137)	12 (305)
6 (150)	0-850	5 ¹ / ₂ (149)	2 ¹ / ₈ (54)	7 ⁷ / ₈ (187)	8 (203)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	12 (305)
7 (180)	0-1105	6 ⁷ / ₈ (175)	1 ¹ / ₈ (29)	7 ⁷ / ₈ (187)	10 (254)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	12 (305)
8 (205)	0-1530	7 ⁷ / ₈ (200)	1 ¹ / ₈ (29)	7 ⁷ / ₈ (187)	10 (254)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	12 (305)
9 (230)	0-1785	8 ⁷ / ₈ (225)	-	5 ³ / ₈ (137)	12 ¹ / ₂ (318)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	14 (355)
10 (255)	0-2380	9 ⁷ / ₈ (251)	-	5 ³ / ₈ (137)	12 ¹ / ₂ (318)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	14 (355)
12 (305)	0-3400	11 ⁷ / ₈ (302)	-	5 ³ / ₈ (137)	15 (381)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	16 (405)
14 (355)	0-5100	13 ⁷ / ₈ (352)	-	3 ³ / ₈ (86)	17 ¹ / ₂ (445)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	20 (508)
16 (405)	0-6800	15 ⁷ / ₈ (403)	-	3 ³ / ₈ (86)	18 (457)	15 ¹ / ₂ (394)	3 ³ / ₈ (86)	24 (610)
24x16 (608x405)	0-13600	23 ³ / ₈ - 15 ⁷ / ₈ (606-403)	1 ¹ / ₈ (29)	5 ³ / ₈ (137)	18 (457)	15 (381)	3 ³ / ₈ (86)	38 (965)

1. Inlet sizes 4 and 5 are with duct reducers attached to inlet opening.
2. Inlet size 24x16 sometimes may be referred to as inlet size 40.
3. Inlet size 24x16 is with double-skin casing - other sizes have single-skin casing.

Accessories

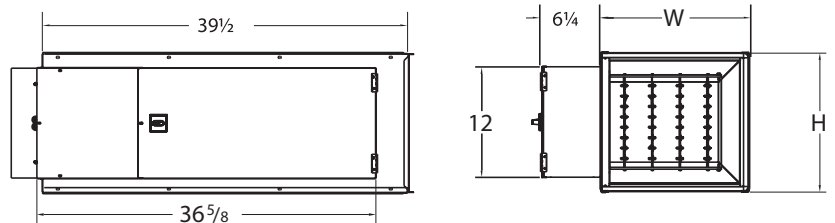
Integral Sound Attenuator

The unique integral product design minimizes casing leakage and disturbance to airflow with no casing or insulation seams.



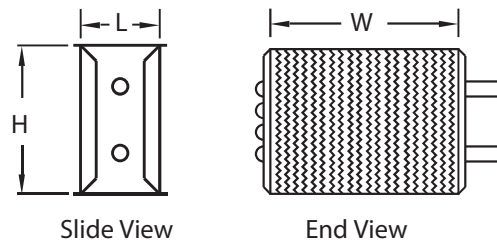
Integral Electric Coil

With a rigid one-piece assembly, this unit locates the heating elements for optimal heat transfer and insets them for protection during shipment and installation.



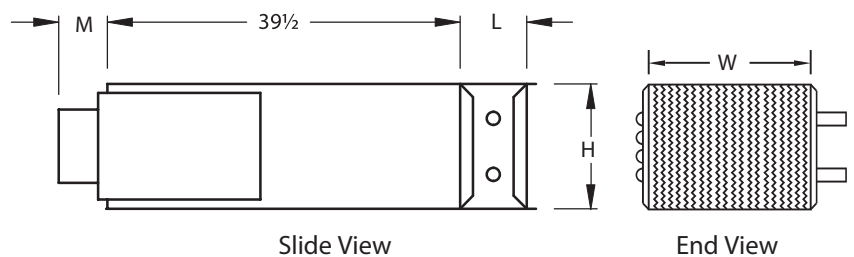
Standard features

- Primary automatic reset thermal cutout (one per coil)
- Secondary manual reset thermal cutout
- Airflow switch (differential pressure)
- Derated nickel chrome heating elements
- Magnetic or safety contactors (as required)
- Line terminal block
- Control terminal block
- ETL listed
- 80/20 nickel chrome element wire



Optional features

- Class II, 24-volt control transformer
- Mercury contactors
- Door interlock disconnect switch
- Main supply fuses
- Dust-tight construction
- Removable flow sensor



Hot Water Reheat Coils

Details on water coil features are shown on performance pages.

Integral Sound Attenuator With Optional Hot Water Reheat Coil

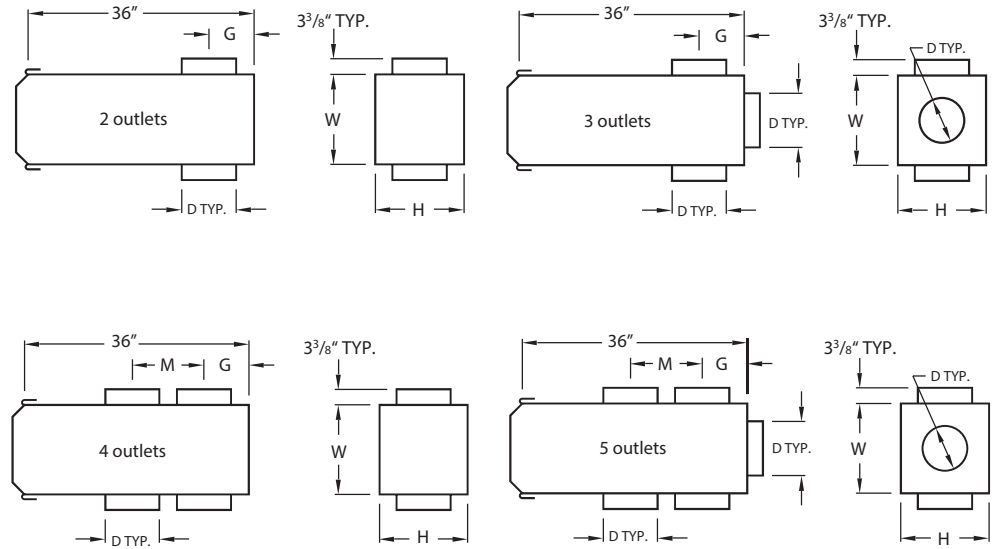
Inlet Size Inch (mm)	H Inch (mm)	M Inch (mm)	W Inch (mm)	Water Coil	
				L (1-2 Row) Inch (mm)	L (3-4 Row) Inch (mm)
4,5 (100, 125)	8 (203)	5 3/8 (137)	12 (305)	5 (127)	7 1/2 (184)
6 (150)	8 (203)	3 3/8 (86)	12 (305)	5 (127)	7 1/2 (184)
7,8 (180, 205)	10 (254)	3 3/8 (86)	12 (305)	5 (127)	7 1/2 (184)
9,10 (230, 255)	12 1/2 (318)	3 3/8 (86)	14 (356)	5 (127)	7 1/2 (184)
12 (305)	15 (381)	3 3/8 (86)	16 (406)	5 (127)	7 1/2 (184)
14 (355)	17 1/2 (445)	3 3/8 (86)	20 (508)	7 1/2 (191)	9 3/4 (184)
16 (405)	18 (457)	3 3/8 (86)	24 (610)	7 1/2 (191)	9 3/4 (184)
24x16 (608x405)	18 (457)	3 3/8 (86)	38 (965)	5 (127)	7 1/2 (184)

The total length of the DESV basic unit and accessories (attenuators and coils) is the summation of basic unit length and the accessories length.

Manufacturer reserves the rights to change specifications without prior notice.

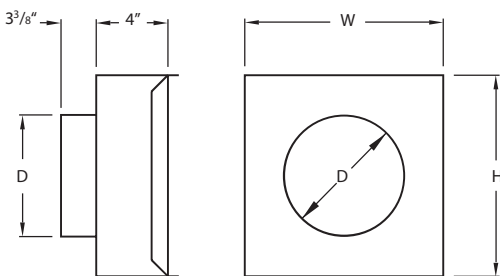
Accessories

Multi-Outlet Plenums for Single Duct Terminals



DEST Unit Sizes	Outlet Size D Inch (mm)	2 Outlets		3 Outlets		4 Outlets		5 Outlets		H Inch (mm)	W Inch (mm)
		G Inch (mm)	M Inch (mm)	G Inch (mm)	M Inch (mm)	G Inch (mm)	M Inch (mm)	G Inch (mm)	M Inch (mm)		
4, 5, 6	5 7/8 (149)	4 3/8 (111)	-	4 3/8 (111)	-	-	-	-	-	8 (203)	12 (305)
7, 8	7 7/8 (200)	5 3/8 (137)	-	5 3/8 (137)	-	5 3/8 (137)	12 (305)	-	-	10 (254)	12 (305)
8	7 7/8 (200)	-	-	-	-	-	-	5 3/8 (137)	12 (305)	10 (254)	12 (305)
9, 10	9 7/8 (251)	5 3/8 (137)	-	5 3/8 (137)	-	5 3/8 (137)	14 (355)	-	-	12 1/2 (318)	14 (355)
9, 10	7 7/8 (200)	-	-	5 3/8 (137)	-	5 3/8 (137)	12 (305)	-	-	12 1/2 (318)	14 (355)
12	11 7/8 (302)	6 3/8 (162)	-	6 3/8 (162)	-	-	-	-	-	15 (381)	16 (405)
12	9 7/8 (251)	-	-	6 3/8 (162)	-	6 3/8 (162)	14 (355)	6 3/8 (162)	14 (355)	15 (381)	16 (405)
14	11 7/8 (302)	6 3/8 (162)	-	6 3/8 (162)	-	-	-	-	-	17 1/2 (445)	20 (508)
14	9 7/8 (251)	-	-	6 3/8 (162)	-	6 3/8 (162)	14 (355)	6 3/8 (162)	14 (355)	17 1/2 (445)	20 (508)
16	11 7/8 (302)	6 3/8 (162)	-	6 3/8 (162)	-	-	-	-	-	18 (457)	24 (610)
16	9 7/8 (251)	-	-	6 3/8 (162)	-	6 3/8 (162)	14 (355)	6 3/8 (162)	-	18 (457)	24 (610)

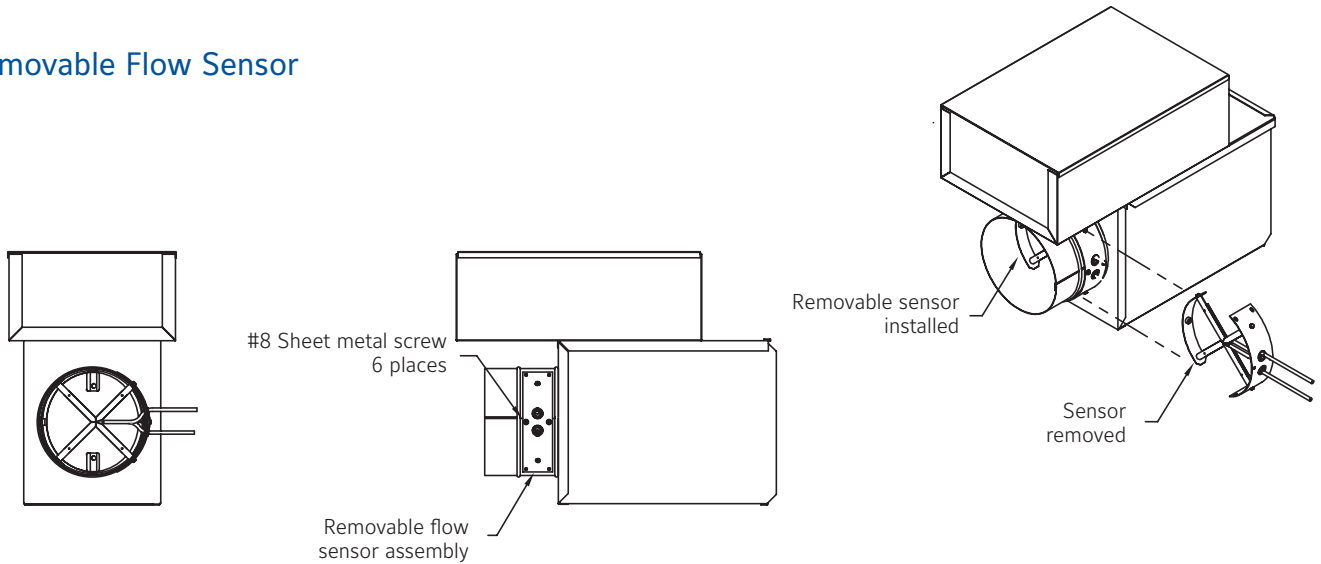
Round Outlets



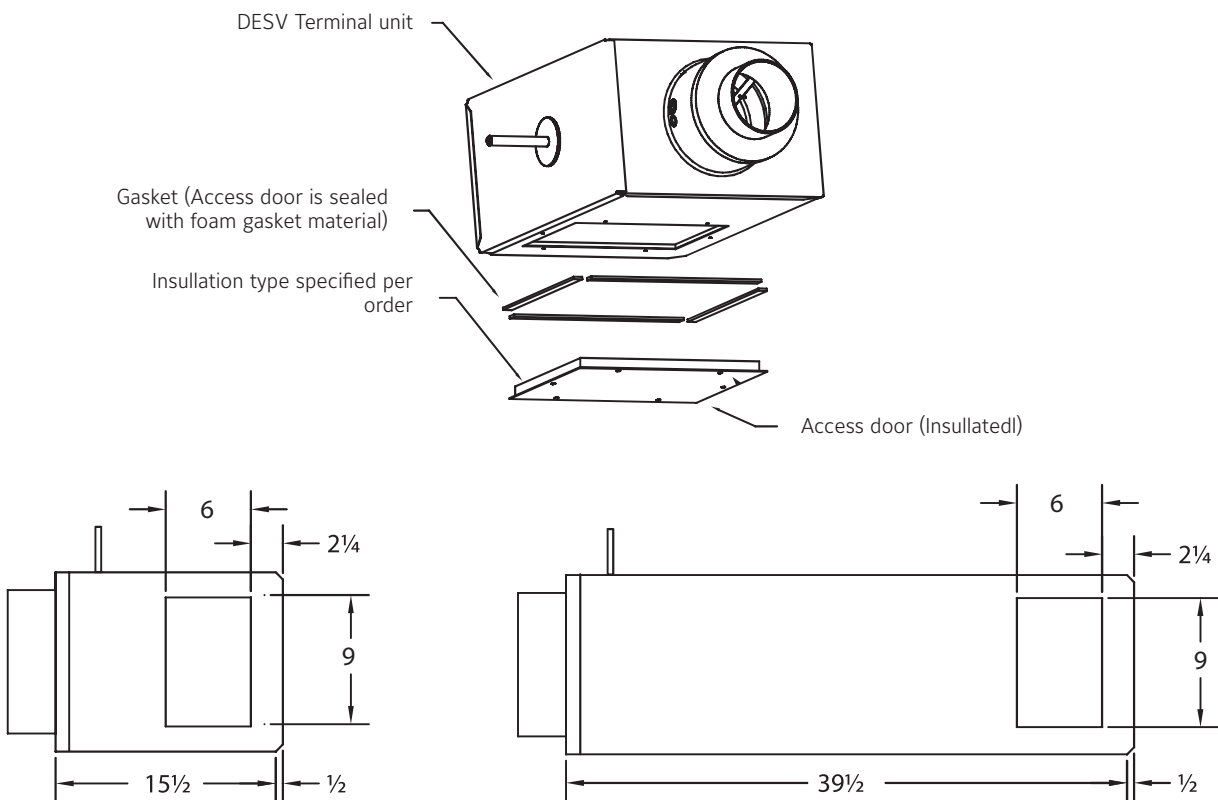
Unit Size	D Inch (mm)	H Inch (mm)	W Inch (mm)
4	3 7/8 (98)	8 (203)	12 (305)
5	4 7/8 (124)	8 (203)	12 (305)
6	5 7/8 (149)	8 (203)	12 (305)
7	6 7/8 (175)	10 (254)	12 (305)
8	7 7/8 (200)	10 (254)	12 (305)
9	8 7/8 (225)	12 1/2 (318)	14 (355)
10	9 7/8 (251)	12 1/2 (318)	14 (355)
12	11 7/8 (302)	15 (381)	16 (405)
14	13 7/8 (352)	17 1/2 (445)	20 (508)
16	15 7/8 (403)	18 (457)	24 (610)

Accessories

Removable Flow Sensor



DESV with Access Door Option



Unit size 24 x 16 must be ordered with an attenuator if an access door is needed.
All dimensions in inches.

Grilles

Overview

Titus grilles are the industry standard for high performance and high quality. The unique blade design provides maximum performance with a reduction in pressure drop and noise. With extruded aluminium construction, pleasing aesthetics and superior performance, Titus grilles are the ultimate choice for engineers and architects looking to maximize performance, looks, and functionality.

Titus grilles feature heavy gauge frames and solid aluminium blades to accommodate any commercial or industrial application. They are available in many configurations and different widths with blade spacing of 0 degree or 45 degree deflection. Optional opposed blade dampers are available in steel or aluminium material, and are factory installed.

Also Titus offers a complete line of specialty grilles for the various types of nonstandard applications that require special air distribution products. Titus specialty grilles are designed to provide the highest degree of quality and performance. The comprehensive line includes:

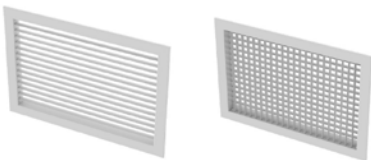
- Perforated and eggcrate return grilles to match the look and feel of perforated diffusers or parabolic lighting fixtures
- Heavy duty supply and return grilles for rugged applications like gymnasiums
- Transfer and door grilles with sight proof design
- Narrow blade reversible core grilles
- High capacity drum louvers in single or split vane design
- Spiral mount grilles designed to mount directly onto spiral ductwork without the need for saddle taps
- Heavy gauge supply grilles with lever operator for industrial applications



Features

- The quietest grilles in the industry
- High quality, competitively priced grilles
- Available in aluminium construction
- Supply grilles and return grilles are available in different blade spacing options
- Available with concealed or standard fastening method
- Screw holes in the border are countersunk for smooth appearance
- Available in several paint finish options including anodized colors

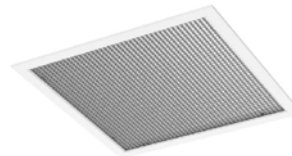
Double/Single Deflection Air Grilles



Linear Bar Grilles



Eggcrate Grilles



Transfer Grilles



Diffusers

Overview

By driving the efficient flow of air through the entire building, our range of air systems deliver healthy, comfortable, and visually appealing environments that increase work productivity and job satisfaction.

Johnson Controls offer a full range of diffusers to control the pattern and flow of air. Engineers, architects and contractors rely on our solutions to deliver the performance and efficiency they need while creating comfortable environments for building occupants. We offer a wide of sizes and colors to enhance the décor for any building.

Our diffusers are designed by an experienced staff of engineers that use the latest technology to test our products within current industry standards. Several diffusers are also GreenSpec Listed to help achieve LEED certification.

Into our wide range of diffusers you can find the solution that sure it will cover all your needs:

- Linear diffusers
- Round ceiling diffusers
- Perforated ceiling diffusers
- Square ceiling diffusers
- Architectural ceiling diffusers
- Square & rectangular ceiling diffusers louvered face
- Square & rectangular ceiling and side wall diffusers
- Low flow architectural ceiling diffusers
- Combination supply/return ceiling diffusers
- Ceiling diffusers for special ceiling grids designs



Square Ceiling Diffuser



Flow Bar Diffuser



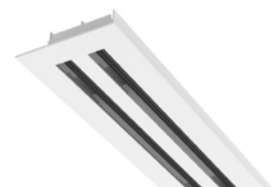
Circular Ceiling Diffuser



Jet Nozzles



Linear Slot Diffuser



Exhaust Disc Valves



Manufacturer reserves the rights to change specifications without prior notice.

FlowBar™

Architectural linear diffuser



FlowBar installed in the Fossil Corporate Headquarters in Richardson, Texas

The FlowBar™ architectural linear diffuser system maximizes engineering performance without sacrificing aesthetic considerations for the designer. FlowBar's outstanding performance allows higher air flows than conventional linear diffusers, with lower noise levels, making it ideal for high profile designs.

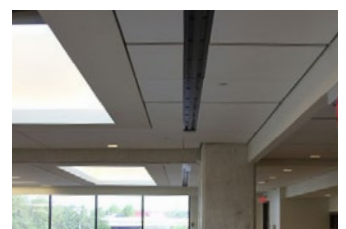
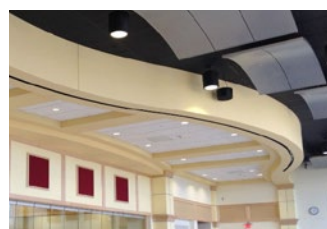
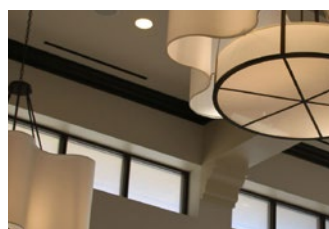
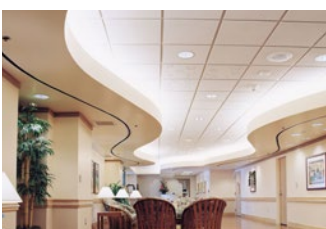
FlowBar also offers an installation alternative to the conventional linear diffuser. Conventional linear diffusers are supported by the duct system and in most cases are installed after the ceiling system is in place. For complete ceiling integration, the FlowBar system is offered with a large selection of flange styles compatible with various ceiling applications. Our unique clip/hanger support system allows for quick and easy installations.

The FlowBar system actually supports and becomes an integral part of the ceiling system and is installed along with the ceiling suspension system. Titus FlowBar offers a new concept of air distribution that fully integrates with all ceiling systems. The FlowBar system is available in continuous linear, incremental linear and square configurations. This entire series of diffusers is available with two unique pattern controllers.

The HighThrow pattern controller allows air to be directed to the left or right as well as downward when installed in a ceiling system. As air is directed in either direction horizontally, a surface effect is maintained, even at reduced volumes, to provide room air motion without drafts. This, along with its high induction characteristics, makes HighThrow an excellent choice for variable volume systems.

The JetThrow pattern controller allows the airstream to be directed to meet required comfort conditions. JetThrow is an excellent choice for high bay applications, perimeter zones requiring vertical projection and for side wall applications requiring extended throw.

Both HighThrow and JetThrow pattern controllers can be combined within a single FlowBar system.



Additional features

- Single slot, large capacity linear diffuser offers the designer an alternative to other multi-slot linear diffusers
- Supports and fully integrates with various ceiling systems
- Reduces costs and installation difficulties associated with conventional linear diffusers
- Manufactured entirely from heavy wall extruded aluminum
- Available in 6-foot or 12-foot segments
- Standard accessories ensure straight and true installations
- All FlowBar models are available custom curved to meet designer's requirements
- QuickClip® Mounting option allows installation after hard ceiling is installed

Finishes

- Standard finish: #26 white border (black pattern controller)
- Optional finish: wood grain & anodized finishes available
Border 22 and 55 are finished in #84 Black



Custom color options available

FL-10

Architectural linear diffuser / Aluminium / 1" Slot

Titus FlowBar architectural linear diffuser system maximizes engineering performance without sacrificing aesthetic considerations for the designer. FlowBar's outstanding performance allows higher airflows than conventional linear diffusers. The wide array of slot widths allow for more CFM per linear foot while minimizing noise and pressure loss. The Flowbar system is available in continuous linear, incremental linear and square configurations.

- Multiple frame styles available to complement various ceiling types
- All FlowBar systems are available curved
- Directly connected to the ceiling support components ensuring straight and true installations
- Integral pattern controllers are on standard 24-inch centers, allowing the airstream to be directed left and right for horizontal and vertical airflow
- Mitered corners, mitered tees and butt ends are available

Models

- FL-10 - 1.0" Slot
- FL-15 - 1.5" Slot
- FL-20 - 2" Slot
- FL-25 - 2.5" Slot
- FL-30 - 3" Slot

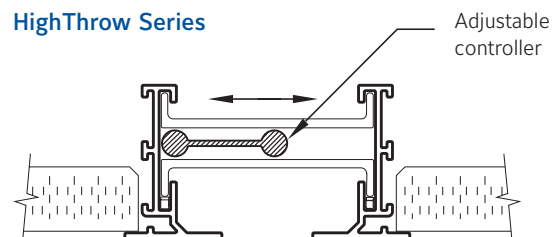


Metric sizes



Wood grains

HighThrow Series



Adjustable controller

Manufacturer reserves the rights to change specifications without prior notice.

Dampers and Louvers

Our products are the most accurate and innovative on the market. They are easy to install, simple to use, and customizable to the needs of your HVAC, building, and controls systems.

Ruskin® helps our partners build better buildings by ensuring the safe flow of healthy, comfortable air.

Our knowledgeable, dedicated rep network is alert to every customer's needs and provides expert advice and nimble service. Great products and excellent service – that is why we lead the air control industry.



Louver and Architectural Solutions

- Acoustical Louvers
- Adjustable Louvers
- Air Measuring Louvers
- Combination Louvers
- Extreme Performance Louvers and Grilles
- Glazing Louvers
- Hurricane and Wind-Driven Rain Louvers
- Penthouse Louvers
- Screens and Grilles
- Sightproof Louvers
- Specialty Shape Louvers
- Stationary Louvers
- Sun Control Sunshades
- Industrial Fiberglass Louvers



Life Safety Solutions

- Access Doors
- Addressable Controllers
- Ceiling Radiation Dampers
- Combination Fire and Smoke
- Dampers
- Corridor Dampers
- Fire Dampers
- Smoke Dampers



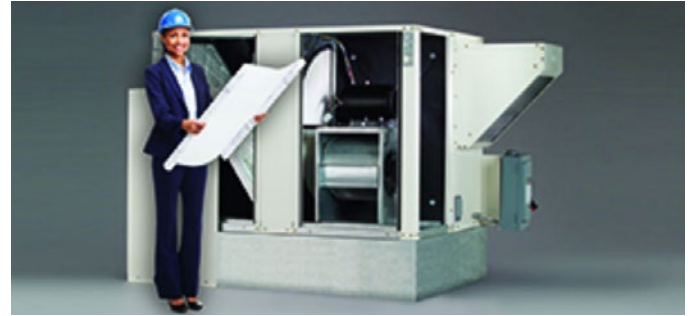
Commercial Control, Manual, and Backdraft Dampers

- Backdraft and Pressure Relief Dampers
- Commercial Control Dampers
- Insulating Control Dampers
- Balancing Dampers
- Concentric and Specialty Diffusers



Industrial-Process Control Solutions

- Backdraft and Pressure Relief Dampers
- Blast Suppression Dampers
- Bubble-Tight Isolation Dampers
- Control and Isolation Dampers
- Fiberglass Dampers
- Tunnel Fire/Ventilation Dampers
- Industrial Diffusers



Energy Recovery Ventilators (ERV)

- Indoor ERVs
- Outdoor ERVs
- MiniCore and MiniVent ERVs
- ERVs with heating and cooling options



Airflow Measuring and Control

- Electronic Airflow Measuring (Thermal Dispersion Technology)
- Velocity Pressure Airflow Measuring (Differential Pressure Technology)
- Complete Turn-Key Airflow Measurement and Control Packages - built, assembled, and calibrated by Ruskin
- Airflow Measurement Actuators (BACnet Interface)
- Airflow Measuring Louvers
- Airflow, Velocity, and Differential Pressure Flow Meter
- IAQ Accessories



Noise Control Solutions

- Acoustical Louvers
- Rectangular Silencers
- Elbow Silencers
- Tubular Silencers
- Transfer Silencers
- Tunnel Ventilation Silencers
- Modular Acoustic Panels

Manufacturer reserves the rights to change specifications without prior notice.

Products for Data Centers

Many businesses today rely on data centers. Relocating data to these storage facilities means operations can free up vital resources for their on-site servers. Data centers run constantly, which means business owners face two important considerations: running costs (including power consumption), and HVAC equipment maintenance.

Manage airflow and reduce energy costs

Data centers must manage the external airflow in and out of a facility to reduce energy costs and maintain a safe working environment. With these goals in mind, managers of hyper-scaled cloud server facilities achieve greater efficiencies. This reduces HVAC energy costs while also protecting their equipment.

Ruskin® solutions can help data centers attain these benefits.

Demanding applications require quality products that meet critical performance criteria. For more than 60 years, professionals in multiple industries have relied on Ruskin to deliver industry-leading air control in a variety of sophisticated building designs.

This makes Ruskin the ideal supplier of air control products for data centers because these buildings are expected to meet exceptionally rigorous standards for cooling and indoor air quality (IAQ).



RUSKIN AIR CONTROL SOLUTIONS – BENEFITS

- ✓ Quality backed by an exclusive five-year warranty
- ✓ Product support for applications customized for data centers
- ✓ Products manufactured to specific requirements
- ✓ Factory-mounted and commissioned controls
- ✓ Significant manufacturing capacity to ensure delivery meets customer deadlines
- ✓ Aluminum, hot-dip galvanized, and stainless-steel constructions
- ✓ High-performance airfoil designs
- ✓ Thermally insulated and non-insulated options
- ✓ Premium in-house acid-etch anodizing
- ✓ 20-year louver paint warranty

Protecting data centers with Ruskin solutions

Ruskin has designed three commercial damper models, the CD60DC, the CD50DC and the TED50DC, for use in data center and high performance facilities.

These models are designed for HVAC systems that serve data centers, facilities where high performance and reliability are essential. The DC models feature airfoil blades and have Class 1A leakage performance to provide impressive energy savings. Data centers require HVAC systems to maintain proper environmental conditions for optimal performance and reliability of Information Technology Equipment (ITE).

Air control dampers play a vital role in these systems and must perform at the highest levels possible. They also feature a new coupler that joins two damper sections without a jackshaft. This allows an actuator to be mounted on the side of the frame to provide a narrow profile where space is limited.

In addition, on larger multi-section sizes, the DC models provide enhanced operational performance with fewer moving parts.

These dampers are available in both galvanized steel and extruded aluminum.

KEY FEATURES

- ✓ Non-corrosive bearings
- ✓ Shake-proof linkage
- ✓ Ultra-low leakage
- ✓ Minimal maintenance
- ✓ Low noise levels
- ✓ Lowest pressure drop



CD60DC

High-Performance Galvanized Steel Airfoil Blade Damper.

Air Movement and Control Association (AMCA) Class 1A Leakage Rating.



CD50DC

High-Performance Control Damper - Extruded Aluminum/Airfoil Blade Damper.

AMCA Class 1A Leakage Rating.



TED50DC

Thermally Efficient Extruded Aluminum Insulated Airfoil Blade Damper.

AMCA Class 1A Leakage Rating.

Manufacturer reserves the rights to change specifications without prior notice.

MAC 10 XL Fan Filter Unit

A range from 535 m³/h to 1121 m³/h

Extra-low watts, sound and profile

The Envirco MAC 10 Fan Filter Unit was the first (FFU) to combine low sound, low watts and a low profile.

Measuring only 51 dBA, the MAC 10 XL 600 x 1210 mm provides one of the lowest sound levels of any FFU in the industry.

Running at only 310 watts at 0.45 m/s, the unit uses less energy than traditional FFUs, lowering operating costs.

The MAC 10 XL maintains a low profile, measuring less than 330 mm. This unit comes standard with the filter integral with the unit housing, requiring the unit to be removed from the ceiling grid to replace the filter.



Standard features

- Low sound, watts, profile, and operating costs
- Three speed switch features "low", "medium", and "high" settings (standard on all 600 x 1210 mm units)
- Solid state speed controller standard on 600 x 1210 mm and 600 x 910 mm units
- Forward-curved centrifugal fan
- High-efficiency particulate air (HEPA) filter: 99.95% percent at 0.3 µm. UL900 filter: 99.99% percent at 0.12 µm
- Snap-in pre-filter allows for easy replacement and maintenance
- Mill-finished aluminum exterior
- Tested to IEST Recommended Standards
- CE-marked: 230V units

Optional features

- Solid-state speed control: available on 600 x 1210 mm standard units; allows for a full range of settings
- PTFE boron-free ULPA filter
- Monitoring and control system: On-site or remote monitoring and adjustment
- Finish: Powder coat painted or stainless steel
- Custom sizes and configurations available: perfect for mini-environment applications

Performance data

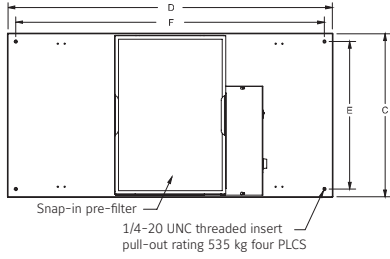
Unit type	Nominal unit sizes	Motor hp	Max m ³ /h	m ³ /h at 0.45 m/s	Watts at Max m ³ /h	Watts at 0.45 m/s	Total unit weight (kg)	
							AL	SS
MAC 10 XL	600 x 600	1/4	697	535	145	85	41	51
	600 x 910	1/4	951	799	200	140	52	62
	600 x 1210	1/4	1121	1104	260	235	66	76

Acoustic performance

Unit type	Nominal unit sizes	Sound level dBA at 0.45 m/s	Octave band sound at 0.45 m/s					
			2	3	4	5	6	7
MAC 10 XL	600 x 600	46	48	48	49	44	38	30
	600 x 910	47	40	42	42	33	25	16
	600 x 1210	48	46	50	47	40	38	35

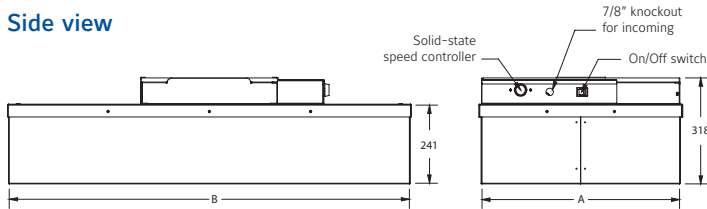
Performance tested in accordance with the ANSI/AMCA 210-07 and ANSI/ASHRAE 51-07 test standards for Certified Aerodynamic Performance Rating.
 Max m³/h rating based on free air volumes at high-speed motor setting.
 0.45 m/s values based on the active-filter face area
 Heat gain: BTU = watts x 3.413

Top view



Nominal unit sizes	A mm	B mm	C mm	D mm	E mm	F mm
600 x 600 mm	600	600	606	606	543	543
600 x 910 mm	600	905	606	911	543	848
600 x 1210 mm	600	1210	606	1216	543	1152

Side view



Panel sizes	OA face dimensions
610 x 610 mm	600 x 600 mm
1220 x 610 mm	1210 x 600 mm

MAC 10 XL

The MAC 10 XL (600 x 1210 mm) is available with the three-speed switch or speed control (600 x 600mm and 600 x 910mm units come with speed control as standard). Custom sizes are available. Consult the factory for both size and control options.

Full-load amps

PSC	115V	2.70
	208V	1.30
	277V	1.20

Active-filter face areas

Unit type	Nominal sizes	Active-filter face areas
MAC 10 XL	600 x 600 mm	3.5
	600 x 910 mm	5.3
	600 x 1210 mm	7.2

MAC 10 IQ Fan Filter Unit

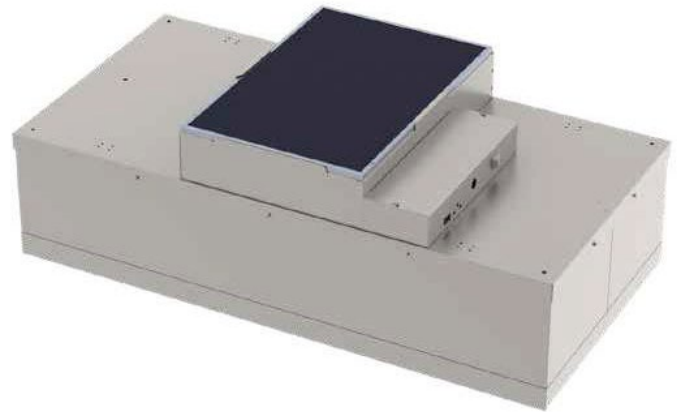
A range from 535 m³/h to 1121 m³/h

The first fan filter unit (FFU) with a built-in brain

The MAC 10 IQ is the world's first smart fan filter unit. With its microcomputer-controlled EC motor, the MAC 10 IQ dynamically adjusts itself to maintain the set airflow, compensating for changes in static pressure, filter loading or other local conditions. Competitively priced, the MAC 10 IQ offers low sound, low energy consumption and low profile with high performance and built-in intelligence control. MAC 10 FFUs are used worldwide for a variety of critical clean air applications..

The MAC 10 IQ FFU uses a combination of EC motor technology with Enviroco's patented baffling system and forward curve fan to make it intelligent and energy-efficient. This unique combination takes advantage of Enviroco's expertise in FFUs and the energy efficiency of EC motors.

The electronically commutated (EC) motor has an internal micro-computer that provides low energy consumption (105 watts at 0.45 m/s), high performance and longer motor life. The IQ utilizes Enviroco's patented VE5 baffling technology, offering low sound levels that are a MAC 10 family benchmark.



Features

- EC brushless motor with internal microprocessor
- Universal control card allows manual control via the integral potentiometer. Remote speed control via 0-10V analog signal. Network control via MODBUS compatible RTU network protocol
- Low power consumption FFU at 105 watts
- Low sound at only 51 dBA
- High-efficiency particulate air (HEPA) filter: 99.99% percent at 0.3 µm (H13)
- 150 Pa of external static capability at 0.45m/s
- Forward-inclined centrifugal-type fan
- Walkable plenum (excluding prefilter)
- Snap-in pre-filter allows for easy replacement and maintenance (406x591x13 mm)
- Mill-finished aluminum exterior
- CE-marked: 230V units

Performance data

Unit type	Nominal unit sizes	Motor hp	Max m ³ /h	m ³ /h at 0.45 m/s	Watts at Max m ³ /h	Watts at 0.45 m/s	Total unit weight (kg)	
							AL	SS
MAC 10 IQ	600 x 600	1/3	697	535	200	165	41	51
	600 x 910	1/3	951	799	270	240	52	62
	600 x 1210	1/3	1121	1104	315	310	66	76

Acoustic performance

Unit type	Nominal unit sizes	Sound level dBA at 0.45 m/s	Octave band sound at 0.45 m/s					
			2	3	4	5	6	7
MAC 10 IQ	600 x 600	48	45	51	49	36	32	25
	600 x 910	41	42	41	44	30	22	14
	600 x 1210	51	57	52	49	44	36	30

Performance tested in accordance with the ANSI/AMCA 210-07 and ANSI/ASHRAE 51-07 test standards for Certified Aerodynamic Performance Rating.
 Max m³/h rating based on free air volumes at high-speed motor setting.
 27 m/min values based on the active-filter face area
 Heat gain: BTU = watts x 3.413

Constant airflow

Unlike conventional induction motors, the EC motor regulates itself by automatically adjusting its torque and speed. In addition, each MAC 10 IQ includes a visual control unit that provides a constant airflow of 0.26–0.66 m/s over a wide range of static pressure.

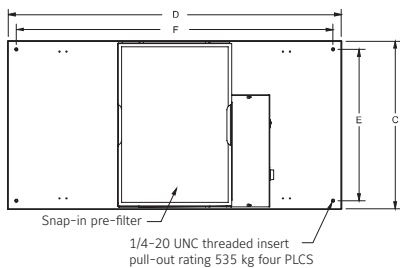
The MAC 10 IQ maintains airflow so constantly and consistently that the need for future balancing is greatly reduced. The correlated velocity feature of the visual control unit provides infinite control and fine-tuning capabilities for each FFU.

The MAC 10 IQ efficiently and easily maintains set cleanroom airflow velocities that meet IEST Recommended Practices. With its unique constant airflow feature, the MAC 10 IQ is also an ideal component for mini-environments.

Options

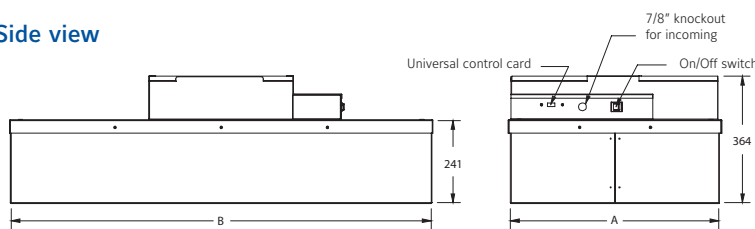
- Controls: a range of console and PLC options are available for standalone or integrated BMS network control.
- Ultralow penetration air filter (ULPA): 99.9995 percent at 0.12 µm (U15)
- Custom sizes and configurations: perfect for mini-environment applications
- Finish: powder coating painted or stainless steel

Top view



Nominal unit sizes	A mm	B mm	C mm	D mm	E mm	F mm
600 x 600 mm	600	600	606	606	543	543
600 x 910 mm	600	905	606	911	543	848
600 x 1210 mm	600	1210	606	1216	543	1152

Side view



Panel sizes	OA face dimensions
610 x 610 mm	600 x 600 mm
1220 x 610 mm	1210 x 600 mm

Full-load amps

ECM	115V	4.50
	208V	2.80
	277V	2.30

Active-filter face areas

Unit type	Nominal sizes	Active-filter face areas
MAC 10 IQ	600 x 600 mm	3.5
	600 x 910 mm	5.3
	600 x 1210 mm	7.2



Manufacturer reserves the rights to change specifications without prior notice.



Discover our new range of Indoor Air Quality products to reduce risk and get ready for the new normal

Expert organizations such as EUROVENT, ASHRAE or REHVA recommend diluting air in a space with cleaner air from outdoors and/or filtering the air to prevent airborne transmission of potentially harmful particles.*

Preventing the spread of viruses has become a major concern for cities, communities, companies – and each and every one of us. We are here to help you take the next step towards safer schools, offices, and facilities.

* www.ashrae.org/file%20library/about/position%20documents/airborne-infectious-diseases.pdf

YORK Mobile HEPA Filter Unit

A range from 800 m³/h up to 1600 m³/h



Available colors

- Future White (standard)
- Exclusive Black (optional)
- Healthy Pink (optional)
- Dressy Blue (optional)

Introduction

Cold winter temperatures externally or limitations in the building do not always permit the required outdoor air supply to the room. **YORK Mobile HEPA Filter** units are designed to help you reduce risk and increase peace of mind by filtering the indoor air in your facility.

Thanks to the modern vertical frame design, this unit can be placed nearly everywhere. Even though it has an airflow of up to 1,600 m³/h, the unit has a very low noise level because of the good internal insulation and the oversized dimensions of the fan section. Our innovative three-stage filtration system supports the maximum lifetime for the HEPA filter.

A **G4** pre-filter is positioned at the air suction side, at the bottom of the unit, to hold dirt and dust. The double containment mesh G4 filter is washable.

The **F7** filter, with a low pressure drop and a wide filtering surface, is positioned right before the HEPA filter to act as clean room air pre-filtration.

The **HEPA 13** filter, with a filtration efficiency of ≥ 99.95 percent, is positioned just before the fan section.

An optional **HEPA 14** filter, with an even higher filtration efficiency of up to ≥ 99.995 percent, is also available.



Exhaust plenum

Wall brackets

HEPA Filter H13 or H14

EC fan

UV-C lamps (optional)

ISO ePM1 55%

Coarse 70%

Wheels (optional)

Technical features

Individual modules		H13	H14
Airflow	m ³ /h	800 to 1600	800 to 1400
Consumption	kW	0.2 ~ 0.3	0.2 ~ 0.3
Sound pressure level (1.5m)	dB(A)	47	45
Dimensions (H x L x D)	mm	1900 x 700 x 500	1900 x 700 x 500
Electrical power		220V / 1ph / 50Hz Plug-and-Play	220V / 1ph / 50Hz Plug-and-Play
Filter type		HEPA 13	HEPA 13
OPTIONS		UV-C lamps and HEPA 14 filter	UV-C lamps and HEPA 14 filter



Manufacturer reserves the rights to change specifications without prior notice.

TRION Commercial Air Cleaner

Air Purification System Solutions

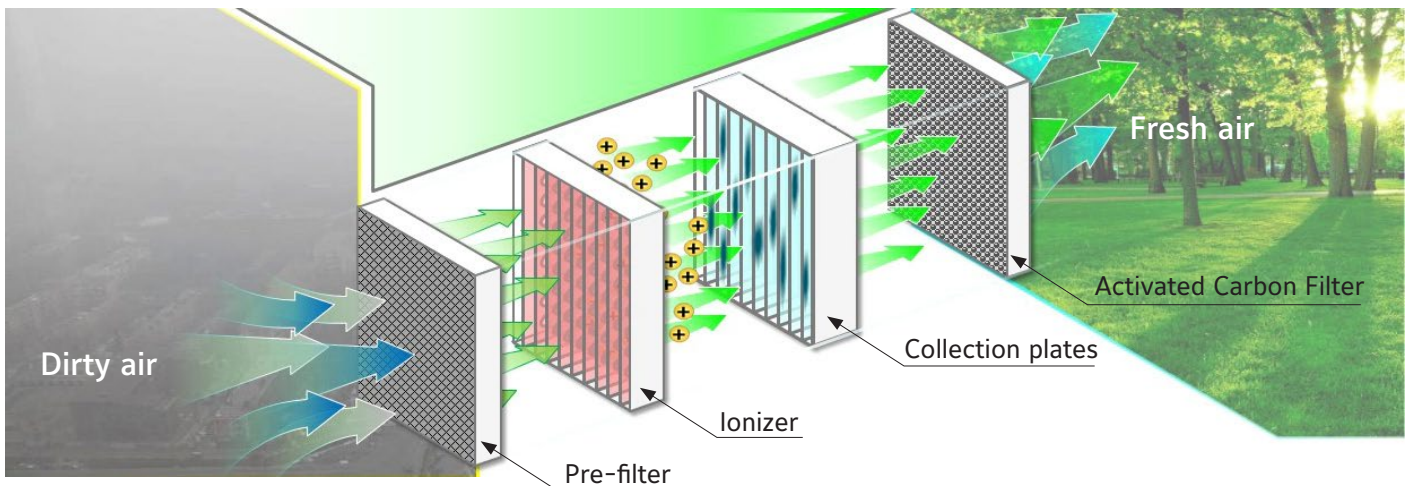


In recent years, economic growth has led to higher expectation towards quality of life. However, it has also brought about health concerns from the increased environmental pollution. With recent trends indicating that people are spending more than 80% of their time engaging in indoor activities, indoor air quality (IAQ) has become increasingly important.

Equipping high human traffic commercial and public areas with high efficient air purification systems has become a basic requirement to protect human health.

Electrostatic precipitator (ESP) working principle

- As the dirty air will first pass through the prefilter, larger pollutant particles are intercepted while the smaller particles will enter the ionization zone.
- In the ionization zone, particles as small as $0.01\ \mu\text{m}$ are effectively ionized and the positive charged ions advance to the dust collection area.
- The dust collection area are composed of positively and negatively charged parallel plates. The positive ions are attracted and captured by the negatively charged plates, leaving behind clean air.
- The clean air then enters the activated carbon area and the activated carbon filter will absorb the odour molecules particles; finally, the clean and fresh air will be sent back indoor or discharged into atmosphere.



Aircon Unit ESP Air Cleaner

EFB Series

TRION EFB Series are suitable for usage in commercial and industrial central airconditioning AHU or return air duct in the ducted system. Utilising electrostatic purification technology to effectively capture particulates as tiny as 0.01 μm , EFB is the ideal high efficient and reusable purification solution. The air will be sent back indoor or discharged into atmosphere.

Efficient purification

Dust Removal: PM2.5 purification efficiency up to 95%.
Bacterial Removal: microorganism purification efficiency up to 95%.

Low pressure drop

At air velocity of 2.5m/s, the pressure drop is lower than 20Pa, effectively lowering energy consumption.

Permanent usage

The electrostatic purification (ESP) cell is made of aluminum alloy used in Aerospace. The metal also undergoes oxidation treatment to increase corrosion resistance and shelf life. The cell module are washable and reusable.

UV sterilization module (optional)

The optional UV sterilization module is equipped with UV lamp and TiO_2 catalyst, which provide UV sterilization and Photocatalytic Oxidation (PCO) effects to easily eliminate airborne virus and bacteria.

Ceramic insulation

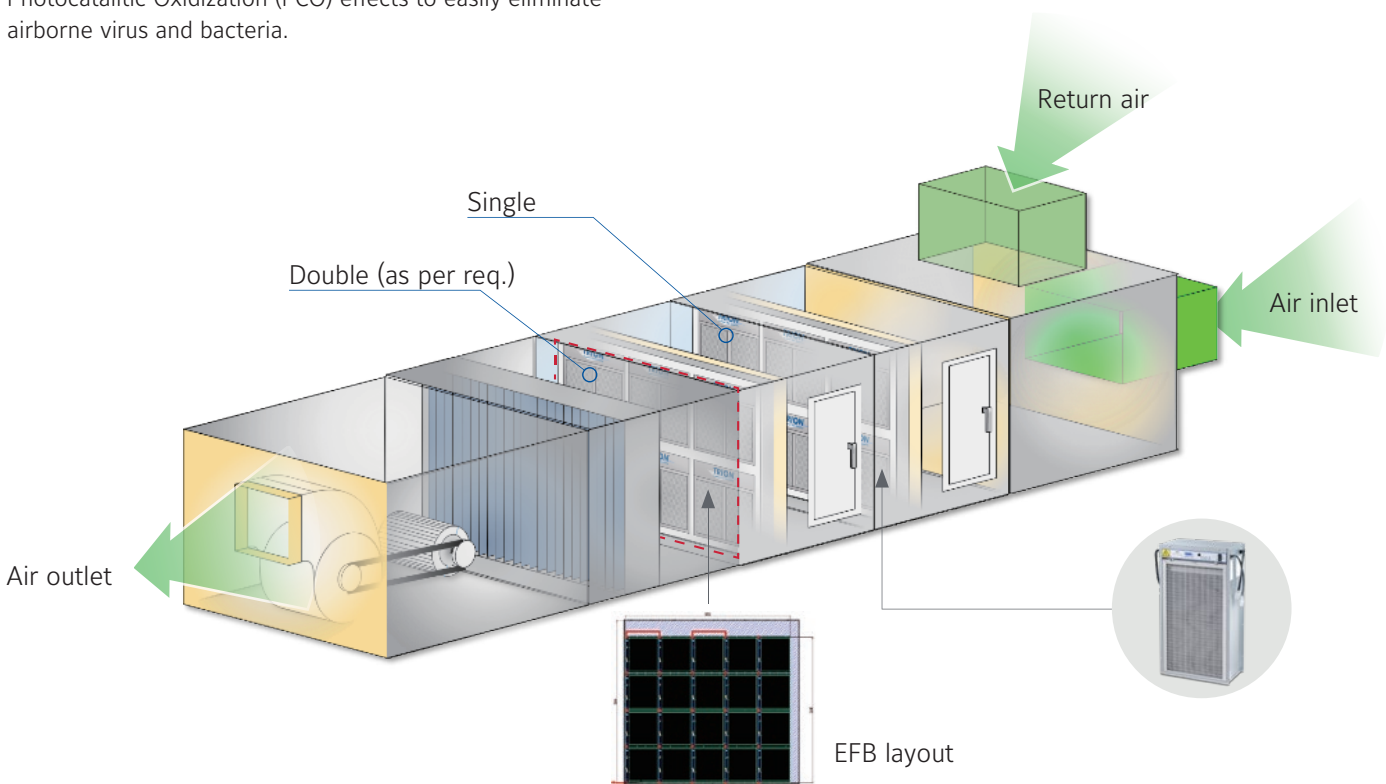
The ESP Cell utilises ceramic insulation to limit contamination buildup and prevents sparking.

Solid-state self-regulating power

Solid-state self-regulating power unit can monitor ambient temperature, humidity and dirt accumulation to regulate power output to ensure efficiency and stability.

Smart control

Equipped with operation, fault and washing alert indicator lights; Optional BA communication interface connectivity.



Aircon Unit ESP Air Cleaner

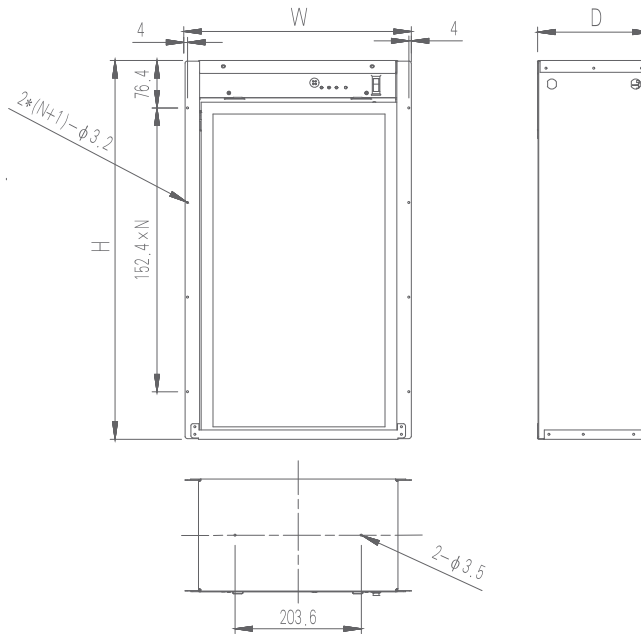


Performance data

Model		EFB Single		EFB Double		EFB Double Stack		
Parameter	Air volume	m ³ /h	1700	2500	3400	5000	3400	5000
	Power supply		220-240V, 50/60Hz/1PH					
	Pressure drop	Pa	<20 @ 2.5 m/s					
	Power	w	30 (70) *	40 (80) *	40 (115) *	35	50	50
	Weight	kg	12 (14) *	18 (20) *	18 (20) *	14	22	21
	Safety protection		Safety switch, AFS					
	Pre-filter		Aluminum mesh,					
	Pre-filter (optional)		G2 22mm, G4 45mm (optional)					

* EFB + UV sterilization module (optional)

Outer dimension



Model	Air Volume (m ³ /h)	W (mm)	H (mm)	D* (mm)	D** (mm)	D** (mm)	D**** (mm)	N (PCS)
EFB Single	1700	348	610	182	203	270	290	3
	2500	489	610	182	203	270	290	3
EFB Double	3400	660	610	182	203	270	290	3
	5000	931	610	182	203	270	290	3
EFB Double Stack	3400	348	1115	182	203	270	290	6
	5000	489	1115	182	203	270	290	6

* EFB with a 22mm pre-filter

** EFB with a 45mm pre-filter

*** EFB + UV sterilization module (optional) with a 22mm pre-filter

**** EFB + UV sterilization module (optional) with a 45mm pre-filter



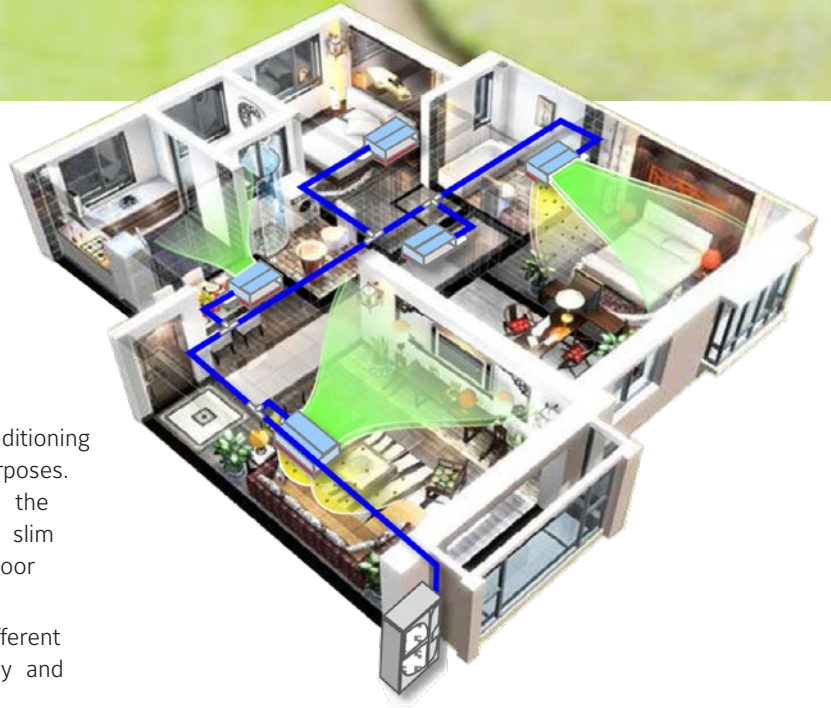
Manufacturer reserves the rights to change specifications without prior notice.



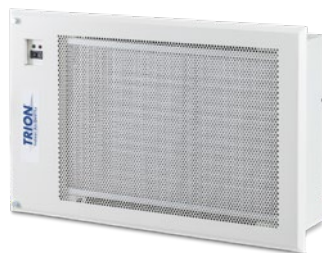
FCU Return-Air ESP Air Cleaner

Fan coil units (FCU) are commonly used in central airconditioning system for commercial, industrial and residential purposes. Utilizing TRION Electrostatic Precipitation Technology, the FCUs are highly efficient with low pressure drop. Its slim design connects flawlessly with the ducts, improving indoor air quality.

TRION provides 3 different FCU series to satisfy different customer demands which can have varying efficiency and installation methods.



High efficiency EFC series



Grille mounted TGM series



Micro-porous filtration MEFC series

FCU Return-Air ESP Air Cleaner

High Efficiency EFC Series

Optimised design for dust-collecting plate ensure high purification efficiency and clogging capacity but low pressure drop.

Flow sensor interlock logic

Smart On-Off saves energy and protect ionizer cell module.

Safety switch

Safety switch ensures operator safety during operation and maintenance.

Cleaning alert

Indicating signal to alert pre-filter and clog washing.

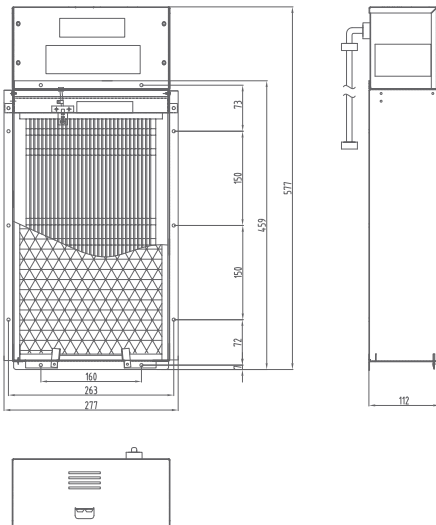


Performance data

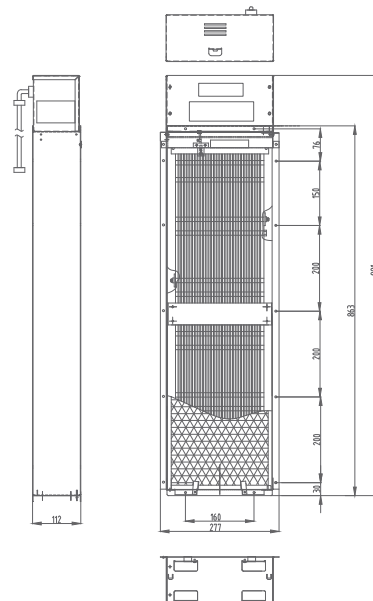
Model		EFC400	EFC800	
Parameter	Air volume	m ³ /h	1700	3400
	Power supply		220-240V/50Hz/1PH	
	Power	w	30	
	Pressure drop	Pa	≤20	
	Efficiency		65% - 95%	
	Weight	kg	5.5	10
	Dimension (W x H x D)	mm	577 x 277 x 112	981 x 277 x 112
Accessories	Safety function	Safety switch + Flow sensor		
	Pre-filter	Aluminum		

Outer dimension

EFC400



EFC800



FCU Return-Air ESP Air Cleaner

Grille Mounted TGM Series

Large air flow volume

Single unit design guarantees large air flow volume with high purification efficiency, reducing new build and modification project budget.

Detachable grille

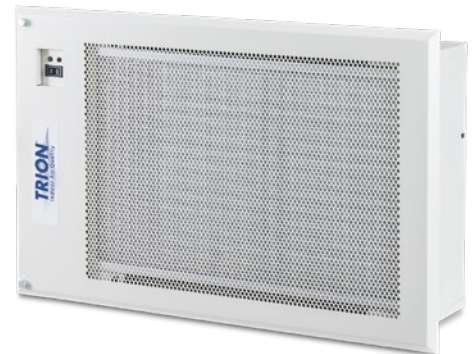
Reduces installation cost and makes washing and maintenance easier.

Slim design

Product depth of 174mm reduces installation space.

Quality and durability

Ionizer cell is made of high quality and corrosion resistant aviation aluminium.

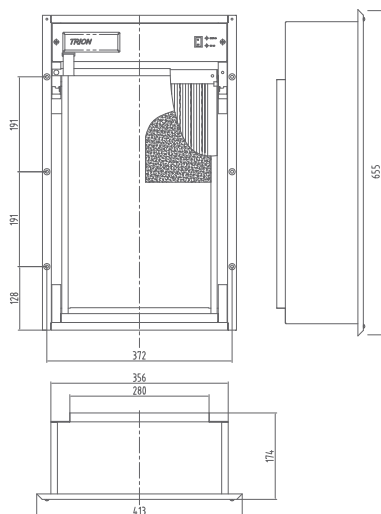


Performance data

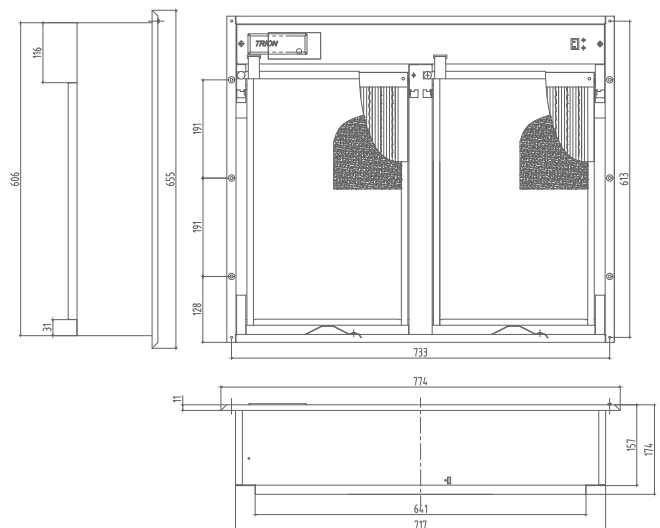
Model	TGM1000		TGM2000	
Parameter	Air volume	m ³ /h	1700	3400
	Power supply		220-240V/50Hz/1PH	
	Power	w	45	55
	Pressure drop	Pa	≤30	
	Efficiency		95%	
	Weight	kg	13.5	24
	Dimension (W x H x D)	mm	413 x 655 x 174	774 x 655 x 174
Accessories	Safety function	Safety switch + Flow sensor		
	Pre-filter	Aluminum		

Outer dimension

TGM1000



TGM2000



Manufacturer reserves the rights to change specifications without prior notice.

FCU Return-Air ESP Air Cleaner

Micro-Porous Filtration MEFC Series

MEFC utilises micro-porous filtration technique to achieve higher purification efficiency and reliability. MEFC's range of different air volume and specifications for selection will allow the best fit for the ducting installation.



Strong filtration

PM2.5 removal efficiency up to 97%
Micro-organism removal efficiency up to 94.6%

Micro-porous dust collection

Bee hive shape collection plate creates a strong electric field which increases ion absorption.

Reliability

Insulation reduces danger of breakdown and electric arcing. Filtration material fulfil UL94 V-2 retardant requirement. Unit comes equipped with safety switch and earthing, guaranteeing operational safety.

Smart control

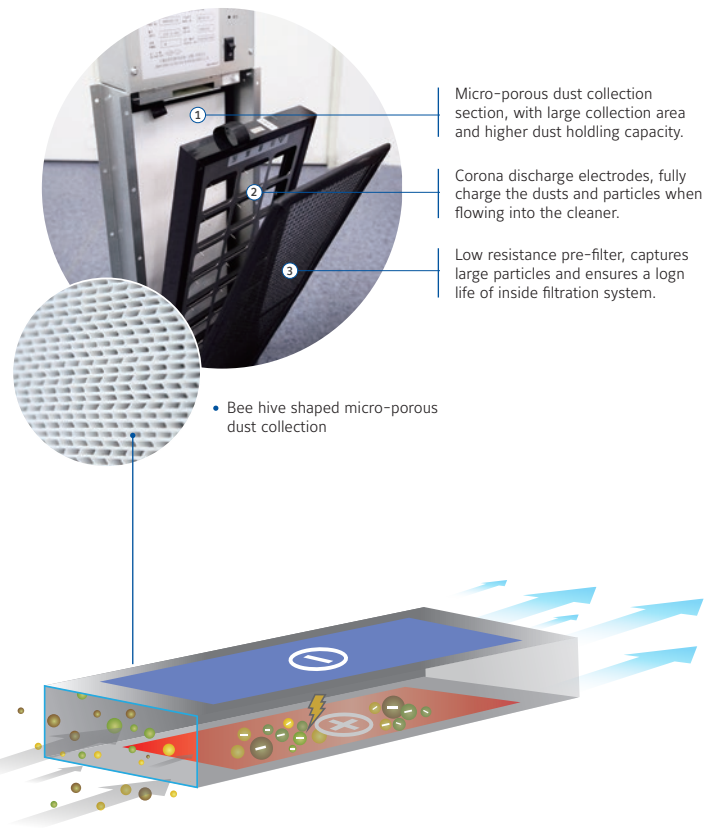
Unit on/off linked with fan to ensure indoor air quality. Unit comes with alert signal to remind washing. Comes with RS485 port which can be connected to BMS control system.

Flexible installation

78mm ultrathin design, size matches FCU and can be installed easily. 300-1,500m³/h multi-configurations and air volumes satisfy different applications.

Easy maintenance

Micro-porous filtration module can be washed instead of replacement when the module gets dirty to save cost. Comes with Top Draw (parallel push-in and draw the unit to air flow direction) and Side Draw (perpendicular push-in and draw the unit to the air flow direction), which brings convenience for flexible installation and maintenance.

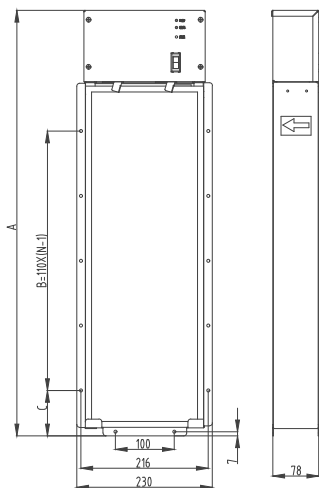


Performance data

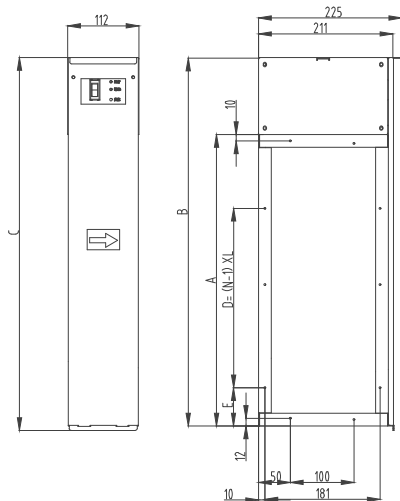
Model		MEFC300	MEFC600	MEFC900	MEFC1200	MEFC1500	MEFC900-B	MEFC1200-B	MEFC1500-B		
Parameter	Air volume	m ³ /h	300	600	900	1200	1500	900	1200	1500	
	Power supply	220V/50Hz/1PH									
	Power	w	4	4	5	5	5	7	7	7	
	PM2.5 removal efficiency	Primary Efficiency up to 97%									
	Micro-organism efficiency	Primary Efficiency up to 94%									
	Pressure drop	Pa	<20 Pa @1.0 m/s								
	Pre-filter	Nylon Mesh									
	Status indicator	Operation, Wash									
	Control mode	Fan interlock									
	Safety feature	Safety switch									
Installation	Installation connection	Return air duct opening of FCU									
	Top Draw	Dimension (LxWxH) mm	443x230x78	720x230x78	997x230x78	1226x230x78	1411x230x78	997x230x78	1226x230x78	1411x230x78	
		Weight (kg)	3.2	4.5	5.6	6.8	8.1	5.6	6.8	8.1	
	Side Draw	Dimension (LxWxH) mm	416x225x112	695x225x112	972x225x112	1199x225x112	1384x225x112	972x225x112	1199x225x112	1384x225x112	
		Weight (kg)	4.6	6.0	7.1	8.4	9.9	7.1	8.4	9.9	

Outer dimension

MEFC Top Draw



MEFC Side Draw



Model	MEFC300	MEFC600	MEFC900	MEFC1200	MEFC1500
A (mm)	443	720	997	1226	1411
B (mm)	220	550	770	990	1100
C (mm)	85	34	91	77	77
Qty (pcs)	3	6	8	10	11

Model	MEFC300	MEFC600	MEFC900	MEFC1200	MEFC1500
A (mm)	288	567	844	1071	1256
B (mm)	409	688	965	1192	1377
C (mm)	416	695	972	1199	1384
D (mm)	200	480	720	960	1080
E (mm)	40	40	40	60	60
Qty (pcs)	3	5	7	9	10
Length (mm)	100	120	120	120	120

Ducted ESP Air Cleaner



HE Series

The TRION HE Series has superior purification performance in terms of efficiency, capacity, reliability, installation and maintenance to fullfit HVAC ventilation system application requirement. HE series has high efficiency, low pressure drop, durability, easier installation and mintenance, committed to create better indoor air quality for customers.

High efficiency low pressure drop

High unit efficiency with lower pressure drop than standard filters, effectively reducing HVAC ventilation system energy consumption.

Ceramic insulation

Electrostatic field adopts ceramic insulation to prevent dampness, contamination, creepage or electric sparking.

Durability

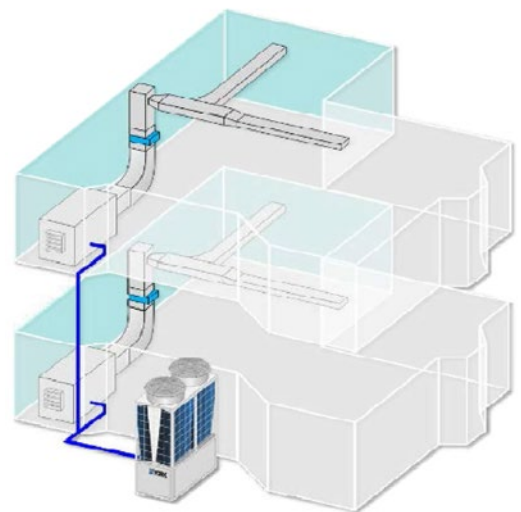
Purification module can be removed for repeated washing without the need for replacement.

Air flow sensor interlock control

Smart operation switch reduces energy consumption and protects ionizer cell.

Installation and maintenance

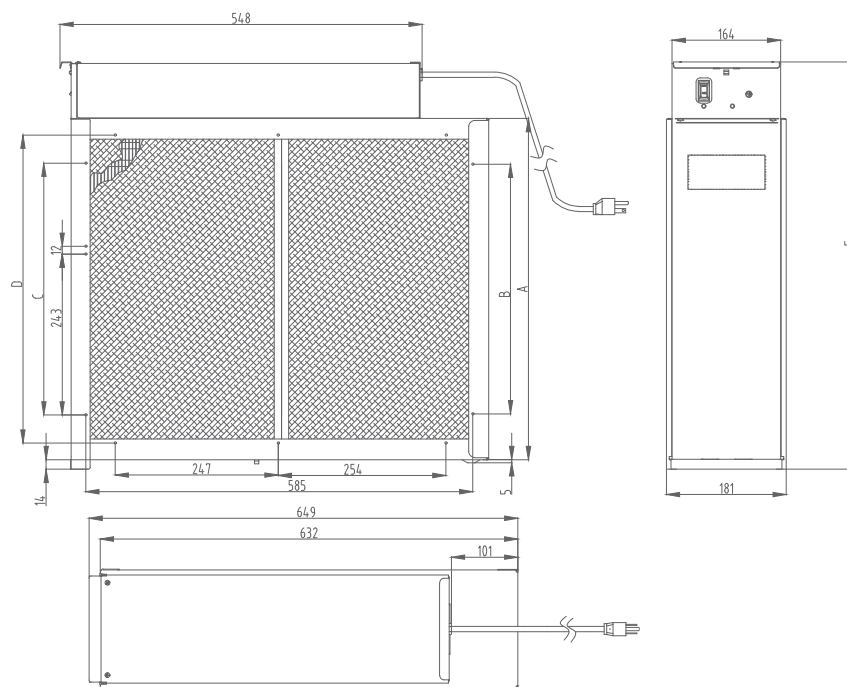
Unit can be installed in the duct in horizontal and vertical orientation. Plug-in design for ease removal and maintenance.



Performance data

Model			HE1400	HE2000
Parameter	Air volume	m ³ /h	2380	3400
	Power supply		220V/50Hz/1PH	
	Power	w	45	50
	Purification efficiency		95%	
	Pressure drop	Pa	≤30	
	Dimension (W x H x D)	mm	649 x 514 x 181	649 x 616 x 181
	Weight	kg	15	18
Accessories	Safety function		Safety switch + Flow sensor	
	Pre-filter		Aluminum Mesh	

Outer dimension



Model	HE1400	HE2000
A (mm)	414	516
B (mm)	276	378
C (mm)	280	380
D (mm)	364	466
E (mm)	514	616

TRION Kitchen Exhaust Air Cleaner

Air Green Series

The TRION Air Green Series Air Cleaners is an ideal product for removing air pollutants such as smoke, soot and oil mist. According to the type of cooking and the concentration of pollutant emissions, single-stage or double-stage purification can be selected, and odor purification can be configured to ensure effective purification and meet emission standards.



High purification efficiency

The product utilizes PWM solid-state power supply, which ensures a highly efficient, stable and continuous supply.

Staggered spiked ionization

The ionizer uses stainless steel staggered zigzag multi-point ionization and is not easily stained by oil.

Building Automation (BA) option

This model offers remote power control, a reset wash reminder and the option to monitor your operation, cleaning, time and fault statuses.

How it works

The TRION® Air Green Series utilizes the principle of Electrostatic Precipitation. Air is drawn by the motor/blower through a washable metal mesh pre-filter which traps large dust particles.

The remaining particles, some as small as 0.01 microns, pass into a strong electrical field (ionizing section) where the particulate receives an electrical charge. The charged particles then pass into a collector plate section made up of a series of equally spaced parallel plates. Each alternate plate is charged with the same polarity as the particles, which repel, while the interleaving plates are grounded, which attract and collect.

Safe and reliable

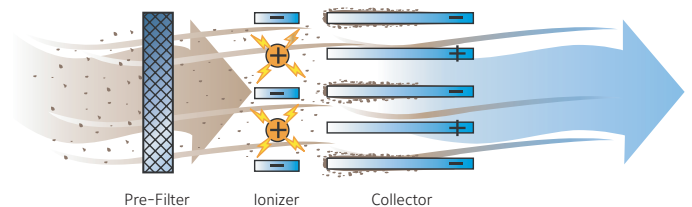
It is equipped with a safety switch and a power switch, giving double the protection.

Modular design

The modular design enables horizontal parallel assembly or vertical stacking to meet various on-site requirements.

Outdoor installation

IPX4 protection rating for outdoor installations. This also offers aviation aluminium alloy plates for enhanced corrosion resistance.



Smart Auto-Clean Air Green Series

The maintenance of kitchen air cleaners is usually carried out by staff, which increases business costs. The TRION Smart Auto-Clean Air Green Series provides flexible auto-clean wash solutions. The user can customize the cleaning frequency with the system then self-cleaning automatically, enabling the unit to keep high purification efficiency and, importantly, saving on maintenance costs.



Flexible performance

Provides a variety of intelligent self-cleaning solutions depending on different types of kitchen and oil fume emissions.

Durability

The copper cleaning pipe and stainless steel nozzle design ensure durability.

Smart auto-clean

360-degree cleaning to market-leading effect. An intelligent cleaning program enables freely set cleaning times and frequencies.

V-shaped inclined water tray

The V-shaped inclined water tray increases accumulated water and allows sewage to flow out of the drainage hole in time.

Smart controls

Products come equipped with smart controls, such as fan linkage, fire linkage, kitchen remote control.

Safe and reliable

It comes with safe and reliable functions such as a safety switch, water storage reminder, short circuit protection and arcing extinguishing.



Comprehensive Solutions

Verasys Configurable building controls system for smarter buildings

Metasys® Upgrades, Migrations and Subscriptions (MUMS)

Tailored Service Solutions for HVAC



Configurable building controls system for smarter buildings

For Light Commercial Building Controls

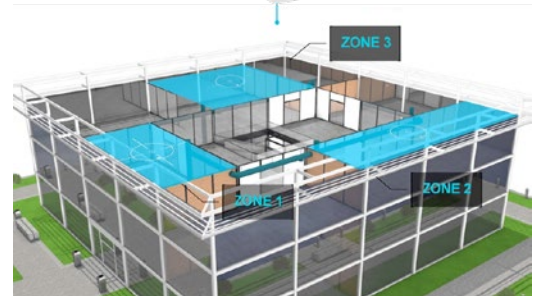
Enterprises have more options to reduce costs and increase control of HVAC, refrigeration and lighting equipment. Verasys is a new plug-and-play control system with less complexity and more capabilities. It streamlines installation, commissioning, and servicing, and provides access to critical data – when you need it and where you need it – to help facilities perform at peak levels.

Verasys provides a simple user experience with configurable controllers (without tools), creating the first plug-and-play experience integrating HVACR equipment and controls for a certified system that’s compliant for energy efficient operations.



Making buildings smarter by optimizing equipment.

The Verasys control system leverages smart equipment technology from any manufacturer. Verasys is a straightforward, easy way to control and optimize single-site and multi-site enterprises. All mechanical equipment seamlessly connect to it and self-identify without requiring any special programming tools. As a result, you can take advantage of a new level of insight into building operations, and provide facilities that better serve occupants.

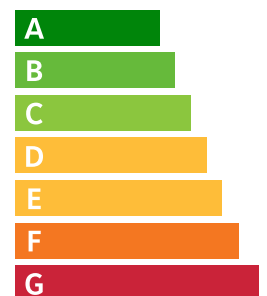


Smart, integrated control. Simplified and supported.

Verasys gives users remote access over a secure internet connection. Plus, optional fault detection and diagnostics deliver alarm notifications immediately via email or text, and user-friendly graphics provide easy access to critical facility information to help minimize the risk of unplanned downtime and costly repairs. You can take advantage of predictive technologies solutions that deliver the quality and value your enterprise requires.

Enhanced energy efficient control for smaller commercial buildings allow for an even higher energy class according to the EN15232. The advantage is that a facility owner can move from an average class D to a class A. The key to this efficiency is demand control, where the consumer spaces/rooms send the energy demands signals/requirements to the heating/cooling equipment. Matching the demand side and the supply side guarantees an energy efficient system overall.

Whether it’s one site, or one thousand, Verasys provides an advanced level of control flexibility, including scheduling, alarming, setpoints, custom trending, and more. It communicates using BACnet® MSTP, so Verasys is expandable to any BACnet® compliant system. And it works with third-party package equipment for greater application flexibility and to protect existing investments.



Leveraging Smart Equipment from Johnson Controls.

Smart Equipment from Johnson Controls identifies embedded equipment that has advanced technology and smarts already embedded. Verasys takes full advantage of our Smart Equipment technology. It provides real-time performance data. No programming or commissioning tools. No engineering required. Just plug-and-play.

The primary benefit of Smart Equipment is that it already has controls embedded by the manufacturer. This means it can connect seamlessly to controls systems like Verasys. It uses on-board controls to support data analytics, including fault detection, to support proactive maintenance and minimize downtime. Plus, control products/devices that are capable of controlling equipment without a supervisory controller provide a user interface experience. This allows it to self-discover and/or communicate with other Smart Equipment. In short, Smart Equipment helps maximize control for greater efficiency, extended equipment life and reduced operating costs.

To see how you can take advantage of Smart Equipment, visit www.getsmartequipment.com.

Built-in comfort and efficiency.

Verasys helps enable a smarter building which means more comfort, productivity and efficiency. Verasys connects you to data streams from smart controls in rooftop units, chillers, heat pumps, fan coils, zone dampers, refrigeration systems, lighting panels and more. Data can be accessed anywhere, at any time, from any mobile device. This unprecedented, real-time access to critical information ensures energy efficiency and lower operating costs throughout the building's lifecycle so you can identify issues before they result in unplanned downtime. This extends equipment life.

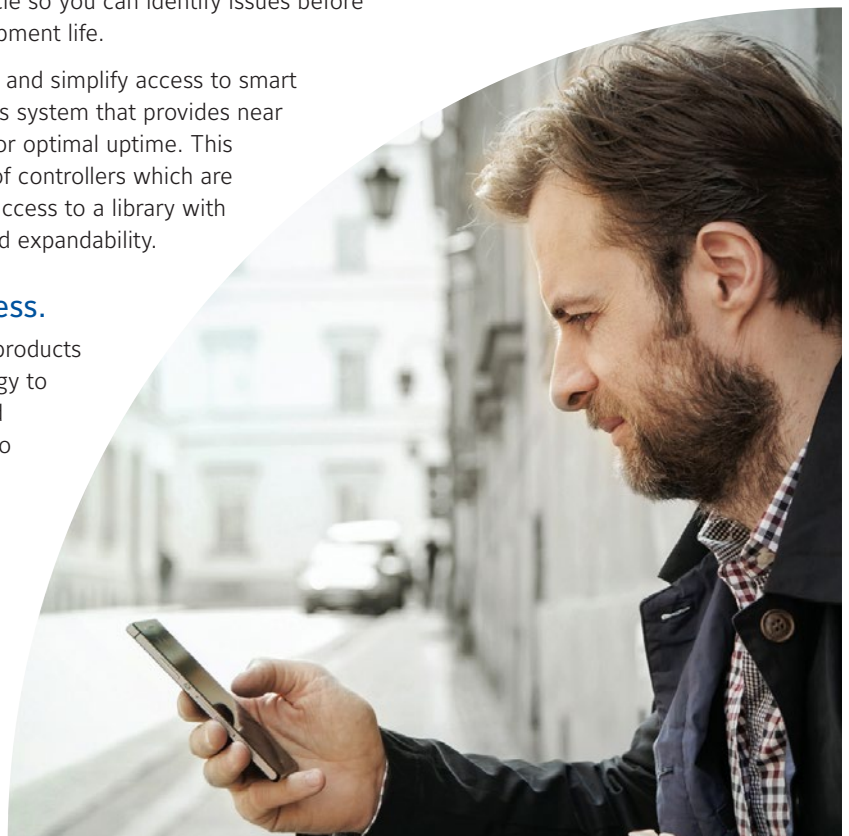
You also have the opportunity to save operating costs and simplify access to smart technology with Verasys, a complete buildings controls system that provides near real-time analysis of facility health and performance for optimal uptime. This includes access to a technologically advanced family of controllers which are configurable (no programming or tools needed), and access to a library with a vast array of applications that provides versatility and expandability.

A smarter way to transform your business.

Verasys provides the means, capabilities and reliable products to deliver leading-edge, end-to-end control technology to building owners. You get the best value and optimized building environments that support enterprise needs to increase productivity, efficiency, and maximize energy and cost savings.

Plug and play control system to manage smart buildings.

In a single building, or across an entire enterprise, Verasys offers a new kind of plug-and-play controls solution. Through an advanced yet intuitive user interface, it delivers a higher level of building control intelligence that optimizes building ecosystems, resulting in a building that better serves its occupants.

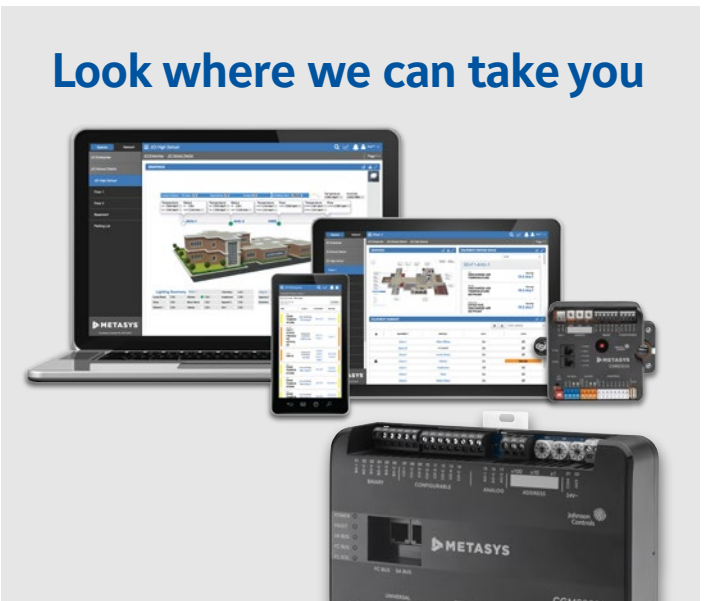




Metasys® Upgrades, Migrations and Subscriptions (MUMS)



Look where we've been



Look where we can take you

Imagine what you'd miss using a 30-year-old mobile phone. Now look at your BAS. Don't miss opportunities to help enhance security and productivity. See how to modernize with *Metasys*.

Take advantage of this exciting MUMS promotion now to enjoy the benefits of the new system upgrade and other bundled improvements.

There are a number of risks and drawbacks when you operate with obsolete software. Outdated software increases your vulnerability to threats and can have a significant impact on your productivity and efficiency.

Why should you update *Metasys*®?

⊗ No update

1. Increased risk of cyber attacks
2. Incompatibility with latest versions of Windows can lead to poor performance
3. Originally installed BMS controllers can become obsolete or operate incorrectly
4. Maximum productivity is cut and efficiency can be affected

✓ When you update

1. Your system will have the latest cybersecurity measures to meet the evolving threat landscape
2. A more intuitive user experience is provided
3. The latest technology will improve performance, reliability, and serviceability
4. You can accomplish tasks more quickly for boosted productivity

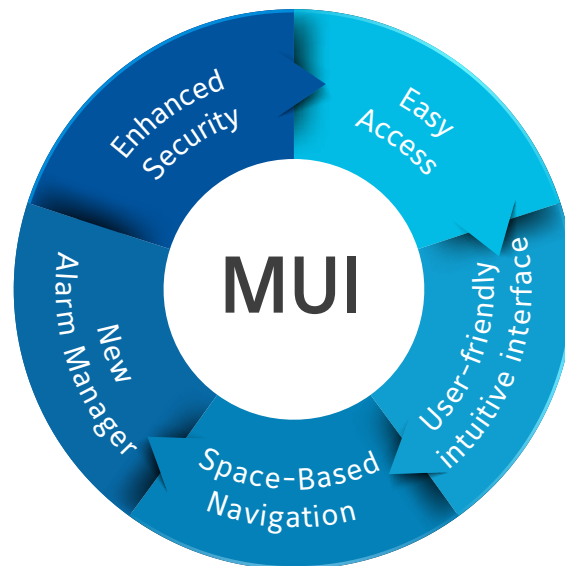
Metasys® User interface (MUI)

The Metasys® UI is designed for operators and facility managers who use computers, tablets, or smartphones to control and operate buildings.



Enhanced Security

- Encrypted communications
- Use of safety certificates
- User control
- Deactivate users who do not enter
- Complexity of passwords
- Cyberhealth panel
- Port 443 (encrypted)
- More control over who's entering your system



Easy Access

Supervisory/Overarching site control:

- Uses Open Communication protocols to integrate equipment controls from any OEM. This allows managers to visualize, manage and control all the mechanical and electrical equipment within the building
- Highly secured devices, with secure-boot and other built-in features
- Linux-based firmware that breaks dependencies on Windows software updates and support life cycles, avoiding costly updates over a short period of time



New Alarm Manager

Data Management Level

- Industry-leading HTML5 User Interface offers highly intuitive multi-device support that reduces time on task for operators
- Powerful yet simple User Management and Cybersecurity Dashboard allows facility managers to see user behaviors or devices that need updates
- Powerful alarm management



Space-Based Navigation

Easily view schedules by space or equipment to add multiple exceptions in a single operation.



User-Friendly Intuitive Interface

Field Control/Automation Level

- Bring the controls strategies to the very edge, guaranteeing that control strategies are dispersed and dedicated to the very equipment they control. This avoids single points of failure where one device runs control strategies for several pieces of equipment and causes them to stop operating when one fails.
- Highly reliable devices with longlasting operations on-site. The controllers are manufactured on a global platform serving critical customers and therefore follow the most stringent protocols of development and testing by Johnson Controls.
- Room Controls and Wall Interfaces also available to enable great user experiences to the tenants of the buildings.



Empowering new services enabled by technology and data

Tailored Service Solutions for HVAC

Adding digital capabilities to our service offerings

Johnson Controls never stands still. As a customer-centric business, we are always searching for new technologies, solutions and methods to deliver services to our partners. These are some of the new capabilities we have evolved into our digital portfolio.

Five key activities and new capabilities:

Activities	New capabilities
Inspection and diagnostics	<p>Create early warnings to prevent significant equipment failures and reduce time to repair</p> <p>Technology: Advanced, automated and continuous fault detection diagnostics with analytical platform</p>
Remote inspection	<p>Reduce downtime and time to repair through early detection of potential product complications</p> <p>Technology: Connectivity for offsite customer product access to enable product inspection and provide insights on potential areas that need additional attention at the next onsite visit</p>
Health reporting	<p>Performance reviews to identify potential issues and provide proactive recommendations</p> <p>Technology: Remote product access for machine performance analysis</p>
Multi-year investment plan	<p>Better forecasting for long-term investment</p> <p>Technology: Examining the current status of products using advanced analytics to advise on repairs and preventive maintenance plans for improved forecasting of unexpected costs</p>
Condition-based maintenance	<p>Keep your products in the best condition, reduce unexpected downtime, and optimize investments</p> <p>Technology: State-of-the-art digital technologies to monitor and analyze your data for optimal operation</p>

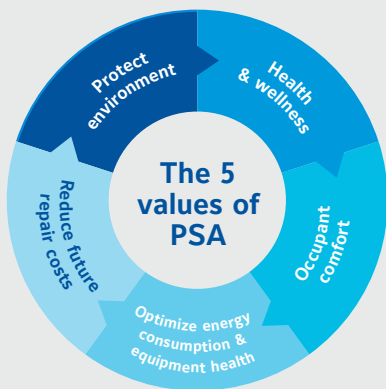
Peace of mind through connected observations

Our leading services portfolio combines innovative technology and the expertise of our people to enhance delivery. We utilize data-driven insights, AI and analytics capabilities to facilitate effective decision-making.



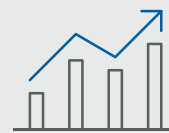
Contact your Johnson Controls representative to order the best service solution tailored to your needs.

Our Planned Service Agreement (PSA) philosophy



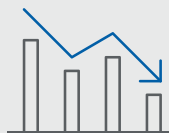
Five core values to guide your business

- Improve life safety for building occupants
- Ensure code compliance
- Optimize system readiness and uptime
- Reduce future repair costs
- Protect people, property and assets



What goes up

- Working life of equipment
- Efficiency levels
- Occupant safety
- Peace of mind



What goes down

- Operating costs
- Response time
- Unplanned downtime
- Total cost of ownership

Tailored Service Solutions powered by OpenBlue



Essential

All Essential maintenance for your product to keep it running and meet local regulations.



Enhanced

Adding continuous connectivity, enabling offsite observation and advisory services that deliver data-driven equipment health insights.



Expert

Improved equipment uptime supported by advanced Fault Detection and Diagnostics and remote specialist maintenance support by our domain experts.

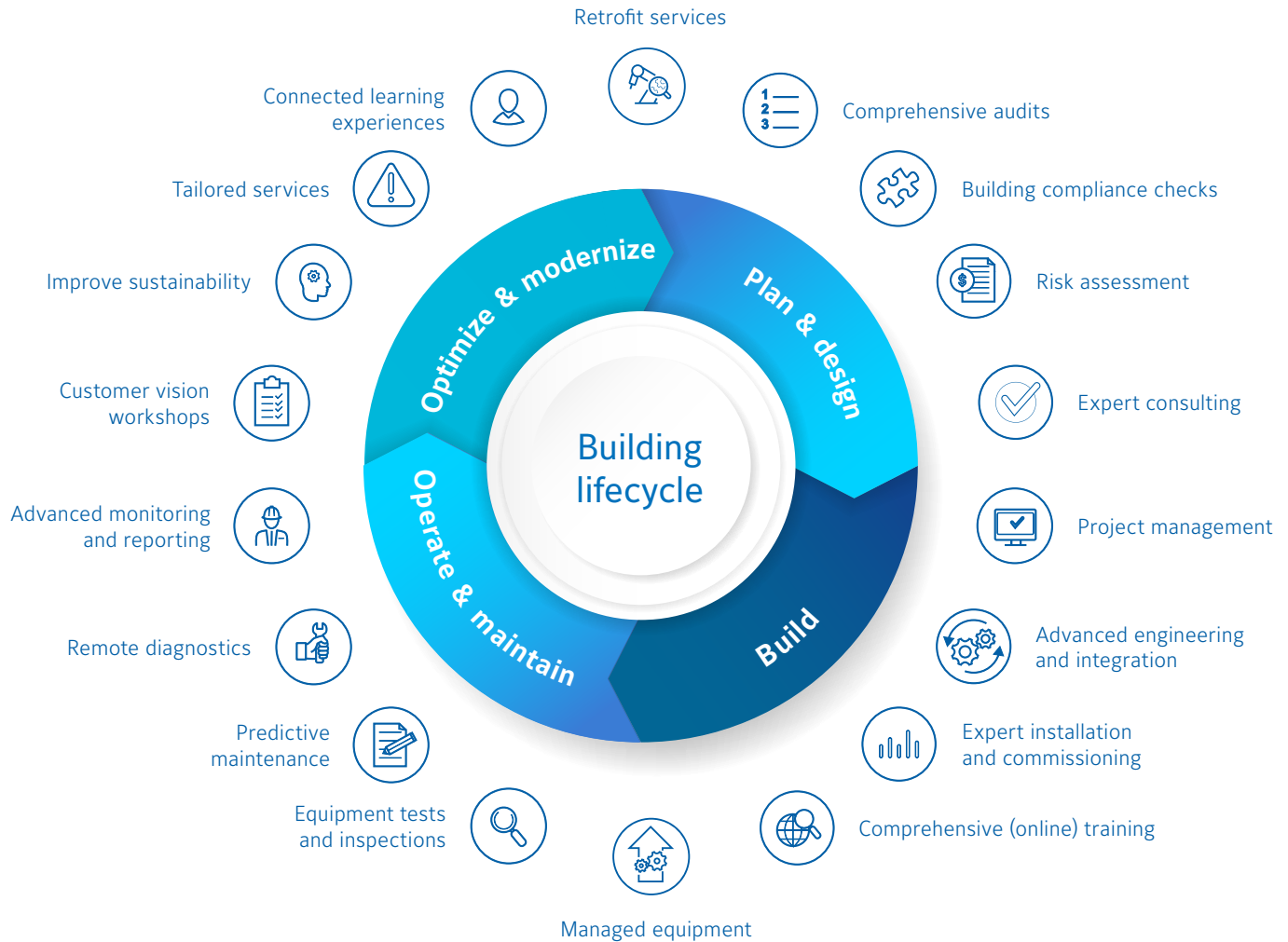


Optimum

Proactive optimization of operating costs, equipment reliability and uptime through advanced predictive diagnostics. Expert maintenance support via machine learning and AI algorithms.

Lifecycle services

Helping your business and facilities run at peak performance over the complete lifecycle of your building



The Johnson Controls difference



Deep subject matter experts

Experienced service specialists at your fingertips. Providing best-in-class service is in our DNA.



OpenBlue technology

OpenBlue AI technology empowers you to manage your operations more systematically for greater visibility, enhanced performance, proactive planning, and overall building optimization.



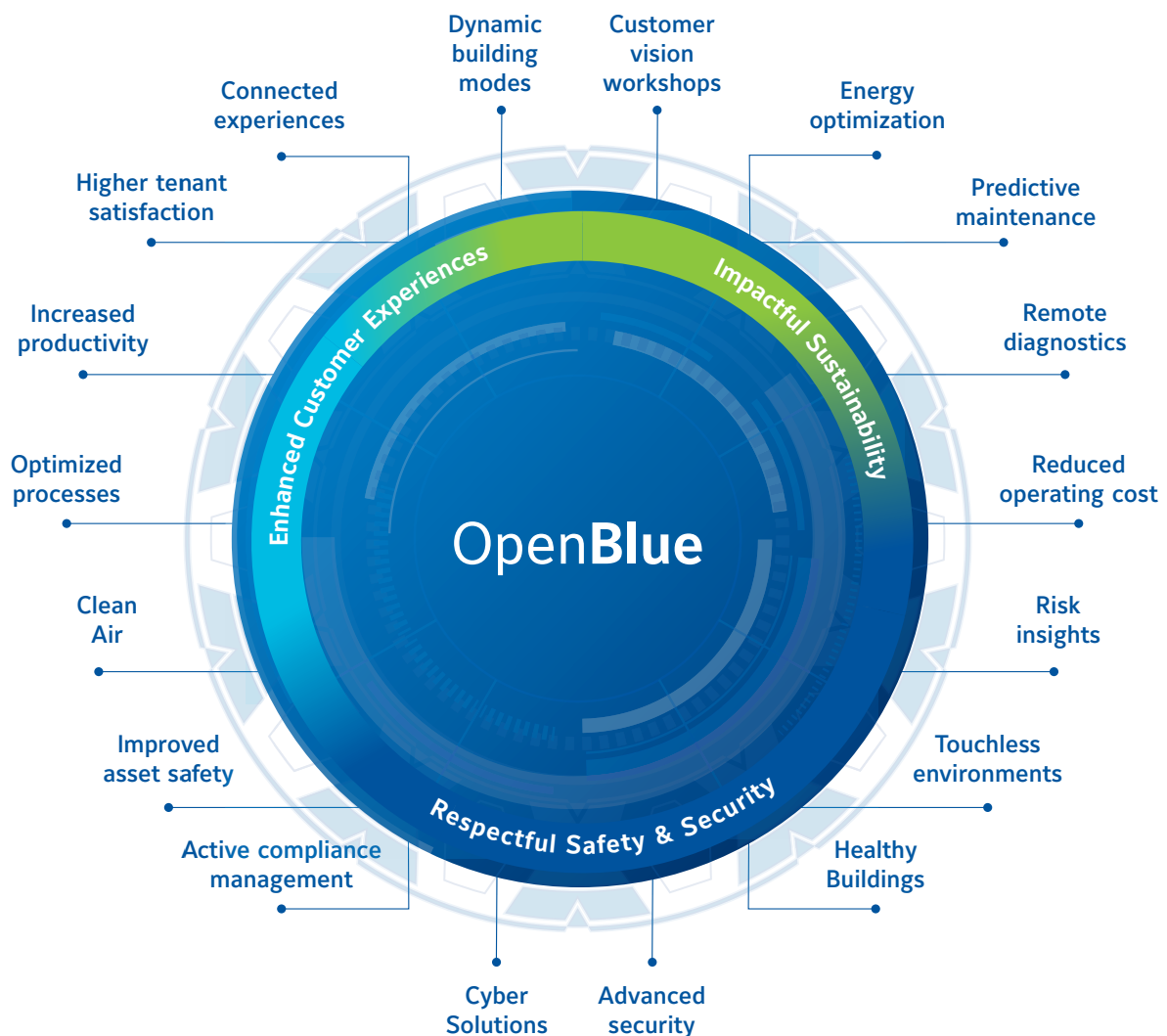
Tailored and flexible offerings

We offer scalable service options across a comprehensive range of HVAC, fire protection, and security services, delivering the services you want, the way you want them.

OpenBlue

OpenBlue is a complete suite of connected solutions that serves industries from workplaces to schools, hospitals to campuses, and beyond. This platform includes tailored, AI-infused service solutions such as remote diagnostics, predictive maintenance, compliance monitoring, advanced risk assessments, and more. A dynamic new space from Johnson Controls, OpenBlue is how buildings come alive.

The blueprint of the future



Solution Navigator

We are with you all the way.

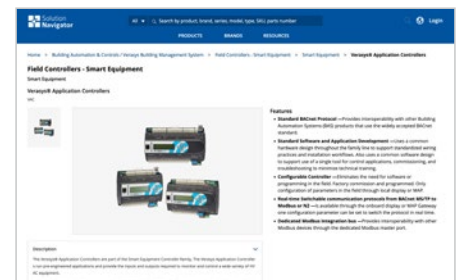
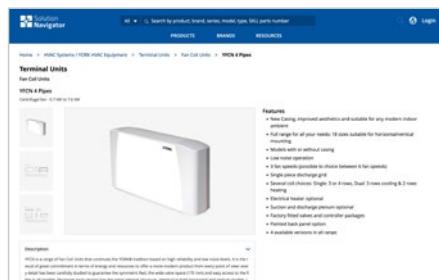
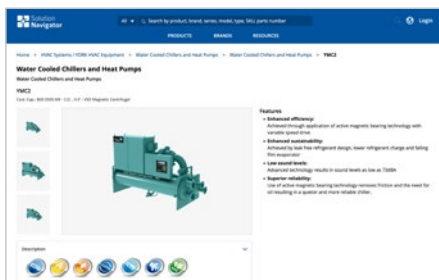
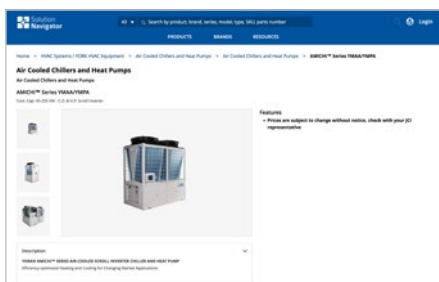
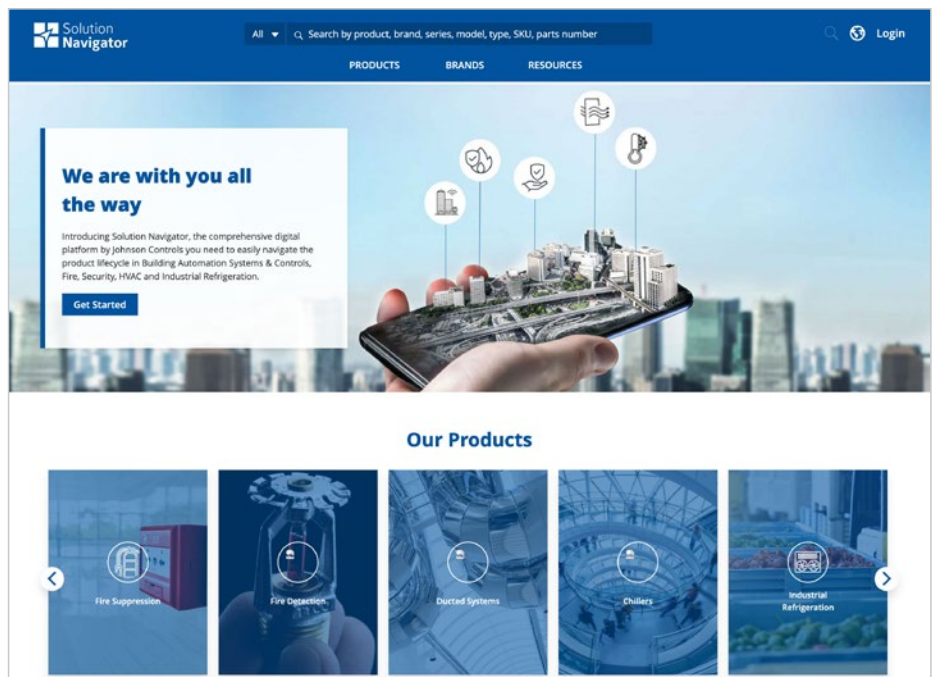
After interviewing more than 100 customers to gather a deep insight into their needs, we understood how vital it was to transform our web portal, Virtual Branch, into a digital customer-enablement platform in motion.

This led to us launching Solution Navigator, the comprehensive digital platform by Johnson Controls you need to easily navigate the product lifecycle in HVAC, Industrial Refrigeration, Building Automation Systems & Controls, Fire and Security. This powerful customer portal improves channel partner productivity, provides value-added services and enhances communications to strengthen our customers' footholds and development in the marketplace.

Through this portal, customers can accomplish fundamental tasks, such as ordering products, managing warranties and getting installation guidance, while enjoying a consistent, outstanding experience.

Call your Sales Representative and request access now.

<https://www.solutionnavigator.com/>



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