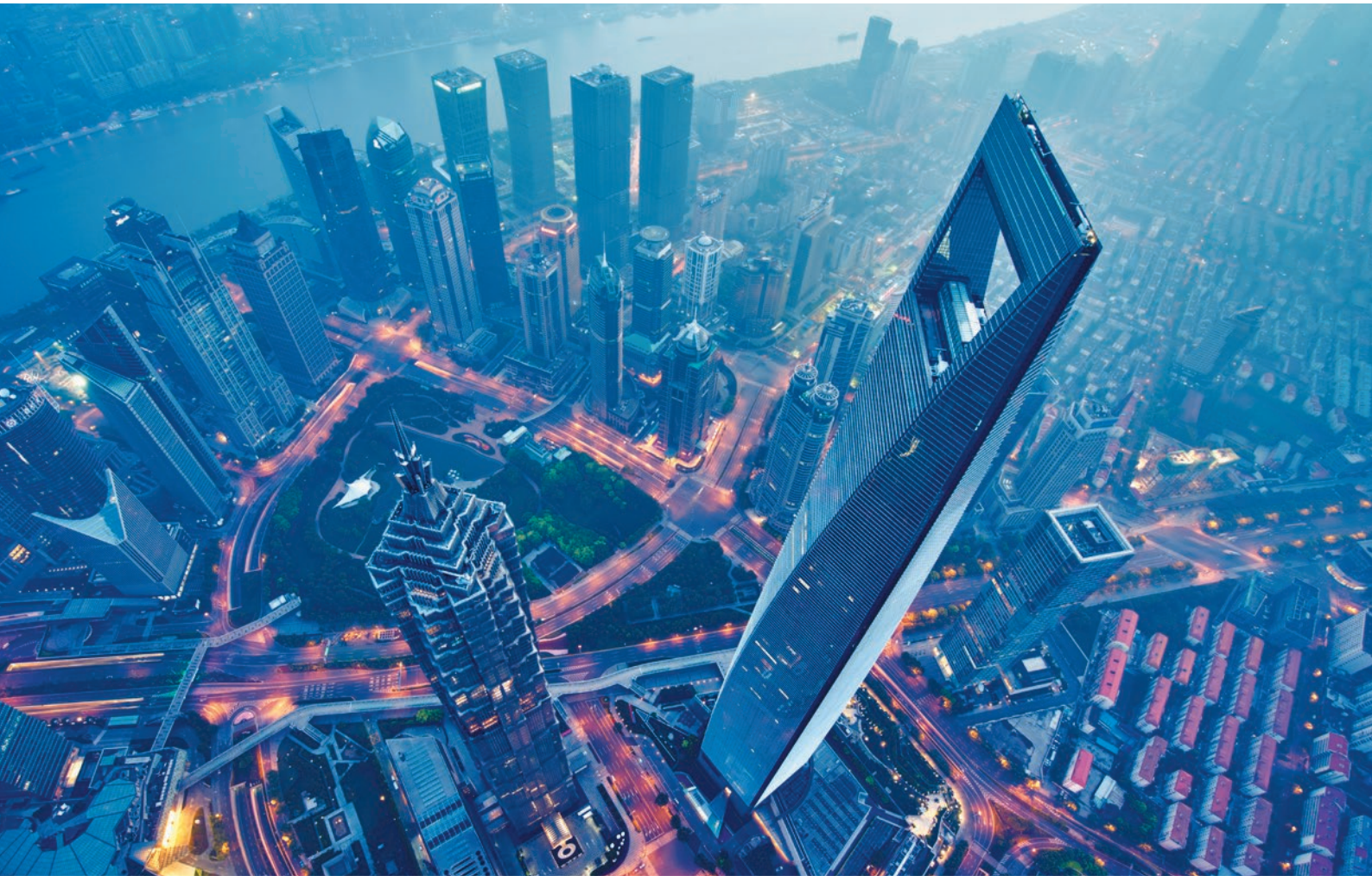
YORK

YORK Commercial and Industrial HVAC 2021



The power behind **your mission**

Johnson Controls

A more comfortable, safe and sustainable world

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

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

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

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.

7

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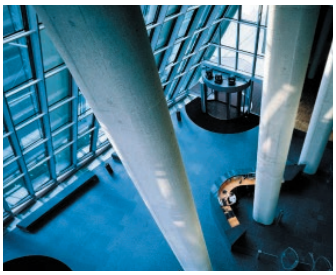

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First building in Austria to be awarded a Green Building Certificate

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 Governement'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.

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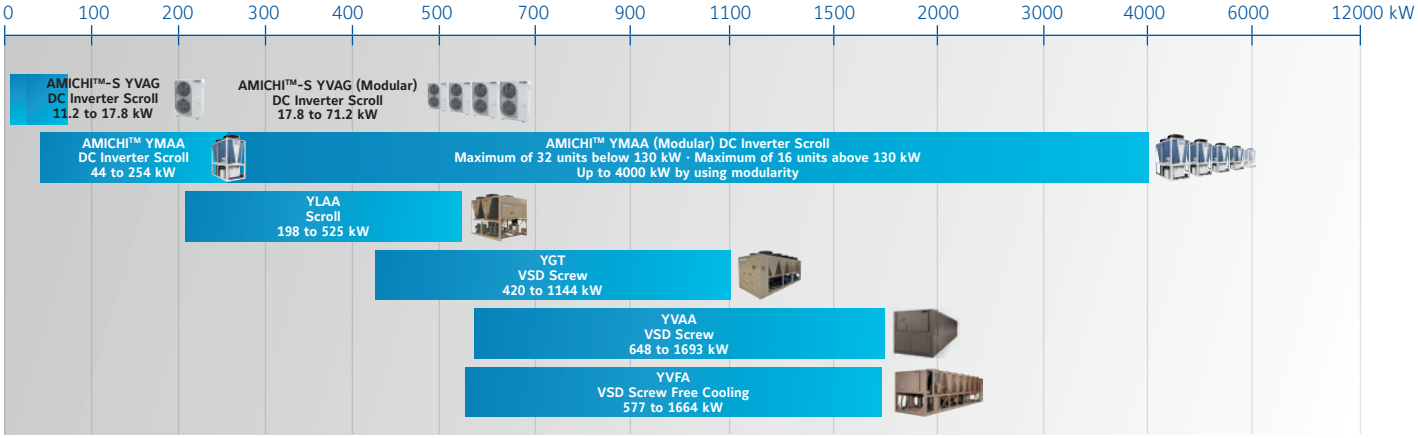
*** AHRI CERTIFICATION PROGRAM**

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

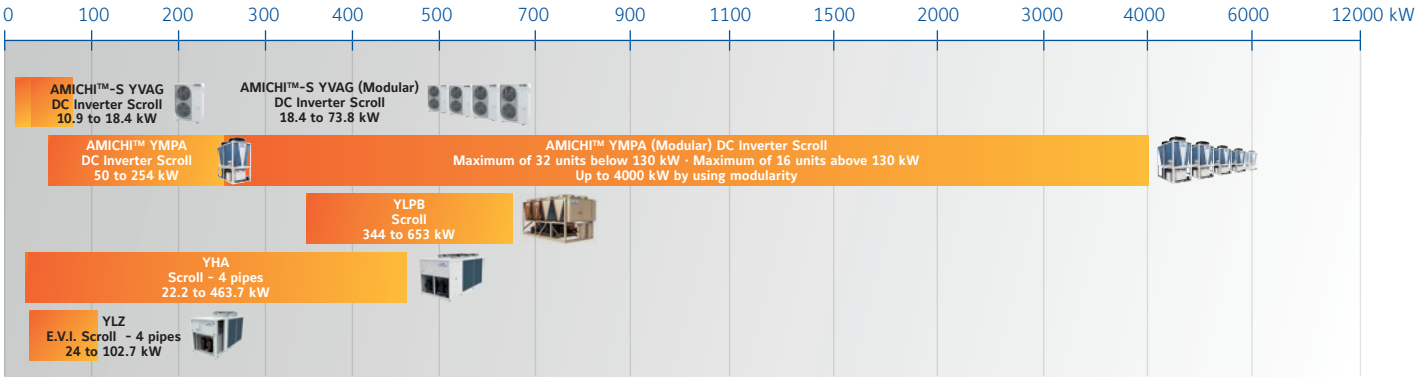
Air-Cooled Chillers and Heat Pumps

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



Two 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 operation.

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

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.

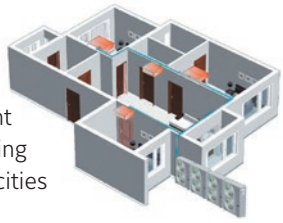
Perfect Comfort in a Wide Operating Range
Wide operating envelope

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

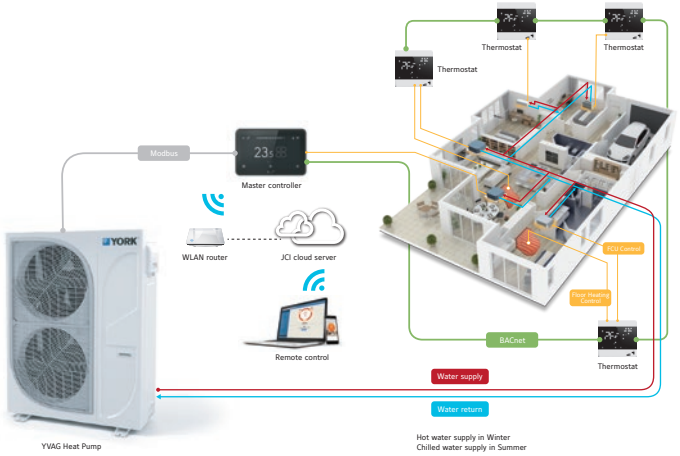
The small packaged **YORK AMICHI-S** heat pump comes as standards with a hydronic loop circulating pump, water flow switch, safety valve, fill valve and wye-strainer, saving space in the room and making installations easy and fast. The pumps can provide up to 150 kPa available static pressure.

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

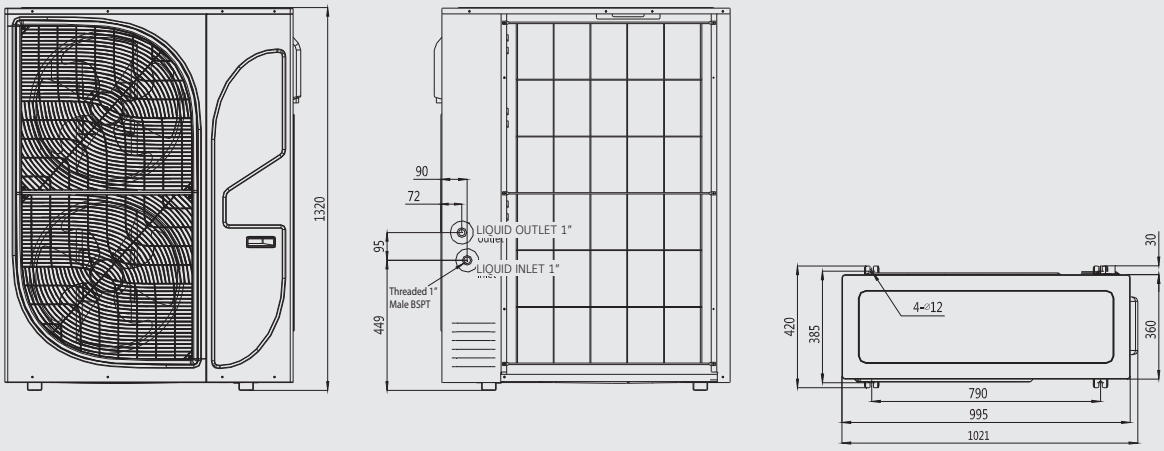
Technical features

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		2.79	2.70	2.78	2.56
	SEER		4.05	4.32	4.52	4.42
	ηs,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		3.00	3.06	3.29	2.94
	SCOP		3.51	3.58	4.07	3.94
	ηs,h		136	139	158	153
	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		Brazed 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	1,320			
	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 44 kW up to 254 kW

R410A

INVERTER

SMART EQUIPMENT

EUROVENT CERTIFIED PERFORMANCE

R454B

Available in 2021

Exceeding Efficiency Standards

The YORK AMICHI Series Air-cooled Scroll DC Inverter Reversible Heat Pump 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 YORK efficiency enhancing technologies.

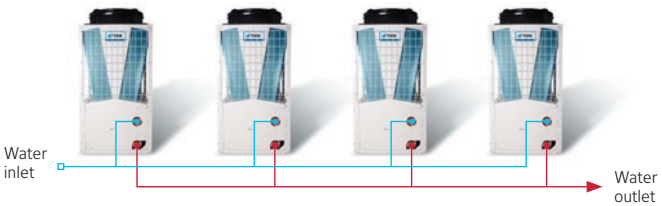
ECODESIGN REGULATIONS CATEGORY:	EFFICIENCY METRIC:	TOMORROW'S STANDARDS MET TODAY:
Comfort Heating	SCOP/ηsh	**AMICHI Heat Pump:** Sept. 2017 Compliant (Tier 2)
Comfort Cooling	SEER/ηsc	**AMICHI Chiller:** Jan. 2021 Compliant (Tier 2)
Process Cooling (Med. Temp.)	SEPR	**AMICHI Chiller:** July 2018 Compliant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

Technical features

Model			YMPA								
			45	65	80	100	130	160	200	230	260
Performance	Cooling capacity	kW	44	60	78	99	122	159	188	221	254
	EER		2.86	2.78	3.10	3.00	2.94	3.12	3.04	3.09	3.06
	SEER		4.38	4.50	4.43	4.24	4.42	4.24	4.28	4.17	4.34
	ηs,c		172	177	174	167	174	167	168	164	171
	Heating capacity	kW	46	55	84	91	126	161	182	224	245
	COP		2.96	2.99	3.12	3.05	2.83	3.08	3.06	3.05	3.07
	SCOP		3.43	3.45	3.40	3.37	3.39	3.53	3.53	3.40	3.32
	ηs,h		134	135	133	132	132	138	138	133	130
	Sound power level STD / LN (cooling)	dB(A)	81/75	83/78	82/78	84/79	85/81	87/82	88/83	88/83	89/84
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	2.1	2.9	3.7	4.7	5.8	7.4	9.1	10.5	11.9
	Pressure drop (cooling)	kPa	32	25	27	30	36	25	32	41	38
	Working range water leaving temp. cooling		-12 ~ 20°C								
	Working range water leaving temp. heating		25 ~ 55°C								
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	1,922	2,003	2,235	2,316

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.
ηs 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.
The above data is based on Johnson Controls' selection software YORKworks 20.05b. Please refer to the latest version of the software for specific projects.

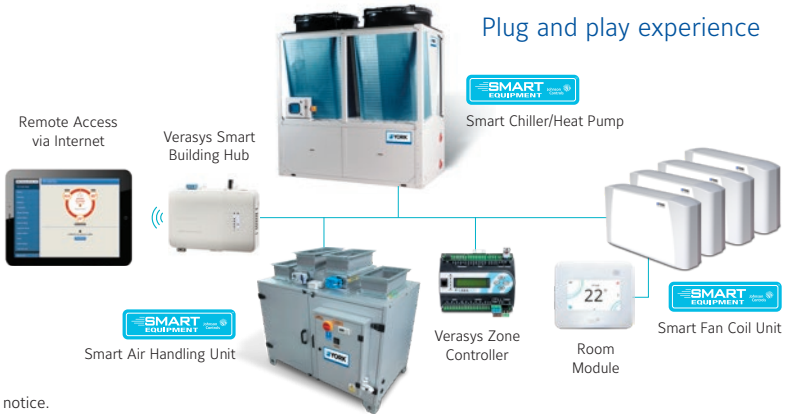
Perfect solution for rental application

- 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

Advanced Control Made Easy

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 like our world-class Verasys system, where smart-enabled equipment can self-identify and interoperate.



Manufacturer reserves the rights to change specifications without prior notice.

AMICHI Series
Air cooled Scroll DC Inverter reversible heat pump

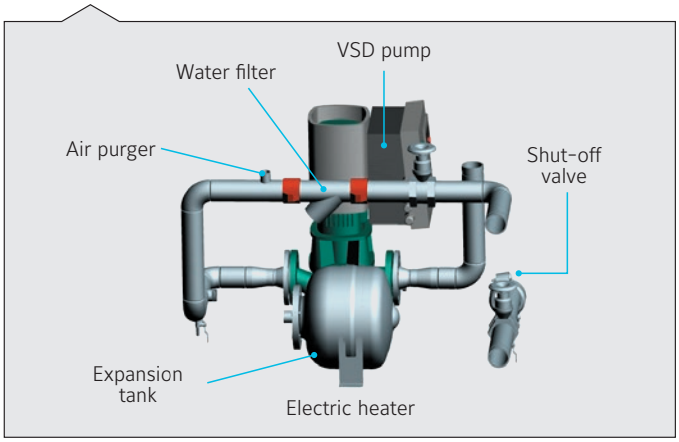
Main features

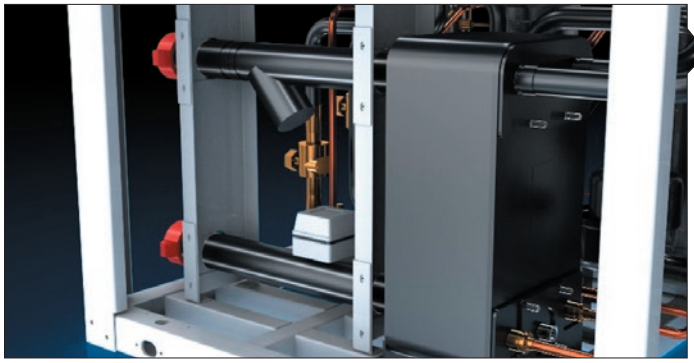
EC Fans

- 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

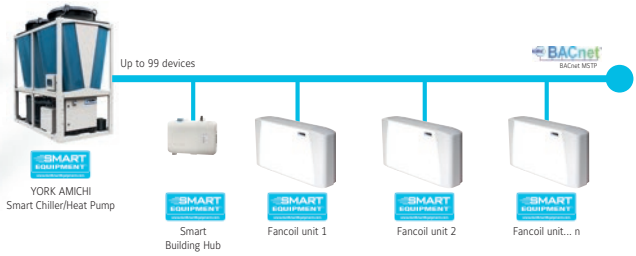
YMPA 230 and 260
230kW and 260kW
7-8 compressors
4 circuits

AMICHI Series
Air cooled Scroll DC Inverter reversible heat pump

Main features

Always connected

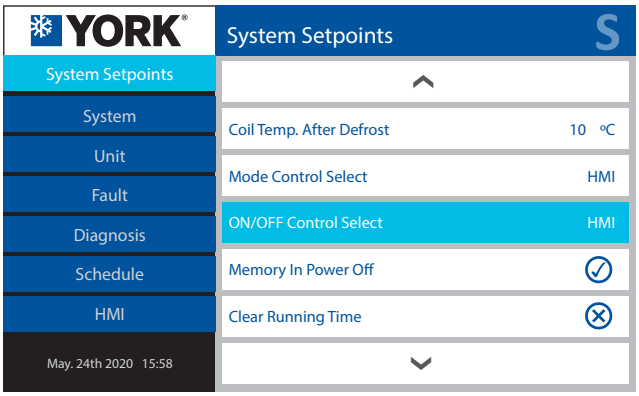
- BACnet and Modbus communication protocol as standard.



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.



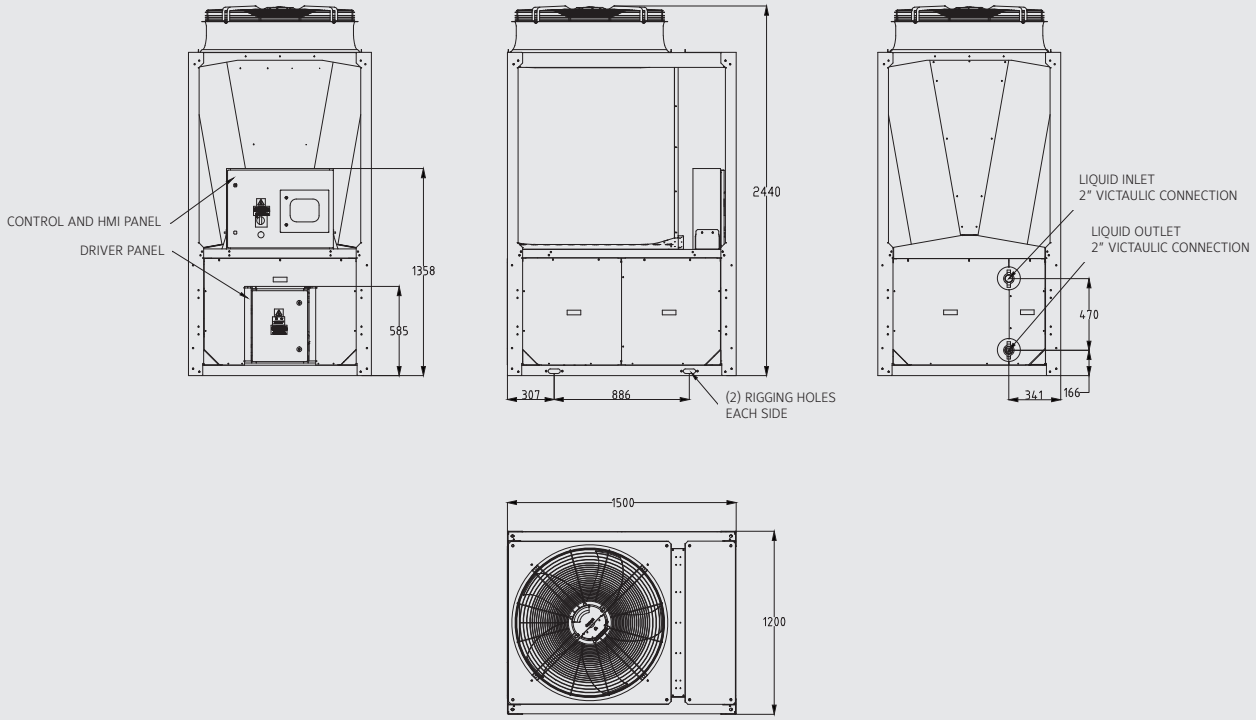
Maximum reliability

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.

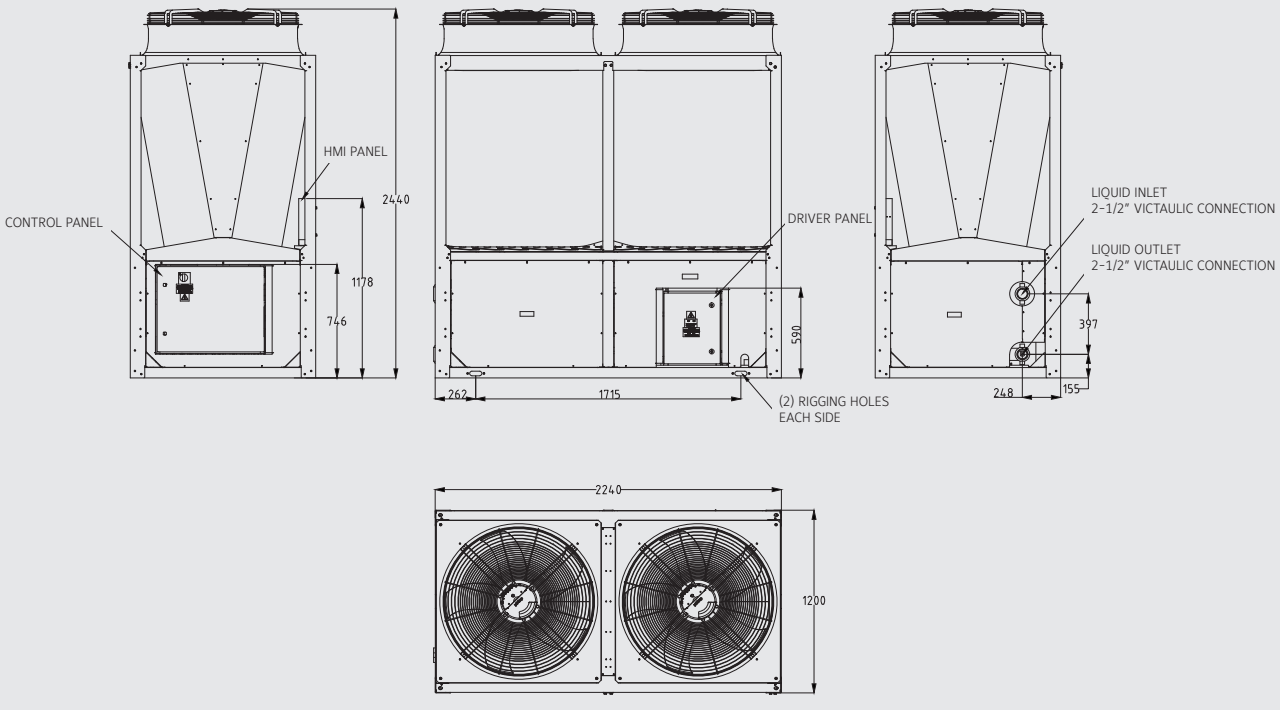
Dimensions and hydraulic connections

YMPA 045 and 065 Single unit



All dimensions in mm. Drawings not in scale.

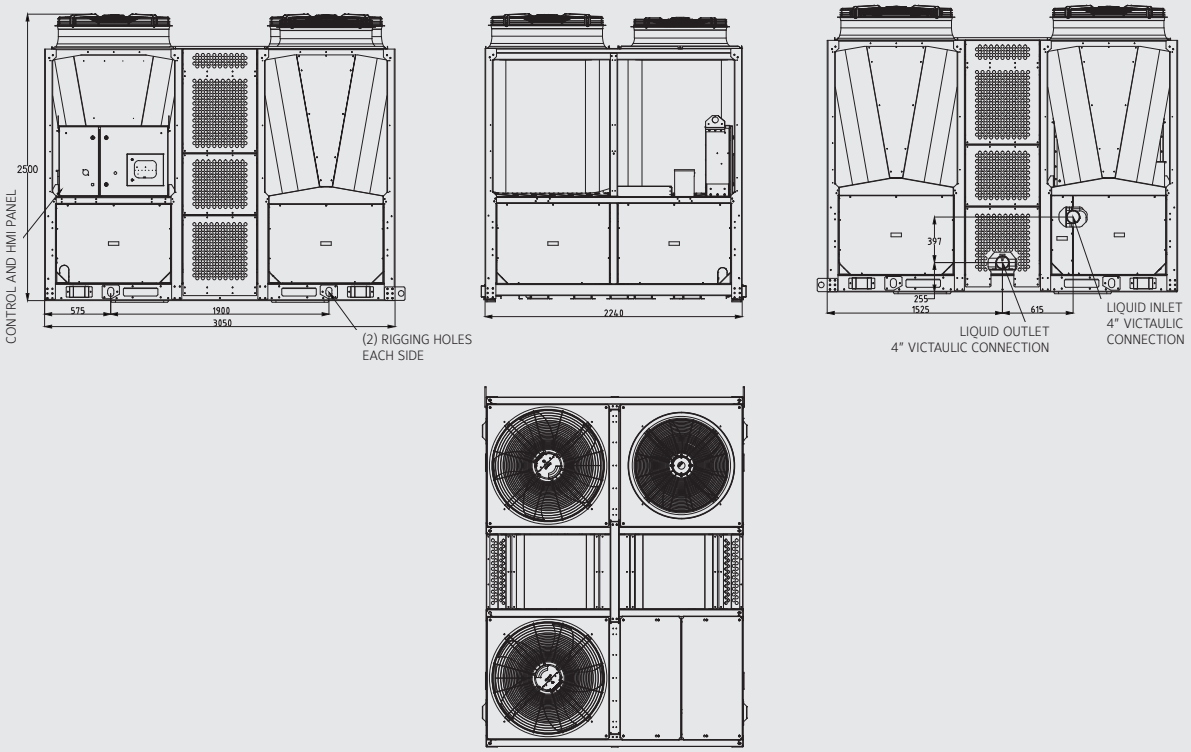
YMPA 080 to 130 Single unit



All dimensions in mm. Drawings not in scale.

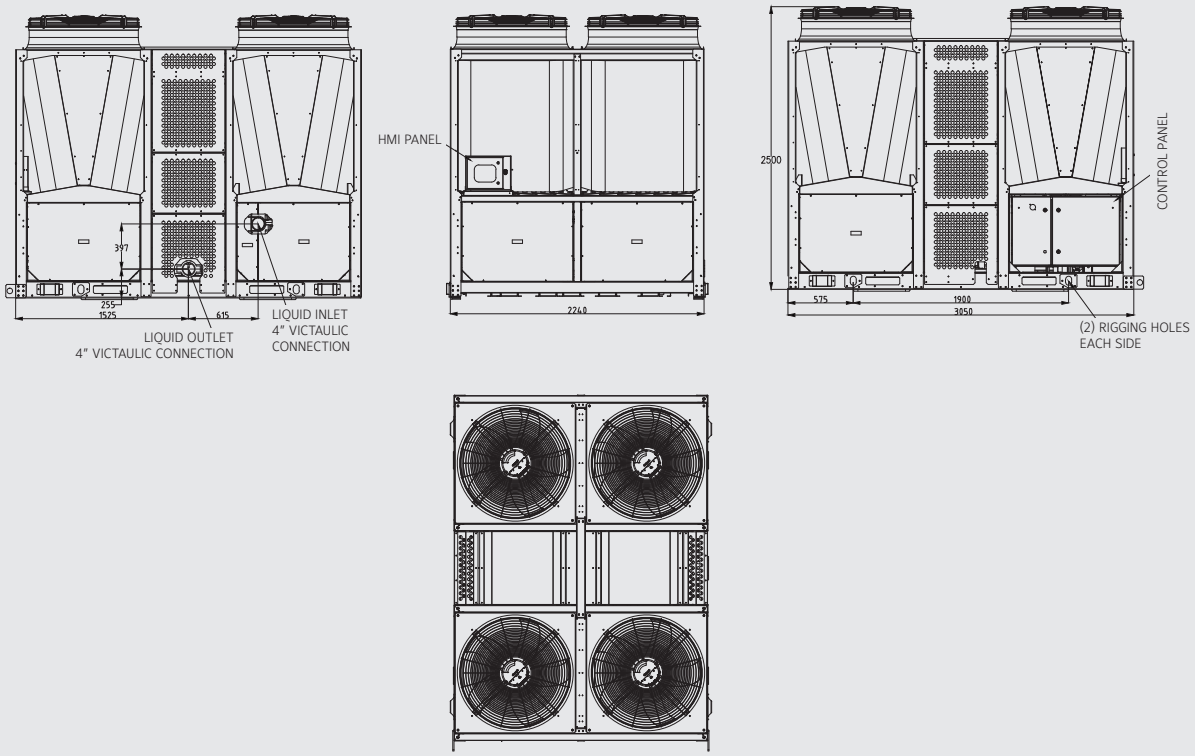
YMPA 045 to 260

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 629 kW
Heating capacities from 344 kW to 653 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

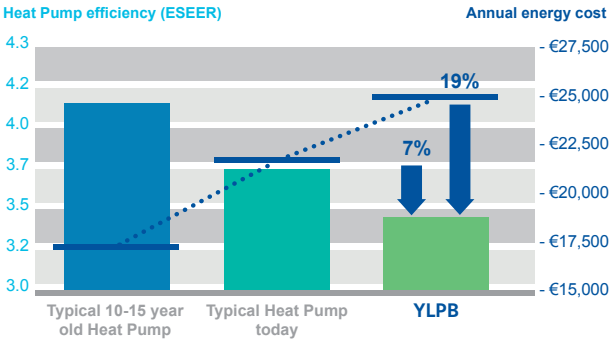
YLPB	0345	0430	0525	0575	0650
Cooling capacity (kW)	336	413	479	559	629
EER	3.00	2.93	2.88	2.95	2.99
SEER	4.36	4.55	4.47	4.53	4.51
ηs,c	172	179	176	178	178
Heating capacity (kW)	344	427	514	575	653
COP	3.07	3.07	3.03	2.99	3.01
SCOP	3.53	3.52	3.54	3.47	3.47
ηs, h	138	138	139	136	136
Sound Power Level (dBA)	96	96	97	98	99

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.
ηs 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 20.05b. Please refer to the latest version of the software for specific projects.

Technical data

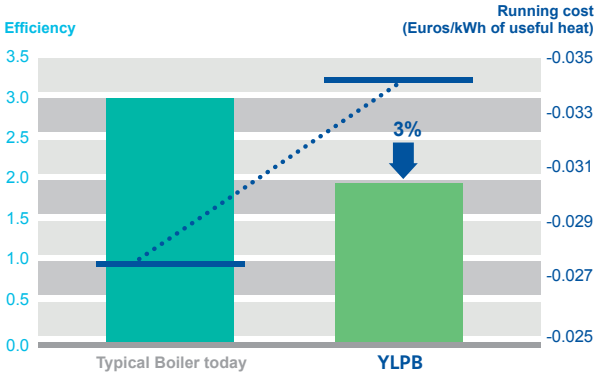
YLPB			0345	0430	0525	0575	0650
Dimensions	Length	mm	4721			5839	6958
	Width	mm	2242				
	Height	mm	2391				
Operating weight kg			3793	4043	4210	4747	5495

High Efficiency Cooling Mode



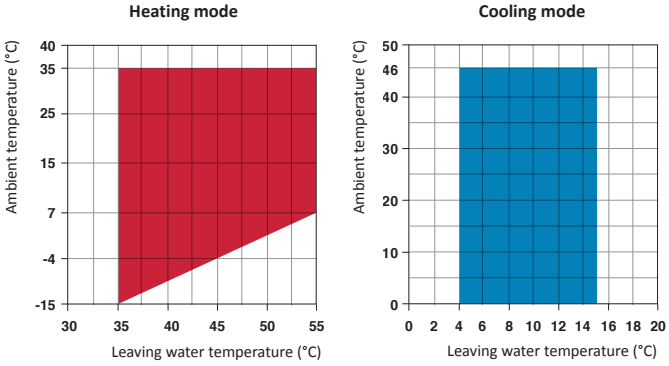
500 kW unit, 3000 operating hours, energy rate = 0.1 EUR / kWh

Additional Energy Savings in Heating Mode

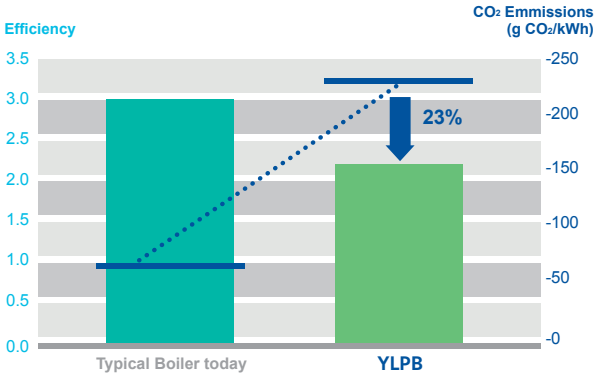


Energy Rate: Electricity 0.1 EUR / kWh; Gas 0.03 EUR / kWh

Operation limits



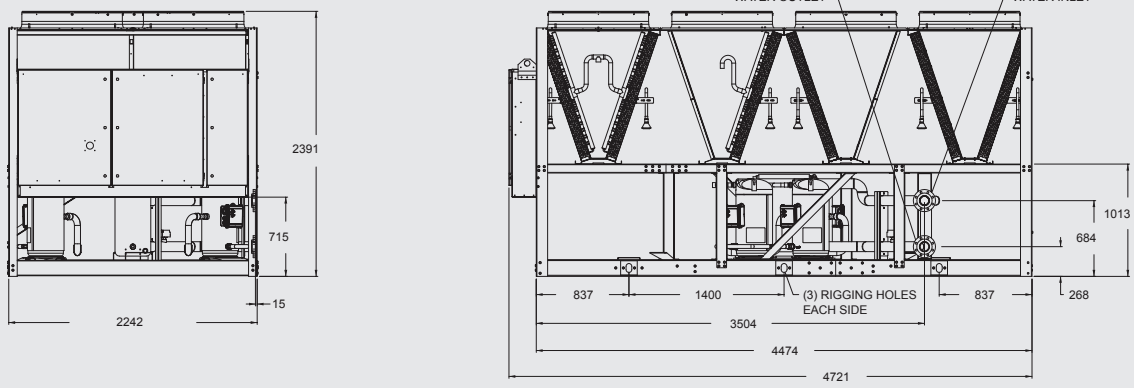
Carbon footprint in Heating Mode



Manufacturer reserves the rights to change specifications without prior notice.

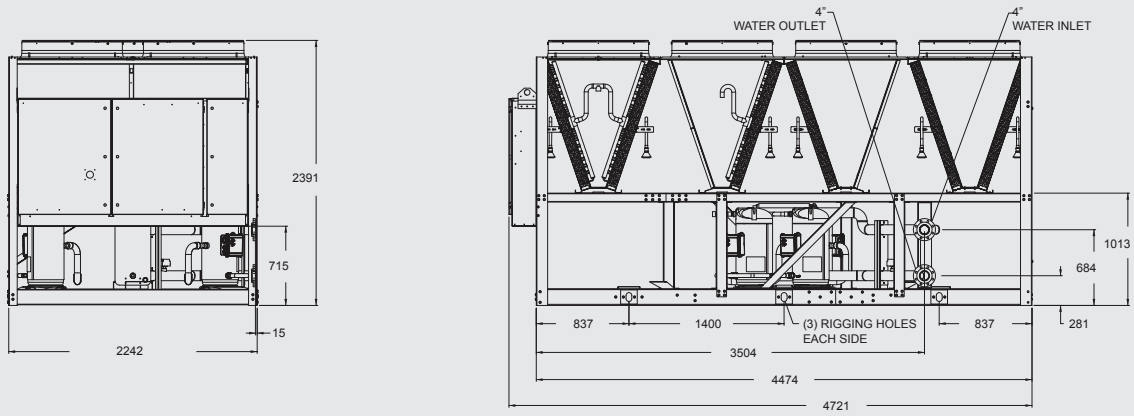
Dimensions and hydraulic connections

YLPB 0345 and 0430



All dimensions in mm. Drawings not in scale.

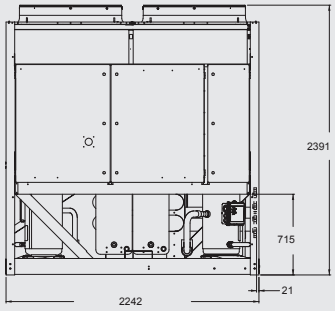
YLPB 0525

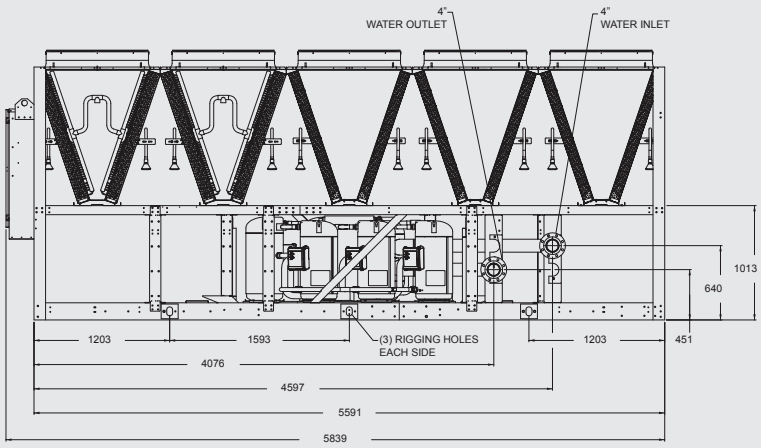


All dimensions in mm. Drawings not in scale.

YLPB 0345 to 0650

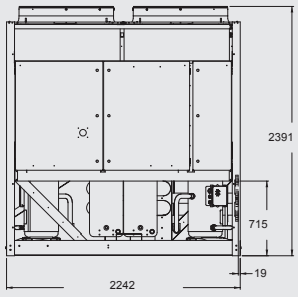
YLPB 0575

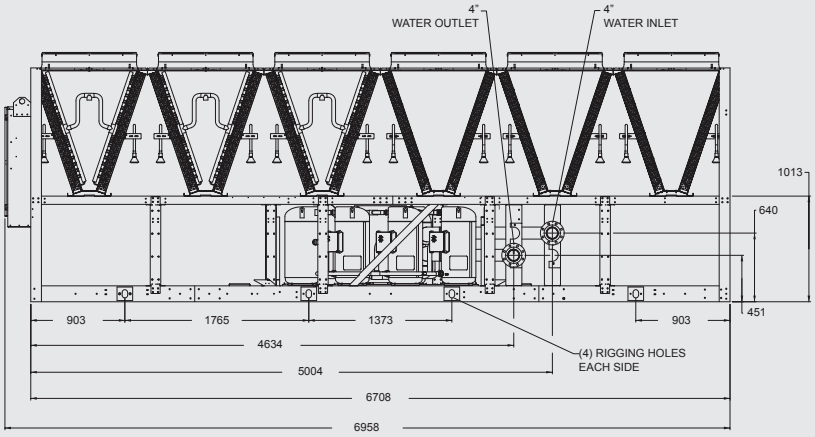




All dimensions in mm. Drawings not in scale.

YLPB 0650





All dimensions in mm. Drawings not in scale.

YHA
High efficiency air to water heat pumps

Cooling capacities from 18.1 kW to 416 kW
Heating capacities from 22.2 kW to 463.7 kW

NEW

R410A

Available on request
R454B

-20°C
+43°C
+60°C
E.C.
FLOATING FRAME

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 used for winter defrost; the **HH** version is suitable for use in those countries that have support schemes for use of heat pump technology for heating. The **RV** versions are also able to produce cold water. The **HH** heating only versions is factory set and locked to operate only in heating mode whilst.

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

HH	Heating only
RV	Reversible heating/cooling
LS	Low noise
XL	Super low noise
P2U	2 pipe systems without domestic hot water production
P2S	2 pipe systems with domestic hot water production by external 3 way valve
P4U	4 pipe systems heating/cooling
P4S	2+2 pipe systems

High efficiency air to water heat pumps

YHA 252 to 5004

Nominal capacity

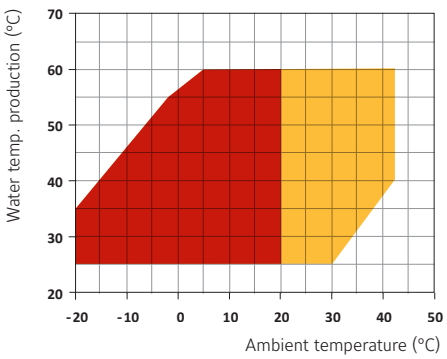
YHA HE/LS/RV - Low noise Reversible version			252	302	402	452	502	602	702	802	902	1002	1202	1402
Heating capacity (EN14511) (1)		kW	22.2	29.6	37.3	47.1	50.8	61.2	67.3	74.9	93.2	104.9	114.9	137.1
Total input power (EN14511) (1)		kW	5.3	7.1	8.8	11.5	11.8	13.3	15.1	17.2	21.2	24.5	27.8	30.9
COP (EN14511) (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
ηs,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	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	1840	1820
	Length	mm	1915	1915	2115	2115	2115	2905	2905	2905	2905	2905	2905	3965
	Width	mm	875	875	875	875	875	1145	1145	1145	1145	1145	1145	1150
Weight		kg	560	560	670	690	720	1060	1060	1070	1120	1160	1240	1560

YHA HE/LS/RV - Low noise Reversible version			1602	1802	2002	2302	2502	2504	3004	3204	3504	4004	4504	5004
Heating capacity (EN14511) (1)		kW	151	167.9	182.8	210.6	241.3	229.4	271.4	296.7	339	364.9	407	463.7
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	115.1
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	4.03
Energy Class (2)			A++	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	3.86
ηs,h (2)			151.3	150.9	150.4	153.6	155.6	150.2	151.1	150.3	153.5	152.4	151.9	151.5
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	416
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	154.6
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	2.69
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	9.50
Sound power (4)		dB (A)	87	87	87	89	91	88	89	90	90	90	92	92
Sound pressure (5)		dB (A)	55	55	55	57	59	56	57	58	58	58	60	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	8
Dimensions	Height	mm	1820	1820	1820	2280	2280	2355	2355	2355	2355	2350	2350	2350
	Length	mm	3965	3965	3965	3905	3905	4205	4205	4205	4205	4805	4805	4805
	Width	mm	1150	1150	1150	1145	1145	2210	2210	2210	2210	2210	2210	2210
Weight		kg	1580	1600	1620	1790	1820	3170	3270	3320	3370	3660	3720	3780

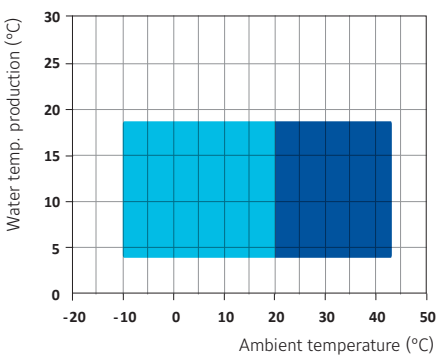
(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.
(2) Average conditions, low temperature, variable - Reg EU 811/2013
(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C..
(4) Sound power level in accordance with ISO 3744.
(5) Sound pressure 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.

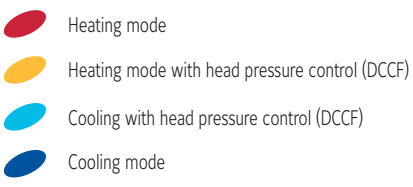
Operating limits

(HE version)



(RV version Only)





Manufacturer reserves the rights to change specifications without prior notice.

YLZ
High efficiency air to water heat pumps with E.V.I. compressors

Cooling capacities from 20.9 kW to 90.8 kW
Heating capacities from 24 kW to 102.7 kW

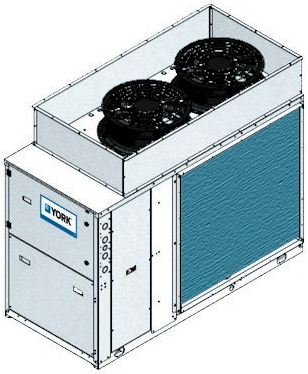
NEW

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 used for winter defrost; the **HH** version is suitable for use in those countries that have support schemes for use of heat pump technology for heating. The **RV** versions are also able to produce cold water. The **HH** heating only versions is factory set and locked to operate only in heating mode whilst.
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

HH	Heating only
RV	Reversible heating/cooling
XL	Super low noise
NN	Ultra low noise
P2U	2 pipe systems without domestic hot water production
P2S	2 pipe systems with domestic hot water production by external 3 way valve
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

YLZ 252 to 1202

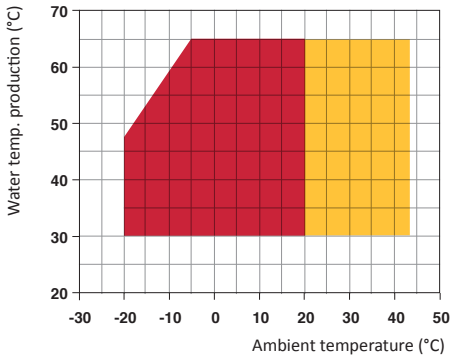
Nominal capacity

YLZ HE/RV - Reversible version			252	302	452	502	602	752	852	1002	1202
Heating capacity (EN14511) (1)		kW	24	29.5	41.8	50.3	58.3	66.9	81.3	88.5	102.7
Total input power (EN14511) (1)		kW	5.2	6.7	9.5	12.2	12.8	15.3	18.9	20.6	24.6
COP (EN14511) (1)			4.61	4.38	4.40	4.12	4.56	4.37	4.31	4.31	4.17
Energy Class in low temperature (2)			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
ηs.h low temperature (2)			160.8	155.5	151.6	150.3	160.1	159.4	150.1	150.8	150.6
Energy Class in medium temperature (2)			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
ηs.h medium temperature (2)			127	125.2	121.7	123	128.5	126	119.7	122.5	122.2
Cooling capacity (EN14511) (3)		kW	20.9	26.3	37.5	45.6	52.9	60.5	71.6	78.2	90.8
Total input power (EN14511) (3)		kW	7.1	9.5	12.7	16.7	17.9	23	24.4	26.1	31.3
EER (EN14511) (3)			2.94	2.78	2.96	2.73	2.95	2.64	2.94	3.00	2.9
Sound power (4)		dB (A)	78	78	78	79	80	80	83	83	83
Sound pressure (5)		dB (A)	46	46	46	47	48	48	51	51	51
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
Dimensions	Height	mm	1470	1470	1670	1670	1820	1820	1820	1820	1820
	Length	mm	1910	1910	2200	2200	2905	2905	2905	2905	2905
	Width	mm	900	900	900	900	1150	1150	1150	1150	1150
Weight		kg	560	570	720	680	1060	1070	1120	1160	1240

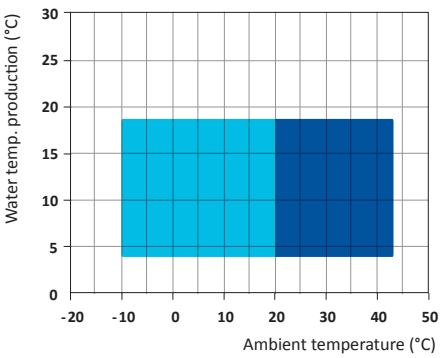
(1) Heating: Ambient temperature 7°C DB. 6°C WB. water temperature 30/35°C.
(2) Average conditions. variable - Reg EU 811/2013
(3) Cooling: ambient air temperature 35°C. evaporator water temperature in/out 12/7 °C..
(4) Sound power level in accordance with ISO 3744.
(5) Sound pressure level at 10 mt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

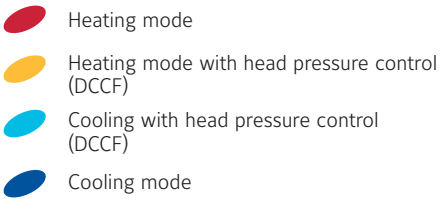
Operating limits

(HE versions)



(RV versions Only)





Manufacturer reserves the rights to change specifications without prior notice.

YLAA
Air-cooled scroll compressor chiller

Cooling capacities from 195 kW to 528 kW

Features

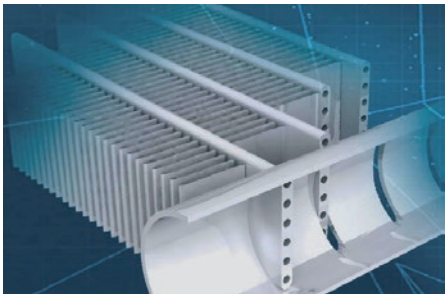
The **YORK YLAA TEMPO** air-cooled chiller is an environmental leader.

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

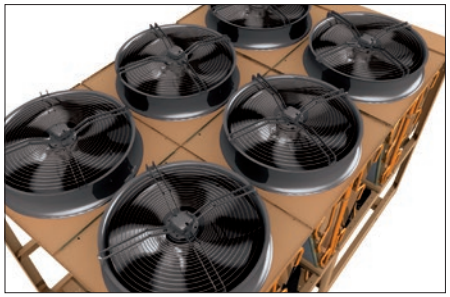
YLAA chillers are a self-contained cooling solution that is light-weight and compact for convenient installation on the ground or on building rooftops.

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

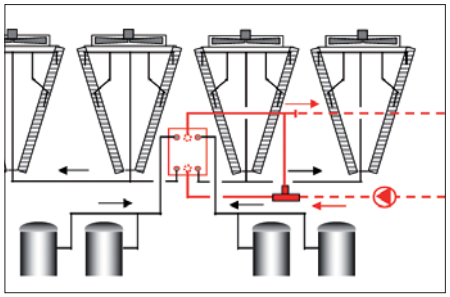


The TEMPO delivers energy efficiency levels that surpasses Ecodesign Tier 2 requirements. Aluminium microchannel condenser coil technology is one reason for this premium efficiencies.



Ultra quiet operation and outstanding part load efficiency can be obtained through variable speed EC fans and a compressor accoustic 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 0517

Nominal capacity

YLAA	0195*	0221	0262	0286	0301	0350	0392	0442	0457	0517
Cooling capacity (kW)	195	211	246	274	299	347	376	434	469	528
EER	3.17	3.40	3.24	2.79	3.17	3.07	3.09	3.07	3.09	3.10
SEER	4.28	4.65	4.40	4.14	4.44	4.36	4.46	4.58	4.70	4.57
ηs, c	168	183	173	162	174	171	175	180	185	180
Sound power level dB(A)	87	83	83	84	85	86	86	87	87	87

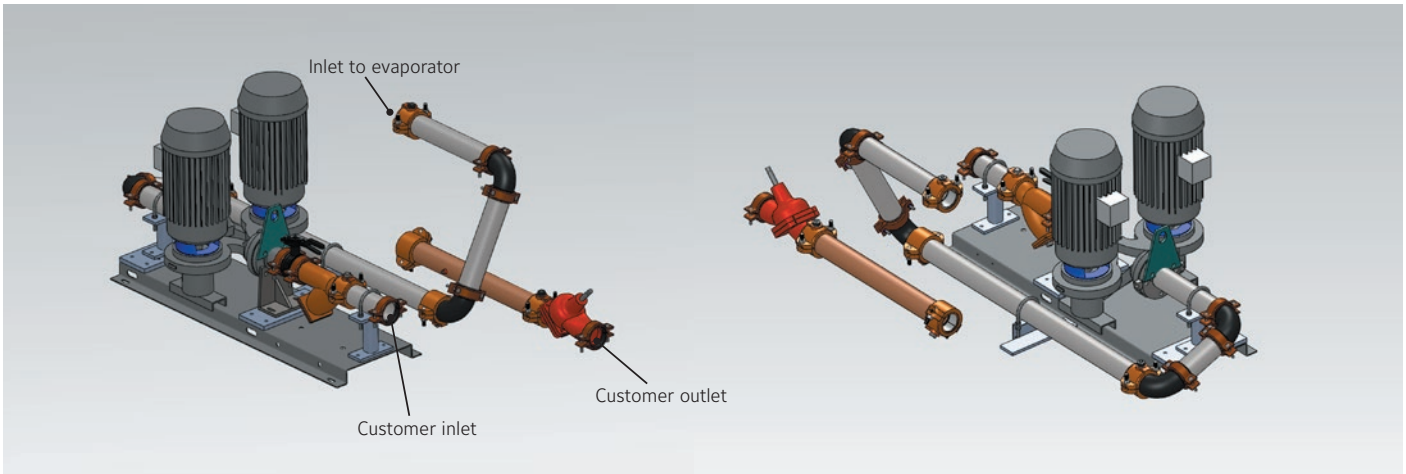
Net values at Eurovent nominal conditions:
Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.
Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.
(*) 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 20.05b. 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
Dimensions	Length	mm	2911				3690			4807		
	Width	mm	2242							2254		
	Height	mm	2508									
Operating weight kg			1706	1721	1852	1853	2170	2339	2508	3343	3481	3615

YLAA Pump Kit

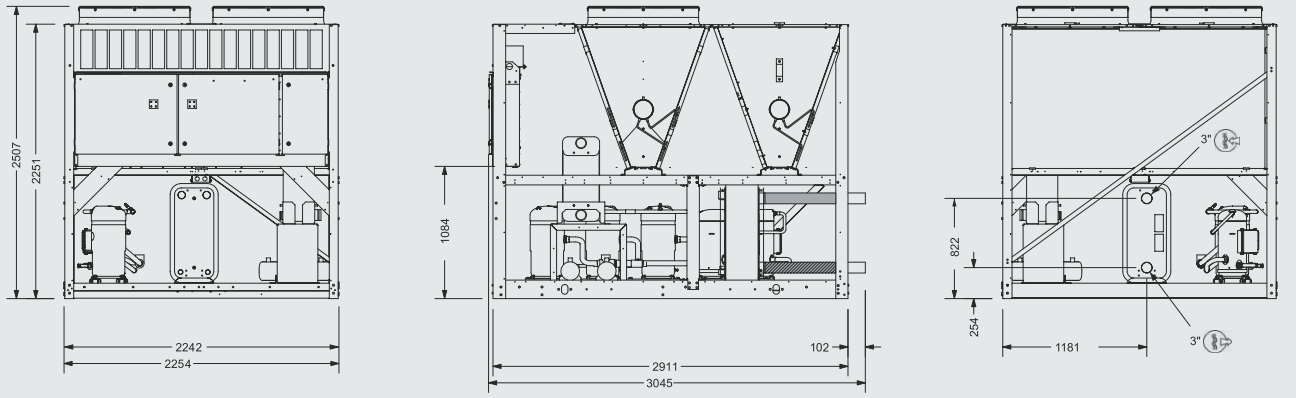
- Fixed or VSD water pump
- Single or Dual water pump
- Two option levels – basic and full featured – for maximum flexibility
- More impeller size options for better match to customer requirements
- New, smaller pump motors suitable for primary-secondary systems



Manufacturer reserves the rights to change specifications without prior notice.

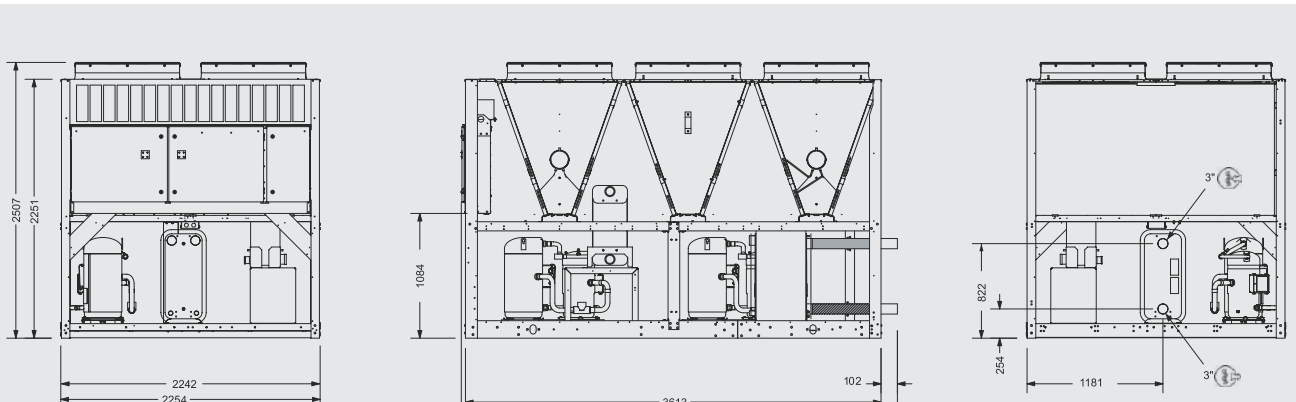
Dimensions and hydraulic connections

YLAA 0195, 0221 and 0262



All dimensions in mm. Drawings not in scale.

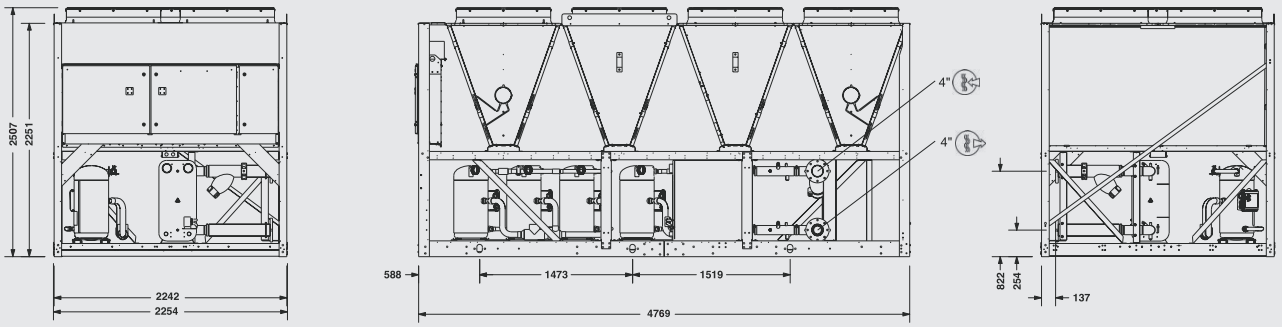
YLAA 0301 and 0392



All dimensions in mm. Drawings not in scale.

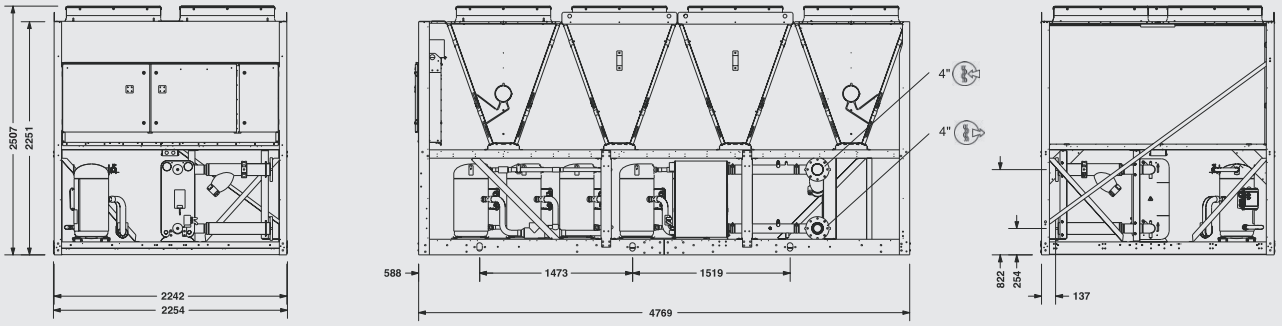
YLAA 0195 to 0517

YLAA 0442



All dimensions in mm. Drawings not in scale.

YLAA 0457 and 0517



All dimensions in mm. Drawings not in scale.

YGT
Air-cooled VSD screw chiller with HFO

Cooling capacities from 420 kW to 1144 kW

NEW

R1234ze

INVERTER

Advanced Product Information

Features

YORK® YGT premium efficiency air-cooled 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).

Scope

- Capacity range: 420 to 1144 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
- Integrated Hydronic Kit (dual/high pressure pumps, buffer tank)
- Variable Speed Drive
- Low Sound configuration

Air-cooled VSD screw chiller with HFO

YGT0400 to 1150

Preliminary Data

Performances

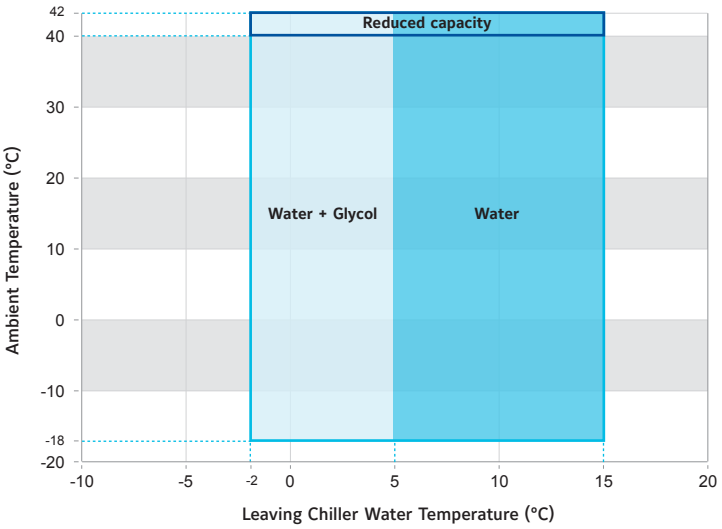
YGT	0400	0450	0550	0700	0800	1000	1150
Cooling capacity (kW)	420.1	429.9	550.5	667.8	815	976.4	1144
SEER (HE - High Efficiency - Single VSD)	4.88	4.57	4.56	4.55	4.56	4.55	4.56
ηs,c (HE - High Efficiency - Single VSD)	192.2	179.8	179.4	179	179.4	179	179.4
SEER (XHE - Extra High Efficiency - Dual VSD)	-	5.09	5.18	5.04	5.11	5.18	4.98
ηs,c (XHE - Extra High Efficiency - Dual VSD)	-	200.6	204.2	198.6	201.4	204.2	196.2
Number of refrigerant circuits	1	2	2	2	2	2	2
Number of compressors	1	2	2	2	2	2	2
Number of fans	8	10	10	12	14	18	20
Pressure drop [kPa]	34.0	33.5	33.2	39.6	33.4	32.1	30.6
Sound Power (dBA)	91.5	92	92	94.6	93.5	96.6	95.5
Sound Power (dBA) with sound kit	-	-	-	-	-	-	-
Power supply	400V /3PH/ 50Hz						

Note: Two inverter option is available for extra high efficiency.

Technical data

YGT			0400	0450	0550	0700	0800	1000	1150
Dimensions	Length	mm	5060	6200	6200	7340	8480	10760	11900
	Width	mm	2260						
	Height	mm	2652						

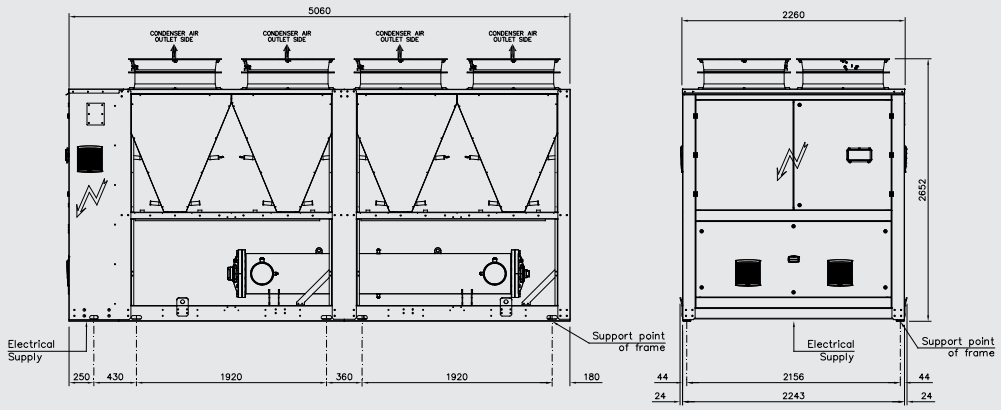
Operating limits



Manufacturer reserves the rights to change specifications without prior notice.

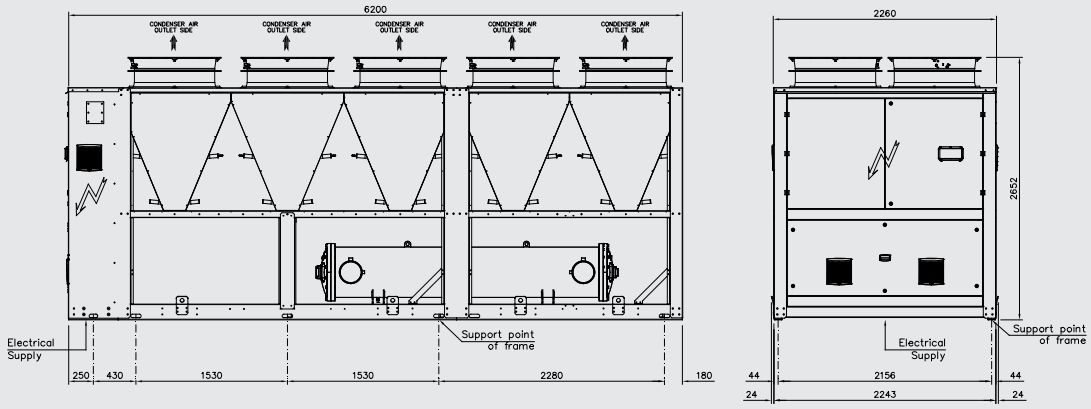
Dimensions and hydraulic connections

YGT0400



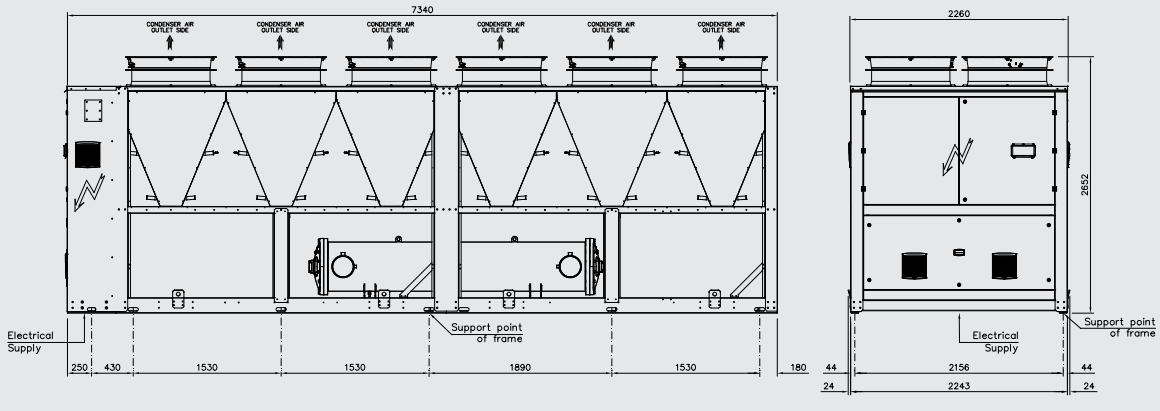
All dimensions in mm. Drawings not in scale.

YGT0450 and 0550



All dimensions in mm. Drawings not in scale.

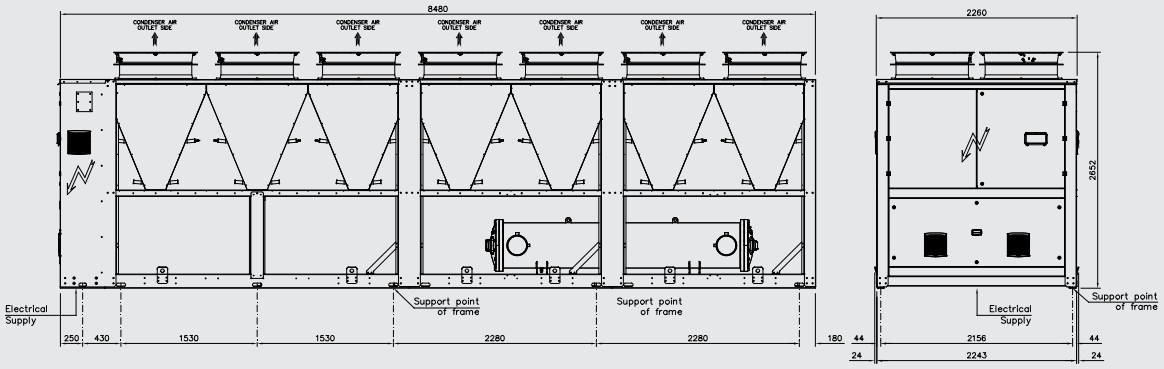
YGT0700



All dimensions in mm. Drawings not in scale.

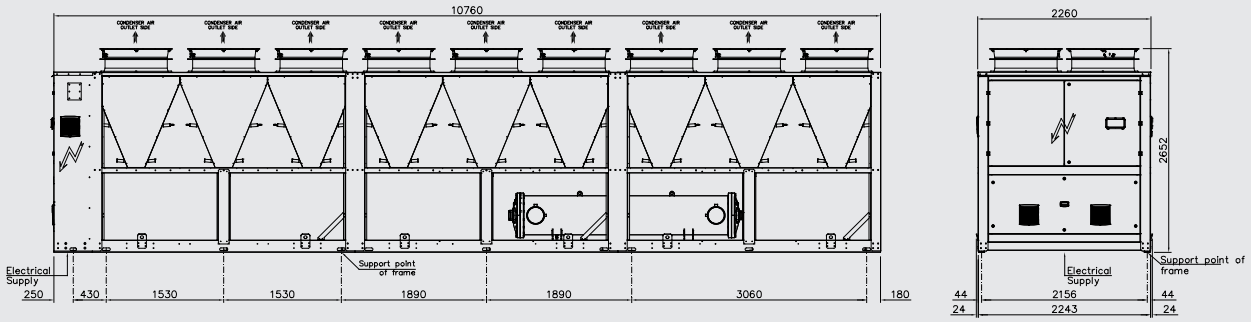
YGT0400 to 1150

YGT0800



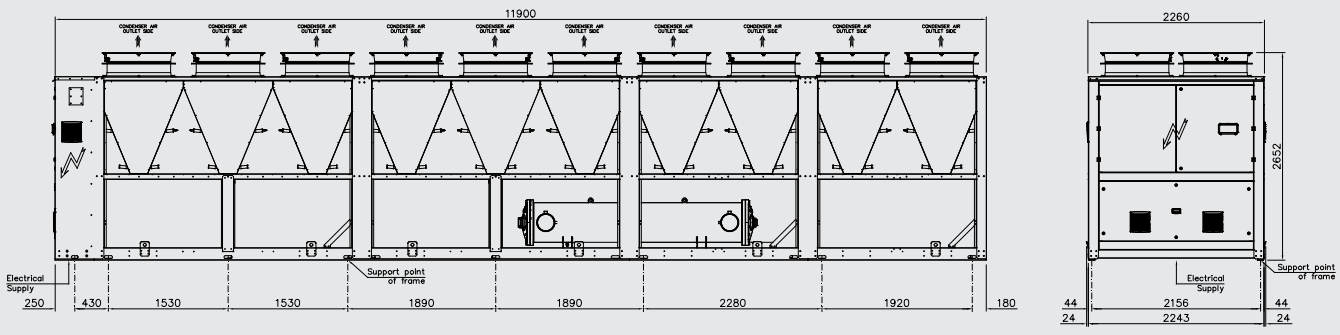
All dimensions in mm. Drawings not in scale.

YGT1000



All dimensions in mm. Drawings not in scale.

YGT1150



All dimensions in mm. Drawings not in scale.

YVAA
Air-cooled VSD screw chiller

Cooling capacities from 648 kW to 1693 kW

Note: this picture is showing aesthetics enclosures, contact your York office for additional information

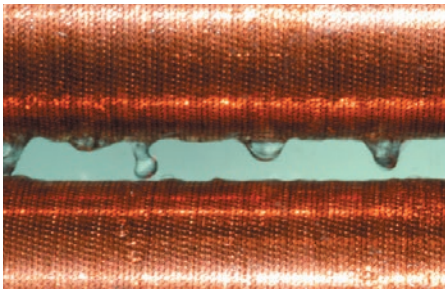
Features

- Reduce your annual energy costs by as much as 30%
- Reduce your sound levels by up to 16 dBA to meet tighter regulations
- Enhance your flexibility with a variety of chiller options to fit your needs
- Minimise your environmental impact dramatically
- Lower your part load energy and night time sound levels with inverter fans and compressors
- Deliver increased motor longevity and increased chiller reliability with low starting currents
- Cut your operational expenses with a high chiller power factor at all loads
- Improve your peace of mind knowing we stand behind every chiller

Options/Accessories

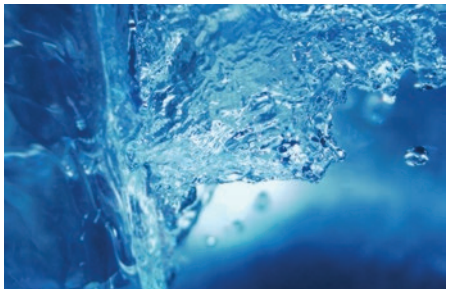
- BMS Interfacing options
- Advanced Controls (Silent night, Quick restart)
- Low temperature application options
- Dual pressure relief valves
- Flow switch
- Epoxy treatment Microchannel Coils
- Fan options
- Enclosure options
- Sound attenuation options
- Anti-vibration mounts options
- Desuperheater

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 YVAA's falling-film evaporator and microchannel condenser coil technology.

A more efficient chiller means less electricity generation, which reduces greenhouse gas emissions, water consumption – and your environmental footprint.
The sustainability advantages of the YVAA chiller give you the opportunity to **earn points in the LEED® and BREEAM® building certification programs.**



Air-cooled VSD screw chiller

YVAA 0665 to 1843

Application flexibility (*) example of selections

YVAA	0665	0688	0743	0765	0788	0843	0865	0888	0943	0960	0963
Cooling capacity (kW)	648	697	598	748	748	797	847	847	896	847	896
EER	3.07	2.97	3.10	2.95	3.08	2.82	2.97	3.05	2.82	2.92	2.99
SEER	4.76	4.56	4.72	4.68	4.83	4.58	4.80	4.91	4.60	4.62	4.75
ηs, c	187	180	186	184	190	180	189	193	181	182	187
Sound power level (dBA)	98	98	96	99	99	99	100	99	100	98	99

YVAA	0965	0988	1015	1065	1088	1093	1143	1173	1188	1193	1215	1288
Cooling capacity (kW)	948	948	997	996	1047	1045	1096	1144	1096	1196	1196	1247
EER	2.99	3.10	3.07	3.01	3.08	2.83	2.93	2.81	3.06	2.90	2.98	2.97
SEER	4.87	5.02	4.94	4.87	5.03	4.65	4.79	4.59	5.04	4.77	4.89	5.00
ηs, c	192	198	195	192	198	183	188	181	199	188	192	197
Sound power level (dBA)	99	100	100	100	101	101	101	101	100	101	101	101

YVAA	1315	1343	1388	1443	1488	1515	1543	1650	1665	1693	1700	1843
Cooling capacity (kW)	1346	1296	1396	1395	1446	1494	1544	1494	1594	1643	1594	1693
EER	2.75	2.70	2.90	2.72	2.88	2.75	2.66	2.65	2.81	2.59	2.53	2.68
SEER	4.80	4.72	4.91	4.68	4.93	4.75	4.64	4.59	4.80	4.60	4.56	4.71
ηs, c	189	186	194	184	194	187	183	181	189	181	179	185
Sound power level (dBA)	103	103	102	103	103	104	103	102	103	104	103	104

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 fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.
(*) 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.
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 20.05b. Please refer to the latest version of the software for specific projects.

Technical data

YVAA			0665	0688	0743	0765	0788	0843	0865	0888	0943	0960	0963
Dimensions	Length	mm	7397	8514	7397	7397	8514	7397	8514	9631	8514	7397	8514
	Width	mm	2241										
	Height	mm	2401										
Operating weight kg			6551	7012	6589	7668	8011	6793	8100	8445	7151	7412	8314
Refrigerant charge kg			164	189	160	204	218	182	216	228	192	228	240

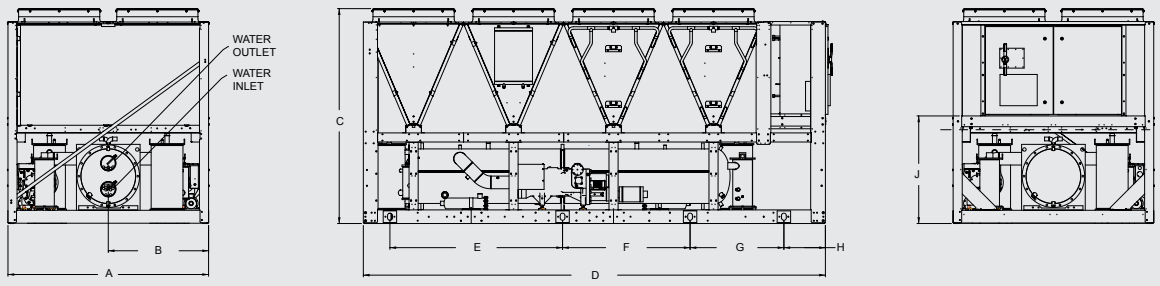
YVAA			0965	0988	1015	1065	1088	1093	1143	1173	1188	1193	1215	1288
Dimensions	Length	mm	8514	9631	9631	10748	10748	9631	9631	10748	11865	10748	11865	12987
	Width	mm	2241											
	Height	mm	2401											
Operating weight kg			8651	8996	9201	9007	9546	8665	9362	8612	9891	9704	10049	12435
Refrigerant charge kg			242	246	261	248	268	243	268	264	277	282	286	360

YVAA			1315	1343	1388	1443	1488	1515	1543	1650	1665	1693	1700	1843
Dimensions	Length	mm	11864	11864	14104	11864	15222	14104	14104	11864	15222	15222	11865	15222
	Width	mm	2241											
	Height	mm	2401											
Operating weight kg			12086	11169	12939	10558	13284	11249	12802	11287	14066	13149	12951	14066
Refrigerant charge kg			353	302	378	365	390	382	336	358	404	350	368	404

Dimensions and hydraulic connections

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

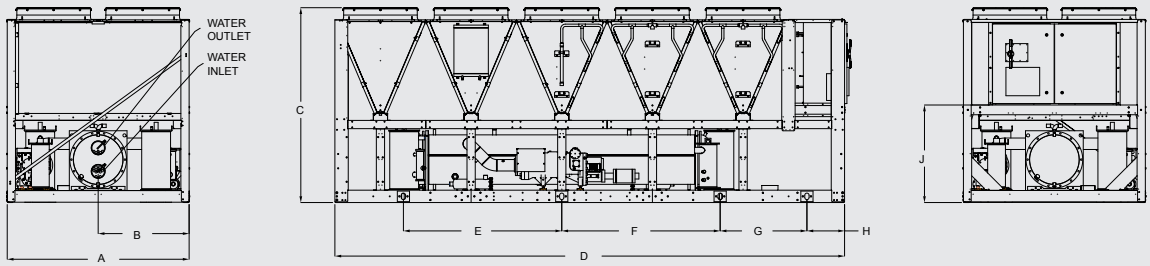
YVAA 0700



Unit frame	A	B	C	D	E	F	G	H	J
YVAA 0700	2241	1121	2401	5741	2098	1814	1054	464	1202

All dimensions in mm. Drawings not in scale.

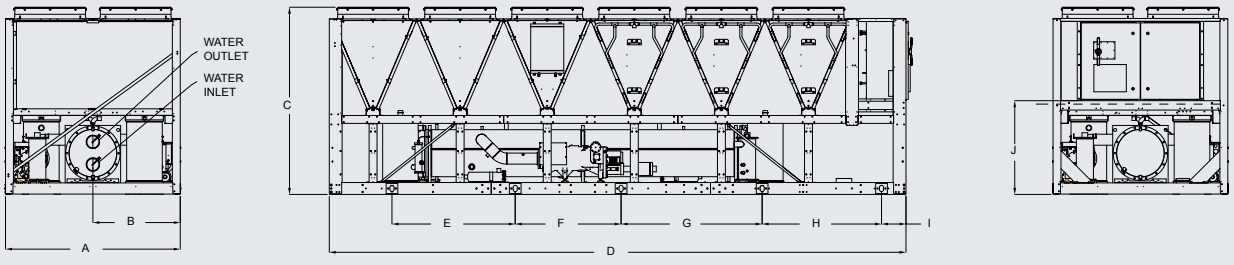
YVAA 0643



Unit frame	A	B	C	D	E	F	G	H	J
YVAA 0643	2241	1121	2400	6274	1962	2104	1069	464	1202

All dimensions in mm. Drawings not in scale.

YVAA 0588, 0665, 0743, 0765, 0843 and 0960



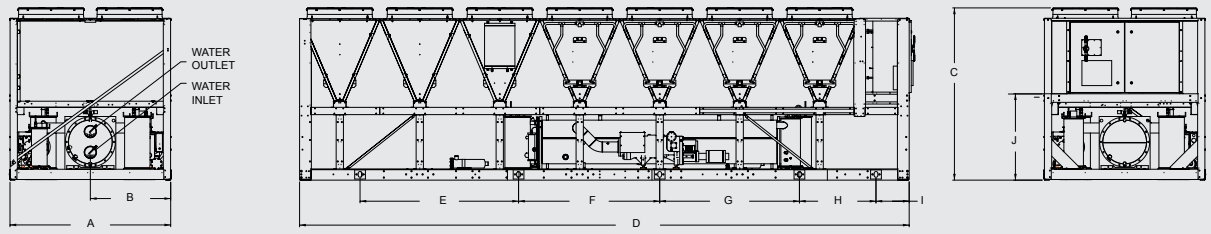
Unit frame	A	B	C	D	E	F	G	H	I	J
YVAA 0588 & 0765	2241	1121	2401	7397	1581	1358	1809	1531	314	1202
YVAA 0665 & 0743	2241	1121	2401	7397	1159	2125	2103	1069	464	1202
YVAA 0843	2241	1121	2401	7397	1464	1971	1951	1069	464	1202
YVAA 0960	2244	1122	2405	7397	1421	1358	1799	1541	314	1206

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.

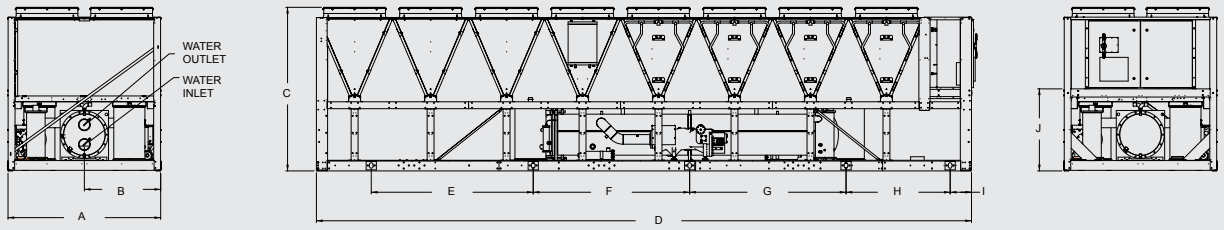
YVAA 0688, 0788, 0865, 0943, 0963 and 0965



Unit frame	A	B	C	D	E	F	G	H	I	J
YVAA 0688 & 0943	2244	1122	2405	8514	2214	1951	1952	1069	464	1206
YVAA 0788	2244	1122	2405	8514	1774	2299	2299	1531	314	1206
YVAA 0865	2244	1122	2405	8514	2129	2299	2256	1069	464	1206
YVAA 0963 & 0965	2244	1122	2405	8514	1501	2115	1529+1228	1531	314	1206

All dimensions in mm. Drawings not in scale.

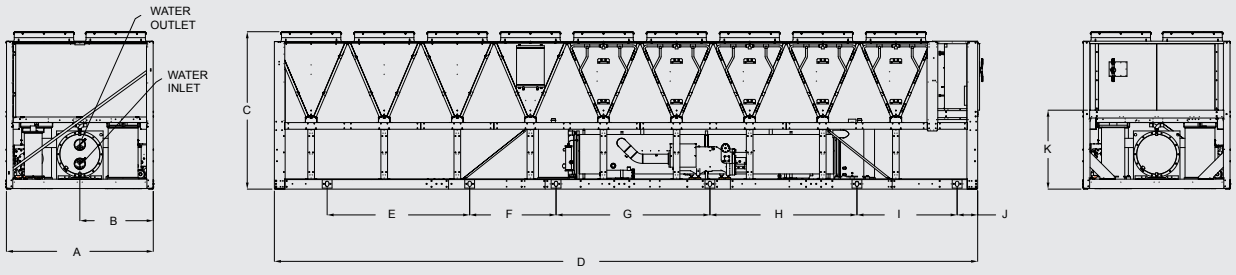
YVAA 0888, 0988, 1015, 1093 and 1143



Unit frame	A	B	C	D	E	F	G	H	I	J
YVAA 0888	2244	1122	2405	9631	2381	2299	2299	1531	314	1206
YVAA 0988 & 1143	2244	1122	2405	9631	2656	1568	1529+1228	1531	314	1206
YVAA 1015	2244	1122	2405	9631	1467	2807	2706	1531	314	1206
YVAA 1093	2244	1122	2405	9631	2381	2351	2247	1531	314	1206

All dimensions in mm. Drawings not in scale.

YVAA 1065, 1088, 1173 and 1193



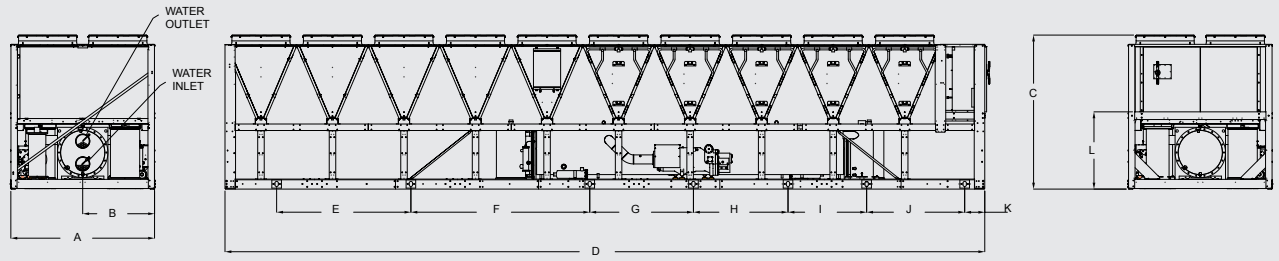
Unit frame	A	B	C	D	E	F	G	H	I	J	K
YVAA 1065	2244	1122	2405	10748	2178	1320	2351	2247	1531	314	1206
YVAA 1088	2244	1122	2405	10748	2433	1340	1620	1477+1228	1531	314	1206
YVAA 1173	2244	1122	2405	10748	2177	1323	2299	2299	1531	314	1206
YVAA 1193	2244	1122	2405	10748	2433	1340	1568	1529+1228	1531	314	1206

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.

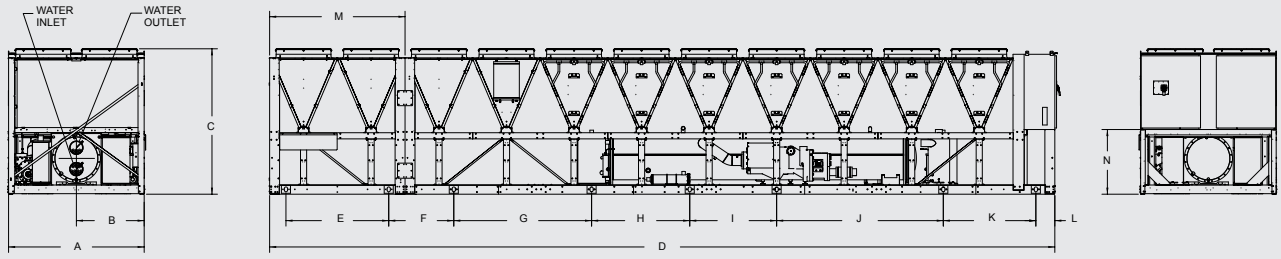
YVAA 1188, 1215, 1315, 1343, 1443, 1650 and 1700



Unit frame	A	B	C	D	E	F	G	H	I	J	K	L
YVAA 1188	2244	1122	2405	11865	2097	2793	1619	1477	1228	1531	314	1206
YVAA 1215	2244	1122	2405	11865	2097	2793	1568	1529	1228	1531	314	1206
YVAA 1315 / 1343 / 1443	2243	1122	2405	11864	3397	1623	1437	2757	-	1531	314	1070
YVAA 1650 & 1700	2243	1122	2405	11864	3701	1319	1437	2757	-	1531	314	1070

All dimensions in mm. Drawings not in scale.

YVAA 1288



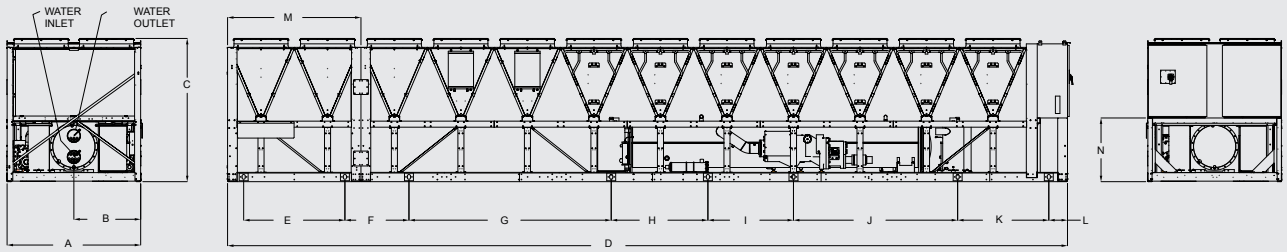
Unit frame	A	B	C	D	E	F	G	H	I	J	K	L	M	N
YVAA 1288	2243	1122	2405	12987	1700	1076	2280	1623	1437	2757	1531	314	2240	1070

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.

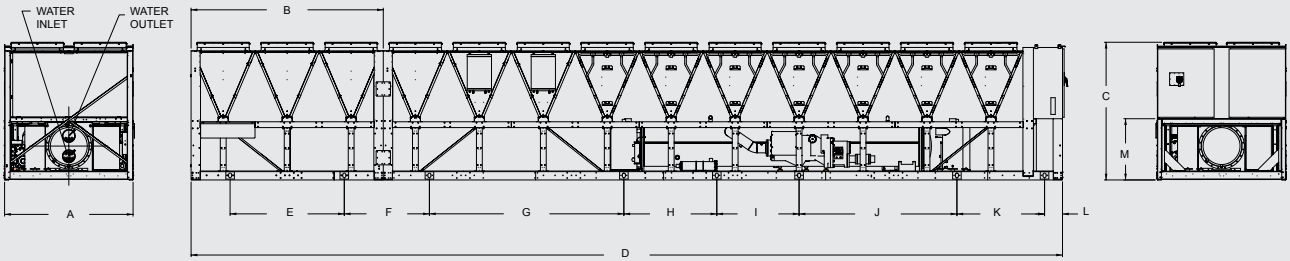
YVAA 1388, 1515 and 1543



Unit frame	A	B	C	D	E	F	G	H	I	J	K	L	M	N
YVAA 1388/1515	2243	1122	2405	14104	1700	1076	3397	1623	1437	2757	1531	314	2240	1070
YVAA 1543	2243	1122	2405	14104	1700	1076	3701	1319	1437	2757	1531	314	2240	1070

All dimensions in mm. Drawings not in scale.

YVAA 1488, 1665, 1693 and 1843

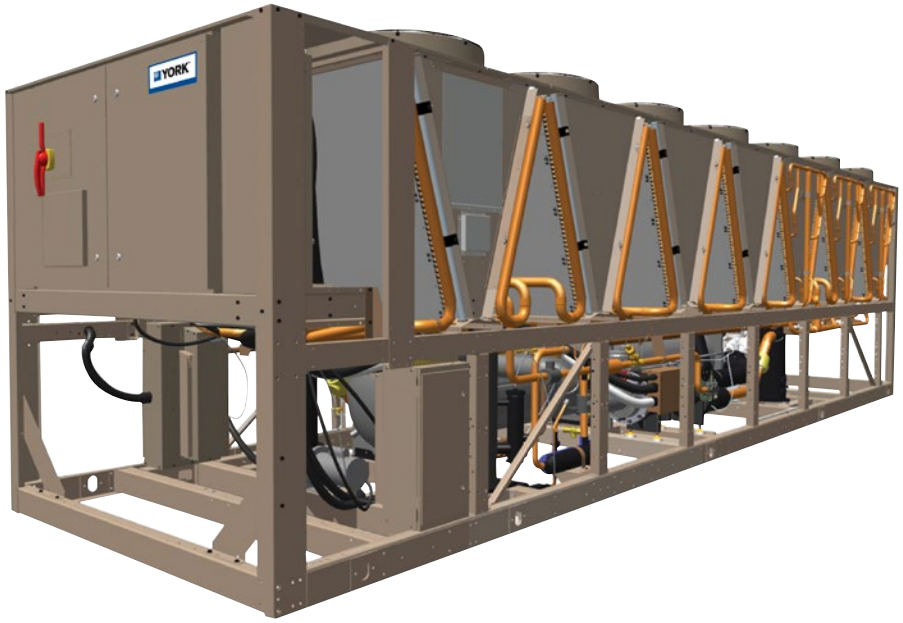


Unit frame	A	B	C	D	E	F	G	H	I	J	K	L	M
YVAA 1488	2244	3357	2405	15222	1995	1487	3397	1623	1437	2757	1531	314	1070
YVAA 1665/1693/1843	2244	3357	2405	15222	1995	1487	3701	1319	1437	2757	1531	314	1070

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 od 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.

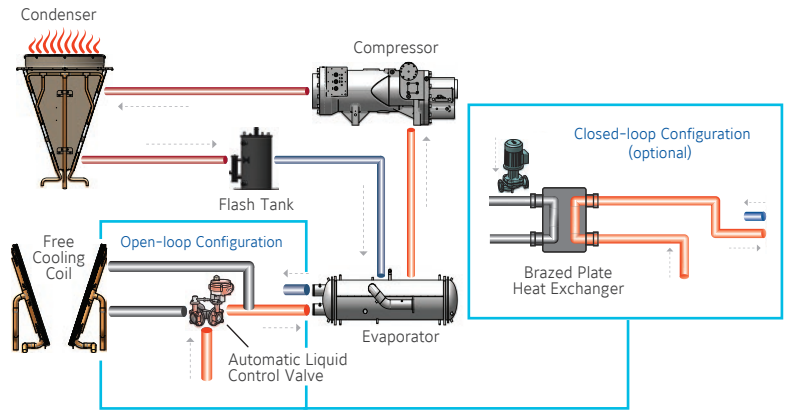
Closed-loop configuration

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

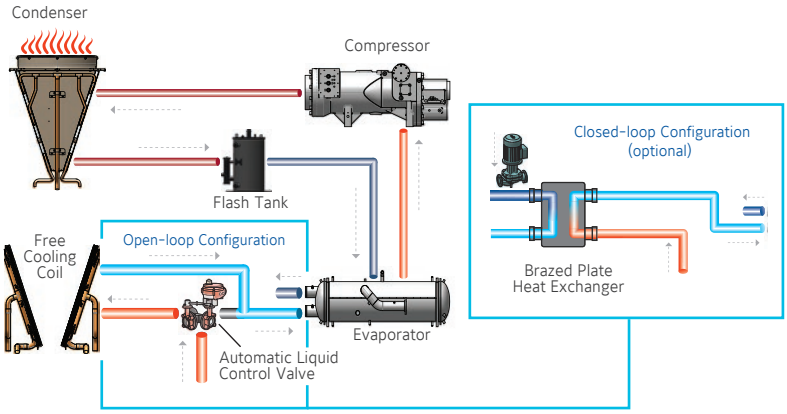
YVFA

Saving energy is simple in every situation



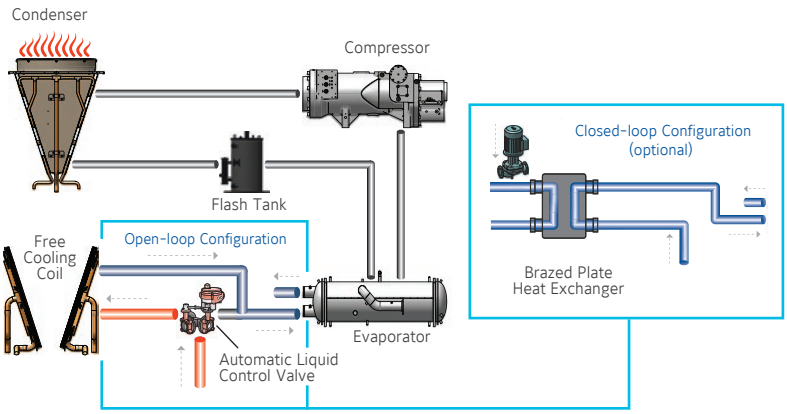
1 Mechanical Cooling Mode

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.



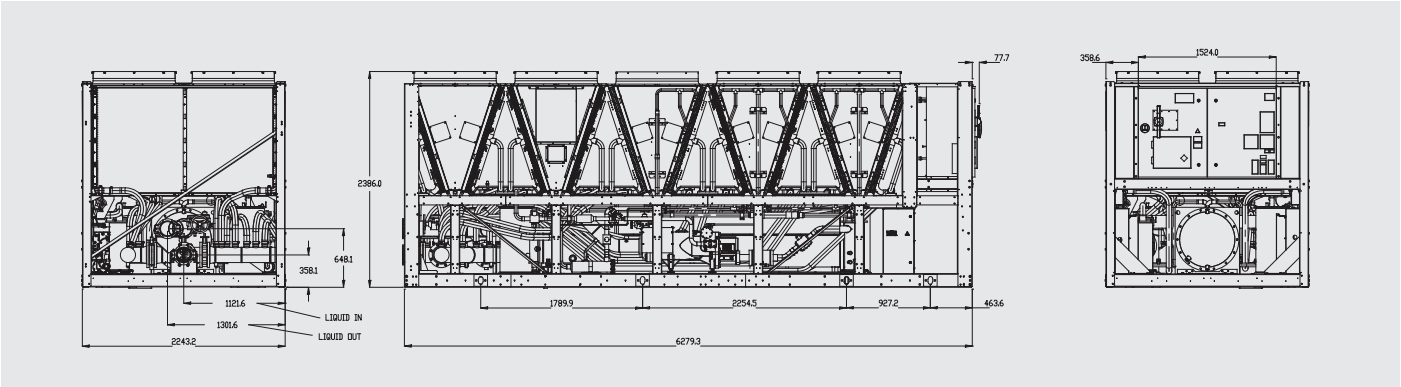
3 Free Cooling Mode

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.

Dimensions and hydraulic connections

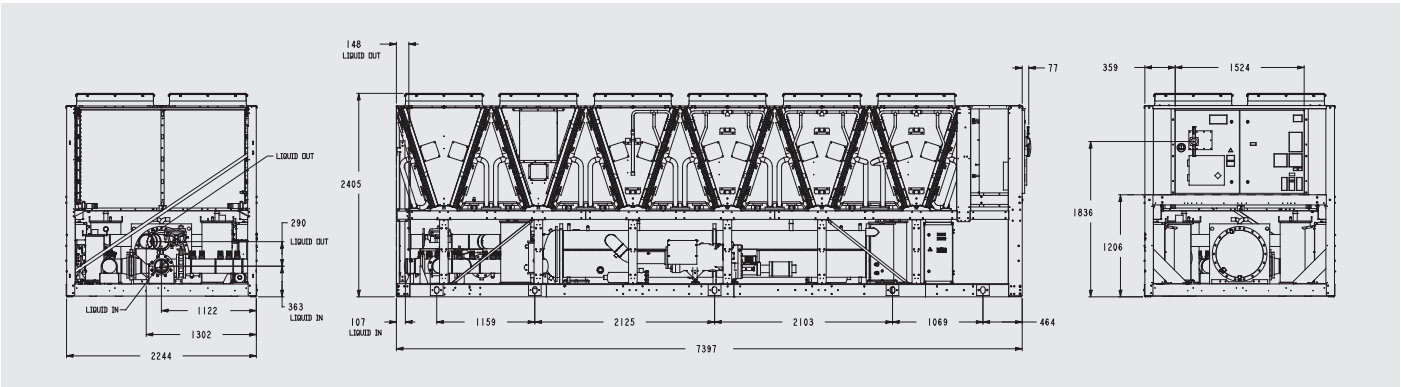
Open-loop (OL) configuration models

YVFA 0539 OL



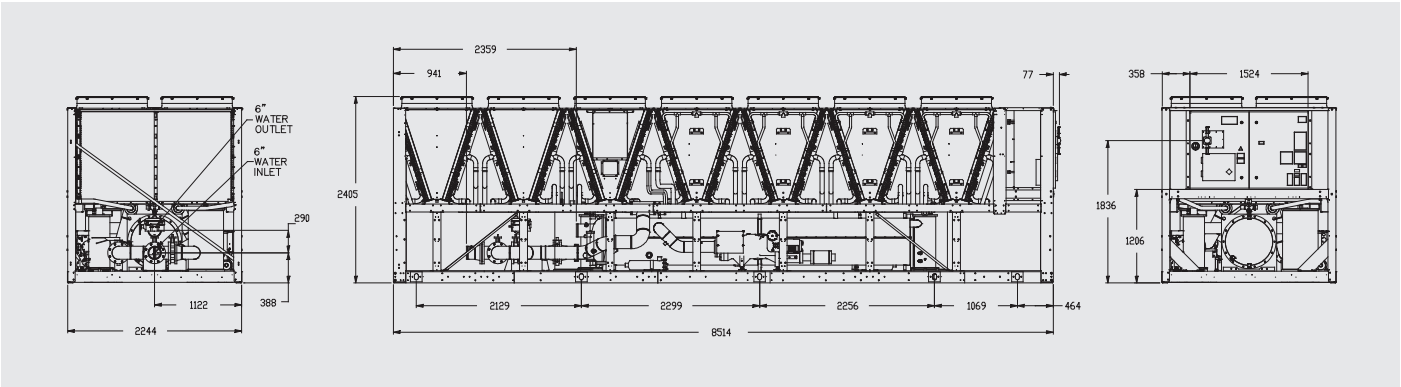
All dimensions in mm. Drawings not in scale.

YVFA 0709 OL



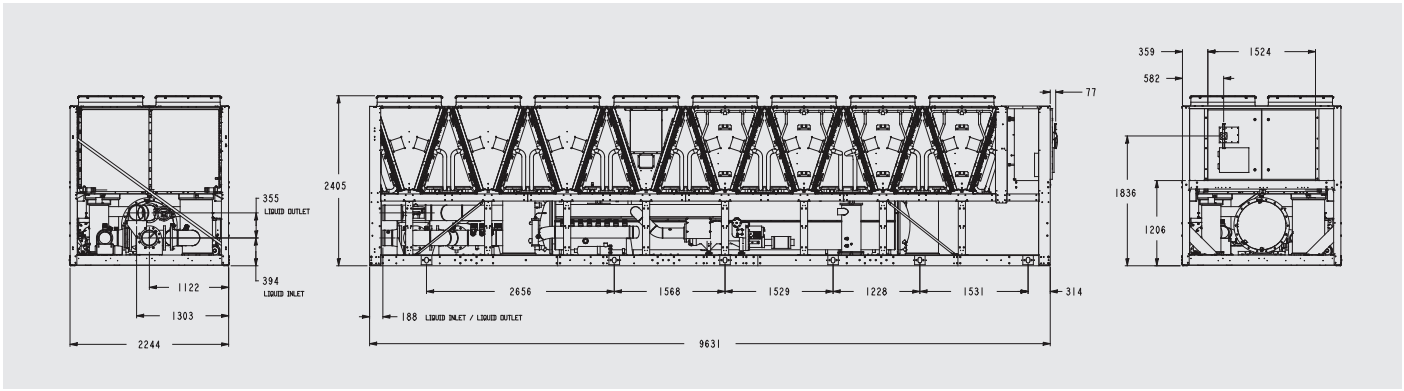
All dimensions in mm. Drawings not in scale.

YVFA 0889 OL



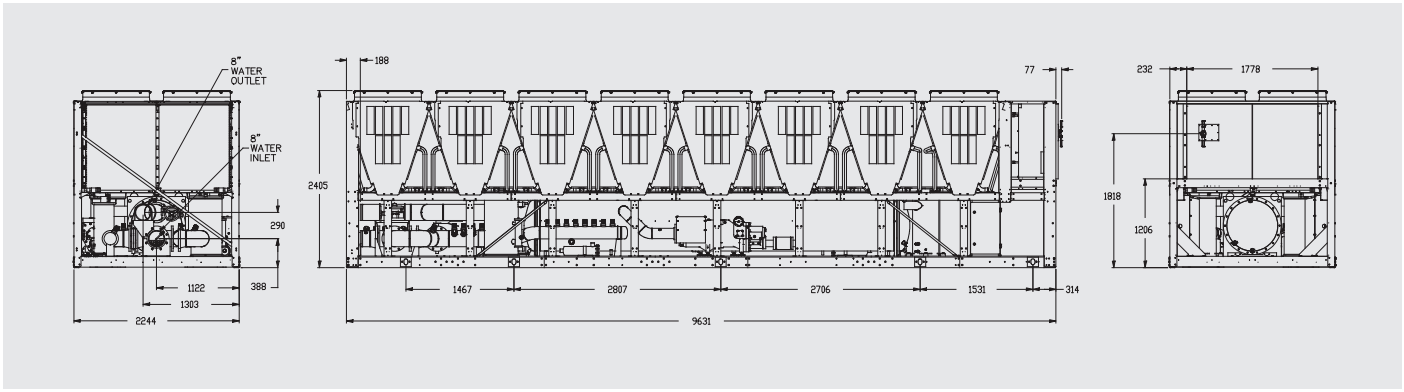
All dimensions in mm. Drawings not in scale.

YVFA 1009 OL



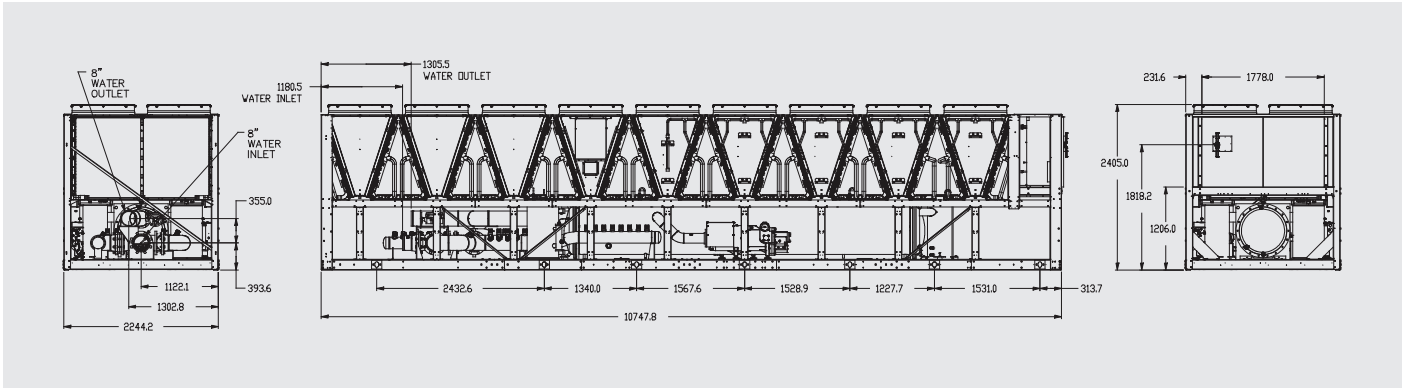
All dimensions in mm. Drawings not in scale.

YVFA 1069 OL



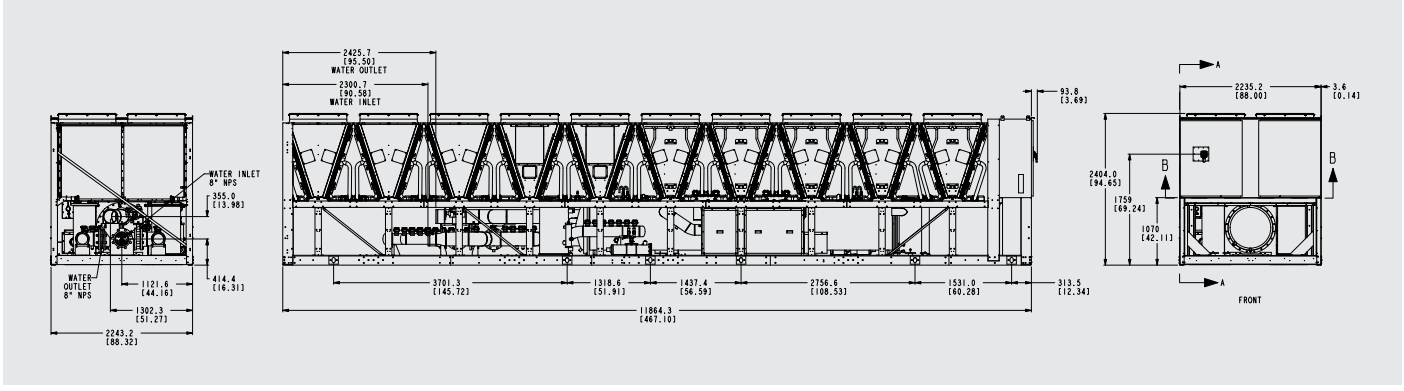
All dimensions in mm. Drawings not in scale.

YVFA 1239 OL



All dimensions in mm. Drawings not in scale.

YVFA 1419 and 1589 OL

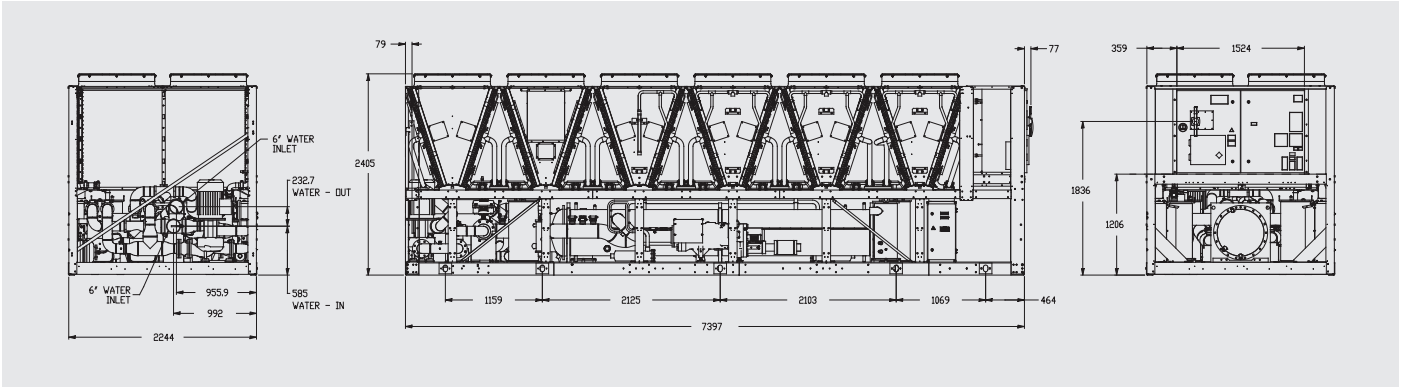


All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

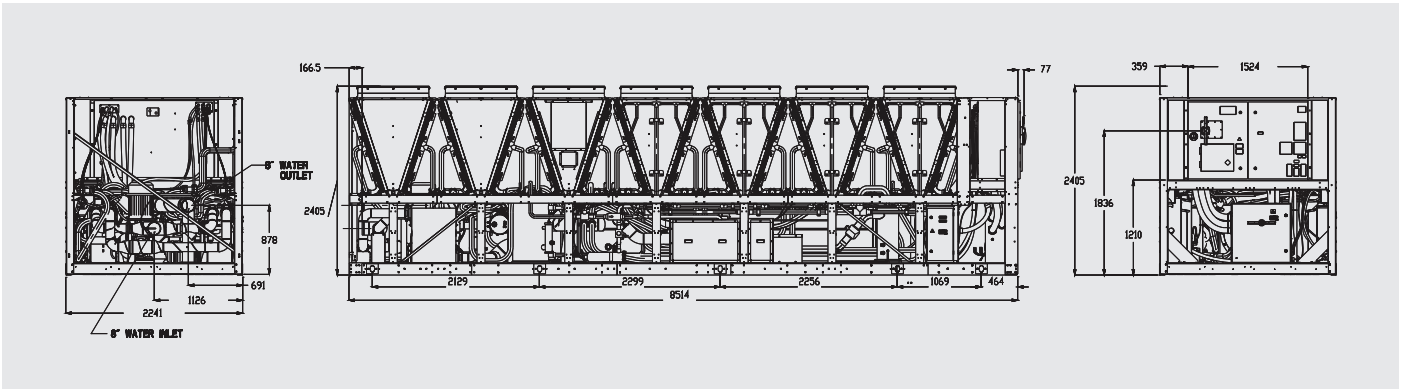
Closed-loop (CL) configuration models

YVFA 0709 CL



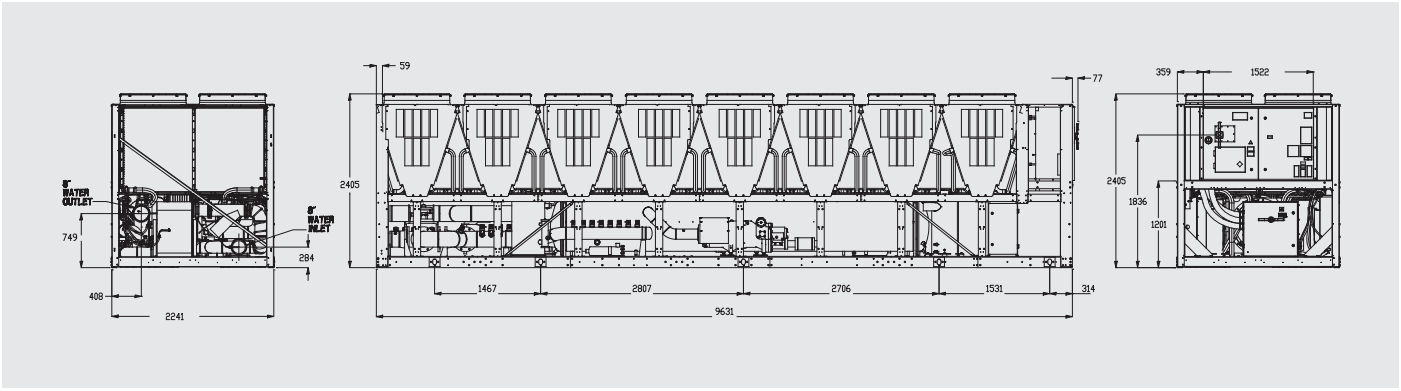
All dimensions in mm. Drawings not in scale.

YVFA 0889 CL



All dimensions in mm. Drawings not in scale.

YVFA 1069 CL

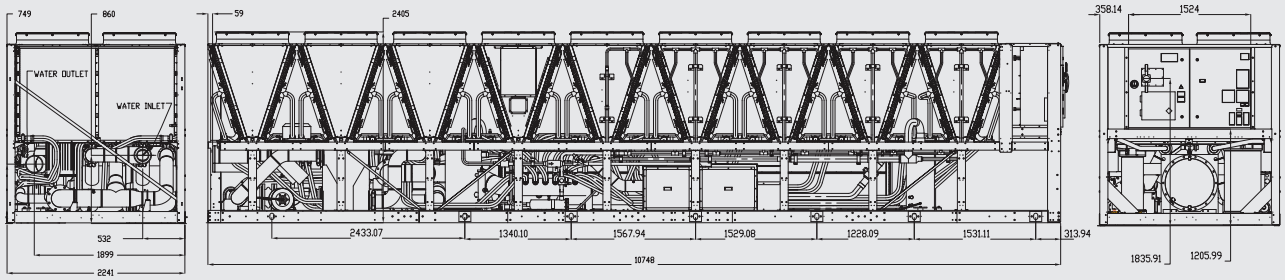


All dimensions in mm. Drawings not in scale.

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 peformance 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 21.0a. Please refer to the latest version of the software for specific projects.

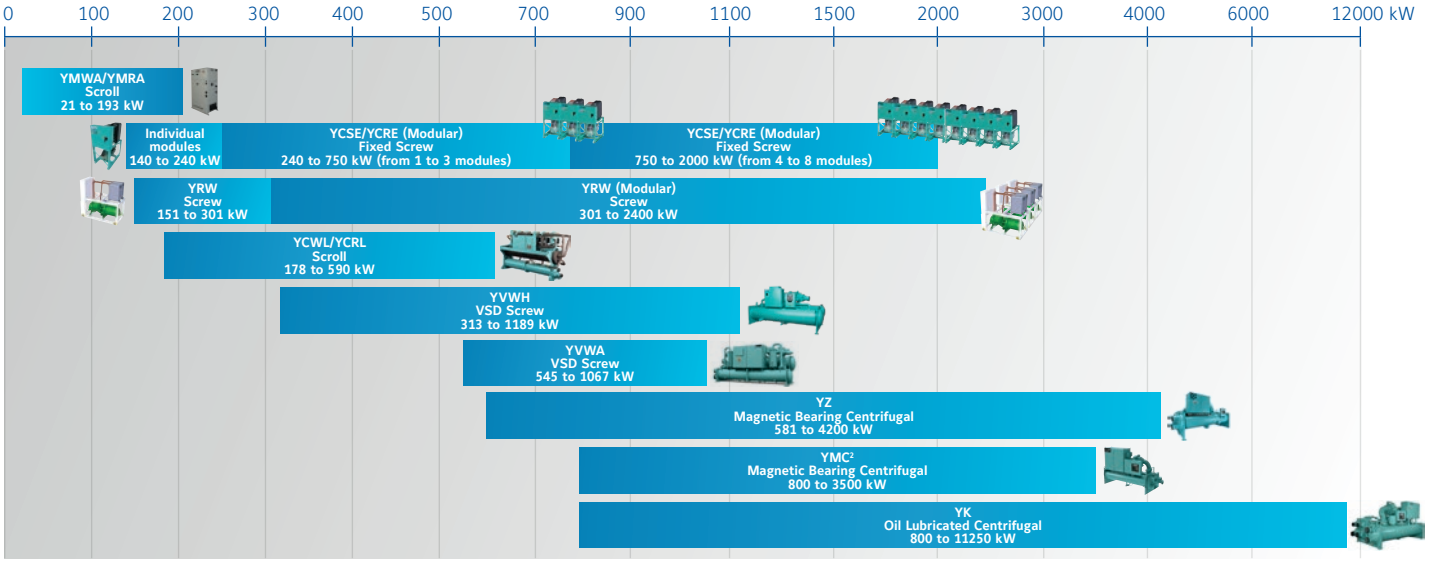
Technical data

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

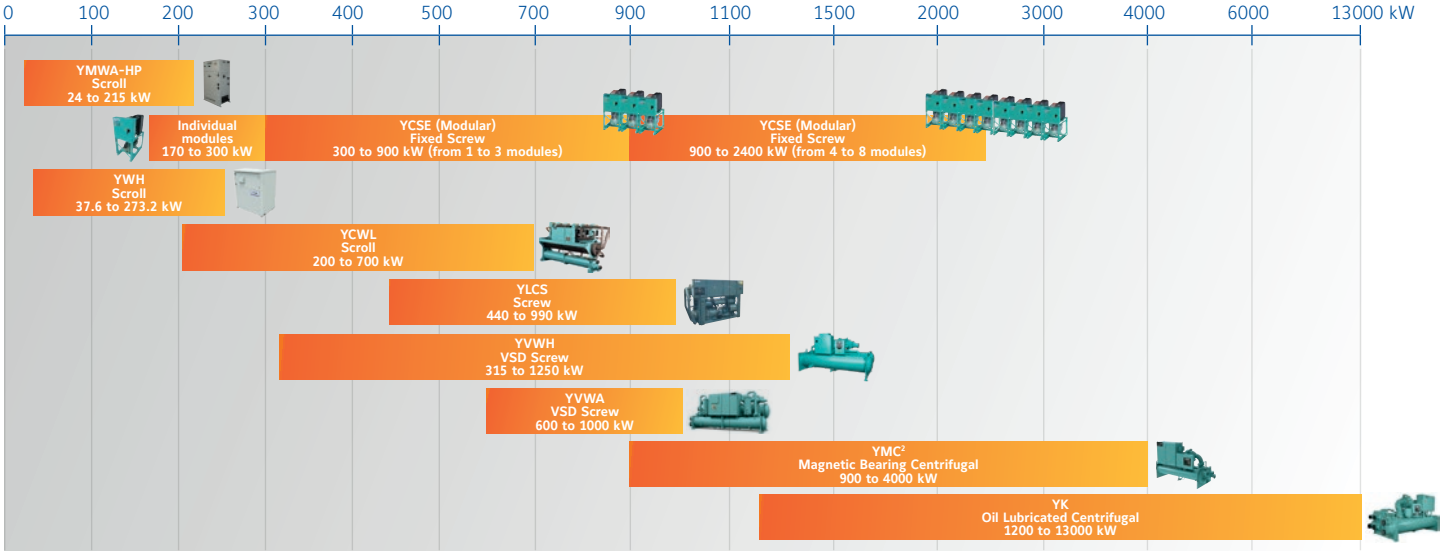
Water-Cooled Chillers and Heat Pumps

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).

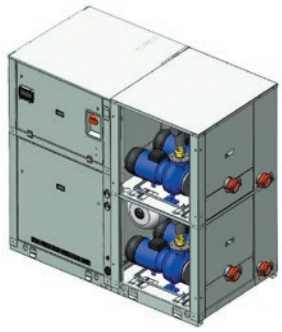
YMWA/YMRA
Water-cooled reversible heat pump with scroll compressor

Cooling capacities from 21 kW to 193 kW
Heating capacities from 24 kW to 215 kW

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.

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

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
ηs, 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

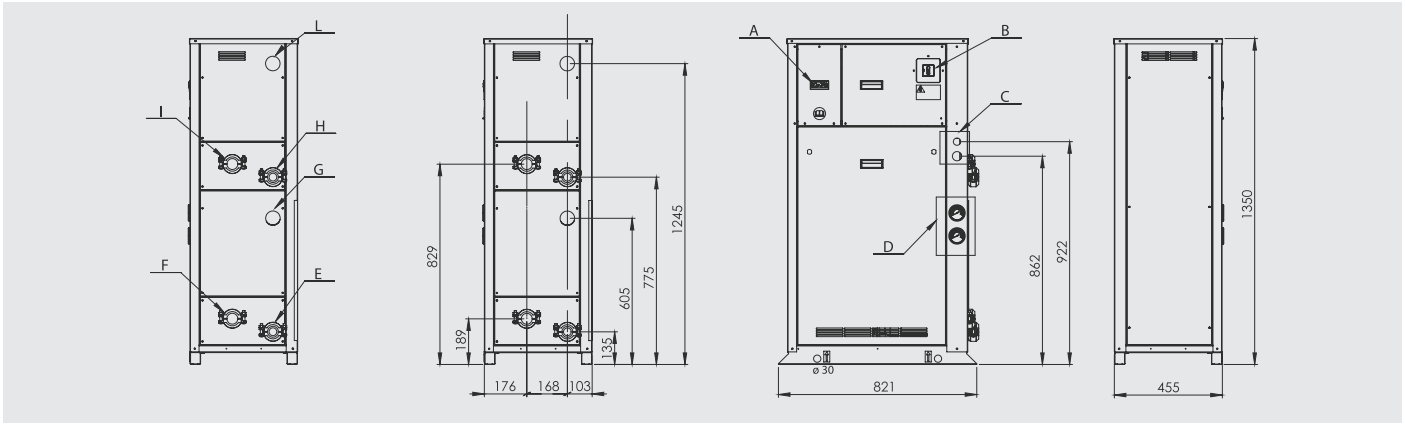
YMRA	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	21.2	26.2	31.1	34.8	39.2	46.6	50.9	61.1	77.3	91.1	118.4	147.1	170	192.7
Length / Width / Height (mm)	821 / 455 / 1350						1210 / 850 / 1500							
Operating weight (kg)	144	164	166	166	172	172	332	344	365	376	558	612	643	674

YMWA-HP	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	21	26	30	34	38	46	50	59	76	89	115	145	166	186
Heating Capacity (kW)	24	29	34	39	43	51	8	66	88	103	134	166	192	215
EER	4.66	4.47	4.29	4.35	4.33	4.39	4.20	4.27	4.40	4.23	4.29	4.36	4.36	4.30
COP	4.09	4.06	4.01	4.03	4.02	4.04	4.11	3.88	4.18	4.14	4.17	4.22	4.19	4.19
SCOP	5.65	5.40	5.24	5.23	5.18	5.46	5.06	5.57	5.28	5.05	5.50	5.12	5.21	5.34
ηs, h	193	193	186	190	187	182	192	190	201	196	199	203	201	201
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 fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.
SEER and SCOP calculated according to EN14511 and EN14825
ηs 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 20.05b. Please refer to the latest version of the software for specific projects

Dimensions and hydraulic connections

YMWA-CO/HP 0020-0045

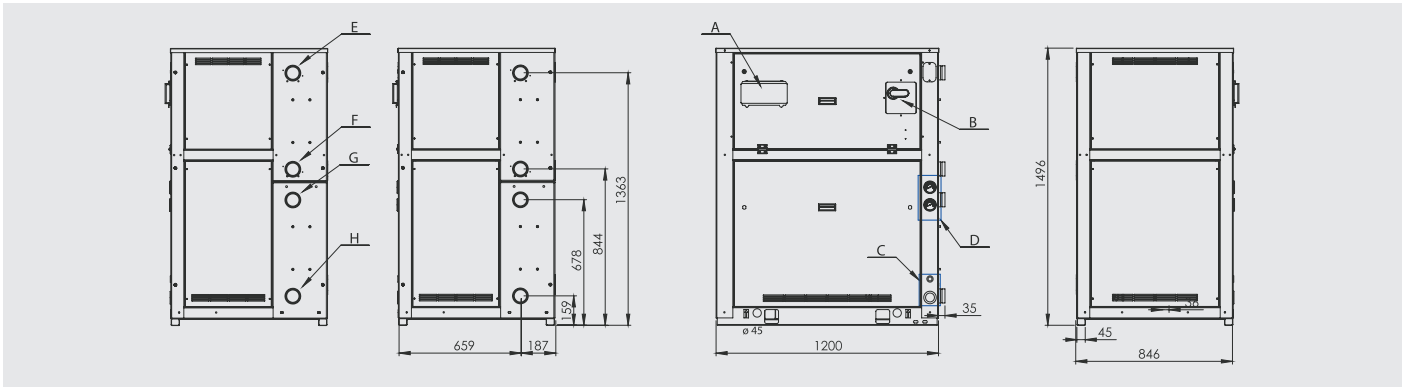


A	Control display	**D**	Gauge kit
B	Main switch	**E, F, G**	Water evaporator connections Ø 1 1/2" victaulic
C	Auxiliary lines, electrical connection	**H, I, L**	Water condenser connections Ø 1 1/2" victaulic

YMRA Sizes	In	Out
020	H Ø 5/8"	L Ø 5/8"
025-045	H Ø 5/8"	L Ø 7/8"

All dimensions in mm. Drawings not in scale.

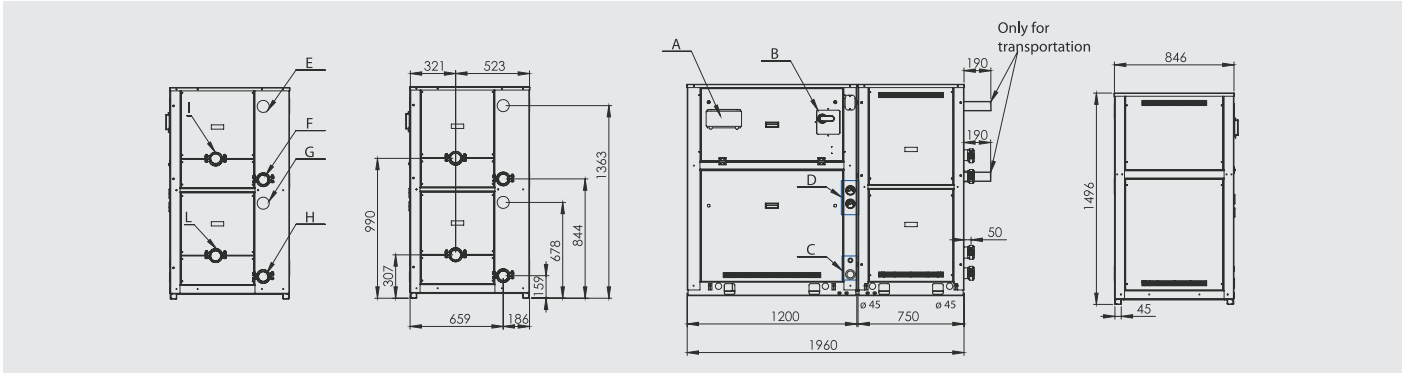
YMWA-CO/HP 0050-0190 without Hydrokit



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

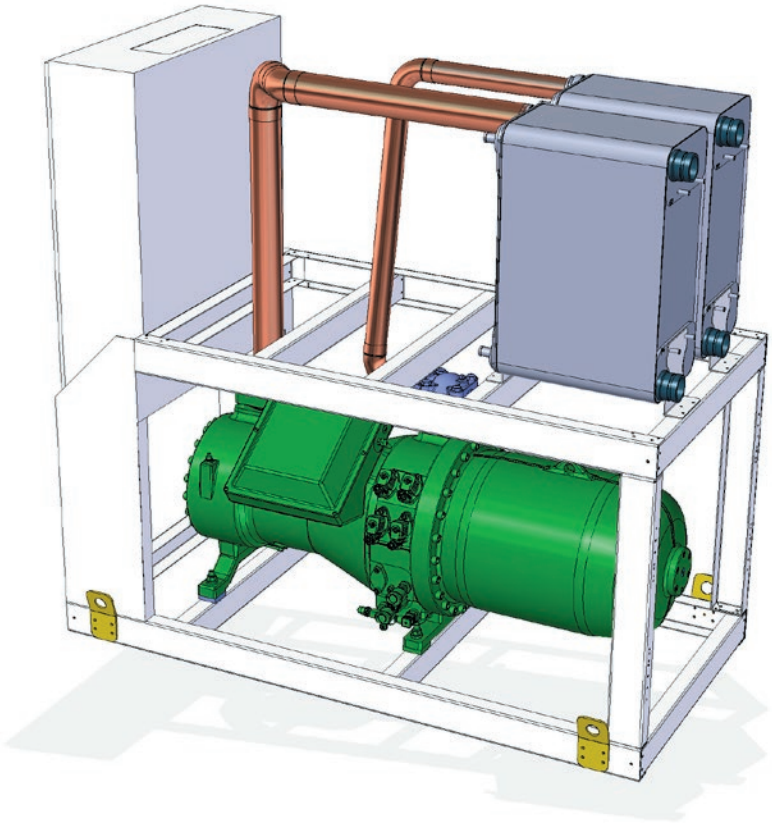
All dimensions in mm. Drawings not in scale.

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

Manufacturer reserves the rights to change specifications without prior notice.

YRW
Water-cooled screw compressor chiller

Cooling capacities from 151 kW to 321 kW



NEW

R513A

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 efficency.

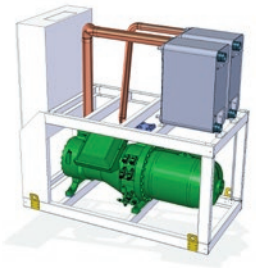
The **YRW** helps to reduce CO_2 total emissions using low GWP refrigerant **R513A.**

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, 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)		151.4	205.5	250.3	321.1
Absorbed power (kW)		30.03	42.51	49.35	64.18
SEER [1]		5.41	5.25	5.23	5.61
SEER with VSD compressor option [1]		5.72	5.47	5.44	5.89
EER		5.04	4.83	5.07	5.00
Regulation		25/50 ~ 100%			
Refrigerant charge (kg)		20	27	35	41
Evaporator	Inlet water temp.	12°C	12°C	12°C	12°C
	Outlet water temp.	7°C	7°C	7°C	7°C
	Waterflow (m^3/h)	26.1	35.1	51.4	55.2
	Pressure drop (kPa)	20	21	30	32
Condenser	Inlet water temp.	30°C	30°C	30°C	30°C
	Outlet water temp.	35°C	35°C	35°C	35°C
	Waterflow (m^3/h)	31.25	42.5	42.8	66.2
	Pressure drop (kPa)	26	36	21	50
Sound power level dB(A)		91	91.4	96.5	92.2
Sound pressure level dB(A) [2]		75.4	75.9	81.0	75.6
Sound power level (option CFU) dB(A)		85	85.4	90.9	89.5
Sound pressure level (option CFU) dB(A) [2]		70.1	70.3	76.1	72.3
Max absorbed current (A)		98	144	155	196
Inrush current (A)		267	350	439	612
Power supply		400V /3PH/ 50Hz			

1: Ratings in accordance to Ecodesign, fixed water flow and variable outlet (FW/VO).
2: Sound pressure measured at 1m (ISO 3744). CFU: Soundproofed cabinet option around the compressor.
The above data is based on Johnson Controls' selection software. Please refer to the latest version of the software for specific projects.

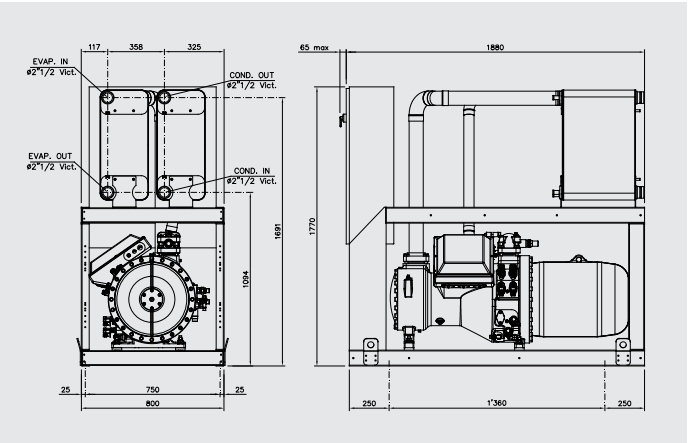
Technical data

YRW			151	201	251	301
Dimensions	Length	mm	1880			
	Width	mm	800		900	
	Height	mm	1770 *			
Operating weight		kg	1370	1510	1952	2063

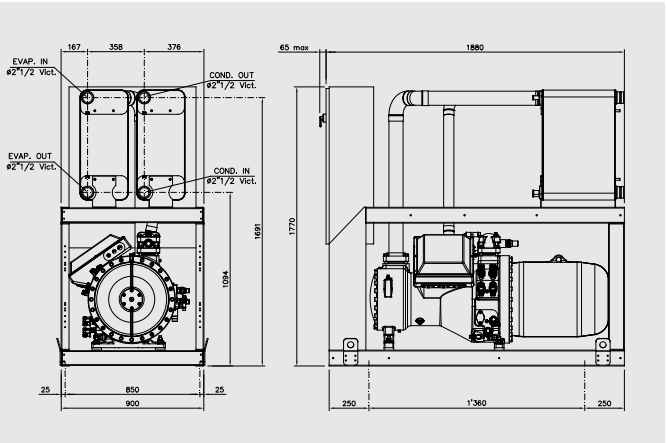
* Please refer to the latest version of the software for getting the height of the unit with CFU option.

Dimensions and hydraulic connections

YRW 151 and 201



YRW 251 and 301



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 240 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

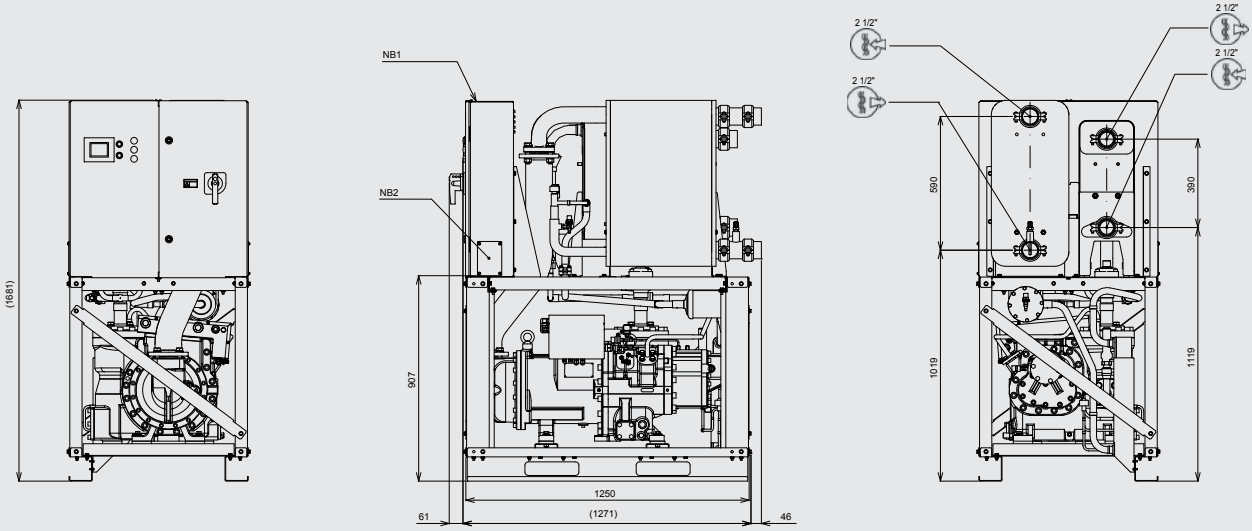
Model	YCSE				YCRE		
Size	0141	0181	0221	0241	0141	0181	0221
Cooling Capacity (kW) *	140	180	220	240	135	175	215
EER	4.85	4.81	4.72	4.73	4.22	4.19	4.10
SEER	5.27	5.46	5.51	5.52	Not Applicable		
ηs, c	207	215	217	217			
Sound power level (dBA)	87	88	89	90	88	89	90
Length / Width / Height (mm)	Base 1,378 max / 806 / 1,681						
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 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 20.05b. Please refer to the latest version of the software for specific projects

Dimensions and hydraulic connections

YCSE 0141 to 0241

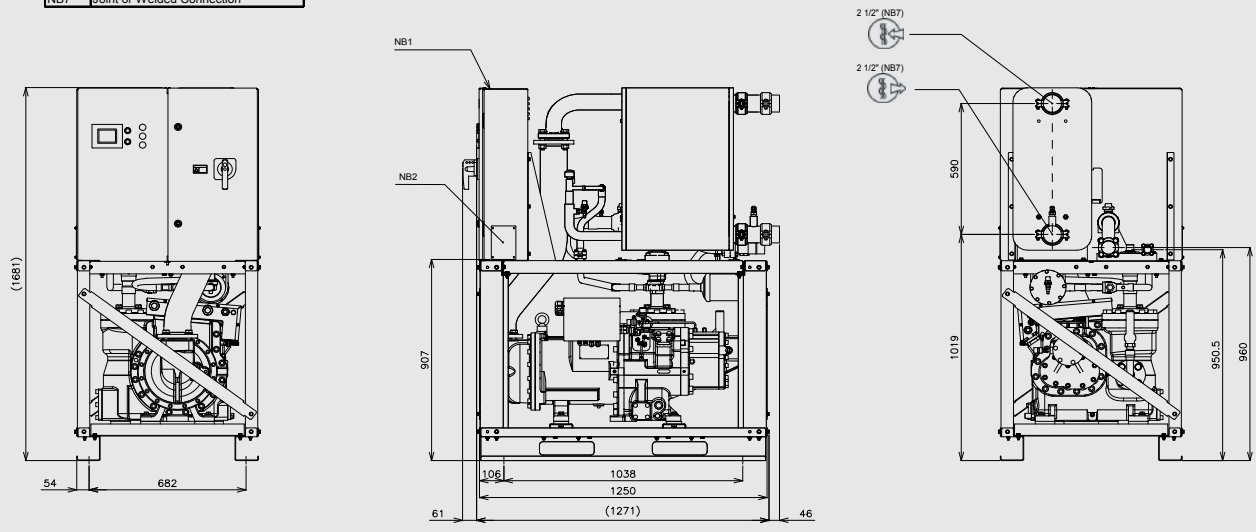
NB1	Electrical Box
NB2	Customer Wiring Entry (both sides)
NB3	2 1/2" Victaulic Connection
NB4	76.1 mm Welded Connection



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

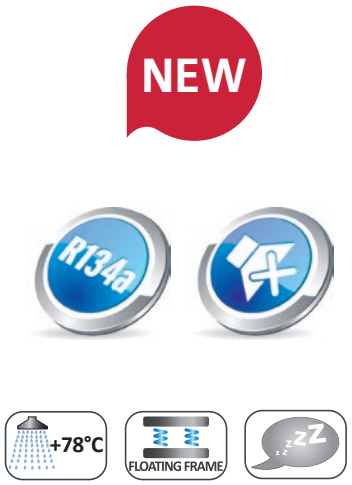


All dimensions in mm. Drawings not in scale.

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).

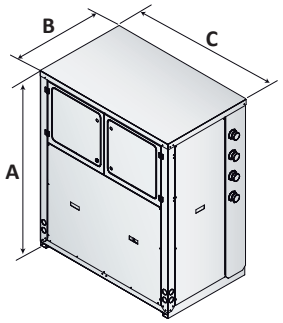
Options

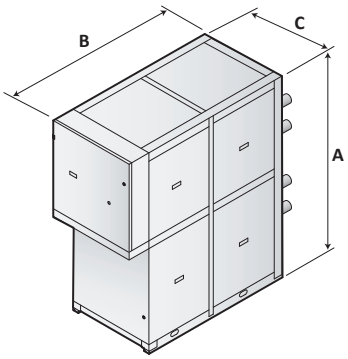
HT High source water temperature up to 40°C, water temperature production up to 78°C.

LT Medium source 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

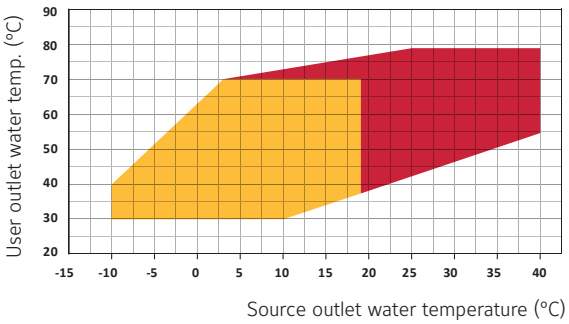




Mod.	A (mm)	B (mm)	C (mm)	Kg
302	1600	800	1150	660
402	1600	800	1150	680
602	1600	800	1150	700
702	1600	800	1150	730
902	1600	800	1150	740
1202	1600	800	1150	760
1402	1600	800	1150	790

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

Operation limits



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
ηs,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
ηs,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
ηs,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
ηs,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.

YCWL/YCRL
Water-cooled scroll compressor chiller

Cooling capacities from 178 kW to 595 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	370
EER [1]	4.71	4.66	4.71
SEER [1]	7.35	7.28	7.35
ηs, c [1]	291	288	291
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	411	444	498	595
EER [1]	4.94	5.06	5.10	4.95	5.00	5.06	5.02	5.03	4.92
SEER [1]	6.41	6.89	8.33	7.66	7.41	7.61	7.10	7.51	7.20
ηs, c [1]	253	273	330	303	293	302	281	297	285
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 20.05b. 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

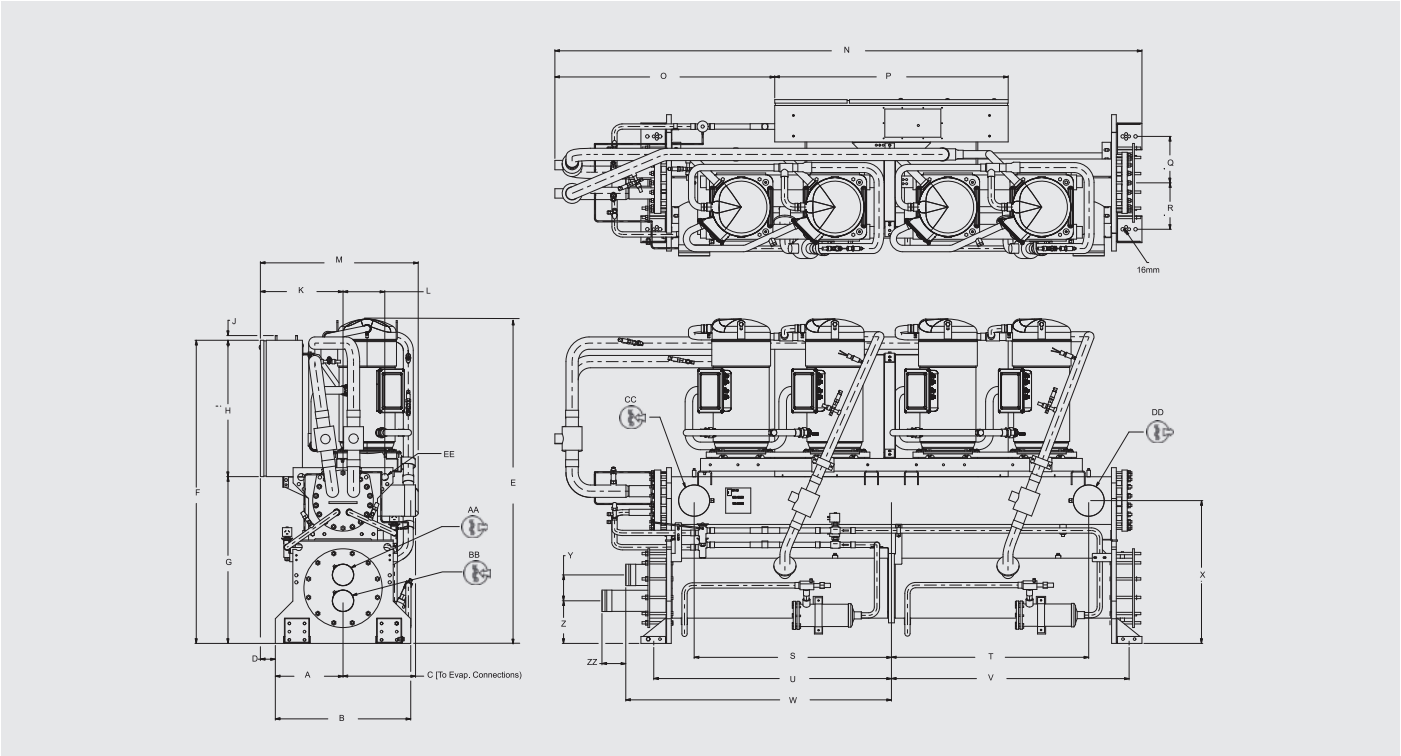
YCWL-HE			0201	0231	0261	0302	0347	0426	0447	0532	0611
Dimensions	Length	mm	3161	3098	3154	3169	3132	3133	3643		
	Width	mm	859	857	844	859		859	885		
	Height	mm	1670	1914	1820	1819	1889	1889	1946	1965	
Operating weight		kg	2218	2512	2463	2481	2808	2824	3632	3838	3999

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



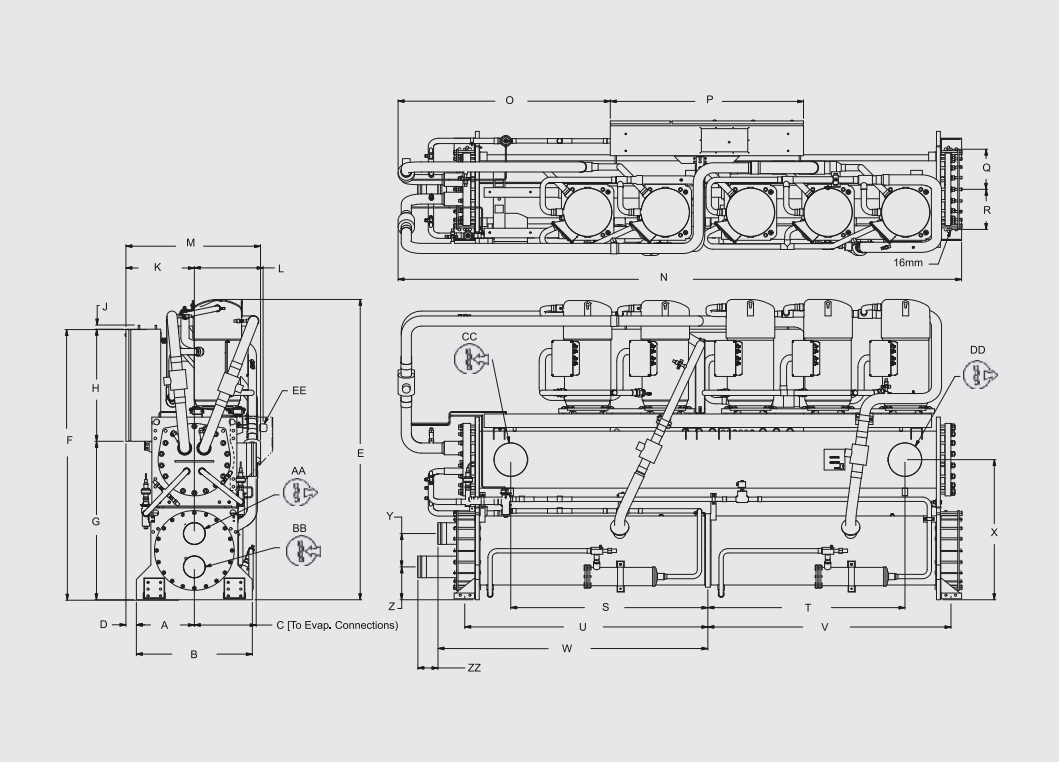
YCWL	0292SE	0343SE	0396SE	0201HE	0231HE	0261HE	0302HE	0347HE	0426HE	0447HE
Dimension	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
A	368	368	368	368	368	368	368	368	368	381
B	737	737	737	737	737	737	737	737	737	762
C	299	394	394	299	407	394	394	406	406	406
D	81	81	81	81	81	81	81	81	81	69
E	1830	1819	1819	1670	1914	1820	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

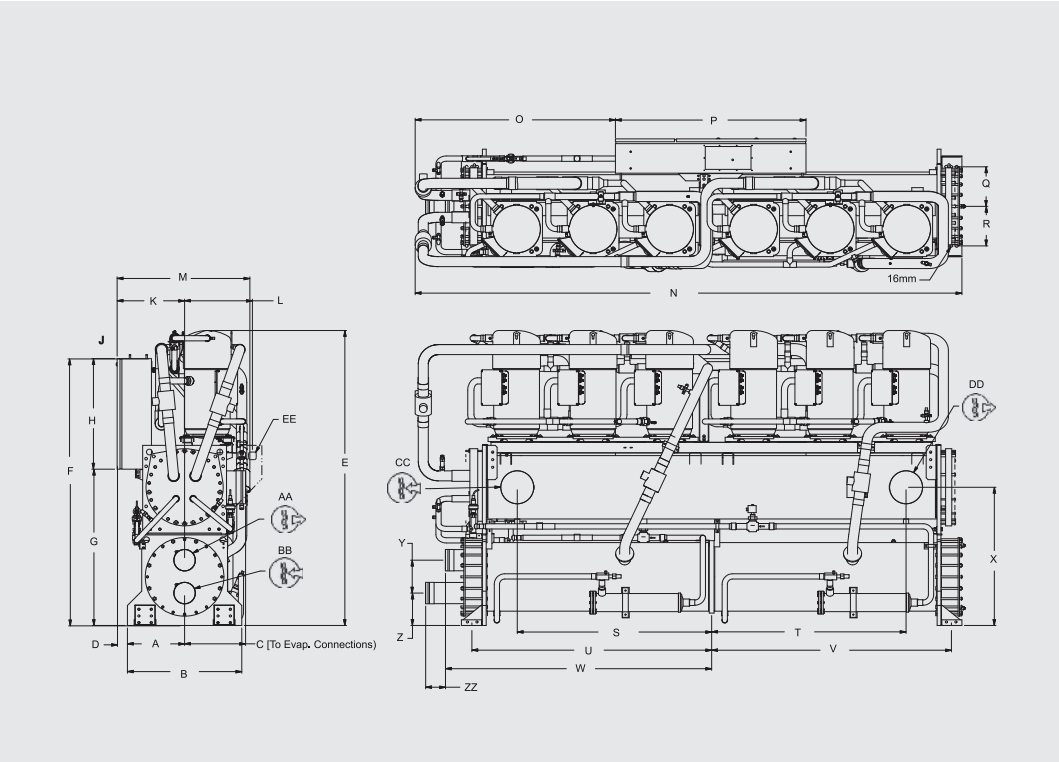


YCWL	0532HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	263
R	263
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

All dimensions in mm.

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

YCWL0611HE



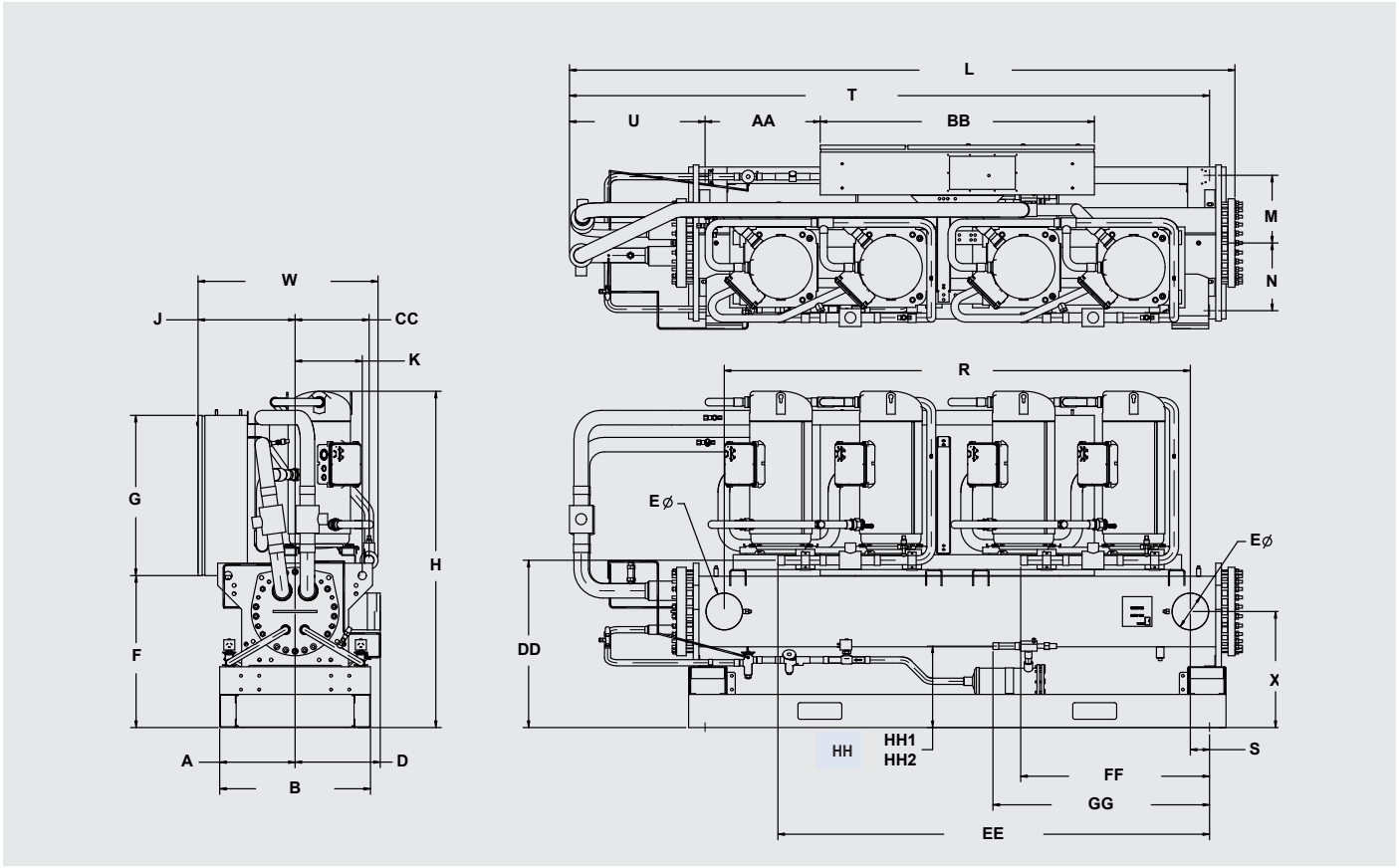
YCWL	0611HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	264
R	264
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

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

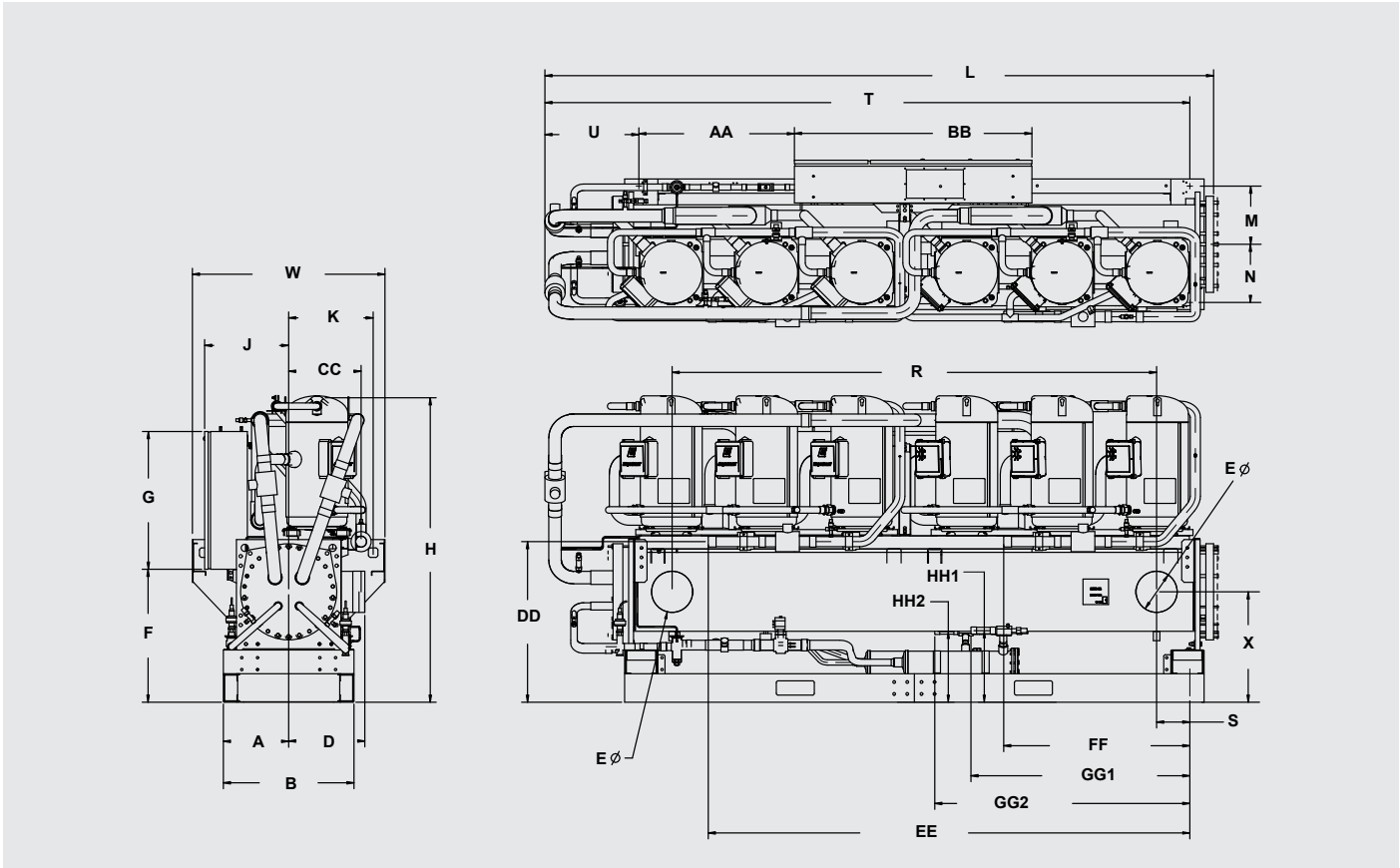


YCRL	0201 HE	0231 HE	0261 HE	0302 HE	0347 HE
W	824	834	834	834	846
H	1437	1616	1546	1544	1613
L	3085	3062	3082	3082	3062
A	349	349	349	349	349
B	699	692	699	699	699
D	299	407	394	394	407
E	219	219	168	168	219
F	622	737	699	699	737
G	737	737	737	737	737
J	450	450	450	450	450
K	311	324	311	311	324
M	311	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 397 kW to 1307 kW

Features

Designed to operate with leaving chilled liquid temperature from -4.5°C to +15°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	1,079
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 20.05b. Please refer to the latest version of the software for specific projects.

Heat Pump Application

YLCS-HA	0350	0415	0480	0530	0575	0620
Net Heating capacity (kW)	397	469	556	590	641	681
Net Heating Power input (kW)	104.7	121.2	142.9	151	163.5	174.4
Net Heating COP (kW/kW)	3.79	3.87	3.89	3.91	3.92	3.91
Evap. Pressure Drop (kPa)	34.1	41.2	23.3	26.1	35.4	39.6
Cond. Pressure Drop (kPa)	39.0	32.0	44.2	34.6	40.4	33.1
Sound Power (dBA)	93	93	93	95	95	95

YLCS-HA	0670	0750	0860	0980	1120
Net Heating capacity (kW)	756	873	1,013	1,145	1,307
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 20.05b. 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		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

- Standard compressor (Fix Vi)
- 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
	ηsc		341.44	349.57	351.17	362.27	369.36	369.36	384.34	397.44	389.9
Standard compressor (Fix Vi)	EER		5.91	6.06	5.86	6.06	6.02	6.19	5.91	6.03	5.89
	SEER		8.06	8.29	8.56	8.82	8.84	9.05	9.13	9.18	8.94
	ηsc		319.26	328.65	339.22	349.96	350.6	358.86	362.33	364.28	354.79
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 qualtity		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

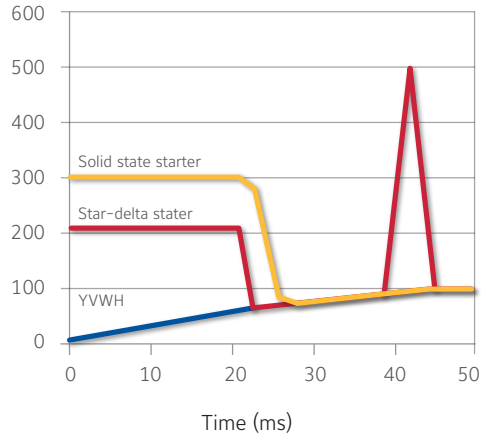
Ratings in accordance to Ecodesign, variable water flow and variable outlet (VW/VO). Rated with YORKworks 20.05b.
For other Ecodesign calculations or R134a information, please contact your JCI Representative.
[1] Bare unit. Sound kit 1 or 2 are available for sound attenuation.

Technical data

YVWH			115	145	180	225	260	300	330	375	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	

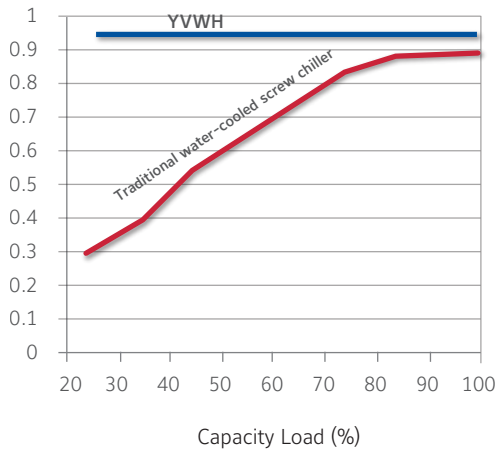
Soft Start

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.



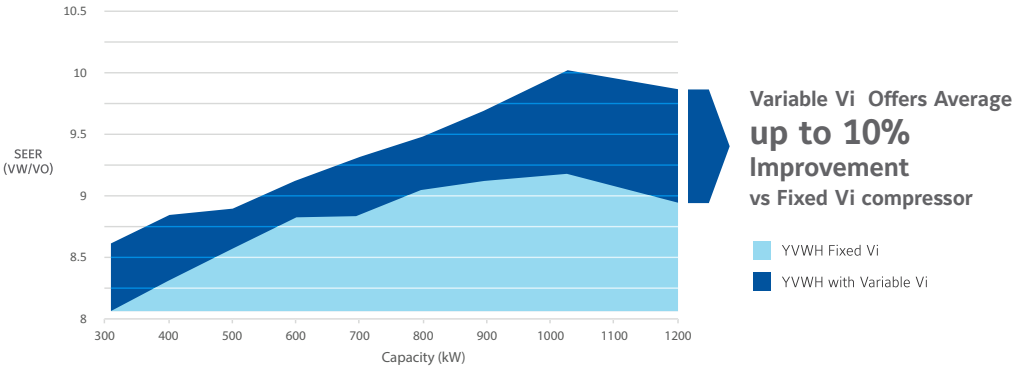
Manufacturer reserves the rights to change specifications without prior notice.

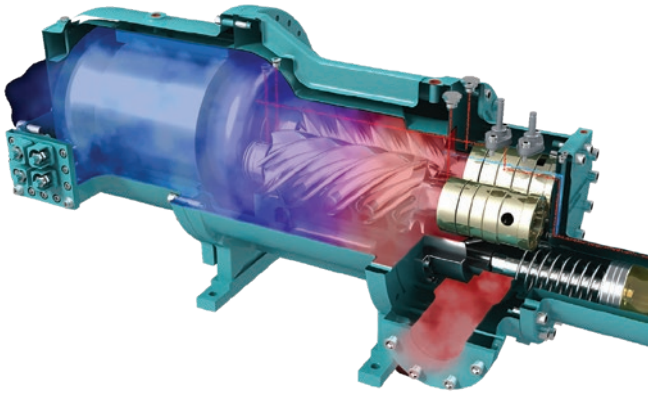
YVWH main features

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



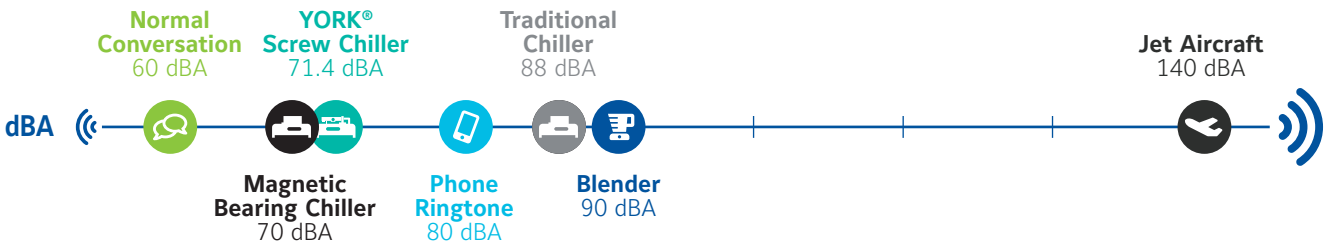


Optimized Compressor

Screw compressors from YORK® use advanced technology to deliver higher efficiences. 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.

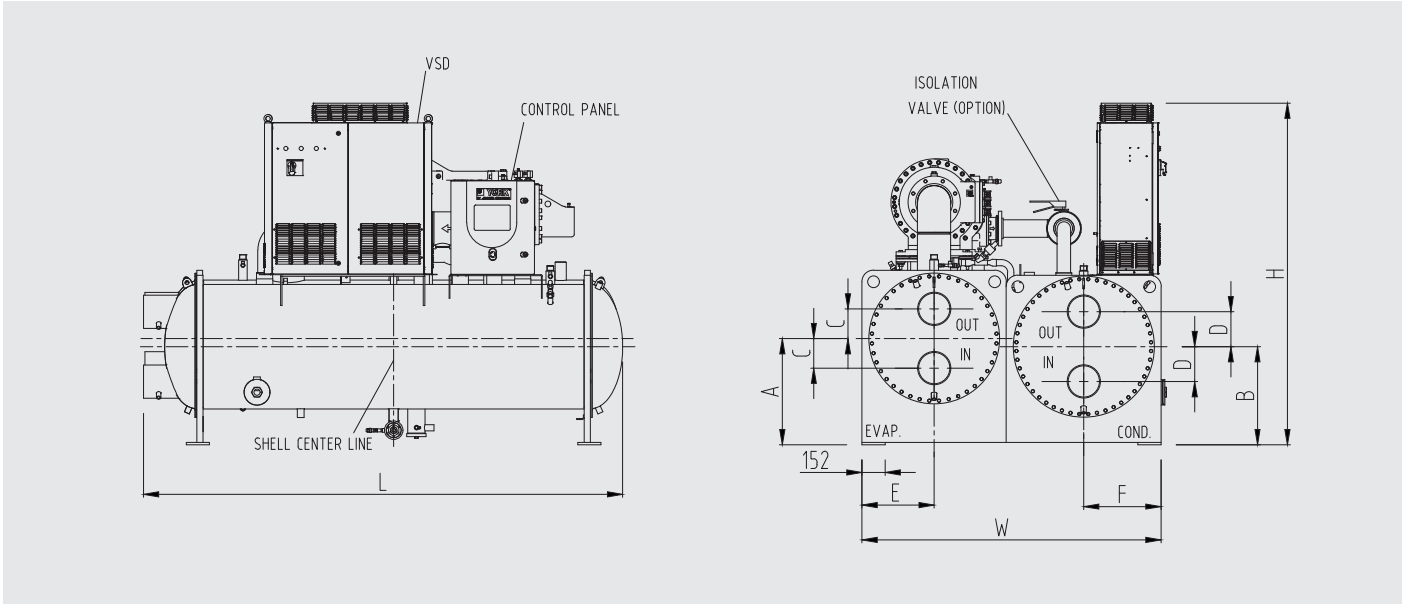
Reduced Sound Pressure Levels (1m)

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 quiter than traditional chillers while maintaining peak efficiency.



Dimensions and hydraulic connections

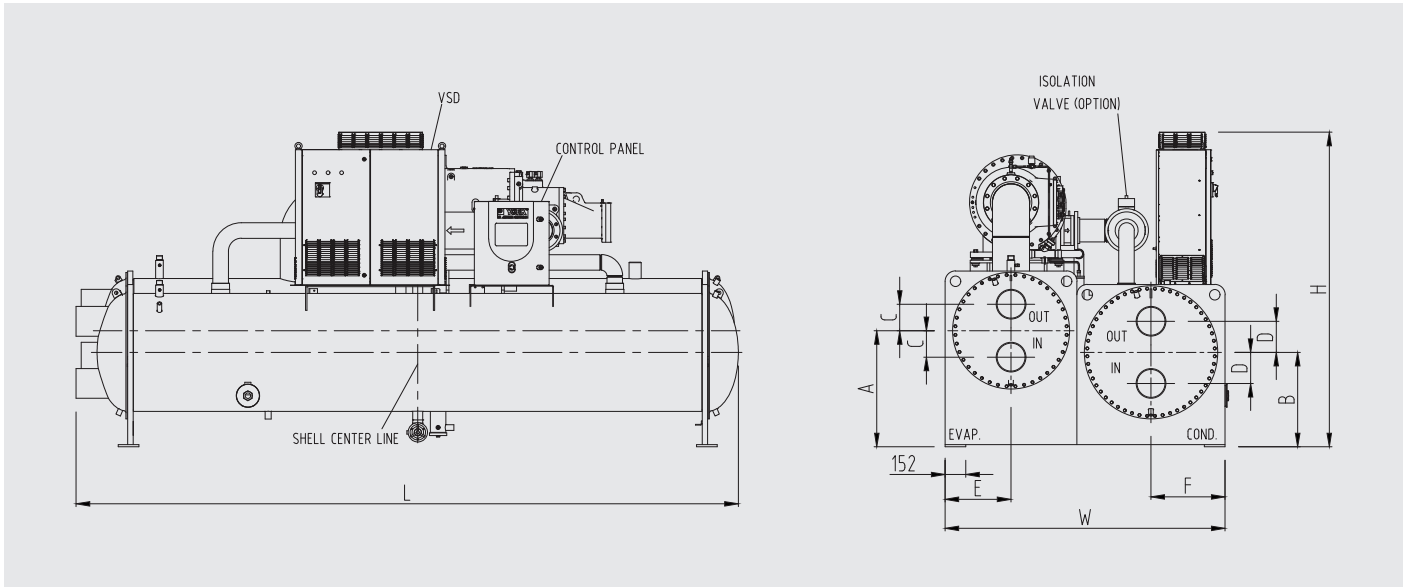
YVWH 115/145/180/225



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 265/303/325/380/445



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
YVWH303	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.

YVWA
Water-cooled VSD screw compressor chiller

Cooling capacity from 545 kW to 1067 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 flexilibilty 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

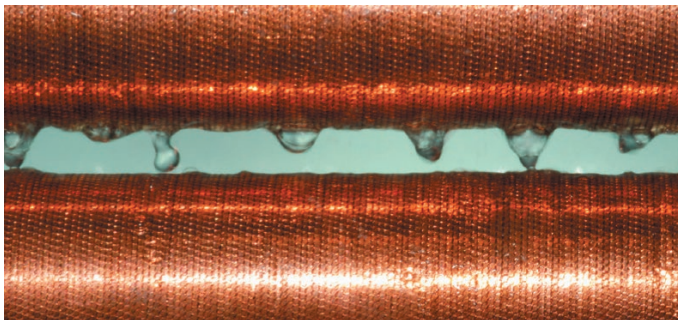


Photo courtesy of the LTCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland

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

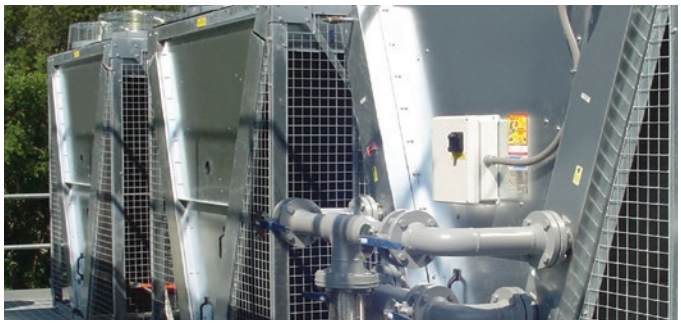


Photo courtesy of Baltimore Air Coil.

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

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

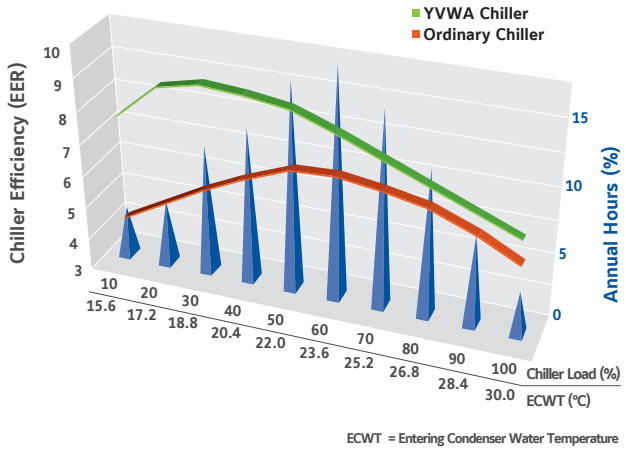
Model	YVWACDCDFX	YVWACDCDGX	YVWAMBMCEE	YVWAMEMEFF
Cooling capacity (kW)	545	696	872	1067
EER	5.10	4.73	4.86	4.91
SEER	6.90	7.11	6.85	7.05
ηs, c	273	281	271	279

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 pass evaporator, 1 pass condenser). For R134a information contact your JCI Representative.
The above data is based on Johnson Controls' selection software YORKworks 20.05b. Please refer to the latest version of the software for specific projects

Technical data

Model			YVWACDCDFX	YVWACDCDGX	YVWAMBMCEE	YVWAMEMEFF
Compressors / Circuit(s)			1	1	2	2
Dimensions	Length	mm	3571	3720	4390	4390
	Width	mm	1413	1413	1405	1405
	Height	mm	1846	1846	1824	1824
Operating weight (kg)			4169	4299	6032	6540
Refrigerant charge (kg)			153	163	250	260

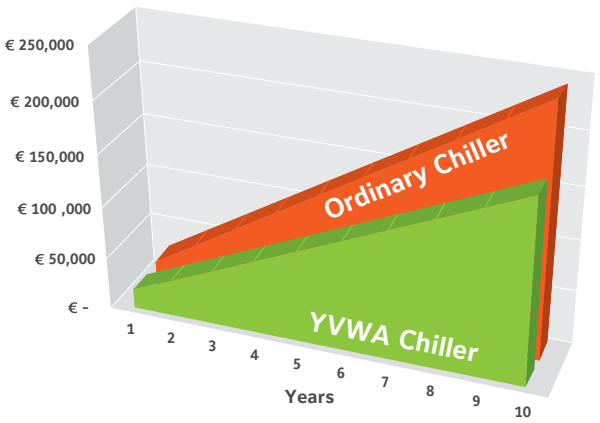
YVWA Efficiency vs. Ordinary Chiller



ECWT = Entering Condenser Water Temperature

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

YVWA Energy Cost vs. Ordinary Chiller

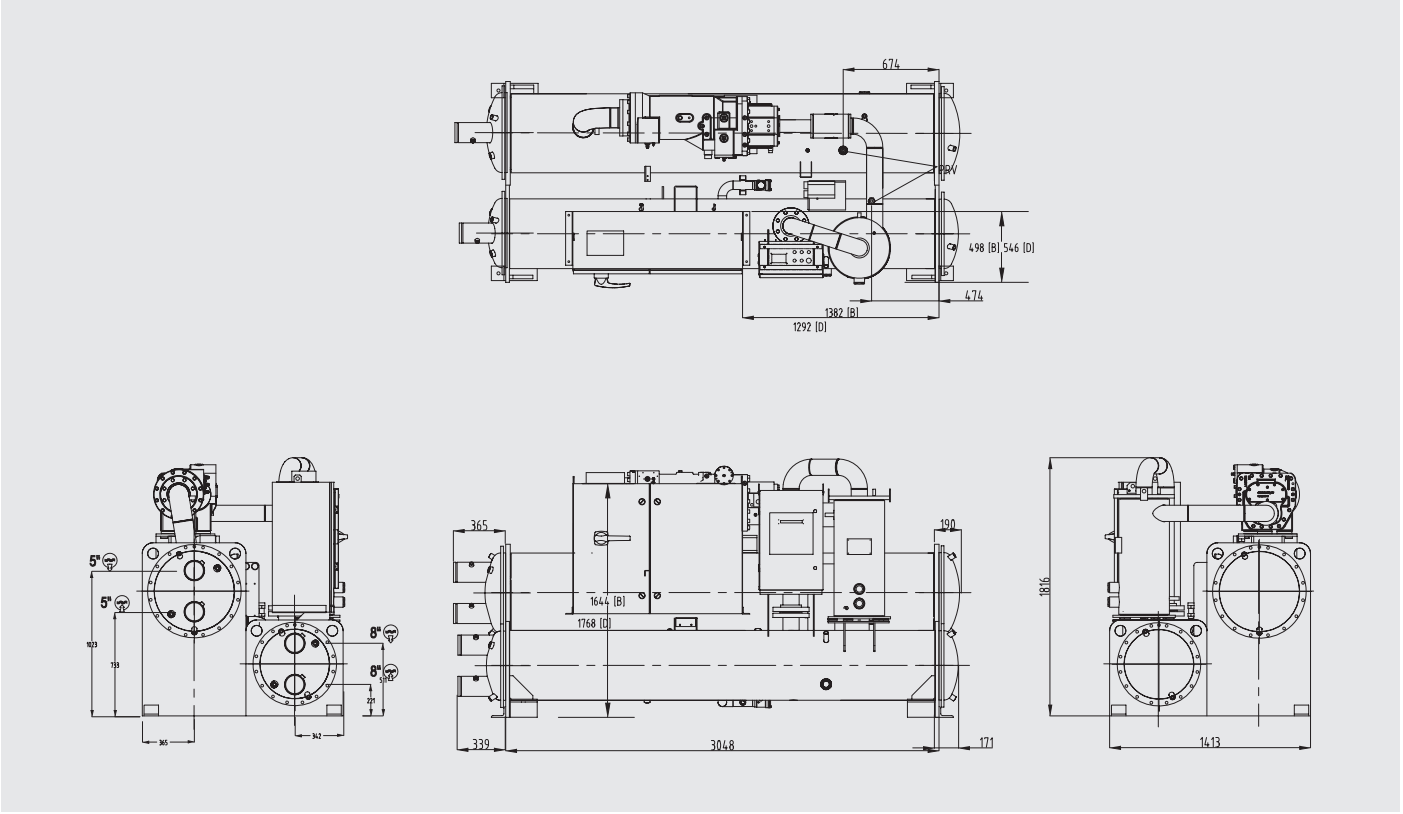


Note: 3,500 operating hours, 0.10 EUR/kWh energy rate, 800 kW design cooling load

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

Dimensions and hydraulic connections

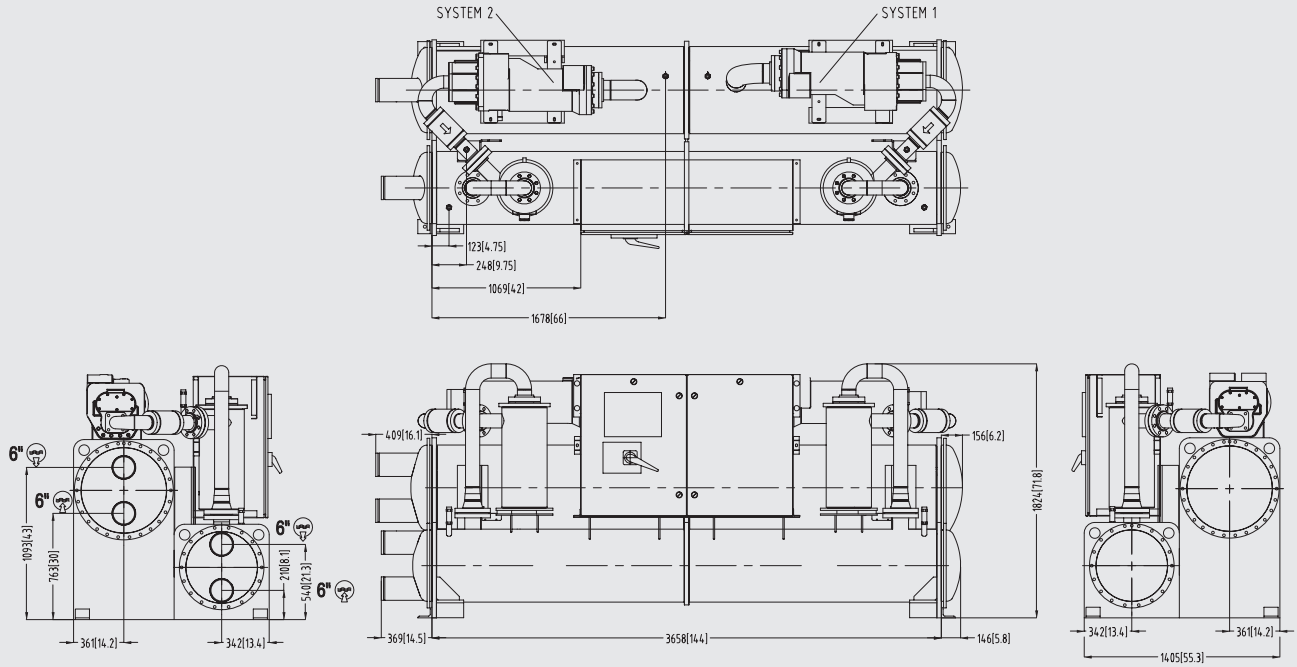
YVWA C models



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 4200 kW

R1233zd

INVERTER

SMART EQUIPMENT

AHRI CERTIFIED

"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

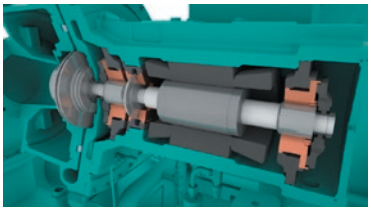
Magnetic bearing centrifugal chiller
YZ

Proven Firsts

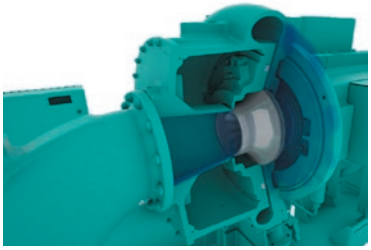
Groundbreaking YORK innovations refined over decades of real-world use have been brought together to create a revolution in chiller design and optimization. It's everything we've learned to-date, and then some.

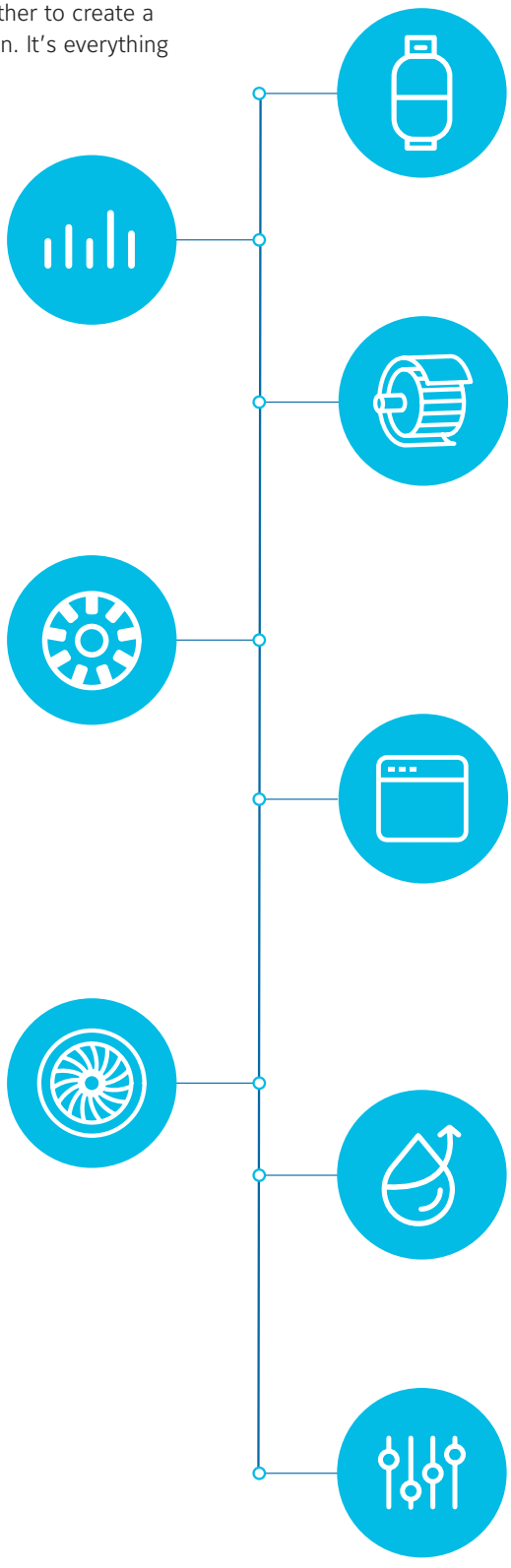
Variable-Speed Drive:
Four decades ago, YORK introduced the first variable-speed drive (VSD) chiller. And we've since installed more VSD chillers than all other manufacturers combined. A VSD is standard on the YORK YZ.

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 YMC^2.

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.

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

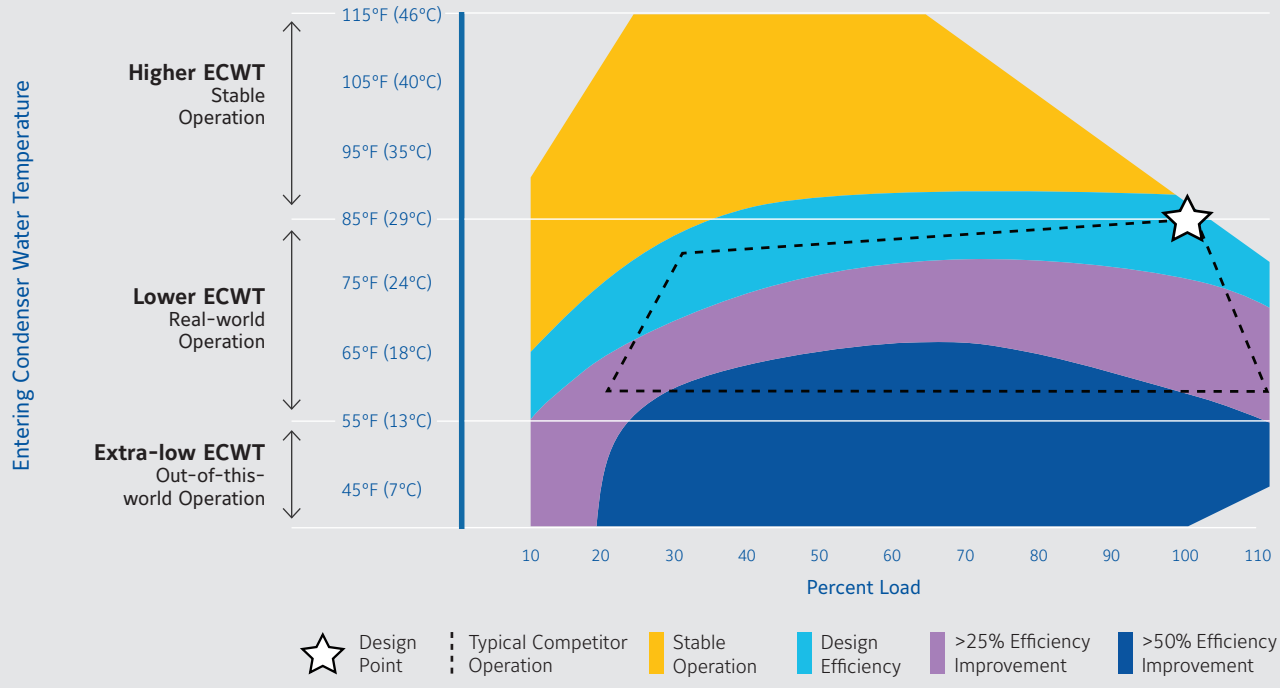
Thanks to magnetic bearing and lubrication free design YZ can run stably in the whole envelope shown in figure.

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

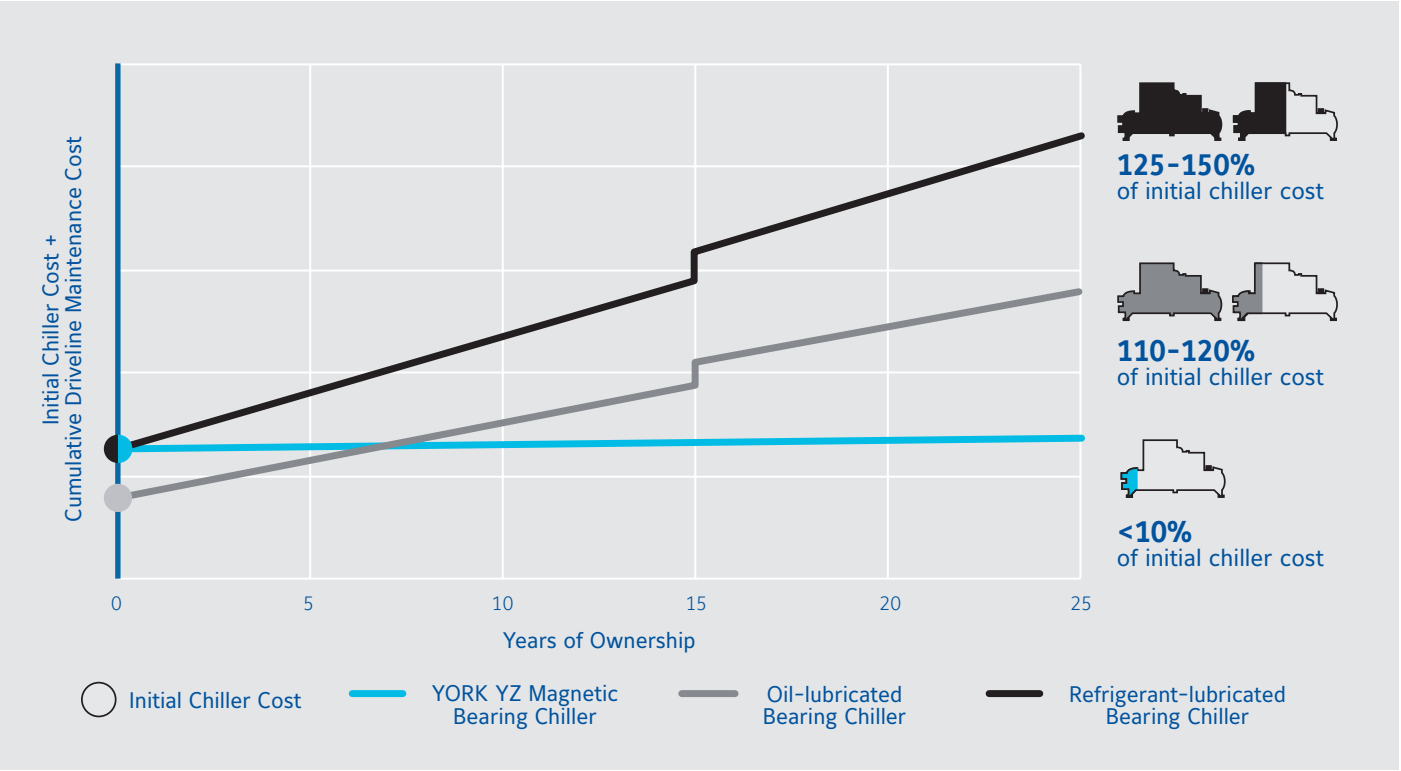
YZ driveline features a single moving assembly suspended in a magnetic field that does not require lubrication.

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 4200 kW, contact JCI Representative.
The above data is based on Johnson Controls' selection software YORKworks 20.05b. Please refer to the latest version of the software for specific projects.

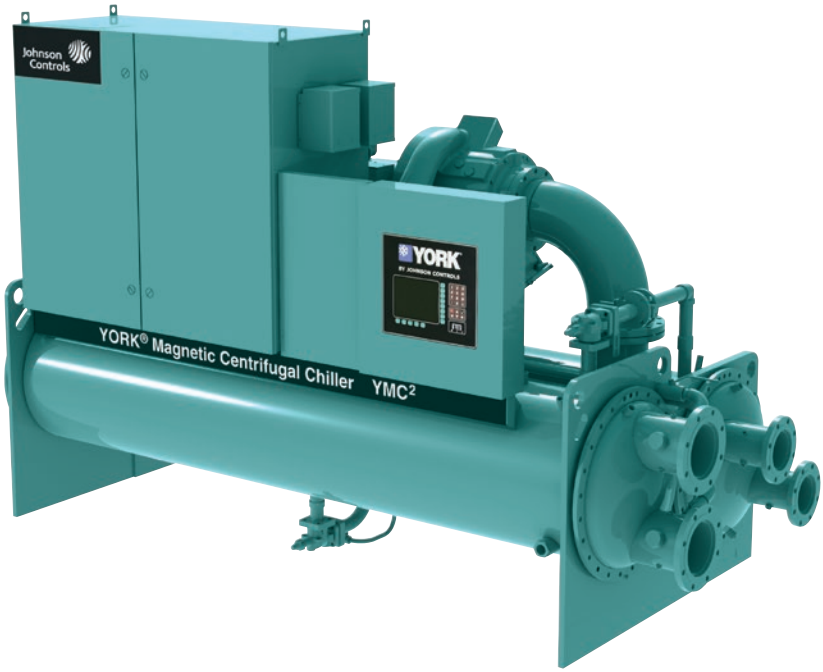
Technical data

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.

YMC^2
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.

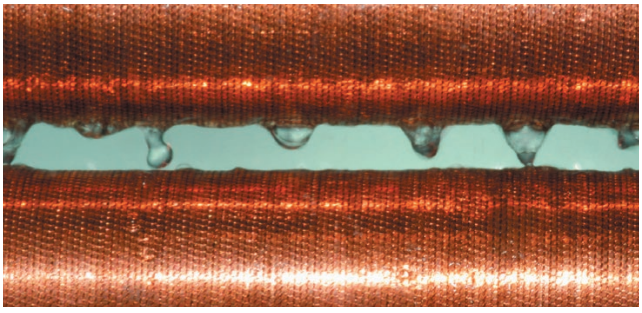
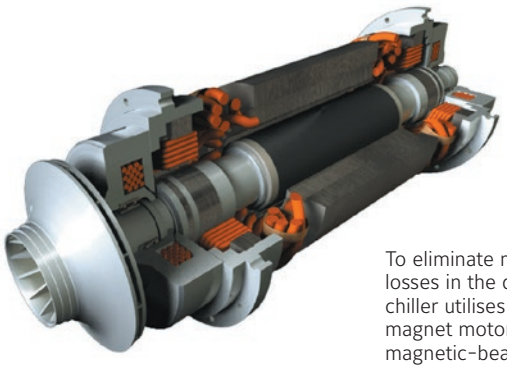


Photo courtesy of the LTCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland

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 YMC^2 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

YMC²	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
ηs, 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 20.05b. Please refer to the latest version of the software for specific projects.

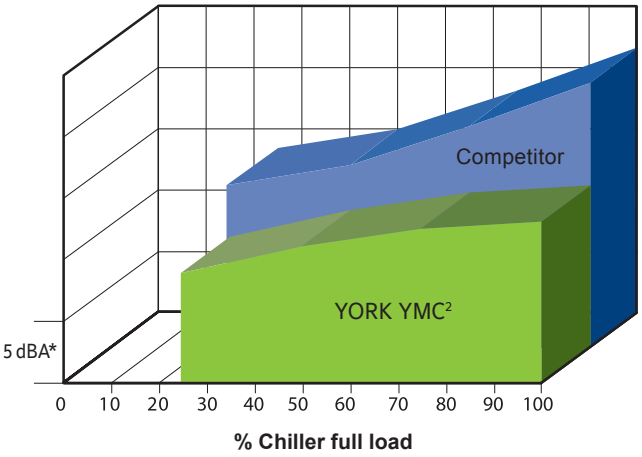
Technical data

YMC²			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.

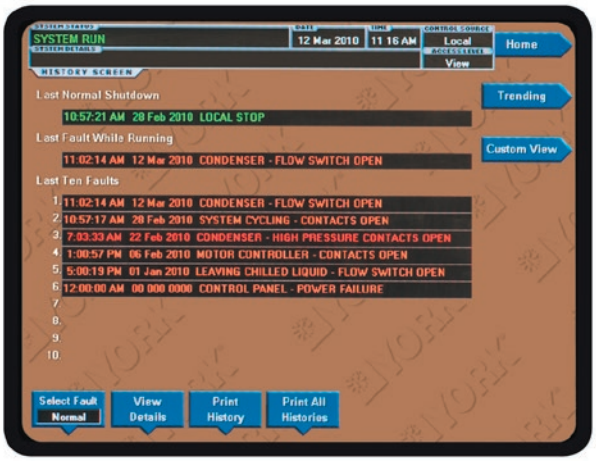
Superior sound reduction

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.

YK
Water-cooled centrifugal chiller

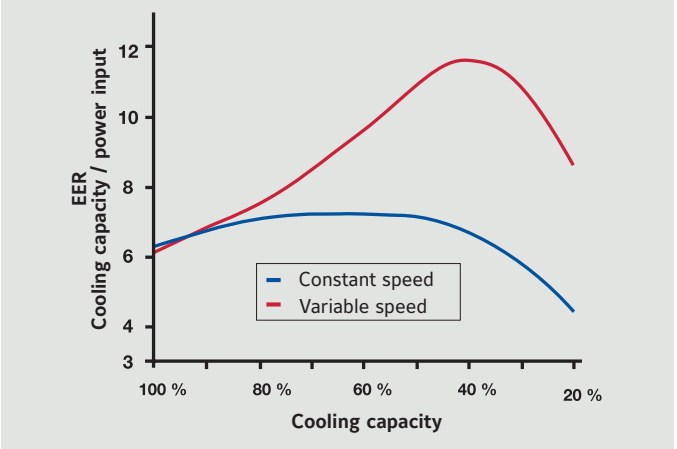
Cooling capacities from 800 kW to 11250 kW

"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.

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.ahridirectory.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
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 refrigerant.
For R134a information contact your JCI Representative.

Heat Recovery

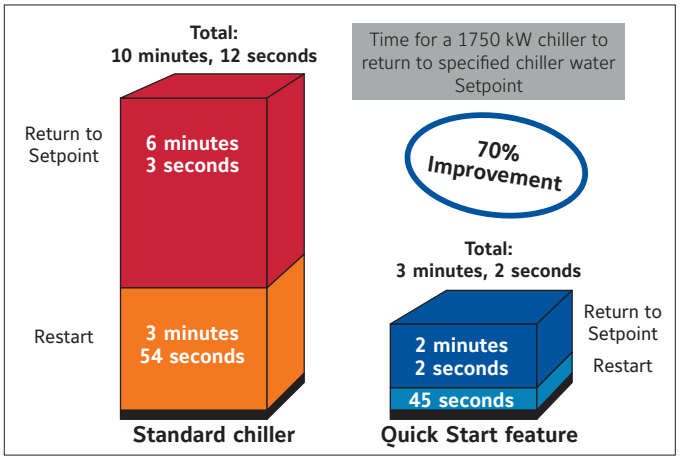
The YK Heat Recovery option can be used for domestic hot water preheat, process heat, facility air reheat, and humidity control. Heat recovery delivers operational savings, CO2 reductions, and reduced water consumption.

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

NEW

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.

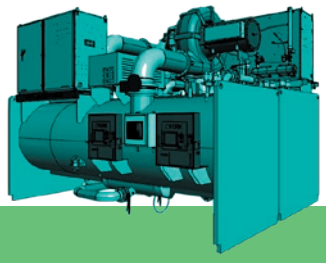
Connect with your JCI representative for details and support.

YZ

Magnetic bearing centrifugal chiller

Based on the standard YZ range and single stage compressor with 400V supply, the capacity will be soon extended up to 5 MW to cover larger installations.

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



YZD

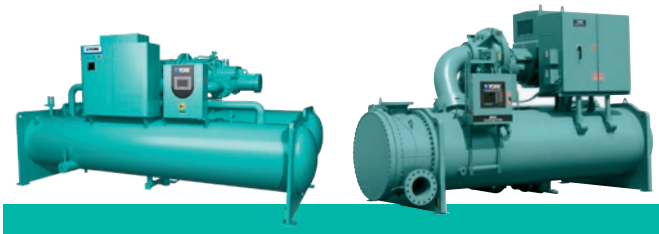
Dual magnetic bearing centrifugal chiller

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 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 Screw compressor chiller with R513A

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.

Ask how our AHRI certified products can be customized to meet specific application requirements such as heating needs, special tube materials, low-GWP refrigerants, and more.

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.

YORK absorption chillers and heat pumps

With innovative 2-step evaporation and absorption-cycle technology

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

** Utilizes standard cycle*

YORK absorption chillers and heat pumps

With innovative 2-step evaporation and absorption-cycle technology

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

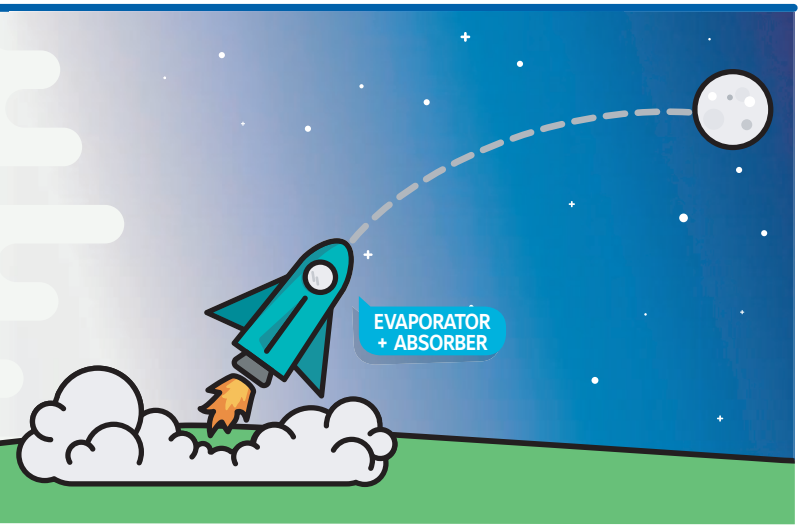
The 2-step cycle in YORK absorption chillers

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.

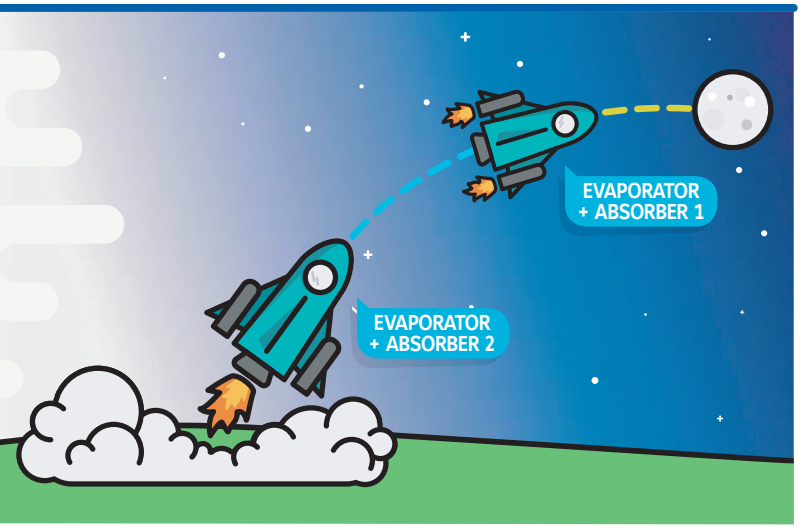
In the example here, the rocket ship only has one rocket to push it the entire distance from the earth to the moon – requiring 100% of the fuel. In much the same way, a conventional-cycle absorption chiller only has one evaporator and absorber to overcome cooling output requirements and achieve the cooling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



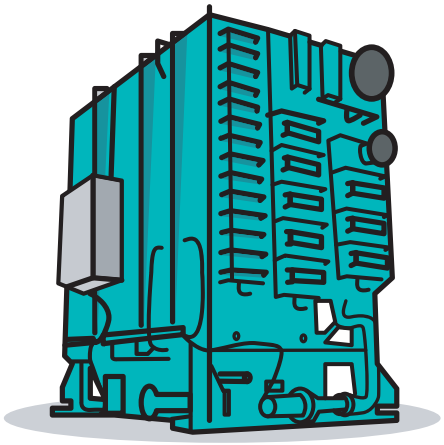
2-Step Evaporator/Absorber Cycle

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

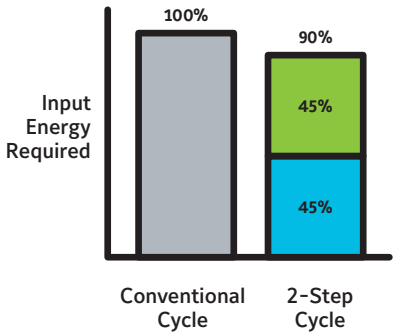
Both rockets need less fuel, since they share the effort to get the rocket ship to its goal. Instead of a single rocket bearing the entire job from point A to point B, two rockets split the effort, allowing for a continuation of effective effort and requiring only 90% of the fuel. This example illustrates 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.



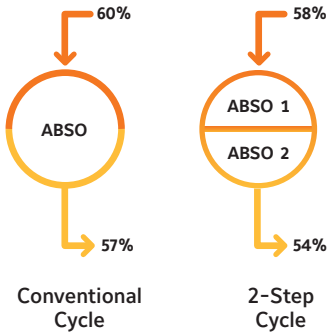
The 2-step cycle evaporator/absorber requires less energy input and a lower salt solution concentration, allowing for increased reliability and 10% energy savings.



Input Energy Required to Achieve Cooling Load



Salt Solution Concentration



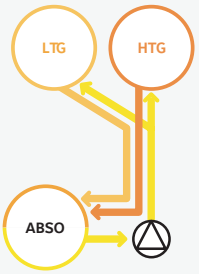
Learn more about the benefits of YORK 2-step cycle technology at YORK.com/Absorption-Chillers

YORK parallel flow and 2-step cycle absorption chiller technology

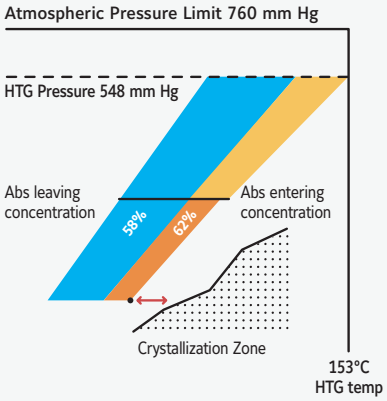
A challenge in absorption chiller design is engineering a unit that operates furthest from the crystallization line. Johnson Controls absorption engineers accepted the challenge with the development of a parallel flow and 2-step evaporator/absorber design technology.

Typical Industry Flow Cycles

Parallel

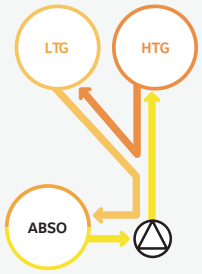


Divides the Lithium Bromide (LiBr) solution flow between the low-temperature and high-temperature generators into two parallel balanced paths.

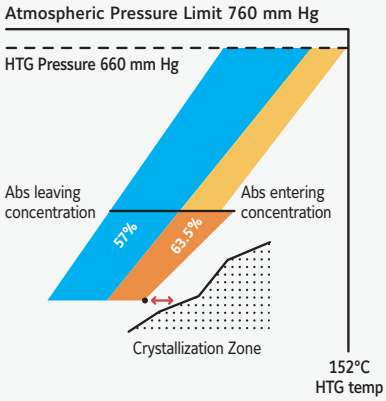


- Abs entering temp 43.5°C
- ↔ Distance from Crystallization Zone 23.5°C

Series

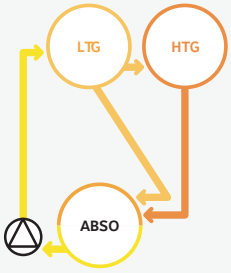


All of the Lithium Bromide (LiBr) solution from the absorber section flows first to the HTG, then to the LTG and back into the absorber section.

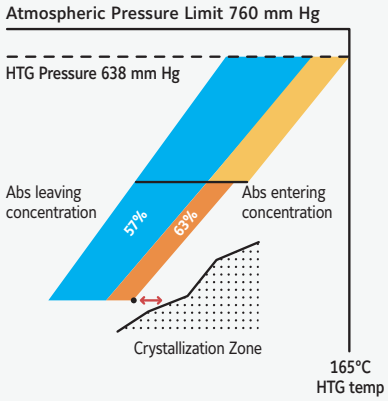


- Abs entering temp 49°C
- ↔ Distance from Crystallization Zone 23°C

Reverse

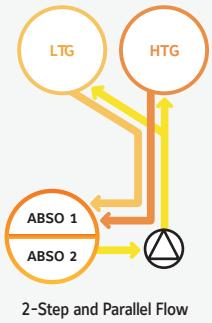


All of the Lithium Bromide (LiBr) solution from the absorber section flows first to the LTG, then to the HTG and back into the absorber section.

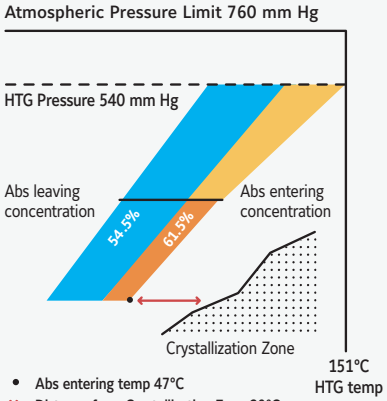


- Abs entering temp 48°C
- ↔ Distance from Crystallization Zone 23°C

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



2-Step and Parallel Flow



- Abs entering temp 47°C
- ↔ Distance from Crystallization Zone 29°C

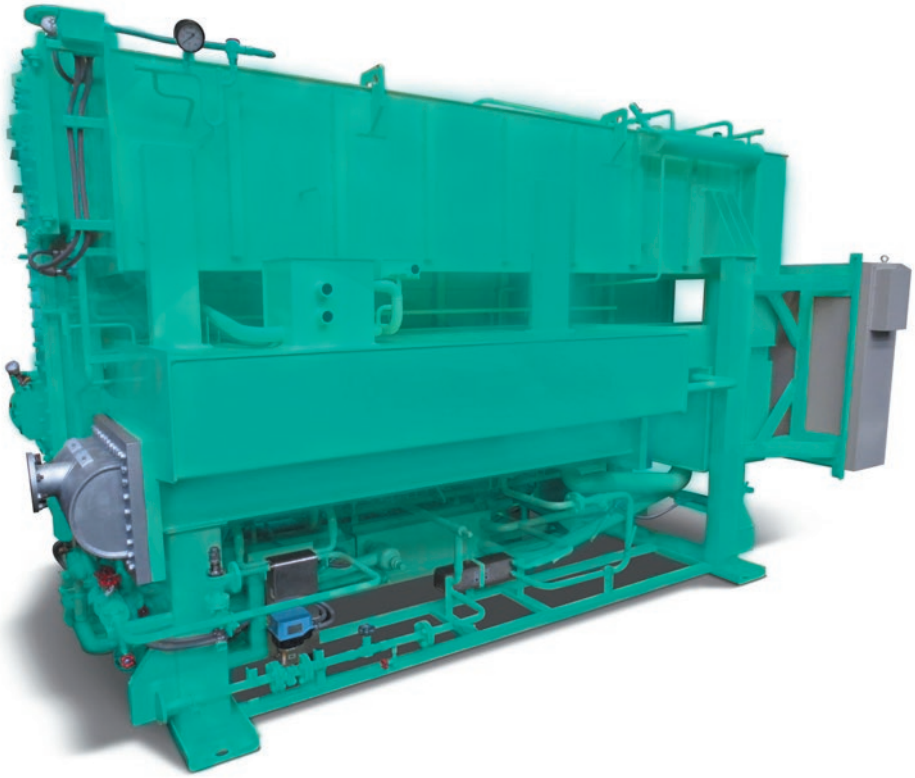
Combining these two technologies, our two-step and parallel flow design provides the lowest temperature, pressure and concentration. Because this design uses a lower LiBr concentration, it is easier to heat in the generator section. Therefore, it requires a relatively lower grade for the driving heat 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 CO_2 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 needd 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

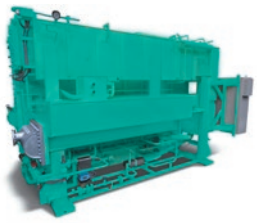
Driving heat sources: YORK® absorption heat pumps use a variety of driving heat sources, such as jacket water from a gas engine, low to high pressure steam, direct fired or even exhaust gas. As a result, the unit helps reduce primary energy consumption, water and carbon dioxide emissions. The **YHAP** 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.

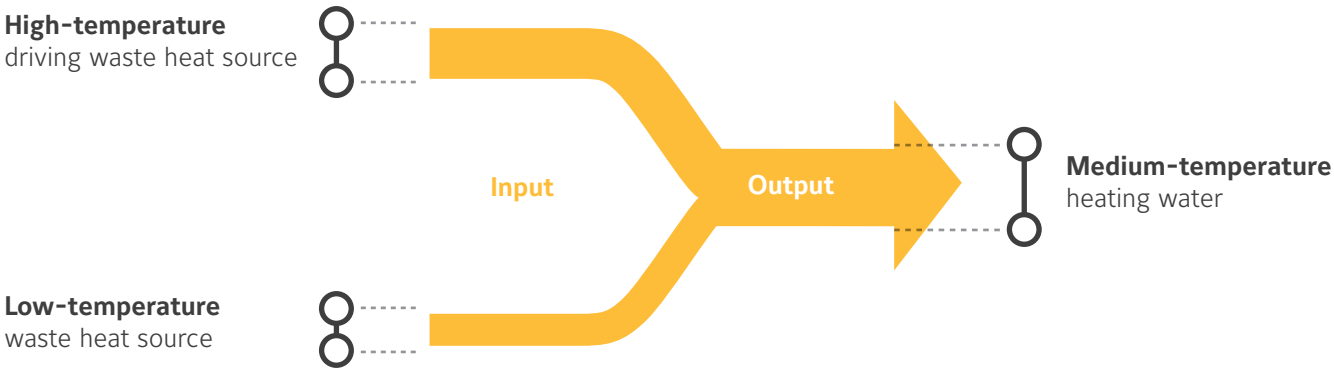
Type II heat pump, also referred to as the heat transformer, is driven by a medium-temperature driving heat source in the generator and evaporator sections.

Two Types of YHAP Heat Pumps



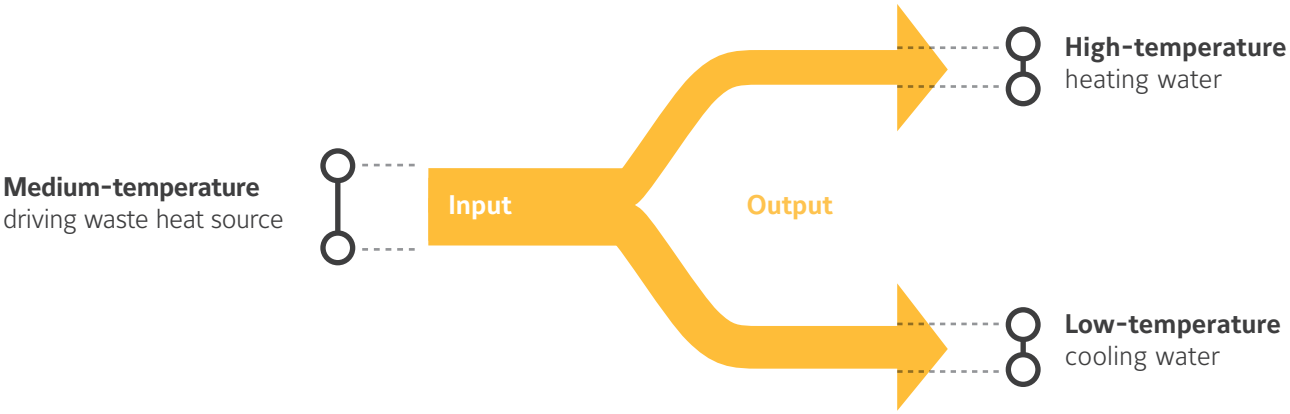
Type I

Driven by high-temperature driving heat source in generator



Type II

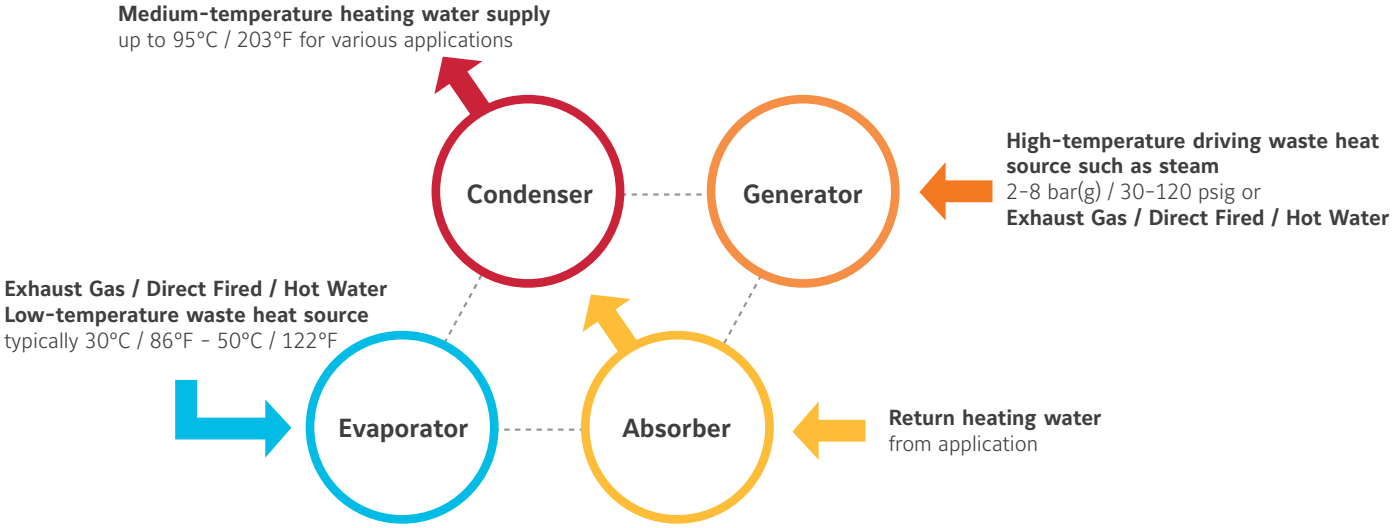
Driven by medium-temperature driving heat source in generator and evaporator



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.

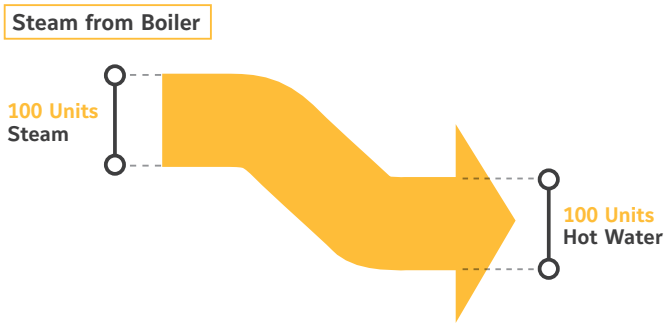
How it Works

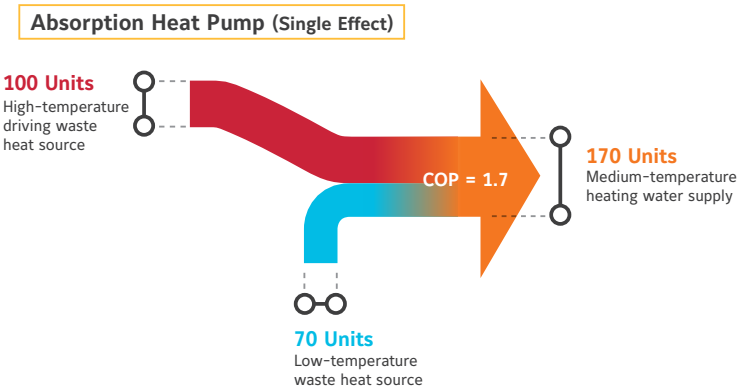


Heat Balance

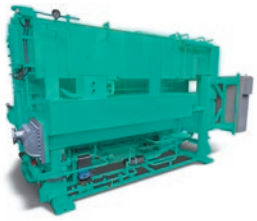
Compared to the typical steam boiler's 0.93 Coefficient of Performance (COP), the Type I unit provides a COP as high as 1.7*, delivering up to 95°C (203°F) hot water for various heating applications. This unit also provides a good turndown over a range of heating loads.

Performance of Boiler Compared to Absorption Heat Pump





* YORK double-effect absorption heat pumps are also available with heating COP as high as 2.3 on a case by case basis.

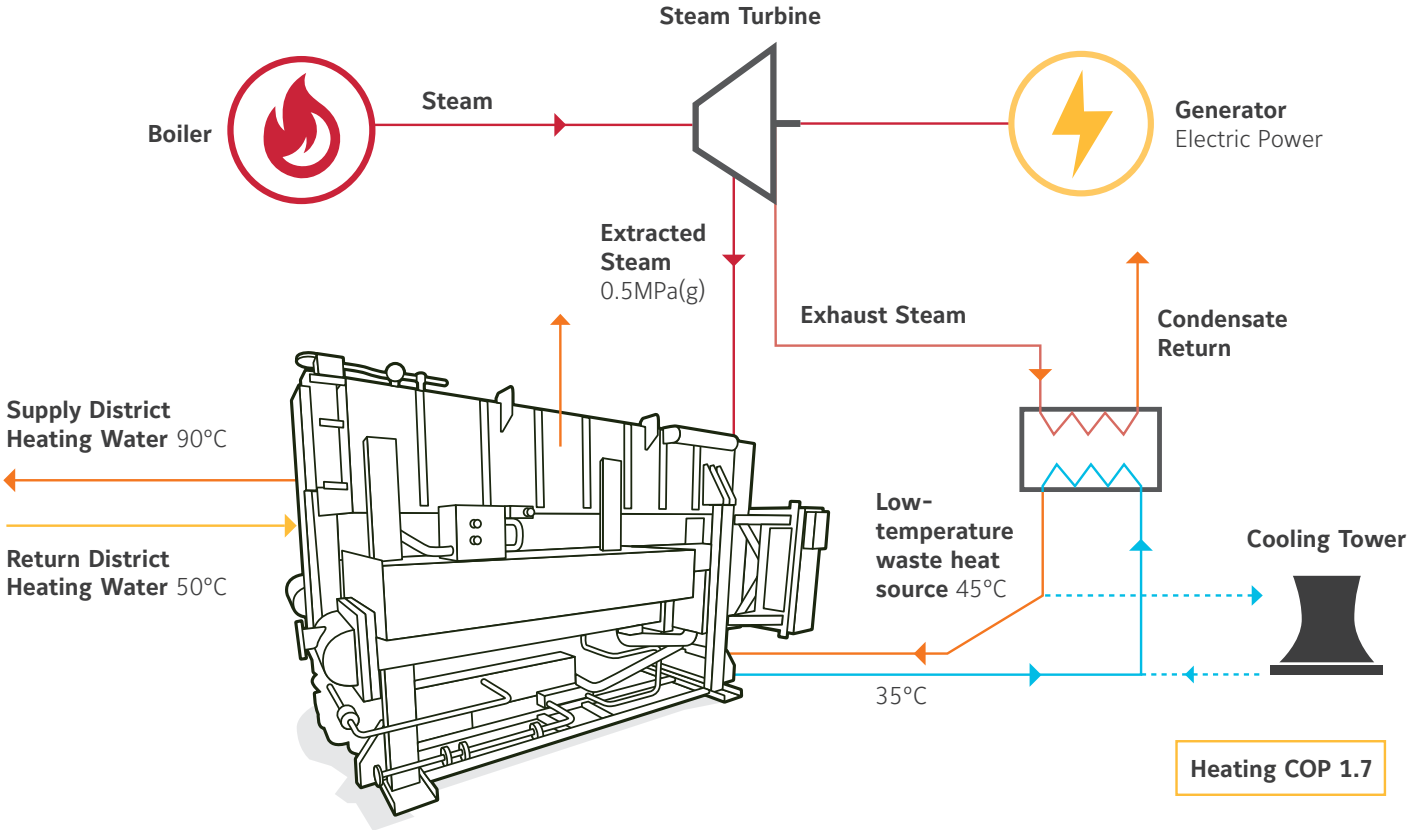


Type I Industrial Application

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.

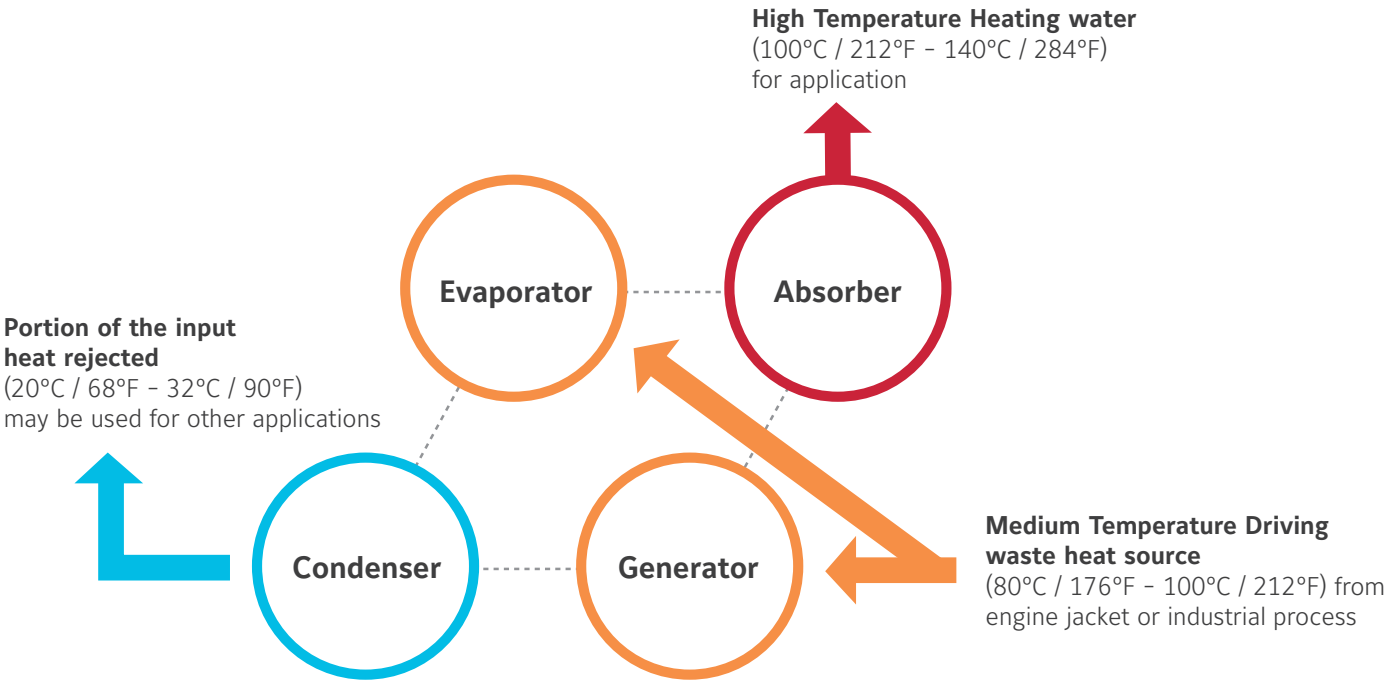
With a Type I absorption heat pump, it is typical to have a heating COP of 1.7, meaning 1.7 units of heat is obtained from the absorber and condenser with a 1.0 unit of driving heat source in the generator and .7 units being in the evaporator section.



Type II
Flexible Operating Envelope

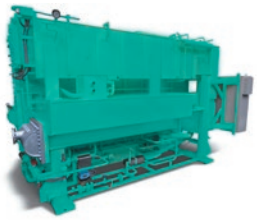
The Type II heat pump, also referred to as a heat transformer, is driven by a medium-temperature waste heat source in the generator and evaporator sections. This unit transforms and provides small, useful high-temperature heat from the absorber section. The rejected heat from the condenser can be used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

How it Works



Heat Balance

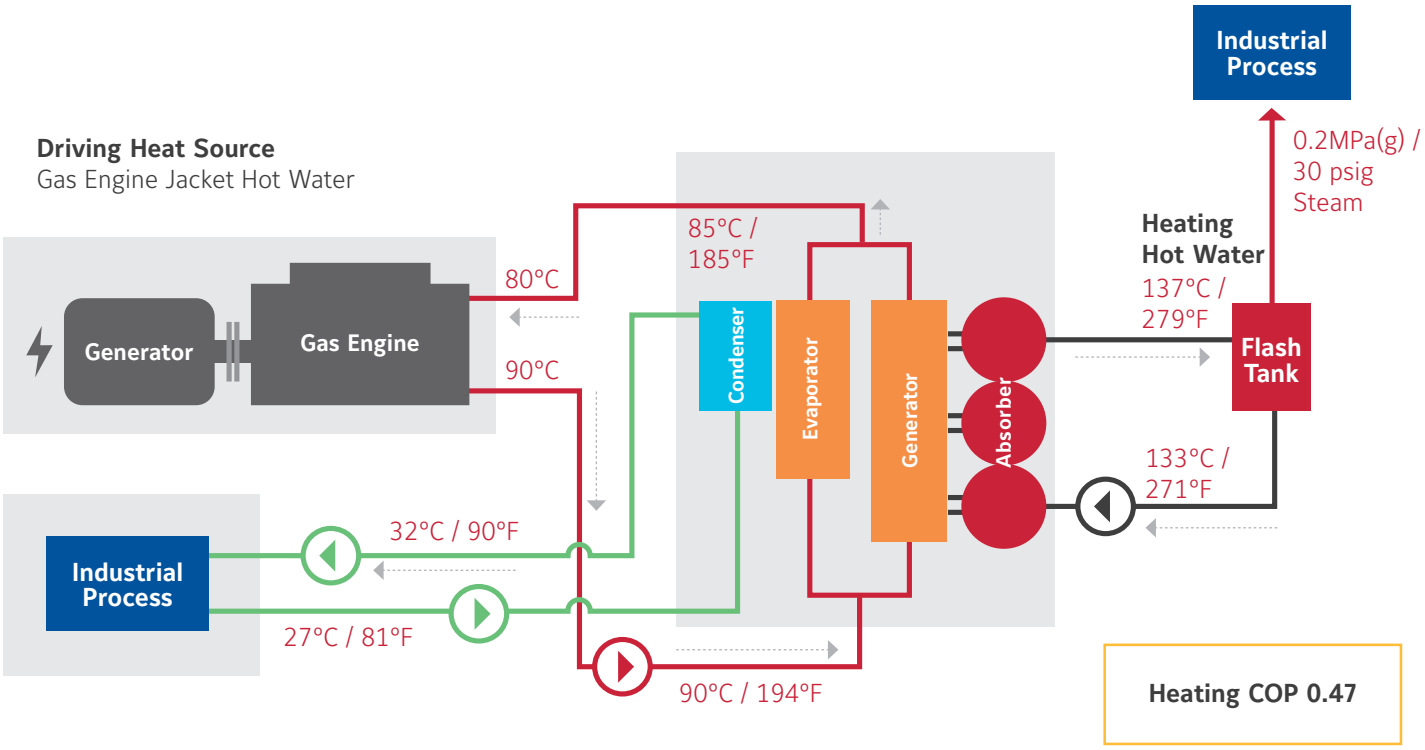
The Type II heat pump with a COP of 0.47 can deliver high-temperature hot water up to 140°C (284°F), which is ideal for industrial processes. This unit also provides a good turndown over a range of heating loads.



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.

Full Automatic Purging System

As a standard feature, the unit has a fully automatic purging system comprising of electronic vacuum transmitter, solenoid valves and trending capability that ensures design performance and improves reliability. The operator does not have to worry about the sequence of purging for removing the non-condensable gases.

Chiller control

The **YHAU Control Center**, standard on each chiller, provides the ultimate in efficiency, monitoring, data recording, chiller protection and operating ease.

The LCD display allows graphic animated display of the chiller, chiller sub-systems and system parameters; this allows the presentation of several operating parameters at once. In addition, the operator may view a graphical representation of the historical operation of the chiller as well as the present operation. The panel is capable of communication with building management systems and is available in multiple languages.

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								
	Height	mm	3300					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								
	Height	mm	3300					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, districs 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.

Full Automatic Purging System

As a standard feature, the unit has a fully automatic purging system comprising of electronic vacuum transmitter, solenoid valves and trending capability that ensures design performance and improves reliability. The operator does not have to worry about the sequence of purging for removing the non-condensable gases.

Chiller control

The **YHAU Control Center**, standard on each chiller, provides the ultimate in efficiency, monitoring, data recording, chiller protection and operating ease.

The LCD display allows graphic animated display of the chiller, chiller sub-systems and system parameters; this allows the presentation of several operating parameters at once. In addition, the operator may view a graphical representation of the historical operation of the chiller as well as the present operation. The panel is capable of communication with building management systems and is available in multiple languages.

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 CO_2 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.

YAZAKI

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

Central Plant Optimization™

The chiller plant in a refrigeration facility typically uses 20% of the total energy in the building. Managing this load, always maintaining interior comfort, is a fundamental strategy for global energy savings.

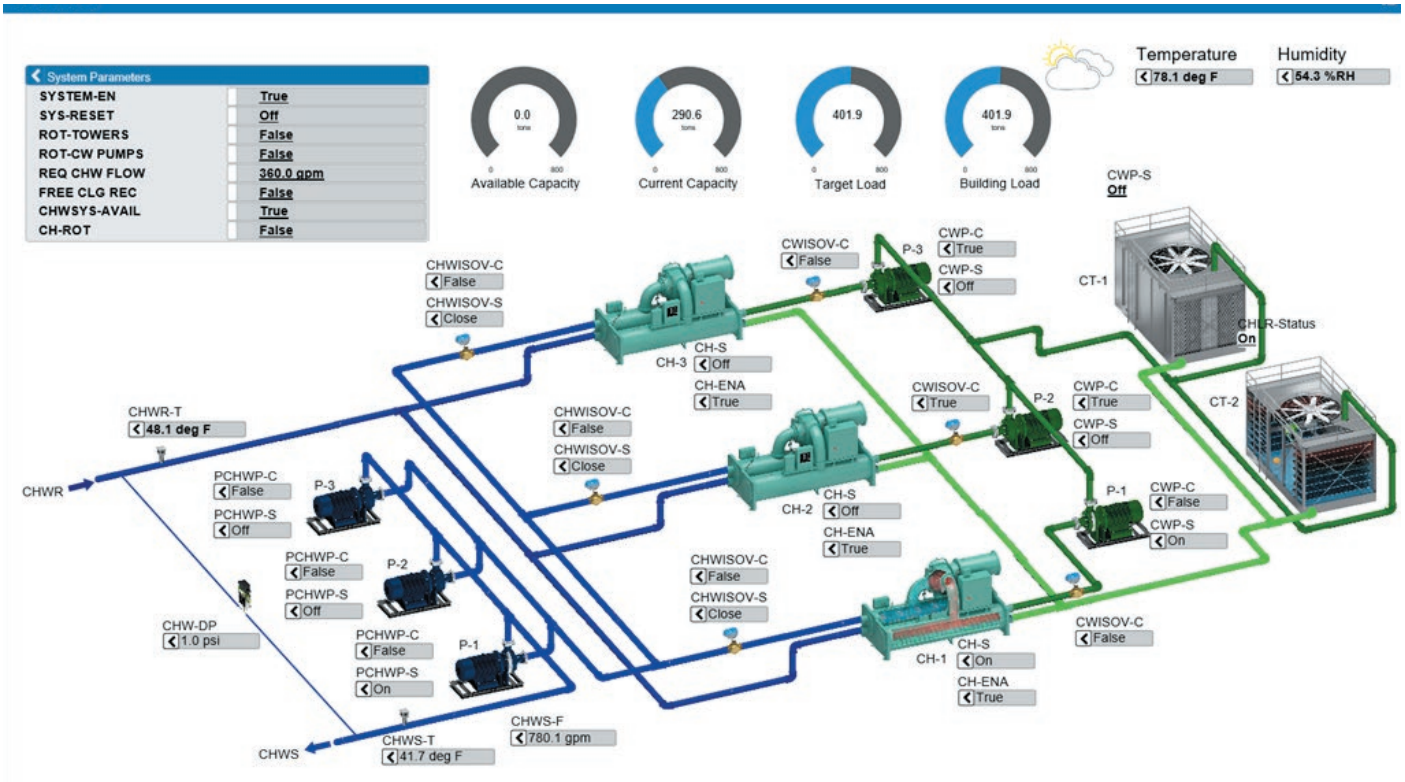
Johnson Controls Central Plant Optimization™ (CPO) provides a strategy that combines YORK chiller design expertise and Metasys controls to save energy and improve installation reliability.

The application uses proven best practices for selecting the most efficient combination of chillers, pumps, and cooling towers that matches the building load. It then manages the selected devices providing the necessary sequence of pumps, isolation valves and the main equipment, while controlling the installation safety and stability.

Save Money | Save Energy | Save Water | Earn Rebates | Validate Savings

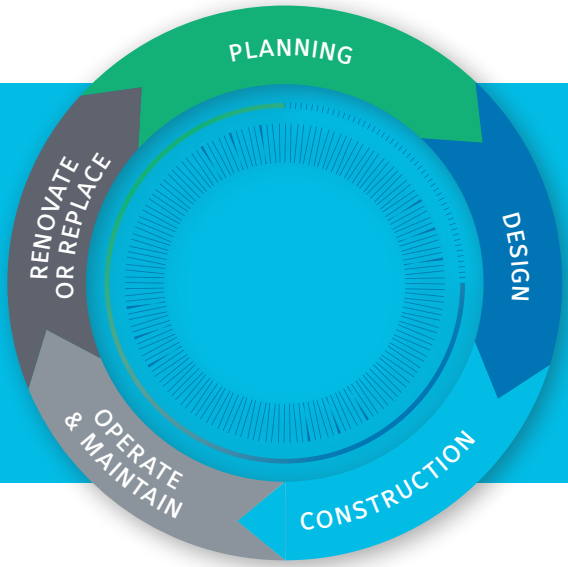
The power of control

Possibility of controlling up to 8 chillers, 8 primary pumps, 8 secondary pumps, 8 condenser pumps, 8 freecooling towers and up to 4 freecooling exchangers.



IT'S TIME TO CHANGE THE RULES and truly optimize your costs.

It's challenging to minimize energy costs in central plants without compromising your number one priority – reliable service. Every hour of every day plant engineers could consider hundreds of possible equipment combinations and set points to maximize energy efficiency. Ever-changing loads, weather and utility prices add to the complications. The number of decisions an operator could make is staggering.



A holistic way to optimize. Every 15 minutes.

The CPO software optimizes dispatch decisions every 15 minutes to minimize utility costs and maximize potential utility program revenues based on a myriad of ever-changing 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, so 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

CPO 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

CPO can model everything from the simplest flat rates to more complex time-of-use and demand-based rates, and to the most complex – real time pricing and market-based incentive programs. The cost-based approach to optimization is necessary to properly handle electric demand charges, or other more complex tariffs. In fact, traditional approaches to optimization have little to no way of addressing demand charges, which can represent a major portion of the utility budget.

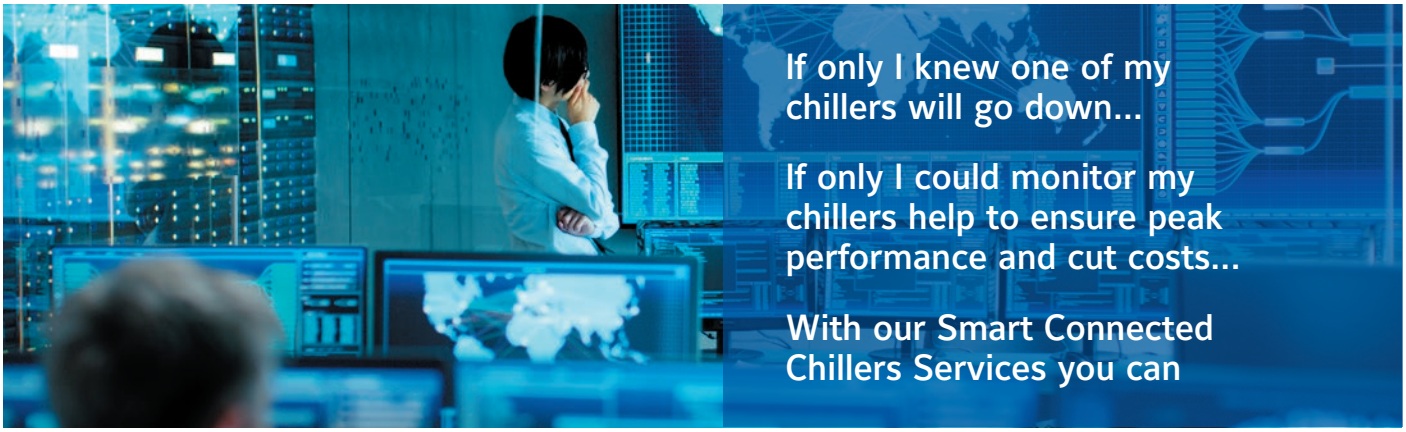
Calendars and Maintenance Schedules

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

Smart Connected Chillers Services

Predictive maintenance – when uptime is everything

A chiller is one of the most critical pieces of equipment in your facility. It is responsible for the **comfort** of your work and living spaces and the **productivity and well-being** of your people, or **reliability of your process** cooling and the **quality of goods** manufactured. A chiller can also take as much as half of the energy used in your building. This means anything that increases effectiveness impacts on both your spaces and your bottom line.

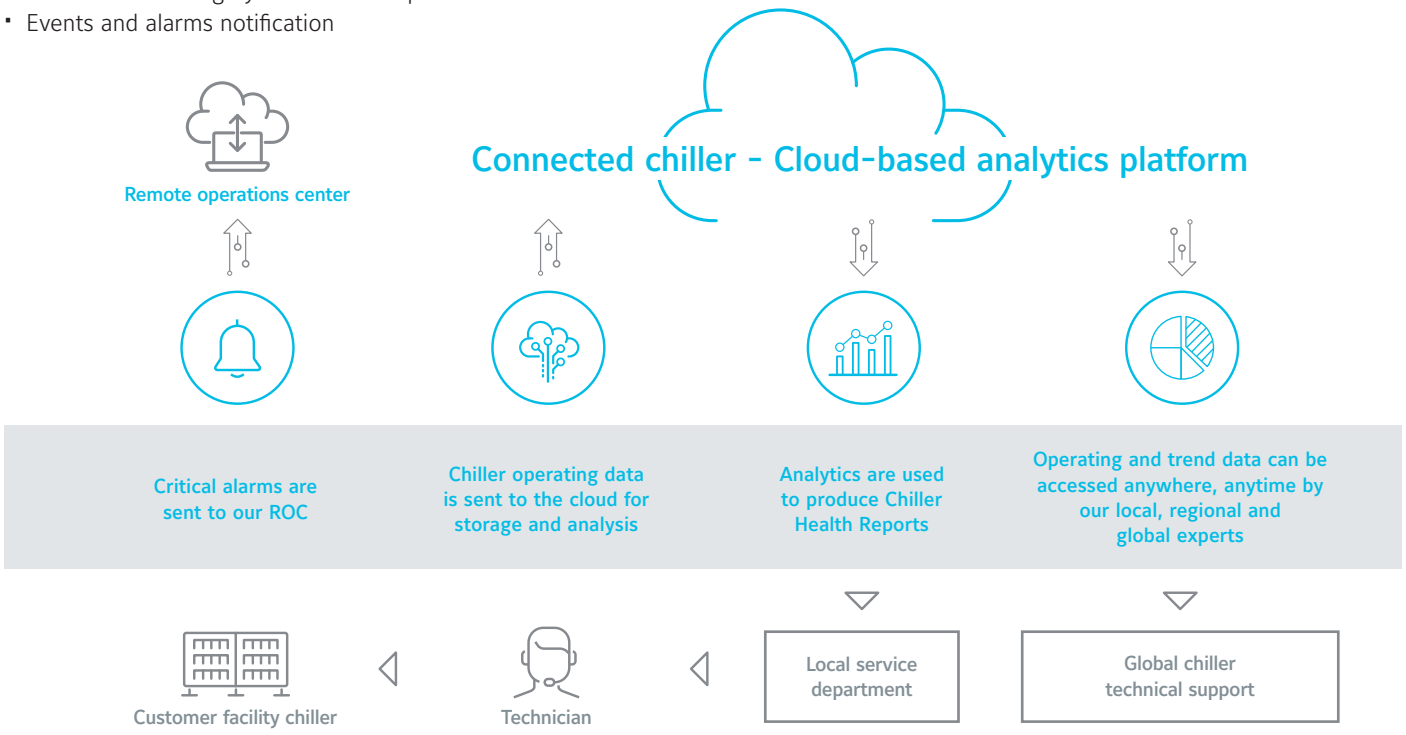


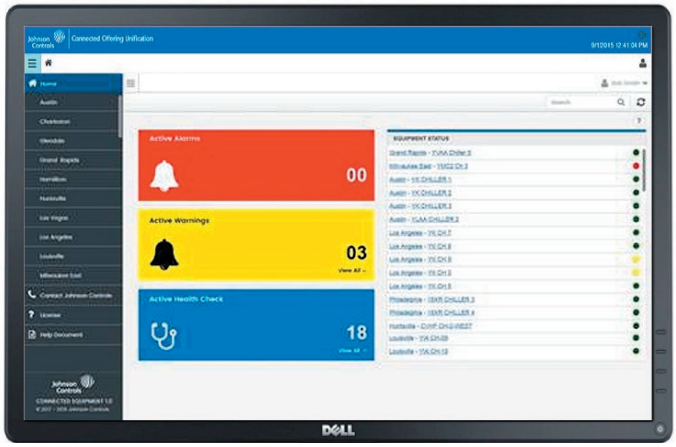
66% reduction in unplanned or emergency repairs

65% reduction in mean time to repair and money both now and in the future

Smart Connected Chillers Services is enabled by a connectivity panel and an IoT platform that provides you with a range of services that help your business drive operational and performance excellence using:

- Predictive maintenance driven by artificial intelligence
- Remote monitoring by our service experts
- Events and alarms notification





Smart Connected Chillers Services platform establishes a secure connection that sends YORK chillers operational data to a high-security cloud database.

Historical data is continuously analyzed with advanced algorithms to early diagnose abnormal function and events leading up to any failure.

This allows us to both predict and early detect problems such as condenser or evaporator tube fouling, low refrigerant charge and drops in oil pressure, among others, with great accuracy.

Smart Connected Chillers Services helps you to optimize your maintenance strategy. This answers the requirements around your cooling process driven by the chiller plant. Today, your strategy can combine reactive, preventative, and condition-based maintenance with diagnostic services according to the criticality of each asset.

Expanding your current Johnson Controls tailored Planned Maintenance Agreement with a Smart Connected Chillers Services Agreement, you will strengthen the benefits of manufacturer predictive services. This will help to boost your productivity, enhancing uptime and energy savings, to extend asset life and improve the environmental health and safety, and ultimately helping to reduce the total costs of facility ownership.

Ensuring productive environments

Identify faults before they affect occupant comfort or critical operational processes.

Reducing future repair costs

World-class equipment realizes reduced downtime and repair costs by proactively identifying and troubleshooting root causes remotely before resolving the problem.

Extending asset life

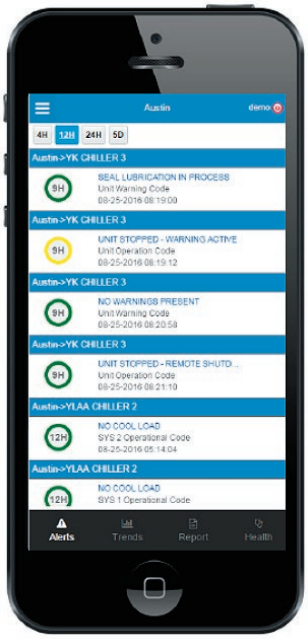
Use connectivity to analyze trend data, reduce the risk of undetected failures and identify issues before they become real problems.

Helping to environmental health and safety

Use advanced fault detection diagnostics to identify potential refrigerant loss.

Identifying energy savings

Help identify inefficiencies with enhanced visibility into trend data and current operating conditions.



Should you opt in to our Smart Connected Chillers Services Dashboard, you'll benefit from personal access to data on your computer and mobile device

Cyber Security:

All Johnson Controls smart solutions are designed from the ground up with security as a priority. Smart Connected Chillers Services is no different, featuring advanced security measures such as encrypted communications, secure WiFi, minimal external network access and one-way outbound communication.

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.

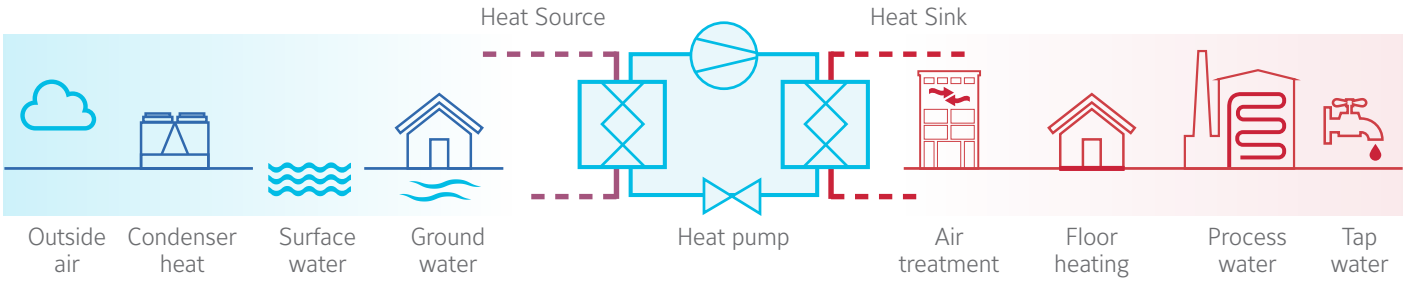
At Johnson Controls we set standards without compromising our core principles: and when passion and innovation come together, great things happen!

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.

CO_2 footprint reductions

Another benefit that offers heat pump technology is the reduction in CO_2 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 CO_2 emissions is impressive.

In fact 1322 tons of CO_2 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 Requirem.	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%**

* CO_2 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 anually!

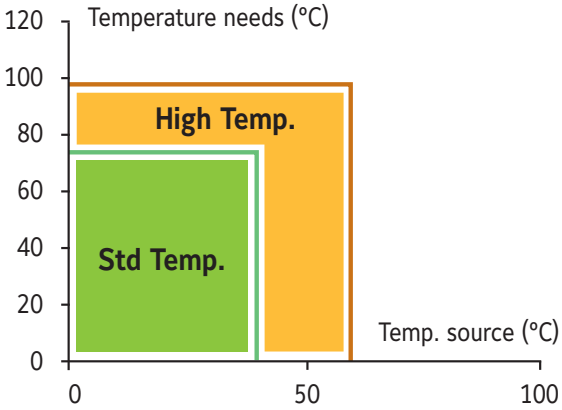
LEED points

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
Screw	R134a, R513A, R717
Centrifugal	R134a, R513A, R1234ze
Reciprocating	R717
Absorption	R718

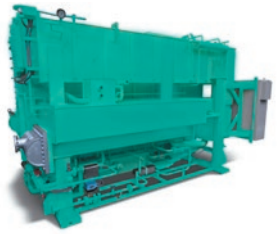
Special products and customized heat pumps

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

YMC²
Water to water heat pump
VSD Centrifugal compr. Magnetic bearings / R1234ze
Hot water up to **68°C**
Heating cap.: 1,000 to 3,000 kW

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 cap.: 1,000 to 9,000 kW

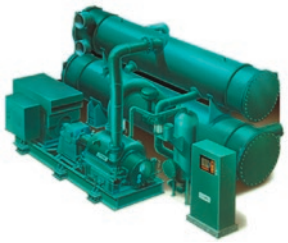
SHP
Water to water heat pump
VSD Screw compr. / R1234ze
Hot water up to **90°C**
Heating cap.: 700 to 3,000 kW



YHAP
Single stage absorption
Steam, Gas or Hot Water driven / R718
Hot water up to **95°C**
Heating cap.: 900 to 40,000 kW

NS
Water to water heat pump
Screw compressor / R717
Hot water up to **90°C**
Heating cap.: 2,000 to 8,000 kW

CYK HP
Water to water heat pump
Dual-Centrifugal compressors, Series-Arrangement / R1234ze
Hot water up to **93°C**
Heating cap.: 4,000 to 10,000 kW



Titan OM HP
Water to water heat pump
Multi-stage Centrifugal, electric, steam or gas driven / R1234ze
Hot water up to **93°C**
Heating cap.: 5,000 to 20,000 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. / R410A
Hot water up to **55°C**
Heating capacity:
50 to 254 kW

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

NEW

YHA
Air to water HP
4 pipe system
Scroll compr. / R410A
Hot water up to **60°C**
Heating capacity:
22 to 464 kW

NEW

YLZ
Air to water HP E.V.I
4 pipe system
Scroll E.V.I Com. / R410A
Hot water up to **65°C**
Heating capacity:
25 to 210 kW

YMWA
Water to water HP
Scroll compr. / R410A
Hot water up to **55°C**
Heating capacity:
24 to 212 kW

NEW

YWH
Water to water HP
Scroll compr. / R134a
Hot water up to **78°C**
Heating capacity:
38 to 273 kW

YCSE
Water to water HP
Screw compr. / R134a (R513A on request)
Hot water up to **60°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:
440 to 990 kW

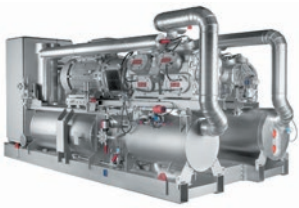
YVWA
Water to water heat pump
VSD Screw compr. / R513A
Hot water up to **63°C**
Heating cap.: 600 to 1,000 kW

YVWH
Water to water heat pump
VSD Screw compr./ R1234ze
Hot water up to **50°C**
Heating cap.: 315 to 1,250 kW

YMC²
Water to water heat pump
VSD Centrifugal compr. Mag. bearings / R134a & R513A
Hot water up to **50°C**
Heating cap.: 900 to 4,000 kW

YK
Water to water heat pump
VSD Centrifugal compressor R134a & R513A
Hot water up to **50°C**
Heat. cap: 1,200 to 13,000 kW

HeatPAC recip
Variable-Speed Drive
Reciprocating compr. / R717
Hot water up to **70°C**
Heating cap. 300 to 2000 kW
Hot water up to **90°C (HPX)**
Heating cap. up to 1500 kW



DualPAC recip 2-stages
Variable-Speed Drive
Reciprocating compr. / R717
Hot water up to **70°C**
Heating cap. 400 to 3000 kW
Hot water up to **90°C (HPX)**
Heating cap. up to 1850 kW

YHAP
Single stage absorption
Steam, Gas or Hot Water driven / R718
Hot water up to **95°C**
Heat. cap.: 900 to 40,000 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 requires 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:

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

The resulting water flow must be checked agains 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).

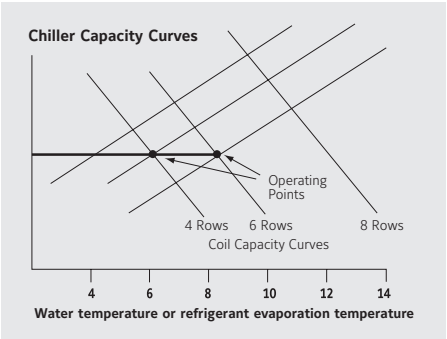
A small temperature difference achieves a low **mean water temperature** which will generally allow the selection of smaller cooling coils in Air Handling Units and Fan Coil Units etc. Conversely water flow volume will be high resulting in a larger circulating pump and increased pressure drop through 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 absorbtion 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.

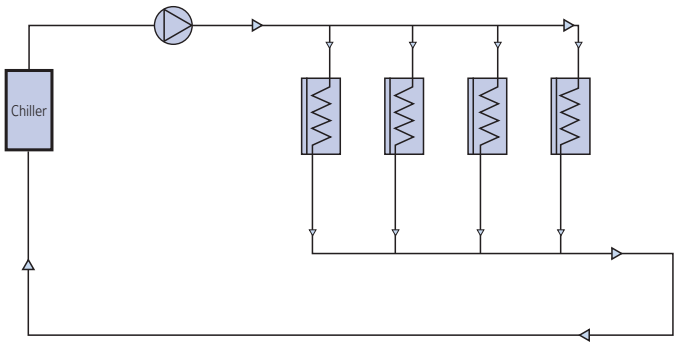
The Air Volume is determined by the following formula:

$$\text{Air Volume m}^3\text{/s} = \frac{\text{HEAT GAIN (kW)}}{\text{Density (kg/m}^3\text{) x Specific Heat (kJ/kg°C) x Temperature Difference °C}}$$

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 consequantly cause undue wear on the compressor.

The following formula will satisfy the toral required thermal storage volume:

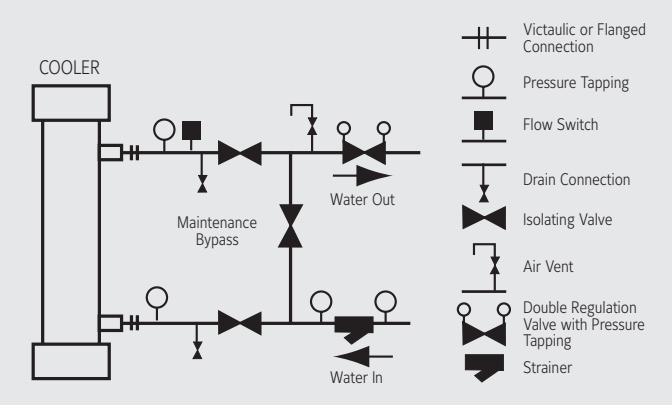
$$V = \frac{(N \times 60 \times Z)}{4.18 \times dt}$$

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 x S x 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.

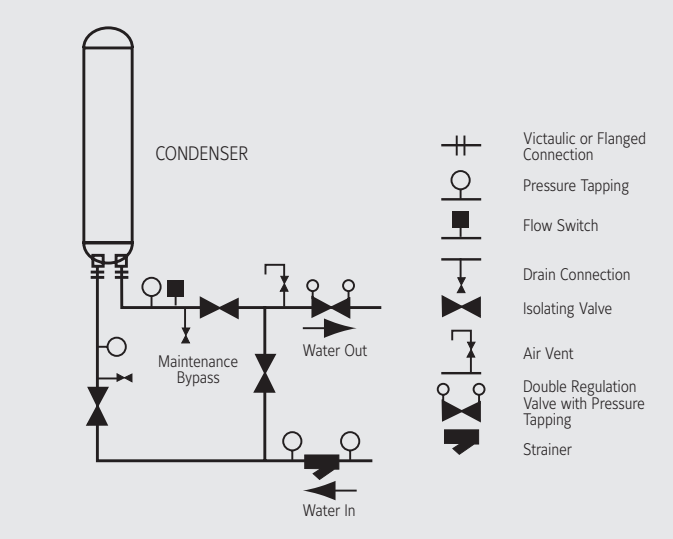
If multiple cooling towers are used in a common cooling water circuit, compensation pipes must be installed between the cooling tower tanks in order to keep the cooling water in all cooling towers at the same level. If more than one water entry into the cooling tower is required, install throttle valves 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

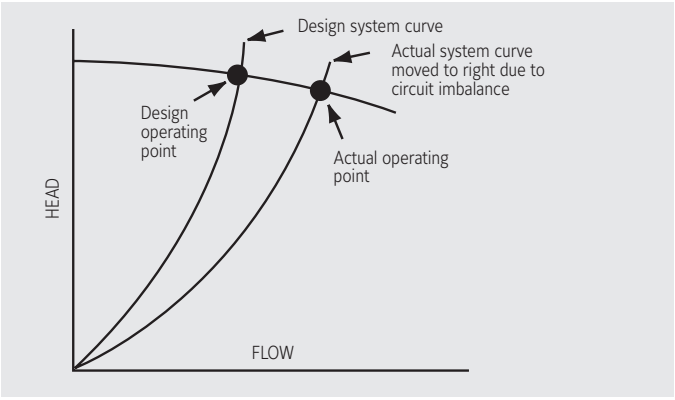


Chiller condenser water systems

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.

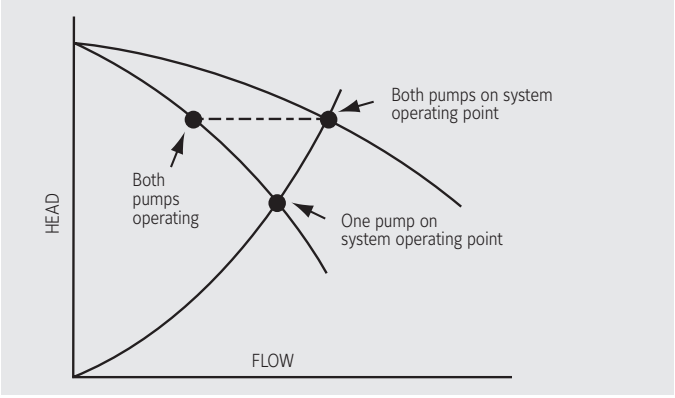
Circulating pump selection

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.



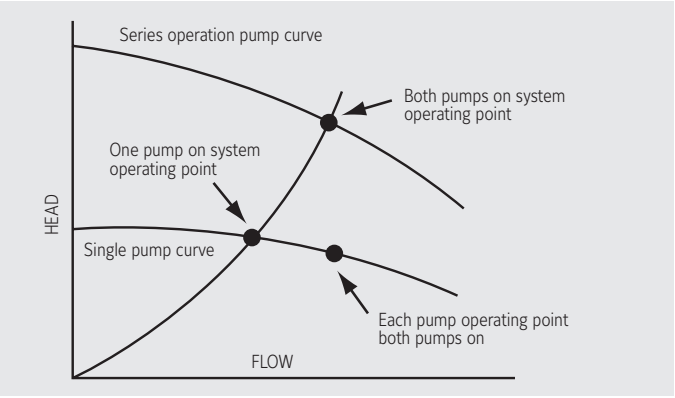
Parallel pumps

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 emmitted 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/m^2) but in order to correspond with the human perception of sound. A logorithmic 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, ie., 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.

$Lp = n\ dB\ re\ 2 \times 10^{-5}\ Pa$

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 emmitting 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.

$Lw = n\ dB\ re\ 10^{-12}W$

Example:
The human voice has an average sound power of 10^{-6}W.

$Lw = 10^{-6} / 10^{-12} = 10^{6}$

Translated into logarithmic figures:
$Lw = 10 \times \log 10^{-6} = 10 \times 6 = 60\ dB$

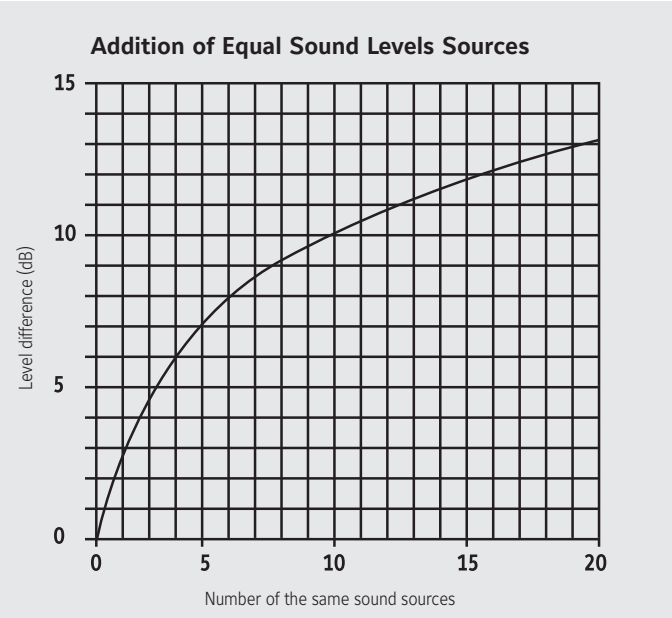
If two sound sources of equal power (60 dB or 10 W each) were active their added sound level would be as follows:
$(10^{-6} + 10^{-6})/10^{-12} = 2 \times 10^{-6} / 10^{-12} = 2 \times 10^{-6} = 2 \times 10^{-6}$

$Lw = 10 \log (2 \times 10^{-6}) = 63\ dB$

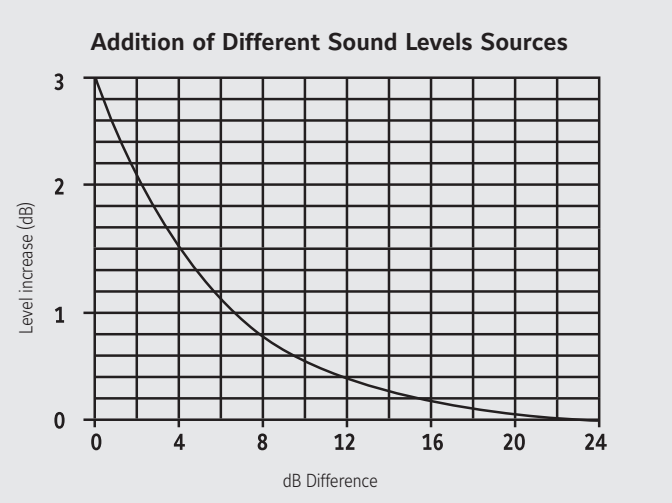
Therefore: 60 dB + 60 dB = 63 dB.

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 assimulates 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.

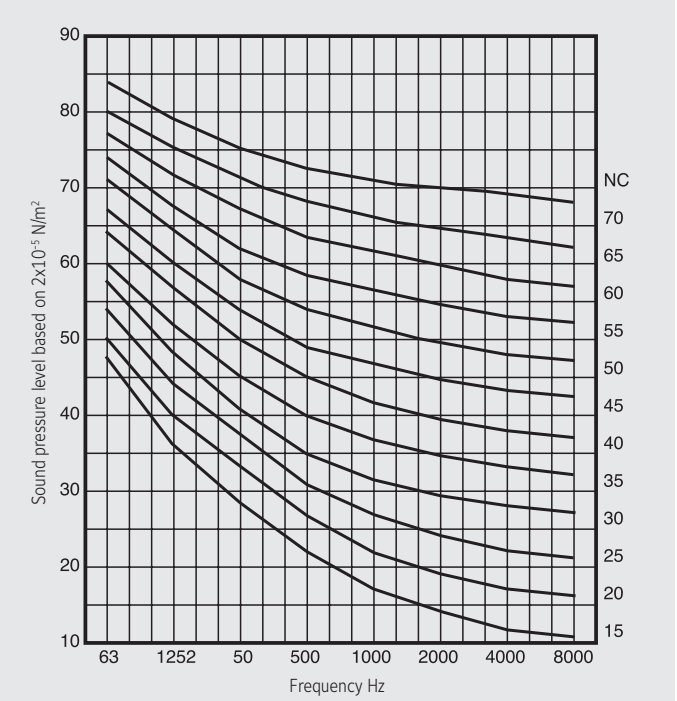
In order to take accurate sound measurements it is preferable to have a "Free Field" environment. This is an area having constant properties, free of boundaries or objects or any other sound source which could effect measurements. The sound waves radiate outwards in concentric hemispheres from the source 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:

$Lw = Lp + 10 \times Log_{10}(S)$

Where:

Lw = Sound power in dB (reference value: 10^{-12}W)
Lp = 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.

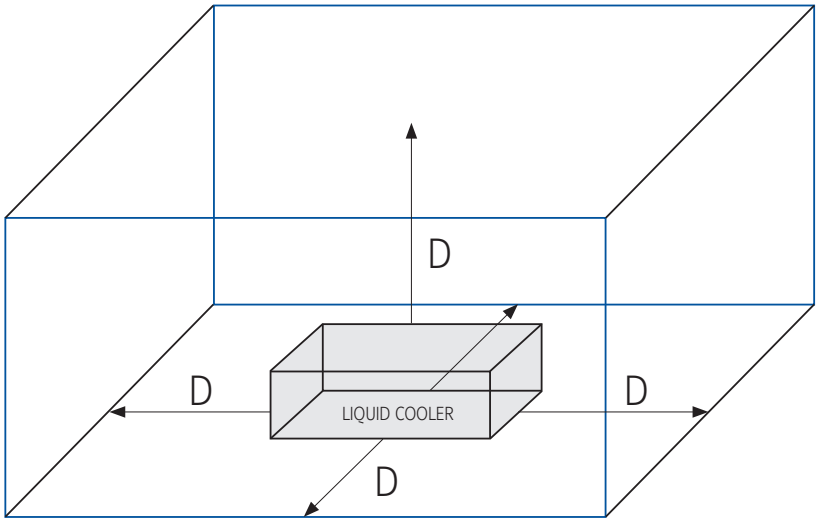
For example to calculate the sound pressure at 10 metres for a chiller with an 'A' weighted overall **Sound Power of 107dB(A) re 10^{-12}W** and a rectangular surface area at 10 metres distance of 1778 m^2 using the parallelepiped surface:

Sound pressure at a distance of 10 meters = 107 - 10 x $\log_{10}$ (1778 m^2) = 107 - 32.5 **= 74.5 dB(A)(reference value 2 x 10^{-5} 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

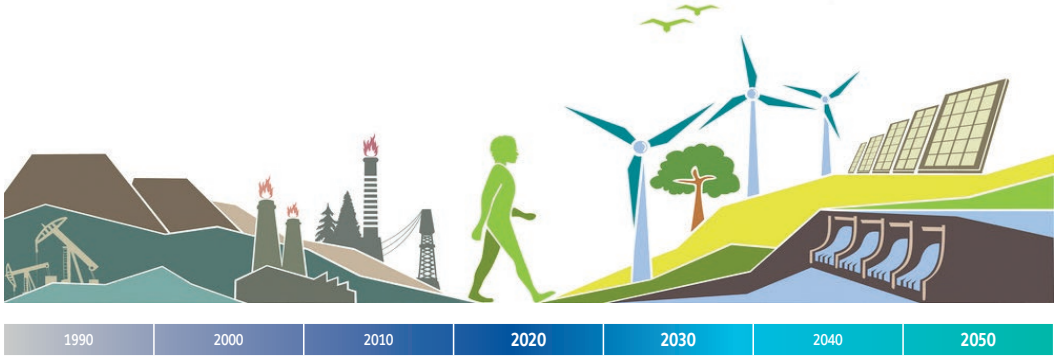


Ecodesign Directive for HVAC Chillers and Heat Pumps

EU Energy and Climate Policy Context

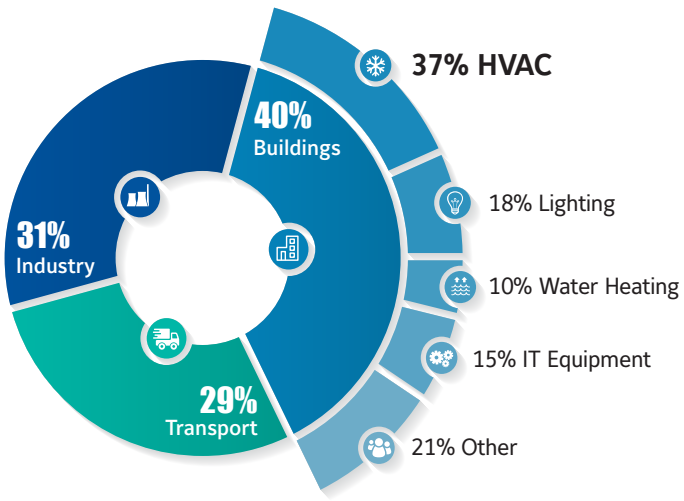
European 2050 Vision towards a low carbon economy is targeting reduction of 80/95% of the Green-house gas emissions by looking at the reduction of the 3 following parameters and comparing to the values of 1990.

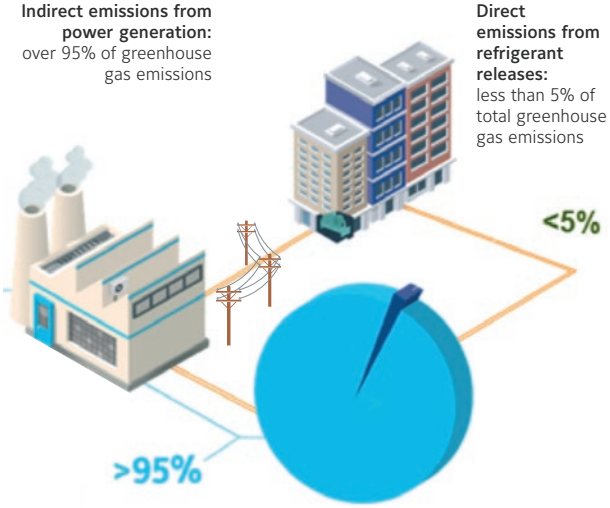
	2020	2030	2050
Primary Energy consumption	-20%	-27%	
Green-house effect gas emissions	-20%	-40%	-80/95%
Use of renewable energies	+20%	+27%	



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.

ECODESIGN
EU Framework Directive 2009 / 125 / EC
Sets the General Rules

Regulation	Scope	MEPS		2015	2016	2017	2018	2019	2020	2021
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.

BEFORE Ecodesign

EER
ESEER
COP

AFTER Ecodesign

SEPR **SEPR** Is the new performance indicator for chillers in **industrial process cooling applications.**

SEER **SEER** Is the new performance indicator for chillers in **comfort cooling applications.**

SCOP **SCOP** Is the new performance indicator for **space heating applications.**

$\eta_{s,c}$ $\eta_{s,h}$

Eta$_s$ (η_s):
Ecodesign introduces a new performance indicator for seasonal primary energy efficiency that allows product efficiency comparison with different energy sources.

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.

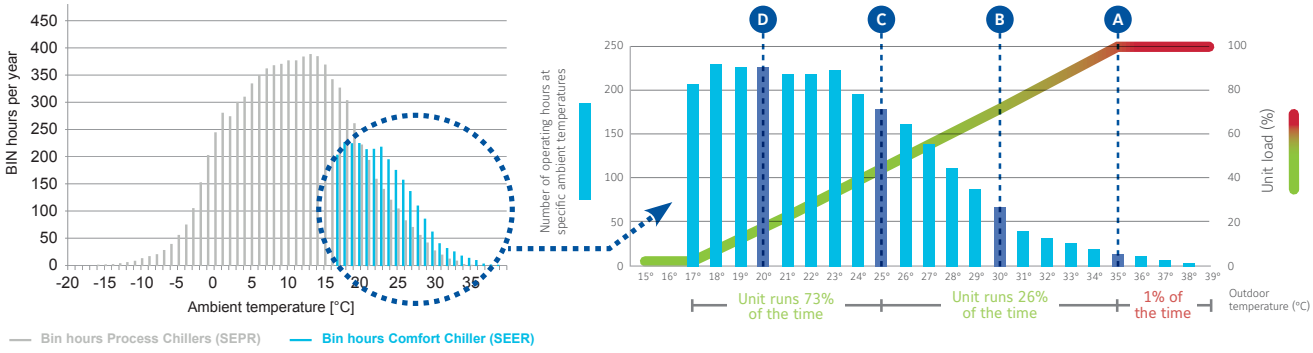
SEER - Seasonal Energy Efficiency Ratio

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 (ηs 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

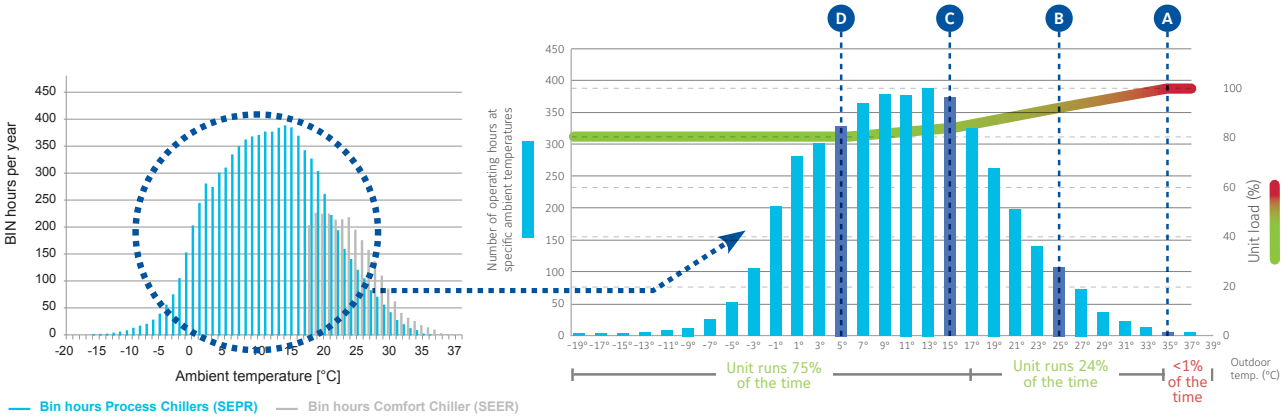
Regulation 1095/2015
Medium Temperature Process Chillers

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 Ecodesing 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**

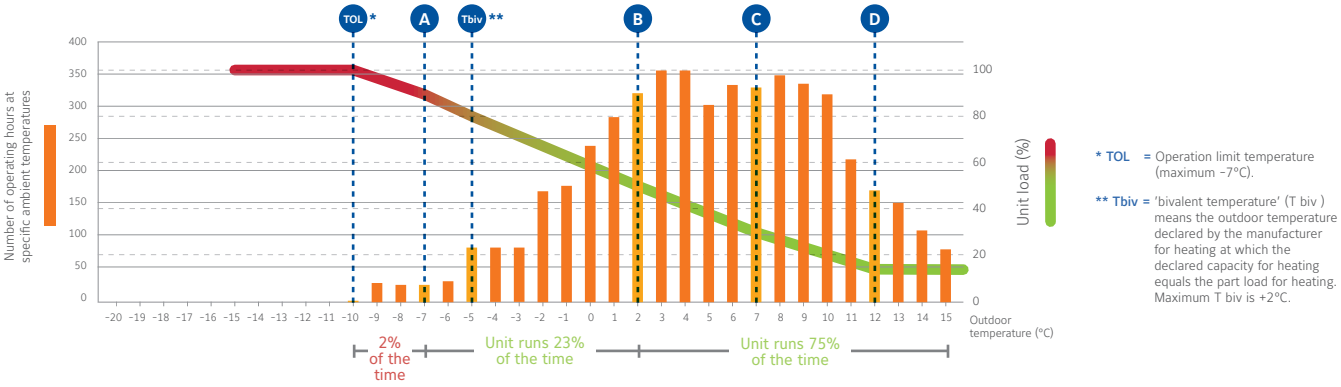
SCOP- Seasonal Coefficient of Performance

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$_s$ heat (η_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

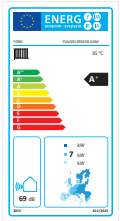
Air source heat pumps = 3%

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 adquired.



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 (ηs,c , SEPR or ηs,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
Rated cooling capacity	$P_{rated,c}$	x,x	kW
Declared cooling capacity for part load at given outdoor temperature T_j			
T_j = + 35°C	Pdc	x,x	kW
T_j = + 30°C	Pdc	x,x	kW
T_j = + 25°C	Pdc	x,x	kW
T_j = + 20°C	Pdc	x,x	kW
Degradation coefficient for chillers (*)	C_{dc}	x,x	-

Item	Symbol	Value	Unit
Seasonal space cooling energy efficiency	$\eta_{s,c}$	x,x	%
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperature T_j			
T_j = + 35°C	EER_d or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%
T_j = + 30°C	EER_d or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%
T_j = + 25°C	EER_d or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%
T_j = + 20°C	EER_d or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%

Power consumption in modes other than "active mode"							
Off mode	P_{OFF}	x,xxx	kW	Crankcase heater mode	P_{CK}	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.

Air Handling Systems and Terminal Devices

Air Handling Units

Indoor Air Quality

Fan Coil Units

Close Control Units

Factory Fitted Controls

So why choose YORK Air Handling Units?

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. Additionally, our Air Handling Units comply with requirements of EU Commission Regulation No. 1253/2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for ventilation units.

Factory fitted controls

Save money and time avoiding to mount controls on-site. Johnson Controls offers YORK Air Handling Units complete with Metasys factory fitted controls so it is ready connect to the site network when it arrives.

Our factory fitted controls undergo a detailed testing process at the factory to ensure that all wiring is installed correctly, and that all control panels and end devices work appropriately before the AHU is shipped.

BACnet

METASYS

LonMark Interoperability Association

Factory Fitted Controls option

- AHUs Metasys factory fitted controls specified option available.
- Panel Power wiring, Controls wiring and the Variable Speed Drive are included. The pre-engineered controller and required peripheral devices are all supplied factory fitted and tested.
- Guaranteed compliance with European installation regulations.
- Simplified final commissioning through the units' keypad and display.

Energy recovery options

The exhaust air stream from an AHU represents another opportunity to save energy. A **heat recovery 'thermal' wheel** can economically transfer heat and moisture between the exhaust-air and outside-air paths, reducing the cost of conditioning the supply air.

For the simplest form of heat recovery, you can take advantage of **"free" cooling** with mixing box sections. During spring and autumn operation, cool/dry outside air cools and dehumidifies the facility, reducing the need for mechanical cooling.

Alternatively, you can use **recuperative plate heat exchangers**. These also allow free cooling in summer by use of face and bypass dampers which by-pass the air around the exchanger so that it is not warmed by the extracted air.

We can also offer **refrigerant heat pipe** and **heat recovery coils** on your AHU to maximise energy savings. All heat recovery devices installed are compliant with latest ErP regulations.

Heat-recovery wheels reduce the cost of conditioning supply air.

Reduce fan operating costs

In an AHU, the fan is traditionally the largest source of energy consumption. We can help reduce this by offering a range of **energy-saving options**:

- High- or premium-efficiency motors can be specified.
- Direct-drive plenum fans eliminate belt-and-pulley energy losses.
- If the air system is designed for variable-air volume (VAV), YORK AHUs fitted with variable speed drives offer the most efficient method of VAV fan control.
- Factory-mounting a variable speed drive reduce jobsite labour costs, unit energy consumption and unit Life Cycle Costs.

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 m^3/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.

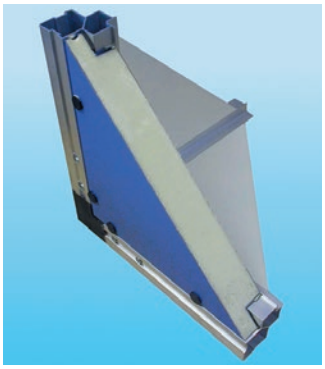
Units are also available in line with the requirements of hospital sector specifications.

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.

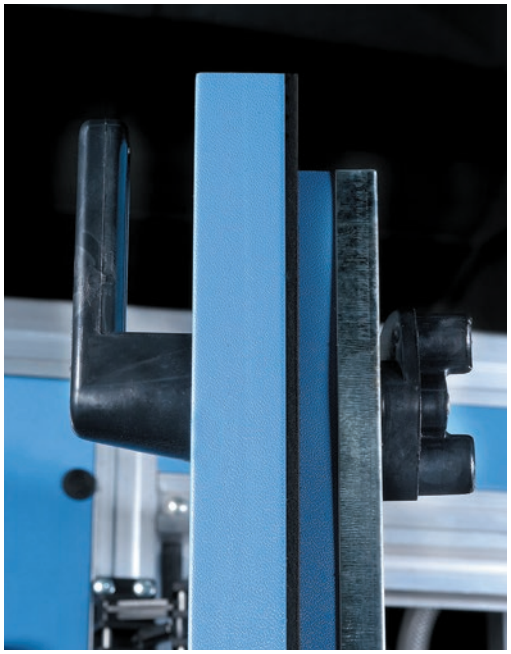
The Frame

- Low weight, corrosion resistant, marine aluminium alloy twin box section profile, designed to provide strenght 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/m°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.

YMA
Modular Air Handling Units

NEW

A complete range from 2,160 m³/h – 48,600 m³/h

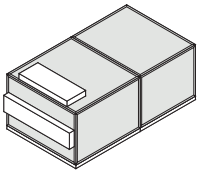
Features

The YORK Modular Air Handling Units are available in 5 different configurations meeting the most common market requirements. The units with aluminum frame, galvanised steel panels and fire rated Rockwool insulation are all Eurovent A+ certified.

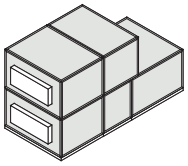
All YORK Modular Air Handling Units meet following classifications:

- ErP conform
- Thermal Bridging Class: TB2
- Thermal Transmittance: T2
- Casing Strength: D1(M)
- Casing Air Leakage (+700Pa/-400Pa): L2(M)/L1(M)

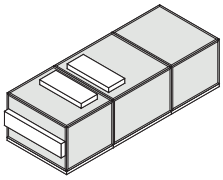
Type 1



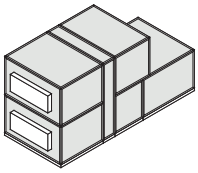
Type 2



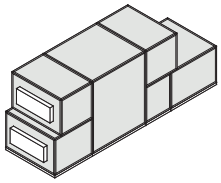
Type 3



Type 4

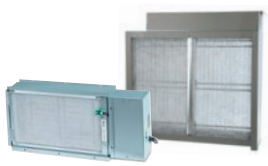


Type 5



Indoor Air Quality Options

Ultraviolet Germicidal Irradiation: UV-C disinfection helps deactivate airborne infectious microorganisms like viruses and bacteria which can be disseminated through ventilation systems and that can cause the spread of infections. Effectiveness depends on the UVGI dosage, exposure time, and humidity level. Our selection software helps to make the right choice. It affects areas directly exposed to the light source. This includes the direct airstream and surfaces.

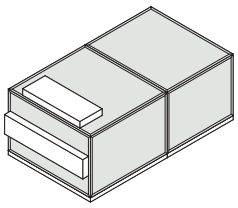


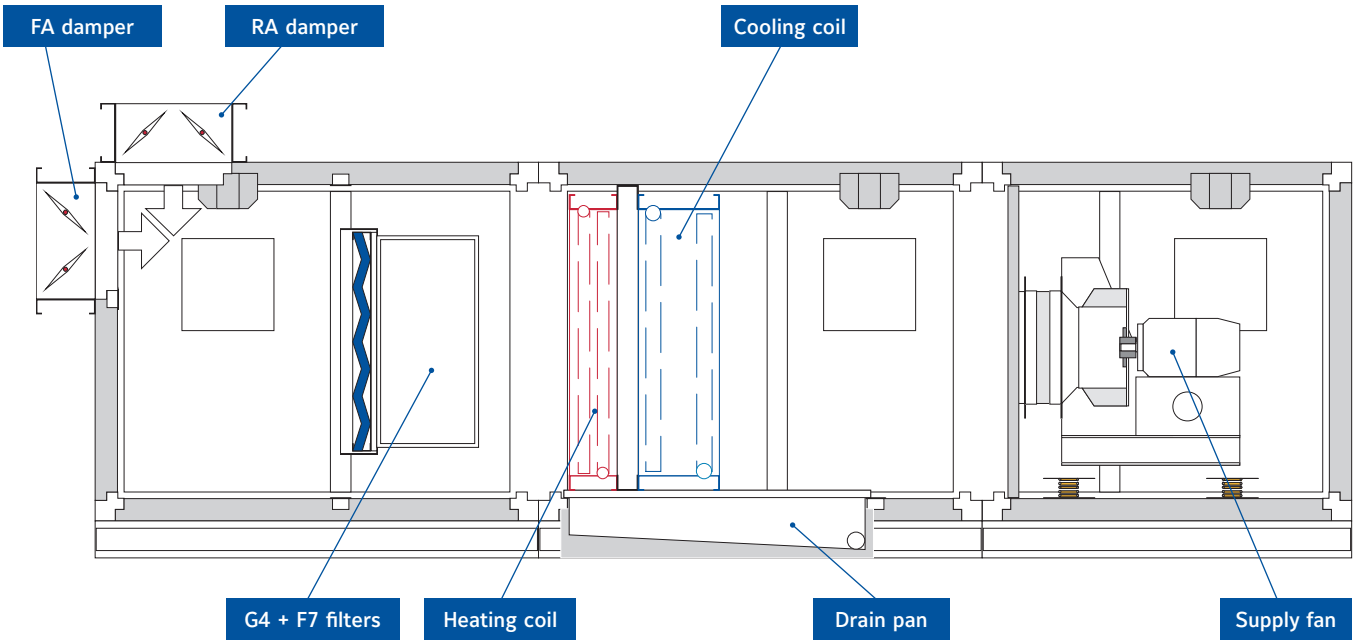
Mono-Polar Ionization or Electrostatic Precipitation: works by flooding the air with millions of either negatively or positively charged particles to react with both microbes and contaminants. This method is capable of capturing ≥ 0.01µm particles by the electrical charging of particles. The collector plates, which are oppositely charged, then capture these particles in the next step. It not only affects contaminants and microbes in the air, but also on surfaces, even hidden surfaces.

Bi-Polar Ionization: works by adding a controllable amount of both positive and negative oxygen ions to the supply air of the AHU. Oppositely charged ions attract to other particles, become bigger and heavier and can be trapped. In addition the positive and negative ions also surround surface proteins of VOC's (Volatile Organic Compounds), bacteria, germs or virus and destroy it.

YORK Modular Air Handling Units

Type 1
Outside Air or Mixing Supply Air Unit



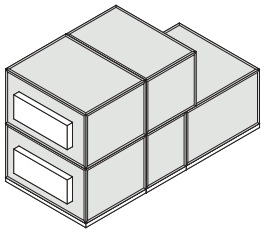


For European Union countries heat recovery systems as per European Legislation EU/1253/2014 should be implemented.

Model	Dimensions [mm]			Weight [kg]	Airflow range nominal		Power Input [kW]	EUROVENT Class 2016
	Width B	Height H	Length L		m^3/s	m^3/h		
YMA(S11)0970H-0950W	950	970	3 400	608	0.6	2 160	0.551	A+
YMA(S12)0970H-1500W	1 500	970	3 400	810	1.2	4 320	1.054	A+
YMA(S13)1570H-1550W	1 550	1 570	3 600	1 156	2.4	8 640	2.009	A+
YMA(S14)1570H-2150W	2 150	1 570	3 800	1 483	3.6	12 960	2.948	A+
YMA(S15)2250H-2150W	2 150	2 250	3 900	1 841	5.4	19 440	4.567	A+
YMA(S16)2250H-2750W	2 750	2 250	4 100	2 269	7.2	25 920	5.962	A+
YMA(S17)2860H-2850W	2 850	2 860	4 600	3 138	9.6	34 560	7.528	A+
YMA(S18)2860H-3450W	3 450	2 860	4 200	3 329	12	43 200	9.72	A+
YMA(S19)2860H-4050W	4 050	2 860	4 400	3 957	13.5	48 600	10.174	A+

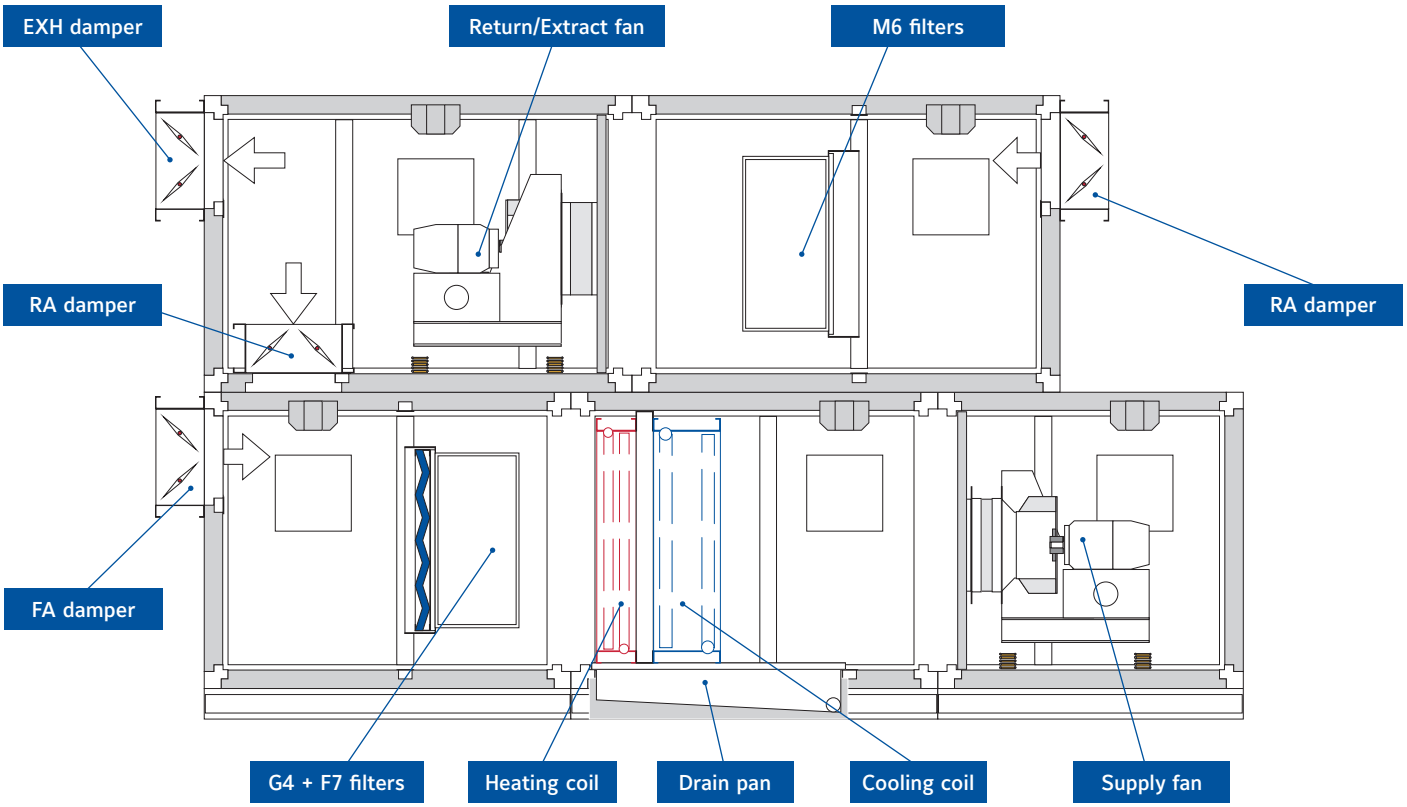
Panel: Galvanised Steel 0.6mm - Frame: Aluminum PR55TT - Fire rated Rockwool insulation 100 kg/m3 density - Filter M6 / G4 + F7 - TT: T2 - TB: TB2
Casing Strength: D1(M) - Casing Air Leakage +PA700: L2(M) - Casing Air Leakage -400Pa: L1(M)

YORK Modular Air Handling Units



Type 2

Doubledeck Outside Air or Mixing Supply Air Unit with Return Fan



For European Union countries heat recovery systems as per European Legislation EU/1253/2014 should be implemented.

Model	Dimensions [mm]			Weight [kg]	Airflow range nominal		Power Input [kW]	EUROVENT Class 2016
	Width B	Height H	Length L		m^3/s	m^3/h		
YMA(S21)0970H-0950W	950	1 940	3 400	1 001	0.6	2 160	0.538	A+
YMA(S22)0970H-1500W	1 500	1 940	3 400	1 346	1.2	4 320	1.026	A+
YMA(S23)1570H-1550W	1 550	3 140	3 600	1 940	2.4	8 640	1.966	A+
YMA(S24)1570H-2150W	2 150	3 140	3 800	2 526	3.6	12 960	2.862	A+
YMA(S25)2250H-2150W	2 150	4 500	4 000	3 246	5.4	19 440	4.396	A+
YMA(S26)2250H-2750W	2 750	4 500	4 400	4 219	7.2	25 920	5.486	A+
YMA(S27)2860H-2850W	2 850	5 720	4 800	5 660	9.6	34 560	7.366	A+
YMA(S28)2860H-3450W	3 450	5 720	4 400	6 008	12	43 200	9.374	A+
YMA(S29)2860H-4050W	4 000	5 720	4 800	6 929	13.5	48 600	9.828	A+

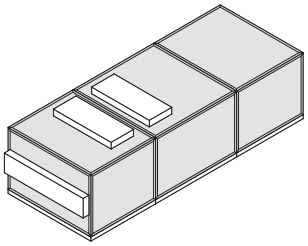
Panel: Galvanised Steel 0.6mm - Frame: Aluminum PR55TT - Fire rated Rockwool insulation 100 kg/m3 density - Filter M6 / G4 + F7 - TT: T2 - TB: TB2
Casing Strength: D1(M) - Casing Air Leakage +PA700: L2(M) - Casing Air Leakage -400Pa: L1(M)

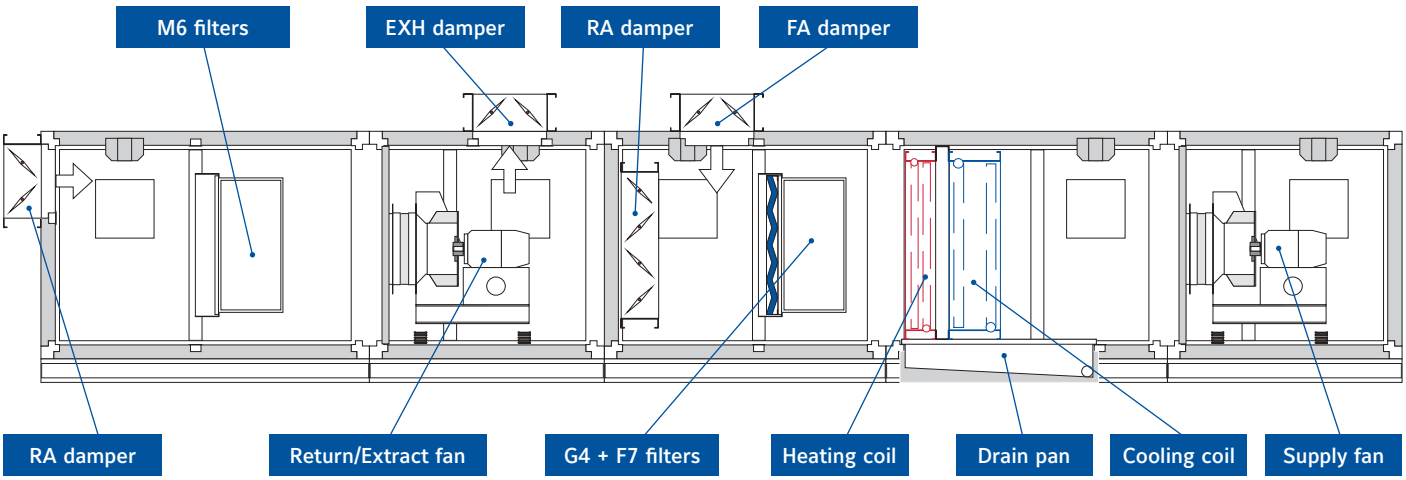
Manufacturer reserves the rights to change specifications without prior notice.

YORK Modular Air Handling Units

Type 3

Inline Outside Air or Mixing Supply Air Unit with Return Fan





For European Union countries heat recovery systems as per European Legislation EU/1253/2014 should be implemented.

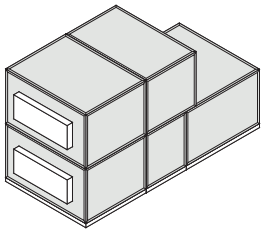
Model	Dimensions [mm]			Weight [kg]	Airflow range nominal		Power Input [kW]	EUROVENT Class 2016
	Width B	Height H	Length L		m^3/s	m^3/h		
YMA(S31)0970H-0950W	950	970	5 800	969	0.6	2 160	0.551	A+
YMA(S32)0970H-1500W	1 500	970	5 800	1 278	1.2	4 320	1.054	A+
YMA(S33)1570H-1550W	1 550	1 570	6 200	1 806	2.4	8 640	2.009	A+
YMA(S34)1570H-2150W	2 150	1 570	6 800	2 349	3.6	12 960	2.938	A+
YMA(S35)2250H-2150W	2 150	2 250	6 800	2 884	5.4	19 440	4.568	A+
YMA(S36)2250H-2750W	2 750	2 250	7 100	3 560	7.2	25 920	6.005	A+
YMA(S37)2860H-2850W	2 850	2 860	8 200	5 039	9.6	34 560	7.668	A+
YMA(S38)2860H-3450W	3 450	2 860	7 300	5 134	12	43 200	9.806	A+
YMA(S39)2860H-4050W	4 050	2 860	7 800	6 143	13.5	48 600	10.238	A+

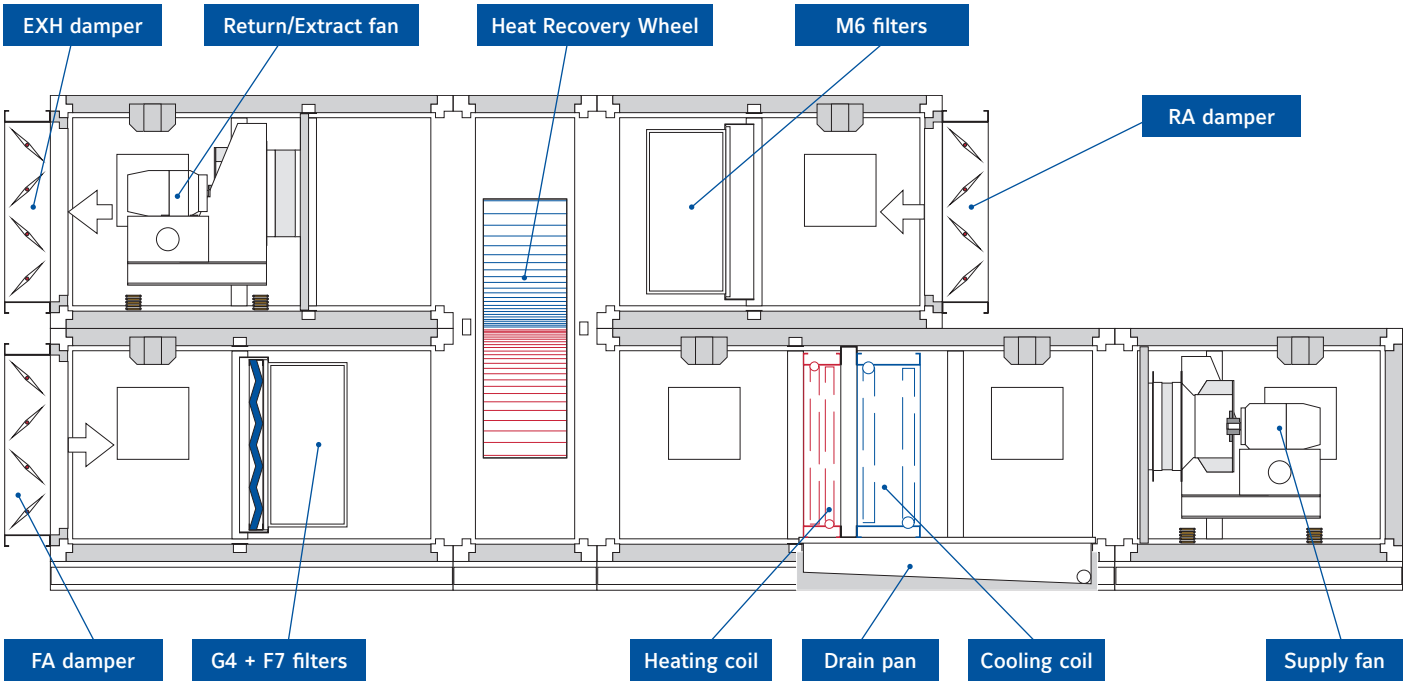
Panel: Galvanised Steel 0.6mm - Frame: Aluminum PR55TT - Fire rated Rockwool insulation 100 kg/m3 density - Filter M6 / G4 + F7 - TT: T2 - TB: TB2
Casing Strength: D1(M) - Casing Air Leakage +PA700: L2(M) - Casing Air Leakage -400Pa: L1(M)

YORK Modular Air Handling Units

Type 4

HRW - Heat Recovery Wheel Unit





For European Union countries heat recovery systems as per European Legislation EU/1253/2014 should be implemented.

Model	Dimensions [mm]			Weight [kg]	Airflow range nominal		Heat Recovery [%]	Power Input [kW]	EUROVENT Class 2016
	Width B	Height H	Length L		m^3/s	m^3/h			
YMA(S41)0810H-1050W	1 050	1 620	4 700	1 165	0.6	2 160	74.1	0.599	A+
YMA(S42)0890H-1650W	1 650	1 780	4 700	1 672	1.2	4 320	74.9	1.296	A+
YMA(S43)1090H-2200W	2 200	2 180	5 100	2 421	2.4	8 640	73.7	2.43	A+
YMA(S44)1330H-2550W	2 550	2 660	5 600	3 165	3.6	12 960	73.1	3.953	A+
YMA(S45)1570H-3100W	3 100	3 140	6 000	4 285	5.4	19 440	73	5.357	A+
YMA(S46)1770H-3500W	3 500	3 540	6 450	4 924	7.2	25 920	73.3	7.009	A+
YMA(S47)2010H-4000W	4 000	4 020	7 350	6 872	9.6	34 560	74.1	8.726	A+
YMA(S48)2210H-4400W	4 400	4 420	7 350	7 590	12	43 200	75.1	11.556	A+
YMA(S49)2330H-4650W	4 650	4 660	6 450	7 234	13.5	48 600	74.9	12.571	A+

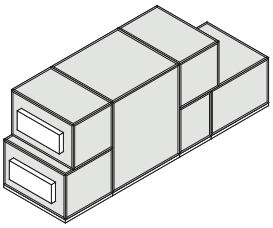
Panel: Galvanised Steel 0.6mm - Frame: Aluminum PR55TT - Fire rated Rockwool insulation 100 kg/m3 density - Filter M6 / G4 + F7 - TT: T2 - TB: TB2
Casing Strength: D1(M) - Casing Air Leakage +PA700: L2(M) - Casing Air Leakage -400Pa: L1(M)

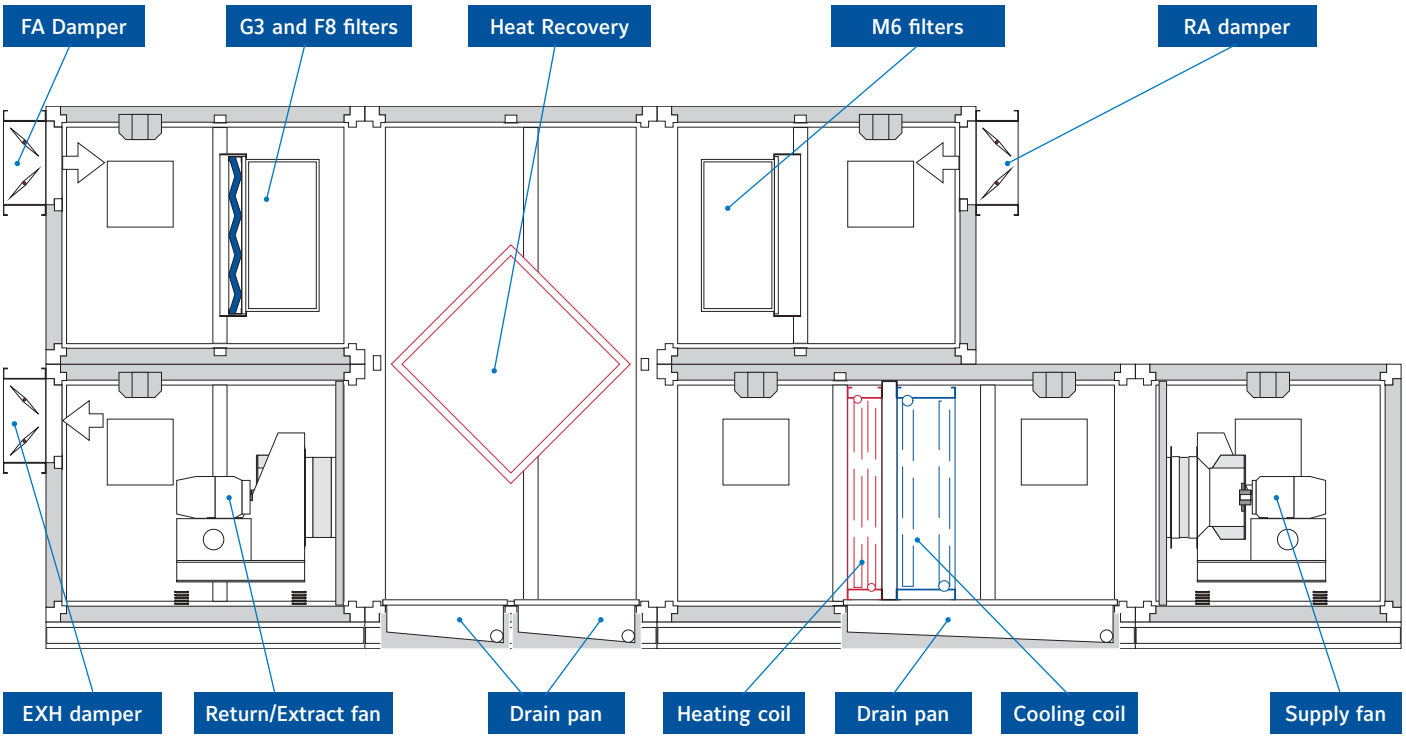
Manufacturer reserves the rights to change specifications without prior notice.

YORK Modular Air Handling Units

Type 5

PHE - Plate Heat Exchanger Unit





For European Union countries heat recovery systems as per European Legislation EU/1253/2014 should be implemented.

Model	Dimensions [mm]			Weight [kg]	Airflow range nominal		Heat Recovery [%]	Power Input [kW]	EUROVENT Class 2016
	Width B	Height H	Length L		m^3/s	m^3/h			
YMA(S51)0970H-0950W	950	1 940	5 100	1 292	0.6	2 160	76.9	0.68	A+
YMA(S52)0970H-1500W	1 500	1 940	5 350	1 832	1.2	4 320	75.8	1.274	A+
YMA(S53)1570H-1550W	1 550	3 140	6 200	2 746	2.4	8 640	73.9	2.581	A+
YMA(S54)1570H-2150W	2 150	3 140	7 250	3 694	3.6	12 960	75	3.575	A+
YMA(S55)1970H-2500W	2 500	3 940	7 550	5 004	5.4	19 440	73.2	4.946	A+
YMA(S56)1970H-3150W	3 150	3 940	8 050	6 273	7.2	25920	73	6.685	A+
YMA(S57)1970H-4050W	4 050	3 940	8 900	8 231	9.6	34 560	74	8.726	A+
YMA(S58)1970H-4900W	4 900	3 940	9 300	8 186	12	43 200	76.5	10.562	A+
YMA(S59)1970H-5900W	5 900	3 940	8 500	8 843	13.5	48 600	77.3	11.146	A+

Panel: Galvanised Steel 0.6mm - Frame: Aluminum PR55TT - Fire rated Rockwool insulation 100 kg/m3 density - Filter M6 / G4 + F7 - TT: T2 - TB: TB2
Casing Strength: D1(M) - Casing Air Leakage +PA700: L2(M) - Casing Air Leakage -400Pa: L1(M)

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.

Our YMB range is DIN1946-4 certified

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

YMB is available for indoor installation called YMBS and outdoor installation called YMBD

Available sizes	21	
Airflow range (m³/h)	700 ~ 100 000	
Application	· housing and retail construction industry · public utility buildings · industrial facilities construction · leisure facilities	
Basic options	· 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	· sub-assemblies manufactured as explosion-proof · swimming pool version · hygienic version · YORK Factory Fitted Controls	
Heat recovery	· recirculation · cross-flow heat exchanger · rotary heat exchanger	· heat pipe · glycol recovery system · heat pump
Installation type	· indoors (YMBS)/outdoors (YMBD)	

CE Manufacturer reserves the rights to change specifications without prior notice.

YPS
Modular Air Handling Units

A range from 300 m³/h - 5,400 m³/h

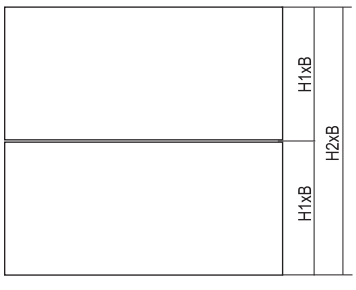
Available sizes	5	
Airflow range (m³/h)	300 - 5 400	
Application	· in suspended ceilings and wherever building construction limitations do not allow other systems to be implemented, e.g. in industrial workshops, warehouses, wholesale establishments, workshops, offices, etc	
Basic options	· G4 class filters · M5, F7, F9 class filters · heat recovery	· water/steam/glycol/electric heater · water/glycol/freon cooler · humidification, fan and attenuation section
Additional options	· sub-assemblies manufactured as explosion-proof · automation module · automation module designed to cooperate with intelligent BMS system · YORK Factory Fitted Controls	
Heat recovery	· cross-flow heat exchanger · recirculation	
Installation type	· indoors	

Our YPS range is DIN1946-4 certified

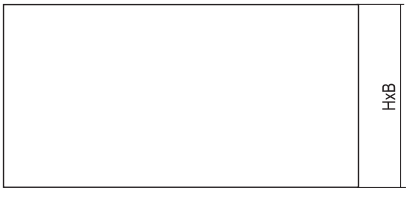
YMBS/YMBD and YPS performances

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	-

YPS			
Unit size	Airflow range [m³/h]	Width B	Height H
Insulation 50 mm			
MINI	300 - 1100	500	435
1	900 - 2500	780	435
2	1400 - 3900	1090	435
3	1200 - 3350	780	535
4	2000 - 5400	1090	535



YMBS/YMBD



YPS

* YMBD is only in 50 mm thick insulation available (optionally, YMBS and YMBD in 70 mm thick insulation)

YBV
Plug and Play Air Handling Units

A complete range from 400 m³/h to 5,000 m³/h

Introducing the new YBV series of self contained Air Handling Units from YORK. YBV units are a range of compact Air Handling units offering true Plug and Play capability using our Verasys BMS system – Their ready-to-use control functions are provided for accessories such as cooling units and heating coils and wiring is done by means of cables with quick connectors. Additionally, energy-saving fans and efficient heat recovery devices offer full control of temperatures, airflows and operating times to give you optimal operational economy.

For ease of maintenance, inspection doors are large for easy component access and all major components are side removable. **YBV series** units can be selected and ordered quickly and easily, and have a short lead time – offering you a space saving, time saving, cost saving, energy saving solution!

The **YBV** range comprises the following models:

- **YBVS series**: with counter flow or cross flow heat exchanger
- **YBVR series**: as per YBVS series but with rotary wheel heat exchanger
- **YBVD series**: compact range with counter flow heat exchanger

YBVS Air Handling Unit characteristics

Available sizes	4
Airflow range (m³/h)	400 ~ 3 800
Application	• offices • Kindergardens • shopping centers • public utility buildings, etc
Basic options	• G4 class filter • heat recovery • water / electric heater • 2 axial-flow centrifugal fans • by-pass • SMART EQUIPMENT automation module
Additional options	• EC fans • automation module designed to cooperate with any BMS system
Heat recovery	• counter-flow heat exchanger (in size 1) • cross-flow heat exchanger (in sizes 2, 3, 4)
Installation type	• indoors
Other features	• self-supporting housing structure • plug-and-play installation type • ducts connected from the top • low noise level

SMART EQUIPMENT Johnson Controls

CE Manufacturer reserves the rights to change specifications without prior notice.

System advantages

- Easy and simple installation (plug&play)
- Reduced cost of operation due to high-effinciency heat exchanger (91% recovery - YBVS-1)
- Low noise level
- A by-pass integrated with the cross-flow heat exchanger allows for operation without heat recovery
- Self-supporting housing structure - without aluminium profiles
- Attractive and minimalistic style
- Ensured supply of a suitable volume of fresh and additionally cleaned air
- Ensured high quality air and good effect on the health of people staying rooms
- Automatic components supplied with Johnson Controls Factory Fitted Controls

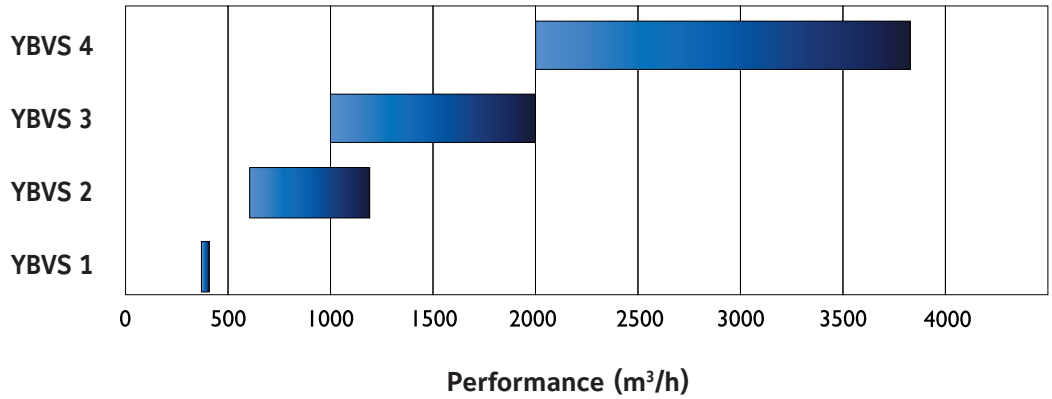
The **YBVS 2, 3, 4** unit has two axial-centrifugal fans. Supply fan removes contaminated warm air from the room and the exhaust fan, transports cold feed air.

Both streams are decontaminated on filters and pass through the cross-flow heat exchanger, where heat is exchanged between the streams. Additionally, fresh air, after passing through the cross-flow exchanger, is heated by an electrical or water heater to the required temperature of the supplied air.

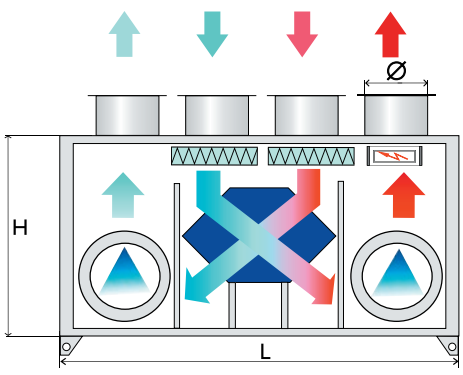
The unit has an integrated by-pass.

Functions:

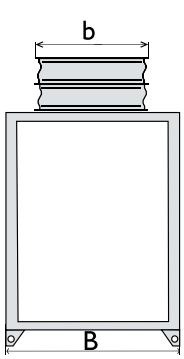
- Night cooling of rooms during summer by bypassing the cross-flow exchanger, when the outdoor temperature is lower than the indoor temperature.
- Defrosting of the heat exchanger

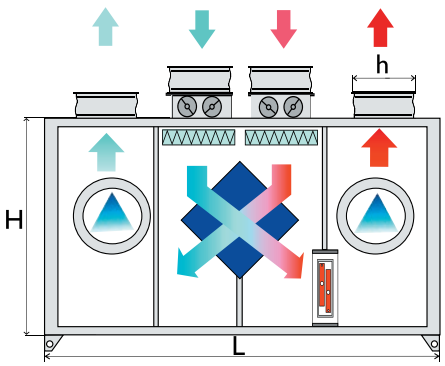


		Dimensions [mm]				Airflow range [m³/h]		
Unit size	Weight [kg]	Width B	Height H	Length L	Flexible connections, dampers B x H	min	max	Max heat recovery [%]
1	85	550	600	1100	fi 160	400	400	91
2	180	750	850	1300	400 x 200	600	1200	72
3	240	800	1,000	1600	500 x 315	1000	2000	78
4	380	880	1,300	2200	630 x 400	2000	3800	70



YBVS 1





YBVS 2, 3, 4

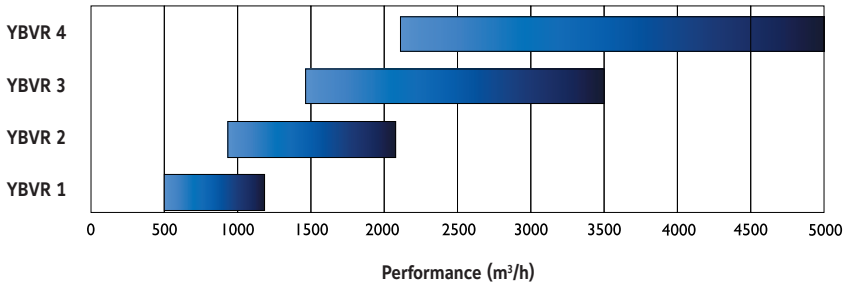
YBVR Air Handling Unit characteristics

Available sizes	4	
Airflow range (m³/h)	500 ~ 5 000	
Application	· offices, houses, shops · Kindergardens · public utility buildings, etc	
Basic options	· G4, M5, F7 class filters · heat recovery - rotary heat exchanger · water / electric heater · 2 EC fans modules · SMART EQUIPMENT automation module	
Additional options	· cooling section · automation module designed to cooperate with a larger BMS system	
Heat recovery	· rotary heat exchanger	
Installation type	· indoors	
Other features	· self-supporting housing structure · plug-and-play installation type	· ducts connected from the top · low noise level

SMART EQUIPMENT

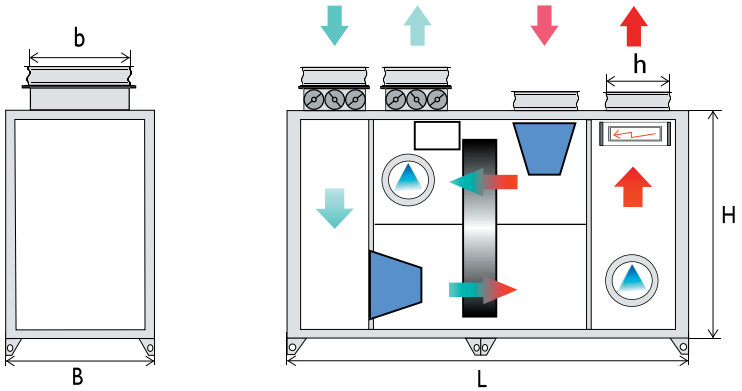
System advantages

- Easy and simple installation (plug-and-play)
- Reduced cost of operation due to high-efficiency heat exchanger with 90% recovery
- Low noise level
- Attractive and minimalistic style
- Ensured supply of a suitable volume of fresh and additionally cleaned air
- Ensured high quality air and good effect on the health of people staying rooms
- Automatic components supplied with Johnson Controls Factory Fitted Controls



The **YBVR** unit has fans with EC motors. Supply fan removes contaminated warm air from the room and the exhaust fan, transports cold feed air.

Both streams are decontaminated on filters and pass through the rotary wheel heat exchanger, where heat is exchanged between the streams. Additionally, fresh air, after passing through the rotary wheel exchanger, is heated by an electrical or water heater to the required temperature of the supplied air.



		Dimensions [mm]				Airflow range [m³/h]	
Unit size	Weight [kg]	Width B	Height H	Length L	Flexible connections, dampers B x H	min	max
1	180	750	900	1400	300 x 200	500	1200
2	270	900	1100	1700	400 x 200	900	2100
3	360	1100	1250	1800	600 x 300	1450	3500
4	440	1200	1400	2050	800 x 400	2100	5000

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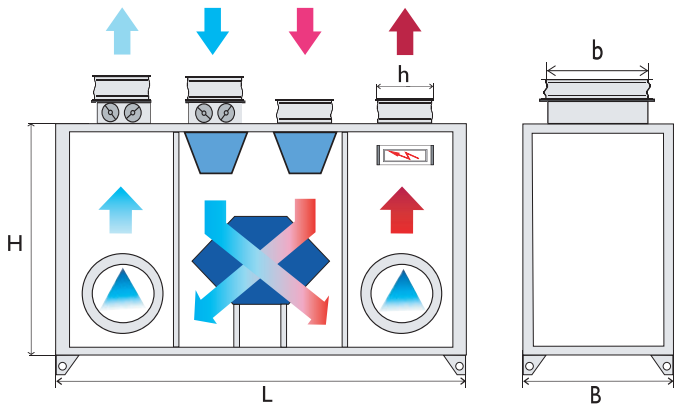
Manufacturer reserves the rights to change specifications without prior notice.

YBVD Air Handling Unit characteristics

Available sizes	4
Airflow range (m^3/h)	500 – 4 500
Application	· offices · Kindergardens · shopping centers · public utility buildings, etc
Basic options	· G4 class filter · heat recovery – counter-flow heat exchanger · 2 EC fans modules · SMART EQUIPMENT automation module
Additional options	· cooling section · automation module designed to cooperate with a larger BMS system
Heat recovery	· counter-flow heat exchanger
Installation type	· indoors
Other features	· self-supporting housing structure · plug-and-play installation type · low noise level

		Dimensions [mm]				Airflow range [m^3/h]	
Unit size	Weight [kg]	Width B	Height H	Length L	Flexible connections, dampers B x H	min	max
1	240	750	1250	1600	300 x 200	500	1200
2	360	900	1550	1950	400 x 300	900	2100
3	460	1100	1650	2100	600 x 300	1450	3500
4	540	1200	1650	2400	800 x 400	2100	4500



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YEPR
Heat Recovery Units

A complete range from 300 m^3/h up to 2,600 m^3/h

Introduction

The high-efficiency heat recovery units of the **YEPR** series have been designed to ensure energy savings in ventilation systems of public and private premises such as bars, restaurants, offices, shops, etc., making it possible to recover heat from the exhaust air and transferring it to the air released into the room.

The heat exchange between the exhaust air and the intake air takes place through a static heat exchanger with countercurrent flow, sized to obtain a heat recovery up to 94%.

The **YEPR** series includes 4 sizes suitable for horizontal installation and covers a range of flow rates from 300 to 2600 m3/h. The units are available both in the version for installation on ceilings and floors.

Construction features

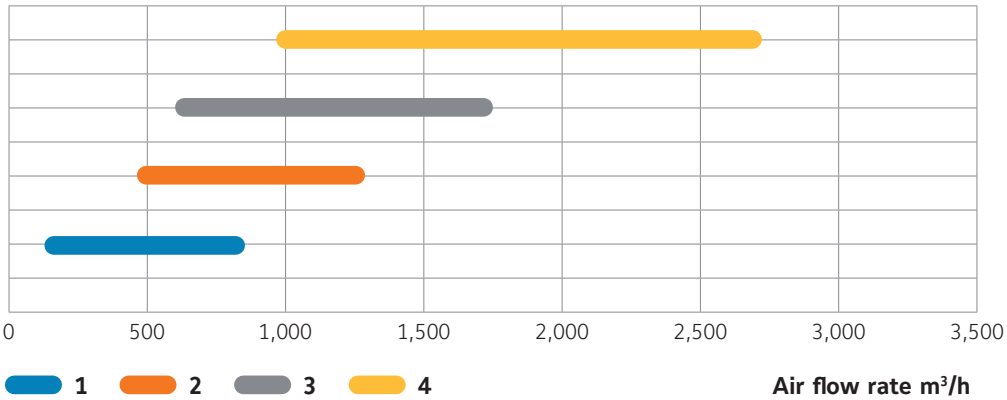
The **YEPR** are supplied in 2 versions:

- for ceiling installation
(YEPR 1-C, YEPR 2-C, YEPR 3-C, YEPR 4-C)
- for floor installation
(YEPR 1-F, YEPR 2-F, YEPR 3-F, YEPR 4-F)

and they are equipped with centrifugal fans, featuring backward-inclined blades, and a continuous modulation electronic motor which ensure variable flow control, so as to reduce power consumption to the minimum necessary.

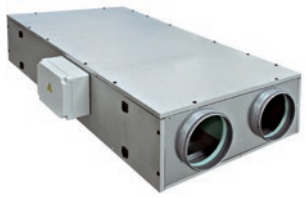
The YEPR units are ERP 2018 and therefore comply with the regulatory requirements of the European Ecodesign Directive (EU Regulation 1253/14). The checks concern both the energy performance relating to heat recovery and the intrinsic energy consumption parameter SFPint in the nominal conditions declared by the manufacturer.

YEPR range



YEPR Heat Recovery Units

YEPR 1 to 4



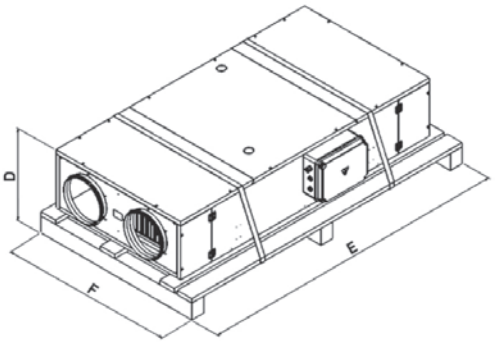
Technical features

Model		YEPR 1	YEPR 2	YEPR 3	YEPR 4
Maximum supply and return air flow rate	m^3/h	720	1150	1700	2600
	m^3/h	0.20	0.32	0.47	0.72
Supply and return rated available static pressure	Pa	170	220	250	250
Minimum supply and return air flow rate	m^3/h	270	300	600	690
Thermal efficiency EU regulation 1253/14 (1)	%	80	80	80	85
Total thermal output recovered (1)	kW	3.9	6.2	9.1	14.8
Maximum recovery efficiency (2)	%	90	90	90	94
Total thermal output recovered (2)	kW	6.5	10.5	15.4	24.5
Total number of fans	-	2	2	2	2
Rated absorbed electrical power (3)	W	330	770	1060	1460
Maximum total absorbed current (3)	A	2.8	3.4	4.7	6.5
Unit power supply (3)	V-Ph	230-1 + N / 50Hz	230-1 + N / 50Hz	230-1 + N / 50Hz	230-1 + N / 50Hz
Protection rating with machine installed	-	IP20	IP20	IP20	IP20
Unit weight	kg	90	140	170	320

1) Air conditions: EAT = 5°C and t_i = 25°C, no condensate
2) Air conditions: EAT = -10°C and t_i = 20°C, RHi 50% RH
3) Basic version

Overall dimensions of the packaged unit

Model			YEPR 1	YEPR 2	YEPR 3	YEPR 4
Dimensions	D	mm	469	510	595	735
	E	mm	1845	1845	2245	2345
	F	mm	1030	1030	1430	1880
Weight		kg	119	165	198	370



Thermal performances - Internal conditions: ti = 20°C - RHi = 50%

Model		EAT: 10°C			EAT: 5°C			EAT: 0°C			EAT: -5°C			EAT: -10°C		
	Q_v	P_h	ε_t	m_w	P_h	ε_t	m_w	P_h	ε_t	m_w	P_h	ε_t	m_w	P_h	ε_t	m_w
	m3/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h
YEPR 1	100	0.30	90.4	0.00	0.46	90.5	0.15	0.62	91.7	0.26	0.79	94.3	0.36	0.97	96.5	0.44
	150	0.44	88.2	0.00	0.67	88.3	0.21	0.90	89.8	0.38	1.17	92.7	0.53	1.44	95.4	0.65
	300	0.85	84.6	0.00	1.28	84.7	0.42	1.74	86.4	0.72	2.26	90.0	1.03	2.81	93.2	1.25
	450	1.25	82.6	0.00	1.87	82.7	0.62	2.55	84.5	1.09	3.34	88.4	1.52	4.16	91.9	1.85
	600	1.63	81.2	0.00	2.45	81.3	0.81	3.35	83.2	1.43	4.39	87.3	2.01	5.49	90.9	2.47
	750	2.01	80.1	0.00	3.03	80.2	0.96	4.13	82.2	1.71	5.43	86.4	2.43	6.80	90.1	3.01
YEPR 2	200	0.60	89.4	0.00	0.90	89.5	0.29	1.22	90.8	0.51	1.57	93.5	0.70	1.93	96.0	0.86
	250	0.74	88.2	0.00	1.11	88.3	0.36	1.50	89.7	0.63	1.94	92.7	0.88	2.40	95.3	1.08
	500	1.42	84.6	0.00	2.13	84.7	0.69	2.90	86.4	1.20	3.77	90.0	1.72	4.69	93.2	2.08
	750	2.08	82.5	0.00	3.12	82.6	1.04	4.25	84.5	1.81	5.56	88.4	2.52	6.93	91.8	3.09
	1000	2.72	81.1	0.00	4.08	81.2	1.35	5.57	83.1	2.38	7.31	87.2	3.35	9.14	90.8	4.12
	1250	3.35	80.0	0.00	5.04	80.1	1.68	6.88	82.1	2.85	9.04	86.3	4.05	11.32	90.0	5.00
YEPR 3	300	0.89	88.4	0.00	1.34	88.5	0.43	1.81	89.9	0.76	2.34	92.9	1.06	2.88	95.5	1.31
	400	1.17	86.9	0.00	1.75	87.0	0.56	2.38	88.5	1.00	3.08	91.8	1.37	3.81	94.6	1.69
	800	2.24	83.4	0.00	3.36	83.5	1.10	4.57	85.2	1.91	5.97	89.0	2.66	7.44	92.4	3.36
	1200	3.27	81.4	0.00	4.92	81.5	1.64	6.71	83.4	2.88	8.79	87.4	3.90	10.99	91.0	4.97
	1650	4.42	79.8	0.00	6.63	79.9	2.20	9.06	81.9	3.88	11.91	86.1	5.31	14.92	89.9	6.57
	2000	5.29	78.9	0.00	7.95	79.0	2.53	10.87	81.0	4.54	14.31	85.4	6.49	17.95	89.2	8.05
YEPR 4	400	1.28	95.3	0.00	1.92	95.4	0.63	2.58	96.1	1.10	3.27	97.5	1.50	3.97	98.7	1.75
	550	1.72	93.5	0.00	2.59	93.6	0.84	3.49	94.5	1.49	4.44	96.4	1.98	5.42	98.0	2.43
	1100	3.31	89.7	0.00	4.97	89.8	1.61	6.72	91.1	2.82	8.65	93.8	3.89	10.64	96.1	4.74
	1700	4.98	87.4	0.00	7.48	87.5	2.45	10.14	89.0	4.34	13.13	92.1	5.87	16.23	94.9	7.25
	2300	6.62	85.8	0.00	9.94	85.9	3.22	13.50	87.5	5.77	17.53	90.9	7.90	21.74	93.9	9.83
	2900	8.23	84.6	0.00	12.36	84.7	4.02	16.81	86.4	6.97	21.88	90.0	9.99	27.19	93.2	12.09

t_i = Internal air temperature
RH_i = Internal relative humidity
EAT = External air temperature
Q_v = Intake air flow rate
Q_r = Return air flow rate
P_h = Thermal recovery on the intake flow

ε_t = Recovery efficiency with balanced flow rates
m_w = Condensate production
b = Unbalance percentage
ε_t* = Recovery efficiency with unbalanced flow rates
F_t = Correction coefficient according to EAT variation
F_Q = Correction coefficient according to Qv variation

$$\varepsilon_t = \frac{2980\ P_h}{Q_v\ (t_i - TAE)}$$

$$b = Q_r / Q_v$$

$$\varepsilon_t^* = \varepsilon_t\ b\ F_t\ F_Q$$

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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.*

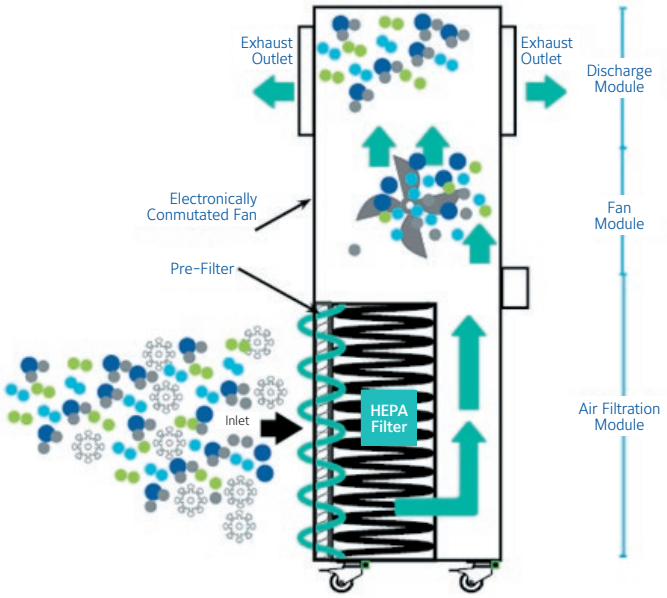
Preventing the spread of viruses has become a major concern for cities, communities, companies – and each and every one of us. We are here to help you take the next step towards safer schools, offices, and facilities.

* www.ashrae.org/file%20library/about/position%20documents/airborne-infectious-diseases.pdf

Mobile Modular HEPA Filter Unit

A range from 1,080 m³/h up to 2,520 m³/h

NEW



Introduction

Our mobile modular **HEPA** fan unit is equipped with a H13 or above HEPA filter and can capture particles with a size of ≥ 0.03 µm. It converts general wards into negative pressure isolation rooms or functions as a recirculating HEPA air cleaner in rooms and areas like offices, stores and waiting rooms. Optionally the mobile unit can be equipped with ionizers and a UV disinfection system.

Technical features

Individual modules		HFU-3	HFU-5	HFU-7
Airflow	m³/h	1080	1800	2520
Consumption	kW	0.3	0.5	0.6
Current	A	1.8	2.2	2.6
Available pressure	Pa	400	400	400
Sound pressure level	dB(A)	53	56	58
Dimensions (H x L x D)	mm	1300 x 550 x 644	1300 x 704 x 644	1300 x 704 x 685
Operating weight	kg	120	130	130
Electrical power		220V / 1ph / 50Hz	220V / 1ph / 50Hz	220V / 1ph / 50Hz

CE

Manufacturer reserves the rights to change specifications without prior notice.

YORK Mobile HEPA Filter Unit

A range from 800 m³/h up to 1,600 m³/h

NEW

Available colors

- Future White (standard)
- Exclusive Black (opcional)
- Healthy Pink (opcional)
- Dressy Blue (opcional)

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.

Technical features

Individual modules		H13	H14
Airflow	m³/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

CE

Air purification through Bipolar Ionization

NEW

A range from 100 m^3/h up to 25,500 m^3/h

Bipolar ionization can provide low-ozone air purification for new air handling systems or for retrofit into existing systems.

Johnson Controls deploys bipolar ionization technology to supplement a holistic clean air plan built on proper ventilation, filtration, disinfection, and isolation solutions.

Under specific installations conditions tests have shown that bipolar ionization can supplement clean air delivery into a space and contribute to an overall reduction in the risk of the spread of viral infections.

As with all emerging technologies*, Johnson Controls recommends that customers interested in bipolar ionization work together closely to appropriately plan and configure a system to meet the unique needs of each space and application. Johnson Controls believes that ventilation and filtration codes and best practice standards should be implemented regardless of whether bipolar ionization is selected for supplemental air treatment.

How does bipolar ionization work?

An ion is an atom or molecule with a net electric charge due to the loss or gain of one or more electrons.

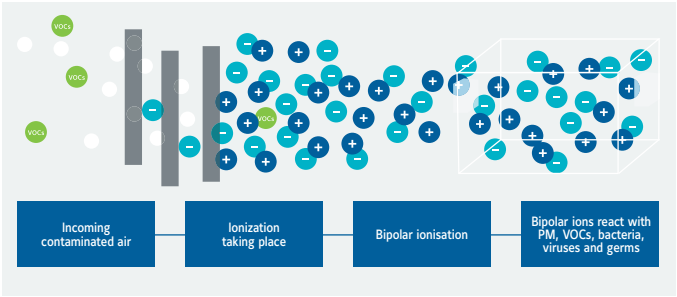
When outdoor air comes in through the unit, the air molecules are carried over the bipolar ionization tubes.**

An energy field converts these molecules into positively and negatively charged ions. These ions then travel into occupied spaces and seek out oppositely charged bad air particles – including dust, mold, odors, volatile organic compounds (VOCs), and more.

When the particles combine, it forces them to break down and drop out of the breathing space. This process reduces contaminant levels to improve health and wellness.

* https://www.ashrae.org/file library/technical resources/covid-19/ashrae-filtration_disinfection-c19-guidance.pdf

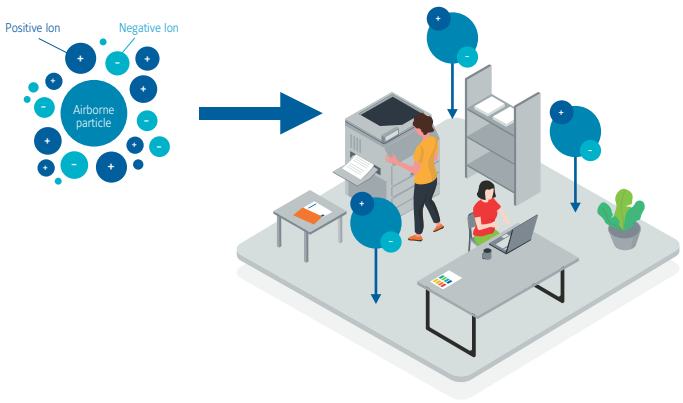
** All ionizer tubes can run for approximately 17.600 hours before they need to be replaced.



Process

Mechanism for reducing airborne particles

- Ions surround the airborne particle.
- Particles become heavier.
- They drop out of the breathing space.



Air purification through Bipolar Ionization

Technical features

BPI models			FC-400	M-880 C	M-880 F	M-882 C	M-882 F	500 EC	500 FC	508 FC
Airflow range		m^3/h	100 - 2380	500 - 1700	1700 - 4250	1000 - 3400	3400 - 8500	5000 - 13600	8400 - 17000	17000 - 25500
Installation type			Terminal Unit	Duct	Duct	Duct	Duct	AHU / Duct	AHU / Duct	AHU / Duct
Quantity tubes			1	1	1	2	2	5	5	8
Absorbed power		W	7.68	6	6	6	6	50	50	50
Dimensions	Height	mm	218.5	305	661	305	661	553	705	705
	Length	mm	89	216	216	216	216	229	229	229
	Depth	mm	40.6	223	223	223	223	210	210	210
Plenum	Height	mm	90	-	-	-	-	350	350	350
	Length	mm	220	-	-	-	-	600	760	760
	Depth	mm	41	-	-	-	-	350	350	350
Duct hole		mm	-	152 x 140	152 x 140	152 x 140	152 x 140	500 x 230	660 x 230	660 x 230

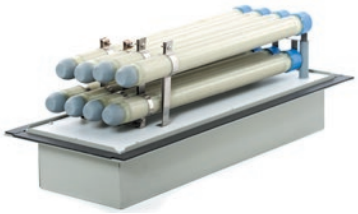
Contact with JCI to help size solution appropriately based on individual site conditions.

Available models

FC-400 model has one tube and is the solution for installing inside a fan coil with flow rates from 100 m^3/h to 2,380 m^3/h.

These have one (**M880**) and two tubes (**M882**) for situating inside an air duct for units with 500 m^3/h to 8,500 m^3/h airflow rates. Installation can be rendered simple by drilling a hole in the duct for the tubes.

500 EC/FC model is a solution for larger airflows.
It features five tubes and fitted directly into the duct of air handling units or rooftop units with airflows from 5,000 m^3/h to 17,000 m^3/h.



508FC model features eight tubes and accommodates high airflow rates – 17,000 m^3/h to 25,500 m^3/h. It can be installed in the same way as the 500 EC/FC.

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TRION
Indoor Air Quality Specialist

NEW

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 that 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.

Indoor Air Circulation Purification System

HVAC - Air Purification System

EFB (Aircon Unit)

EFC/TGM/MEFC (Fan Coil Unit)

HE (Ducted Unit)

Independent Recirculated Air Purification System

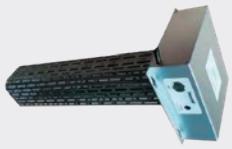
SE Series

CAC Series

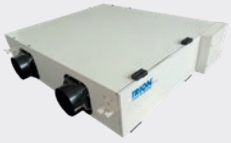
Fresh Air Purification System

UV Nano-OCO Disinfection Module

(Optional)



Fresh Air Purification Series



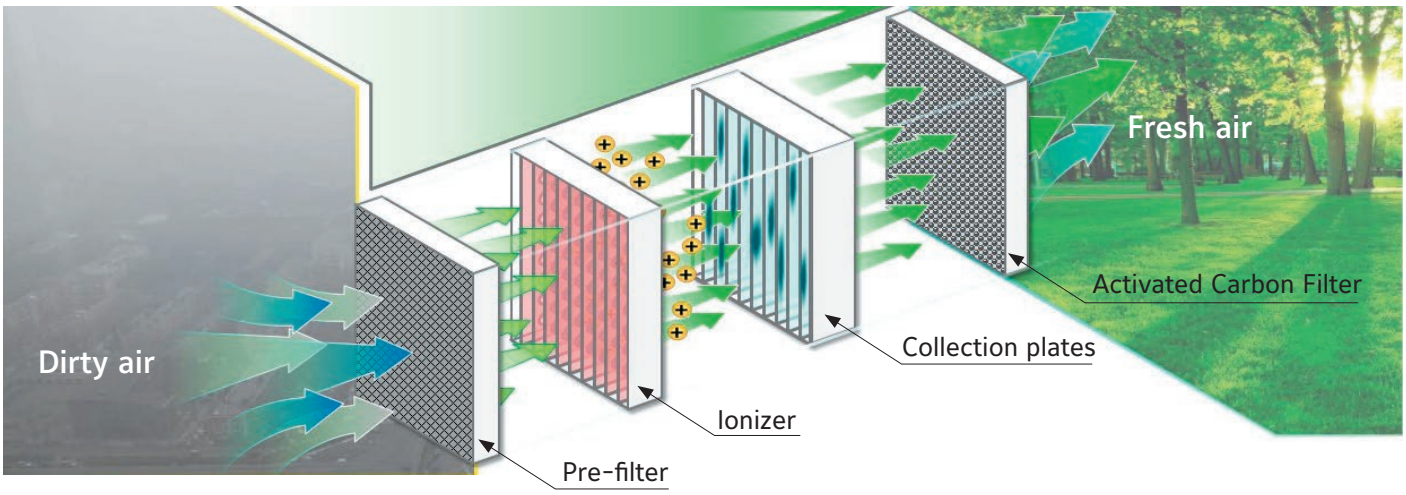
TFAU

MAP-E

TRION
Commercial Air Cleaner

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 μm 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: microorganisim 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 Photocatalitic Oxidization (PCO) effects to easily eliminate airborne virus and bacteria.

Ceramic insulation

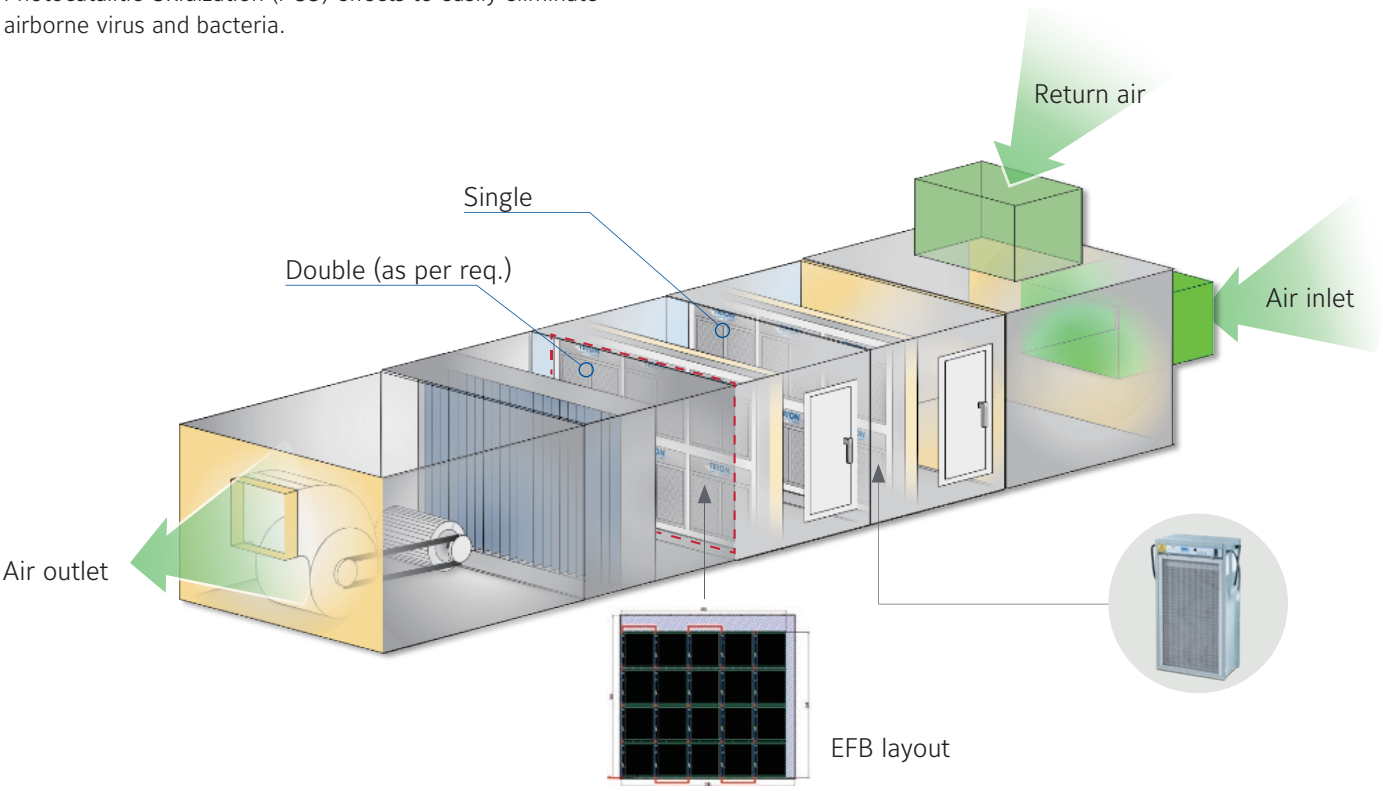
The ESP Cell utilises ceramic insulation to limit contamination buildup and prevents sparking.

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.



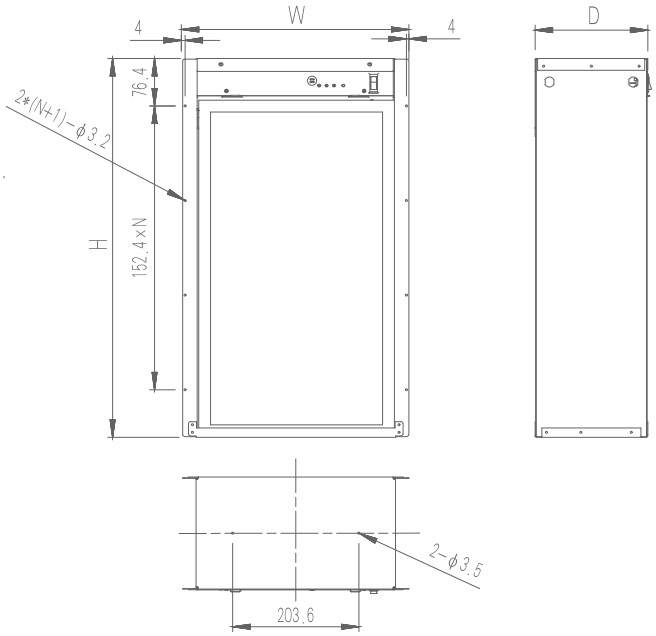
Aircon Unit ESP Air Cleaner

Performance data

Model			Horizontal			Vertical		
Configuration			Single	Double	Double Stack	Single	Double	Double Stack
Parameter	Air volume	m^3/h	1700	3400	3400	1700	3400	3400
	Power supply		220-240V/50Hz/1PH					
	Pressure drop	Pa	≤30					
	Power	w	30 (70) *	40 (80) *	40 (115) *	30	40	40
	Weight	kg	12 (14) *	18 (20) *	18 (20) *	12	18	18
	Safety protection		Safety switch, AFS					
	Pre-filter		Aluminum mesh, G2/G4 45mm optional					

* Denotes EFB + UV Sterilization Module (Optional)

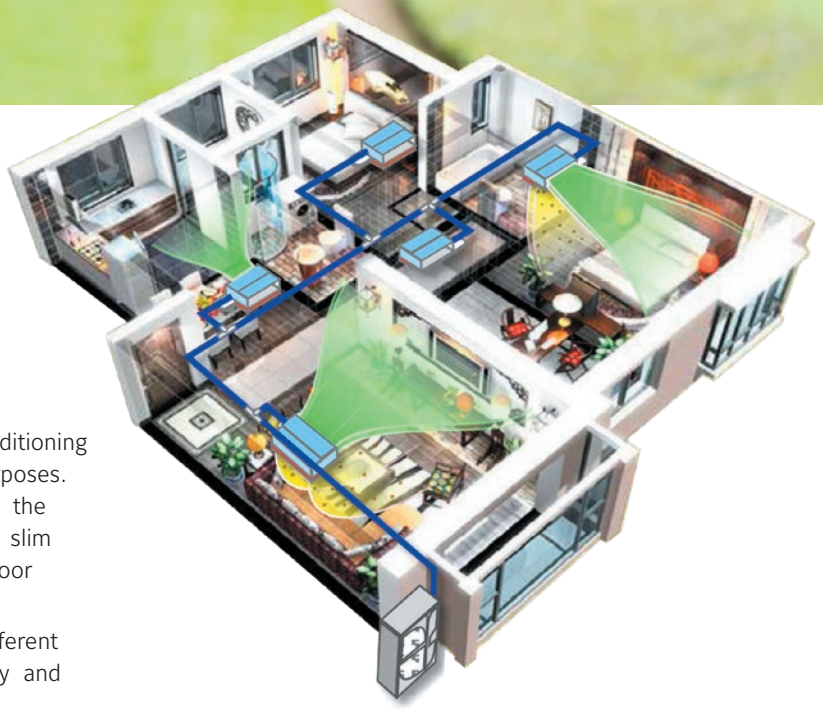
Outer dimension



Model		W (mm)	H (mm)	D1* (mm)	D2* (mm)	D3* (mm)	D4* (mm)	N (PCS)
Horizontal	EFB Single	364	610	182	203	270	290	3
	EFB Double	676	610	182	203	270	290	3
	EFB Double Stack	364	1115	182	203	270	290	6
Vertical	EFB Single	374	610	182	203	-	-	3
	EFB Double	686	610	182	203	-	-	3
	EFB Double Stack	374	1115	182	203	-	-	6

* D1 denotes EFB with 22mm Pre-filter
D2 denotes EFB with 45mm Pre-filter
D3 denotes EFB + UV Sterilization Module (Optional) with 22mm Pre-filter
D4 denotes EFB + UV Sterilization Module (Optional) with 45mm Pre-filter

CE

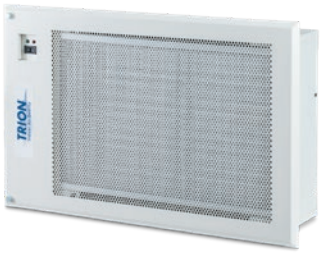


FCU Return-Air ESP Air Cleaner

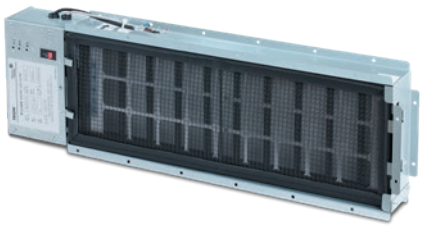
Fan coil units (FCU) are commonly used in central airconditioning system for commercial, industrial and residential purposes. Utilizing TRION Electrostatic Precipitation Technology, the FCUs are highly efficient with low pressure drop. Its slim design connects flawlessly with the ducts, improving indoor 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

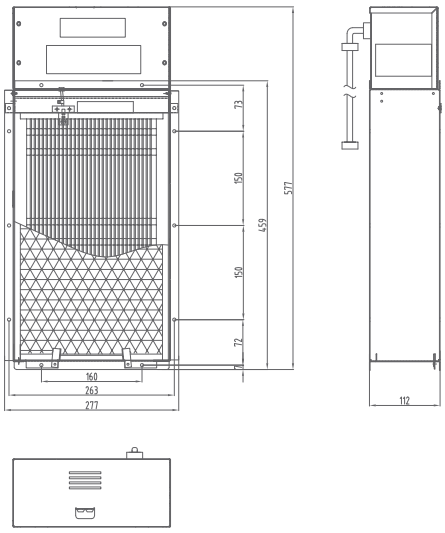
Indicating signal to alert pre-filter and clog washing.

Performance data

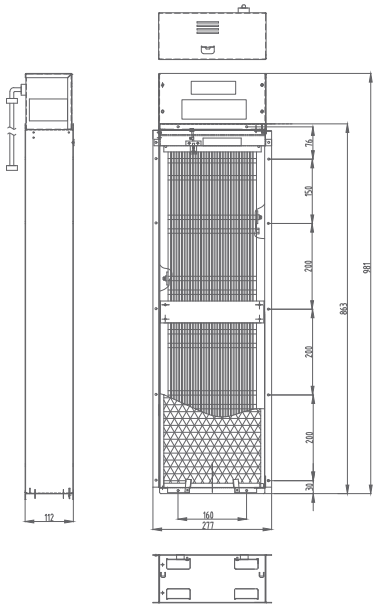
Model			EFC400	EFC800
Parameter	Air volume	m^3/h	1700	3400
	Power supply		220-240V/50Hz/1PH	
	Power	w	30	
	Pressure drop	Pa	≤20	
	Efficiency		65% ~ 95%	
	Weight	kg	5.5	10
	Dimension (W x H x D)	mm	577 x 277 x 112	981 x 277 x 112
Accessories	Safety function		Safety switch + Flow sensor	
	Pre-filter		Aluminum	

Outer dimension

EFC400



EFC800



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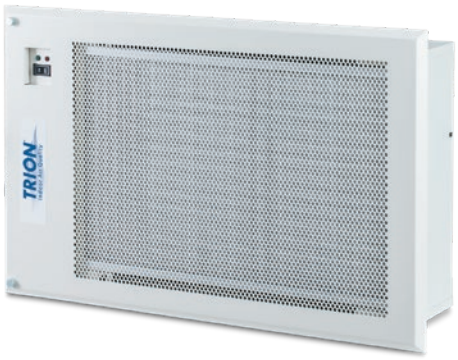
FCU Return-Air ESP Air Cleaner

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 andmaintenance easier.

Slim design

Product depth of 174mm reduces installation space.

Quality and durability

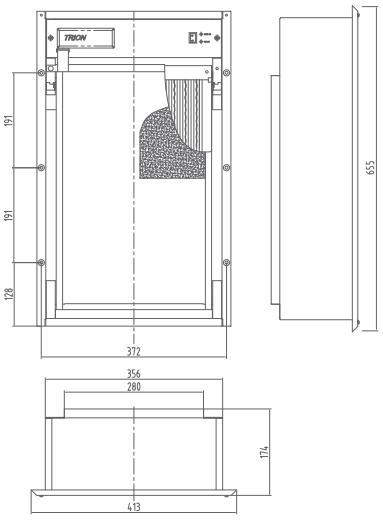
Ionizer cell is made of high quality and corrosion resistant aviation aluminium.

Performance data

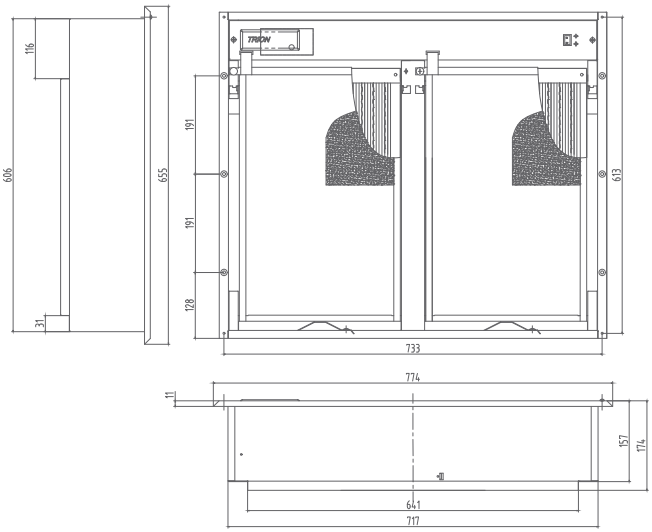
Model			TGM1000	TGM2000
Parameter	Air volume	m^3/h	1700	3400
	Power supply		220-240V/50Hz/1PH	
	Power	w	45	55
	Pressure drop	Pa	≤30	
	Efficiency		95%	
	Weight	kg	13.5	24
	Dimension (W x H x D)	mm	413 x 655 x 174	774 x 655 x 174
Accessories	Safety function		Safety switch + Flow sensor	
	Pre-filter		Aluminum	

Outer dimension

TGM1000



TGM2000



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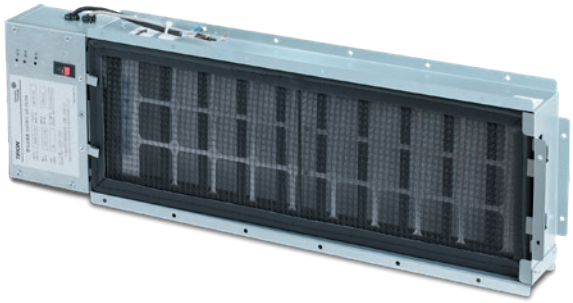
FCU Return-Air ESP Air Cleaner

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.

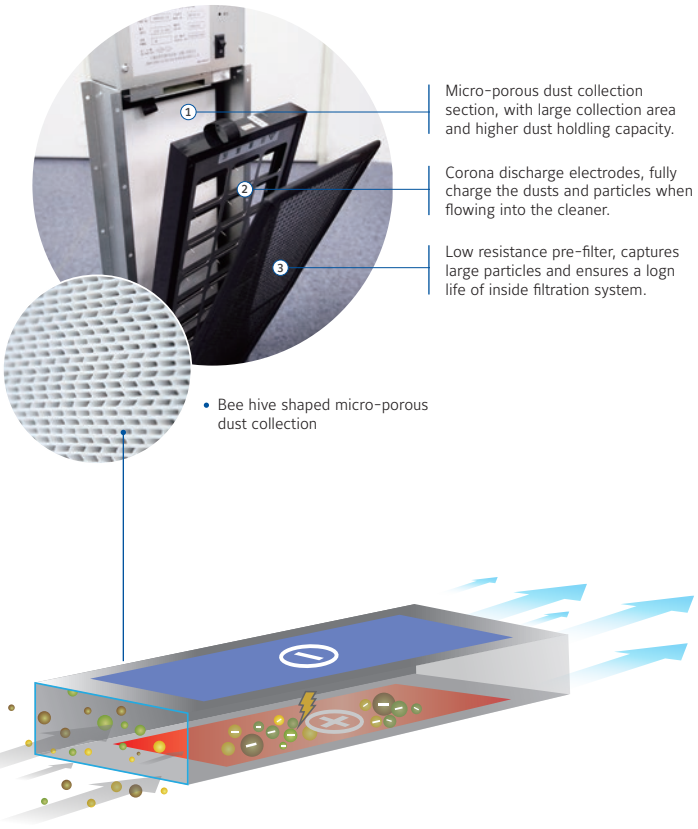


Strong filtration

PM2.5 removal efficiency up to 97%
Micro-organism removal efficiency up to 94.6%

Micro-porous dust collection

Bee hive shape collecton 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

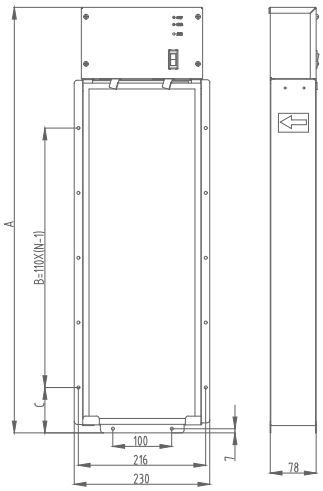
Micro-porous filtration module can be washed instead of replacement when the module gets dirty to save cost.
Comes with Top Draw (parallel push-in and draw the unit to air flow direction) and Side Draw (perpendicular push-in and draw the unit to the air flow direction), which brings convenenience for flexible installation and maintenance.

Performance data

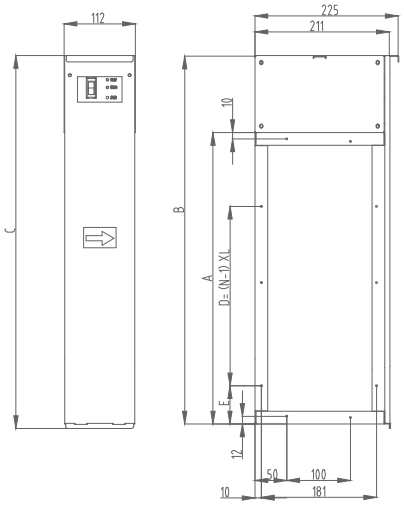
Model				MEFC300	MEFC600	MEFC900	MEFC1200	MEFC1500	MEFC900-B	MEFC1200-B	MEFC1500-B
Parameter	Air volume		m^3/h	300	600	900	1200	1500	900	1200	1500
	Power supply			220V/50Hz/1PH							
	Power		w	4	4	5	5	5	7	7	7
	PM2.5 removal efficiency										
	Micro-organism efficiency										
	Pressure drop		Pa	<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

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Ducted ESP Air Cleaner

HE Series

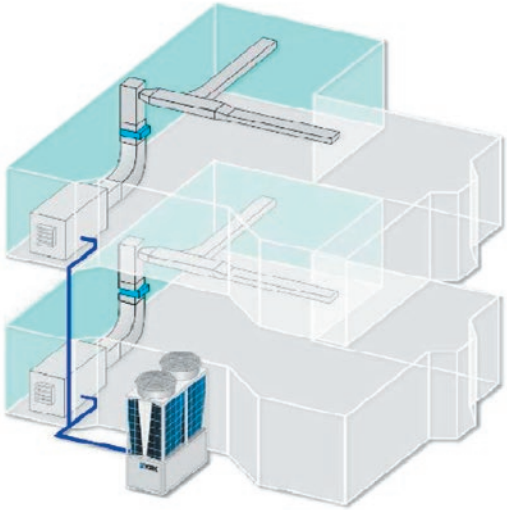
The TRION HE Series has superior purification performance in terms of efficiency, capacity, reliability, installation and maintenance to fullfit HVAC ventilation system application requirement. HE series has high efficiency, low pressure drop, durability, easier installation and mintenance, commited 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.

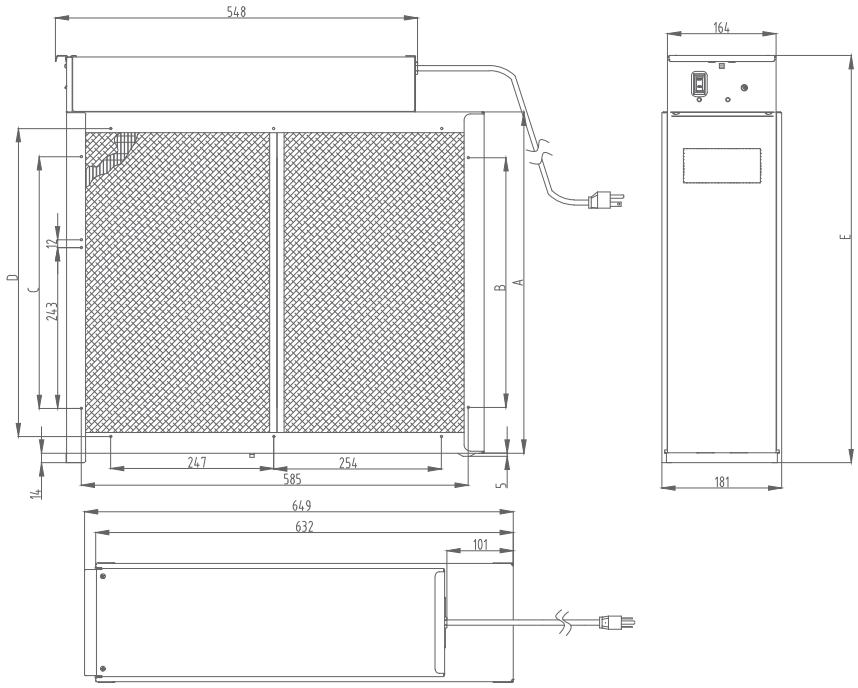
Installation and maintenance

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

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Independent Self-Circulated ESP Air Cleaner

SE series

CAC series

Efficient purification

Electrostatic purification technology can capture as tiny as 0.01 micron particles with up to 99% efficiency.

Independent installation

Independent operation without the need to install in the air-conditioning or ducting system.

Remove haze and bacteria

It can effectively remove dust, smoke and other particles in the air, as well as bacteria, pollen allergens, etc, and improve indoor air quality.

High reliability and long-lasting

Purification module is easy to remove for washing and can be repeatly cleaned without replacement, has no consumables.

Slim design

Compact and ultra-thin design, semi-hidden installation on the ceiling, SE can also be installed on the side wall.

Smart control

Comes with optional wired or remote controller, provides multiple functions such as purification, ventilation, washing alert, timer function.

Typical application

Independent Self-Circulated ESP Air Cleaner

SE Series

Efficient purification

Electrostatic precipitation technology is able to capture micro particles as tiny as 0.01μm with efficiency as high as 99%, effectively removing dust, smoke particles, bacteria and pollen allergens, etc, to improve indoor air quality.

Smart control

Selection of purification mode, ventilation mode, washing alert and timer function can be done by wired or wireless remote controller.

Slim design

With its slim profile, SE can be installed on the walls and semi-hidden in the ceiling.

UV sterilization module (optional)

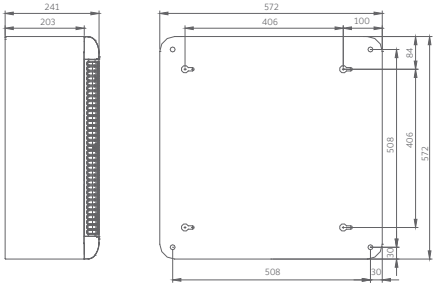
The optional UV sterilization module is equipped with UV lamp which emits 254nm wavelength ultraviolet light, to effectively cause the DNA damage of viruses and bacteria.
The sterilization efficiency is up to 99.9%

Performance data

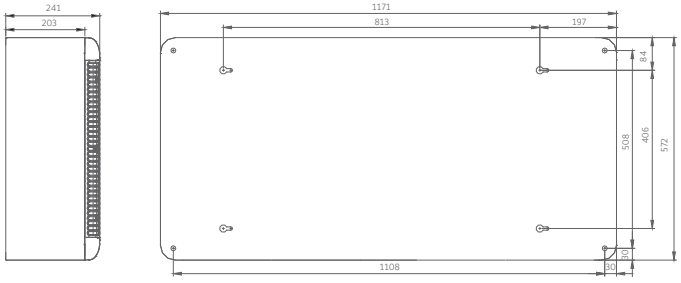
Model			S60	S120
Parameter	Air flow	m^3/h	190 / 270 / 370	400 / 590 / 770
	Power supply		220V/50Hz/1PH	
	Power	w	22 / 30 / 40	37 / 55 / 75
	Free area	m^2	22 - 37	46 - 77
	Efficiency		> 99%	
	Noise level	dBA	34 / 45 / 52	42 / 48 / 55
	Control		Wired / Wireless	
Installation	Weight	kg	19.5	37.5
	Dimension (W x H x D)	mm	572 x 572 x 241	1171 x 572 x 241
Accessories	Safety feature		Safety switch	
	Pre-filter		Aluminum Mesh	
	installation		Ceiling / Wall mounting	

Outer dimension

S60



S120



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Independent Self-Circulated ESP Air Cleaner

CAC Series

Haze and odour removal

Electrostatic precipitation technology effectively removing dust, smoke particles, bacteria and pollen allergens, etc. When equipped with the activated carbon filter, odour, TVOCs etc in the air can be removed to improve indoor air quality.

Coanda air flow design

Comes with a Coanda effect air distribution from the outlet grille on its four sides, forming a three dimensional airflow pattern. This ensures excellent air flow reach to the entire area and very effective indoor purification.

Easy installation and maintenance

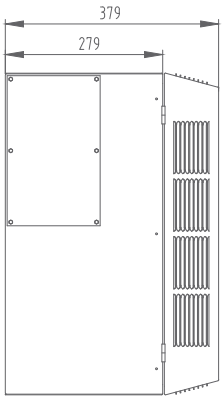
This works as a "Stand-alone" unit, without depending of HVAC unit, supply air duct, etc. Long-lasting, easily washable and does not contain frequently replaced consumable items.

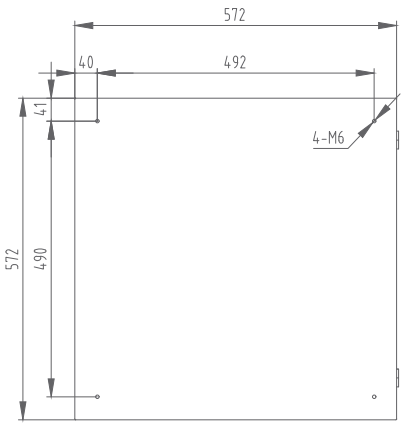
Performance data

Model			CAC1000
Parameter	Air flow	m^3/h	280 / 340 / 450
	Power supply		220V/50Hz/1PH
	Power	w	99 / 122 / 159
	Efficiency		95%
	Noise level	dBA	47 / 52 / 58
	Control		Wired / Wireless
Installation	Weight	kg	40
	Dimension (W x H x D)	mm	572 x 572 x 379
Accessories	Safety feature		Safety switch
	Pre-filter		Aluminum Mesh
	Post-filter		Activated carbon
	installation		Ceiling mounting

Outer dimension

CAC1000

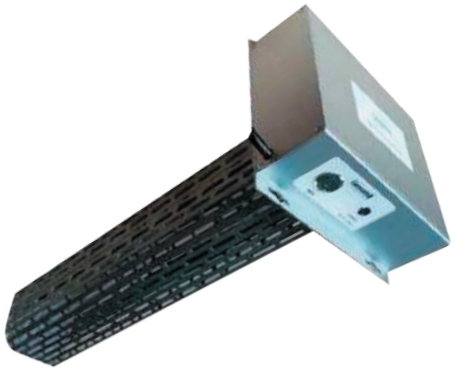




Manufacturer reserves the rights to change specifications without prior notice.

UV Nano-PCO Disinfection Module (Optional)

UV Nano-PCO disinfection module can be directly inserted into the air-conditioning duct. The 254nm wavelength ultraviolet rays destroy the DNA of bacteria and viruses, preventing their reproduction and spread. UV light also catalyzes the TiO_2 coated element surrounding the UV lamp. The coating generates negative oxygen ions and hydroxyl radicals, effectively inactivating bacteria and viruses.



Features

- UV and TiO2 Photocatalyst (PCO) double disinfection.
- Plug and play, flexible and convenient, small size and low air flow resistance.
- Safety switch, working fault indicator, safe and reliable.

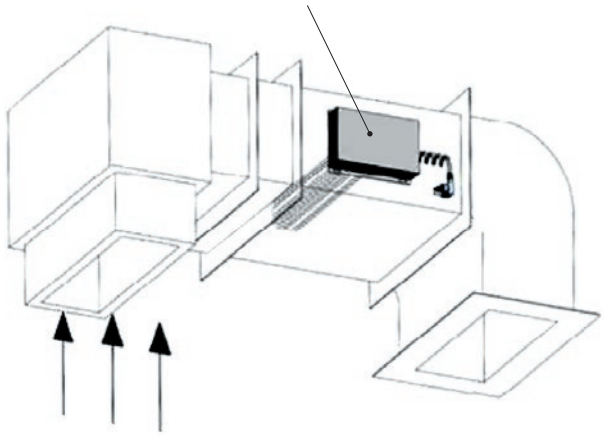
Performance data

Model		UV-X	UV-Plus	UV-T
Module Insertion Length	mm	380	500	810
Power supply		220V/50Hz/1PH		
Power	w	40	100	200
Weight	kg	2.1	2.6	4.2
Installation		Cut out Ø100 hole and mount on duct wall		
Ambient Temperature		0~40°C, relative humidity less than 95%, no condensation		
UV Lamp Work Indicator		Provided as standard feature		
UV Lamp Life		1.5 years		

Application scenario

This product is a disinfection and purification module specially designed for air-conditioning ducts / fan coil units. It can be widely used in commercial buildings, offices, schools, nursing wards, hospitals, subways, high-speed rails and airports and other palces that require air disinfection and purification.

UV NanO-PCO Disinfection Module



Manufacturer reserves the rights to change specifications without prior notice.

Fresh Air ESP Air Cleaner

MAP-E Series

TRION MAP-E Series is used in the fresh air system to efficiently purify the incoming fresh air. It not only protects the heat recovery unit and also guarantees the indoor air quality.

MAP-E series utilizes high voltage electrostatic precipitation technology which offers high efficiency, low air flow resistance, large dust-trapping capacity and better performance to delive best-in-class fresh air purification.

High purification efficiency

PM2.5 primary purification efficiency up to 95%*.

Low ozone output of only 0.015mg/m^3, far below the national standard ≤0.16mg/m^3.

Three-stage self-regulated voltage power output

A built-in, intelligent control program self-regulates the power supply by monitoring the temperature, humidity and air flow resistance, adjust the output power in time, and continuously ensure the highest purification efficiency of the product.

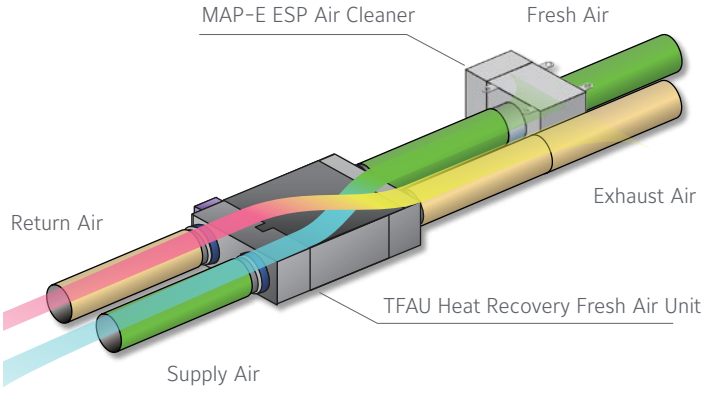
Three-stage self-regulated voltage power output

Low pressure drop of <30 Pa helps to greatly conserve end design fan energy usage. As per site requirements, activated carbon filter and cold catalyst filter are available as optional additional parts, to further enhance air quality.

*: The data is MAP300 at 300m3/h air flow according to GB/T 14295-2008 “Air Purifier” test results.

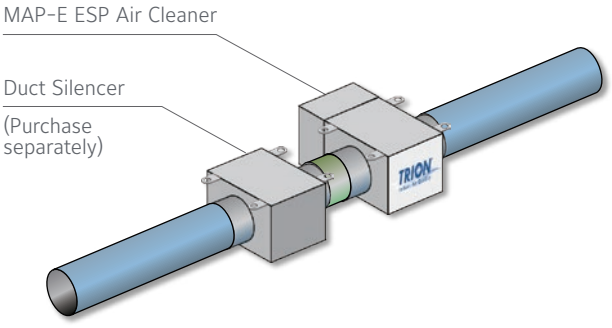
Installation method 1:

Coupled with heat recovery fresh air unit



Installation method 2:

Standalone



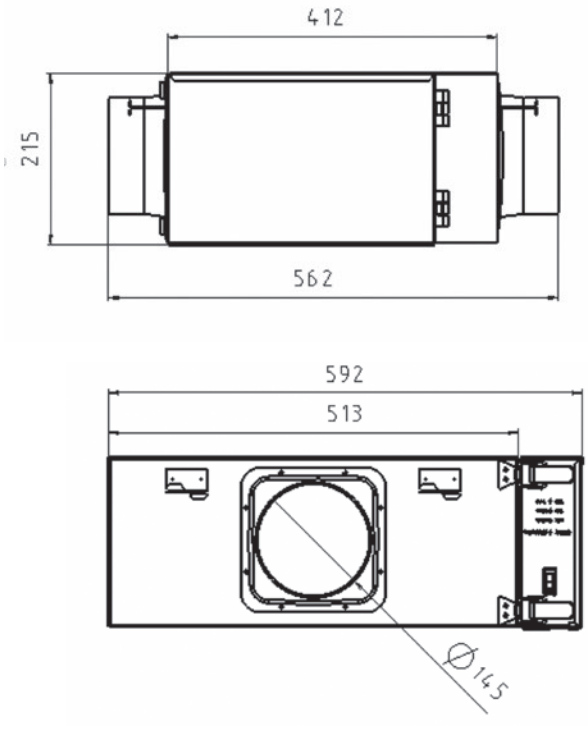
Performance data

Model			MAP300E	MAP600E
Parameter	Air flow	m^3/h	100-300	450-600
	Power supply		220V/50Hz/1PH	
	Power	w	10	15
	PM2.5 Primary Purification efficiency *		95%	92%
	Pressure drop *	Pa	19	30
	Dimension (W x H x D)	mm	592 x 562 x 215	592 x 590 x 257
	Weight	kg	15	17
Accessories	Safety feature		Safety switch + Fan switch	
	Pre-filter		Aluminum Mesh	
Options			Activated Carbon Filter, TiO_2, Cold Catalyst Filter	

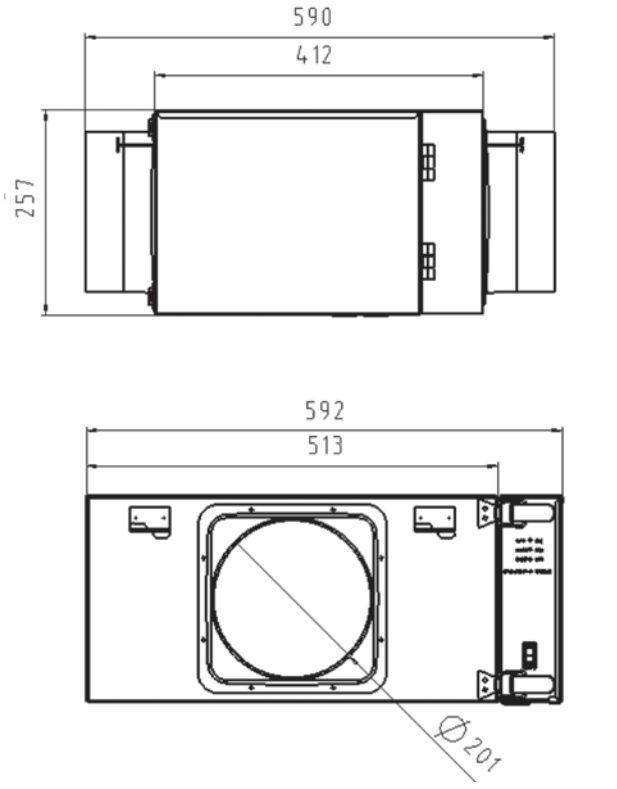
Note: MAP300E is recommended with Trion TFAU001, TFAU002, TFAU003 Heat recovery fresh air unit.
MAP600E is recommended with Trion TFAU004, TFAU006 Heat recovery fresh air unit.
* Tested under required air flow according to GB/T 14295-2008 "Air Purifier" test standard.

Outer dimension

MAP300E



MAP600E



Manufacturer reserves the rights to change specifications without prior notice.

Creating a more beautiful life with trion commercial air cleaner series

Clean world, better life

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 our 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.

SMART EQUIPMENT Johnson Controls

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 resouces 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

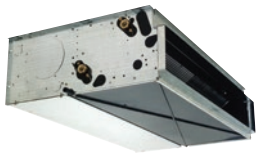
TUC03+ Terminal unit controller
BacNET and N2 Metasys network compatible

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 1-10 V 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.

Brusless 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.

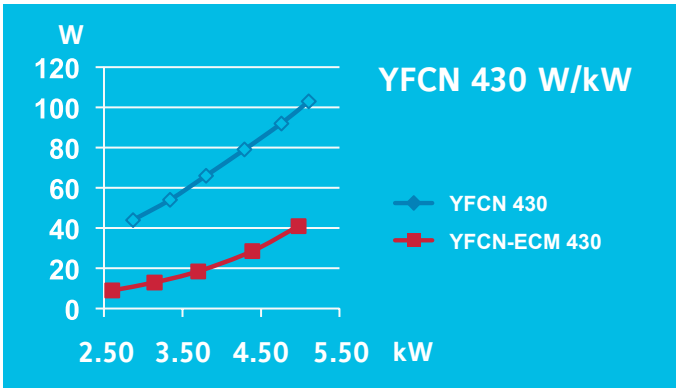
Features

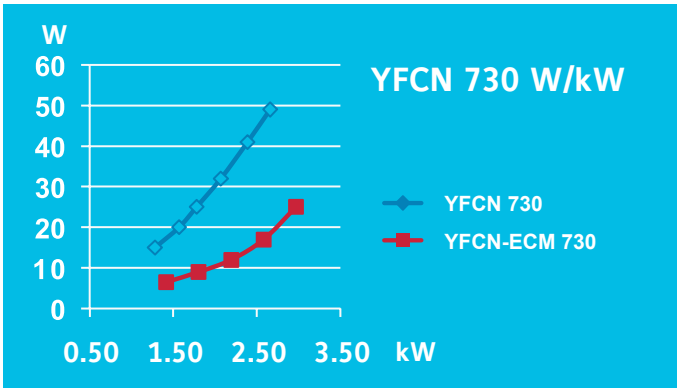
- Brushless motor with inverter.
- 0-10VDC control signal.
- Low mechanical resistance and heat gain
- Continuous regulation of the fan speed.
- Specifically designed electronic and digital regulators, also for BMS systems.
- Possibility to manually set the desired three fan speeds (MIN/MED/MAX).

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.

Power consumption: YFCN versus YFCN-ECM (W/kW)





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		
Versions	**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

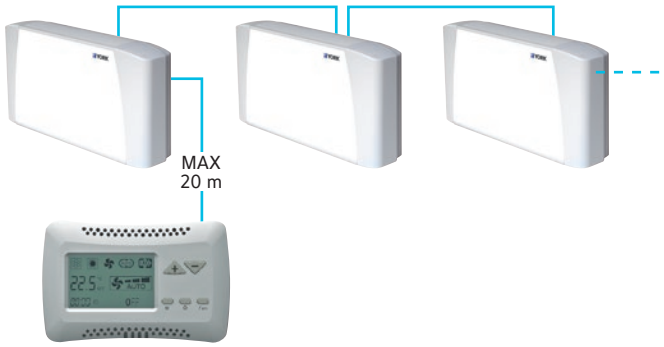
Compatibility table / Codes

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

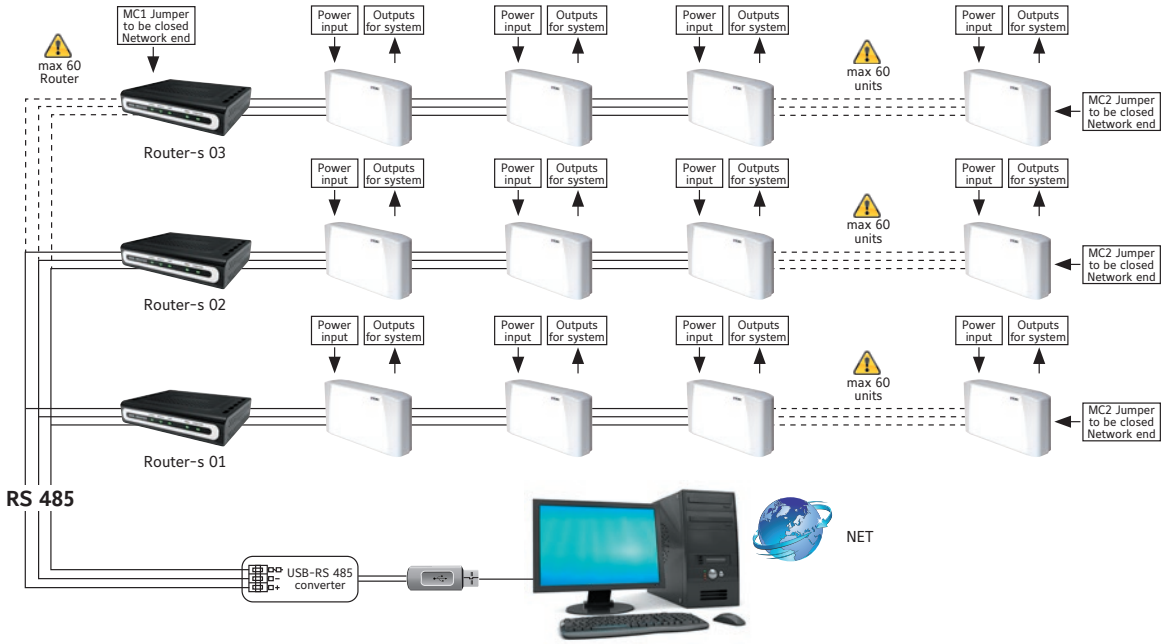
One control for more units in master/slave configuration (20 units max.)
(Maximum total length of the connection cable = 800 m)

Options/Accessories

Compatibility table / Codes

Model	YFCN ECM motor control devices		
Versions	**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								
Sizes	**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	**130/140**	**230/240**	**330/340**	**430/440**	**530/540**	**630/640**	**730/740**	**830/840**	**930/940**
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	**130/140**	**230/240**	**330/340**	**430/440**	**530/540**	**630/640**	**730/740**	**830/840**	**930/940**
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	**130/140**	**230/240**	**330/340**	**430/440**	**530/540**	**630/640**	**730/740**	**830/840**	**930/940**
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

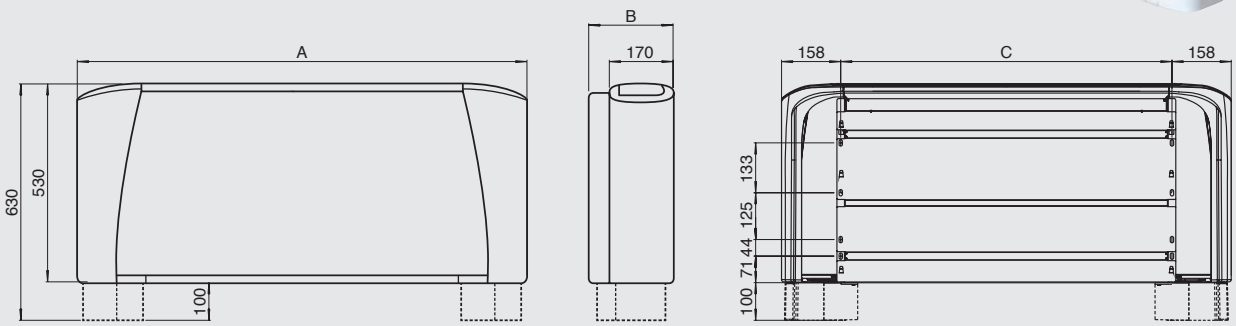
Compatibility table / Codes

Model	YFCN General accessories								
Sizes	**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)

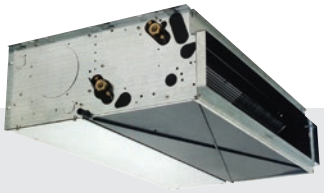
VC, VCB and HC models



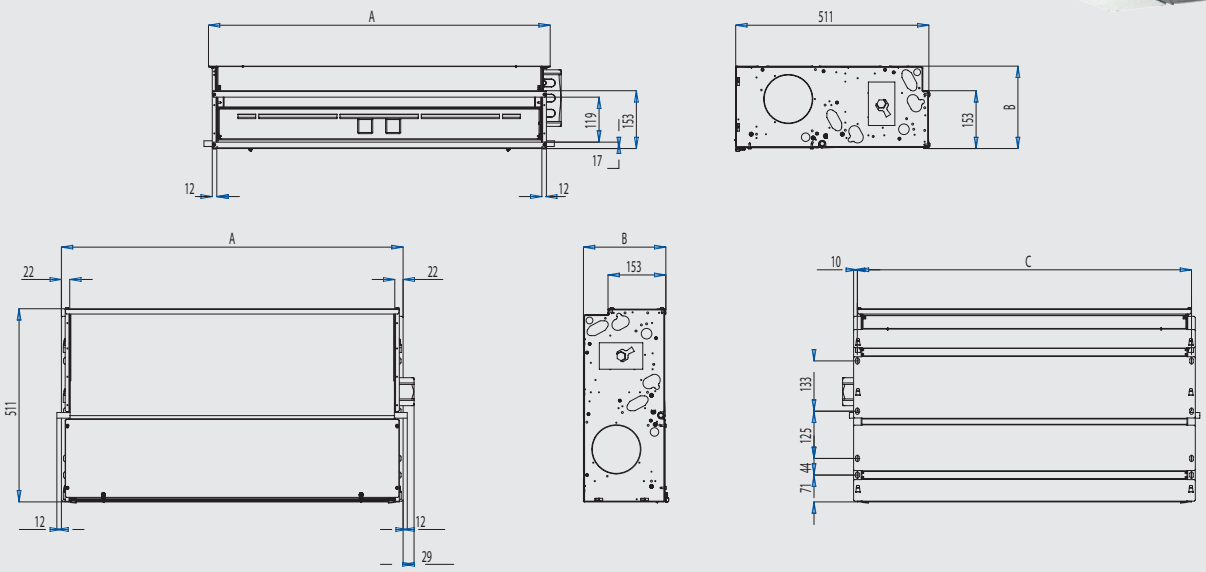
All dimensions in mm. Drawings not a scale.

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

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

CML00 (Built in)
CMR00 (Wall mounted)
Thermostat with manual fan speed and S/W change over

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

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 [m3/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 m^3 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, YLVR				
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 [m3/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 m^3 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

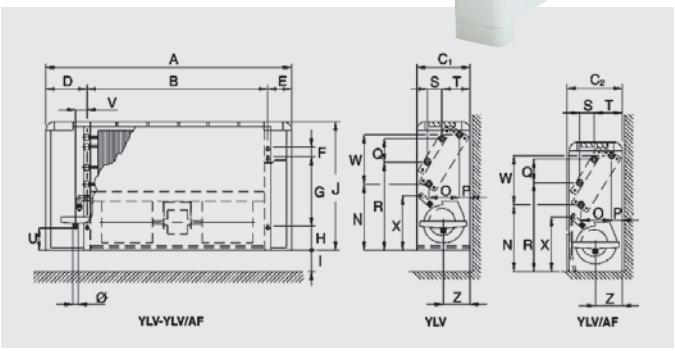
YLV and YLH
- V = vertical
- H = horizontal

YLV-AF and YLH-AF
- AF = front air intake
- V = vertical
- H = horizontal

YLVR
- R= low body
- V= vertical

LASER: YLV - YLV/AF

VERTICAL

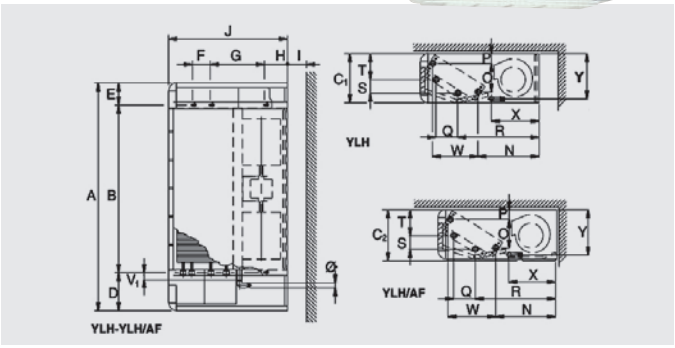


Dim	110	112	114	216	218	220	222	224	226	328
A	648	773	898	1023	1148	1273	1273	1523	1523	1773
B	374	499	624	749	874	999	999	1249	1249	1499
C1	224	224	224	224	224	254	254	254	254	254
C2	233	233	233	233	233	263	263	263	263	263
D	174	174	174	174	174	174	174	174	174	174
E	100	100	100	100	100	100	100	100	100	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
V 1	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
Ø	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

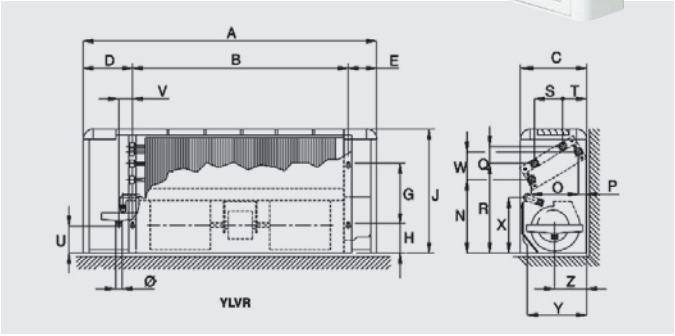
Notes: 1=YLV / YLH - 2=YLV/AF / YLH/AF (All dimensions in mm)

LASER: YLH - YLH/AF

HORIZONTAL



LOW BODY: YLVR



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
ø	20	20	20	20	20
kg	15	17	22	23	26

(All dimensions in mm)

Dimensions & Weights

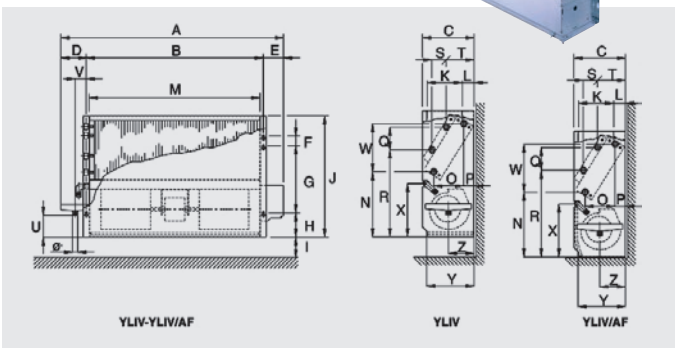
YLIV and YLIH
- V = vertical
- H = horizontal
- I = without cabinet

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

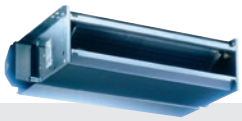
LASER: YLIV - YLIV/AF

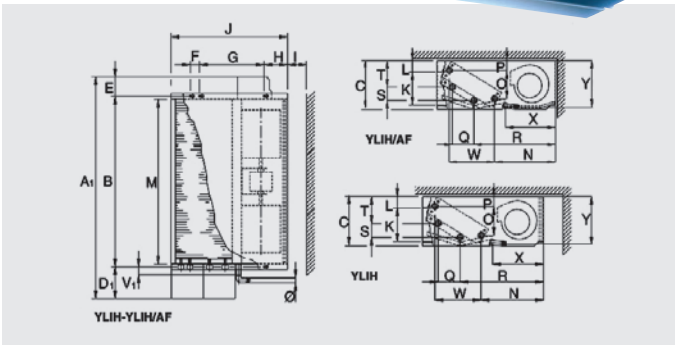
VERTICAL



LASER: YLIH - YLIH/AF

HORIZONTAL

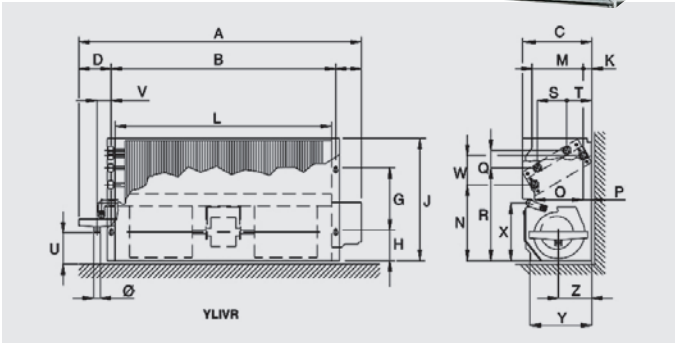




Dim	110	112	114	216	218	220	222	224	226	328
A	555	680	805	930	1055	1180	1180	1430	1430	1680
A 1	574	699	824	949	1074	1199	1199	1449	1449	1699
B	374	499	624	749	874	999	999	1249	1249	1499
C	215	215	215	215	215	245	245	245	245	245
D	109	109	109	109	109	109	109	109	109	109
D 1	128	128	128	128	128	128	128	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
V 1	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
Ø	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)

LOW BODY: YLIVR



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
ø	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

CML00 (Built in)
CMR00 (Wall mounted)
Thermostat with manual fan speed and S/W change over

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

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
							ON/OFF	Modulating		
		J3A2 (2p)	J3AM (2p)	J3A2 (4p)	J3AM (4p)	KREL	CBL20	CBL30	WS	TM
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

		STANDARD								LOW BODY	
		LASER				CONCEALED					
Code	Designation	YLV	YLH	YLV-AF	YLH-AF	YLIV	YLIH	YLIV-AF	YLIH-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 (buit 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 [m3/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 m^3 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

		STANDARD								LOW BODY-ECM	
		LASER-ECM				CONCEALED-ECM					
Code	**Designation**	**YLV**	**YLH**	**YLV-AF**	**YLH-AF**	**YLIV**	**YLIH**	**YLIV-AF**	**YLIH-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)											
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 m^3/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 m^3/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 extremly 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	
Semplified 3-way valve kit for additional coil VSPM-C G1-5 220 V (fitted)	9066571	-					
Semplified 3-way valve kit VSPM-C G6-9 220 V (factory fitted)	-	9060484				-	
Semplified 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	
Semplified 3-way valve kit for additional coil VSPS-C G1-5 220 V (not fitted)	9066570	-					
Semplified 3-way valve kit VSPS-C G6-9 220 V (not fitted)	-	9060481				-	
Semplified 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 crystall 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 crystall 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			

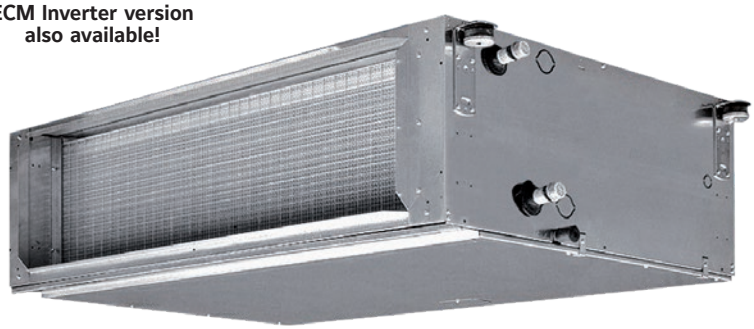
(1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out.
(3) Can be used with Change Over. (4) Not suitable with -E electric heater. (5) Can be used with valve and not to be used with low temperature cut-out.

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

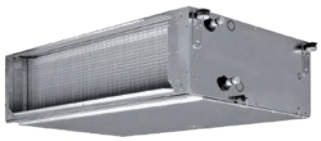
RFHP-O model 4 pipes (with additional coil)			14+1	24+1	34+1	44+1	54+1 (*)	64+2 (*)	74+2 (*)
Total cooling capacity [kW]	(1)	max	5.79	8.03	10.58	13.46	16.73	22.52	30.36
		med	5.11	6.95	9.67	12.34	15.31	18.56	25.25
		min	4.09	4.99	8.61	10.85	13.75	12.33	21.53
Sensible cooling capacity [kW]	(1)	max	4.87	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 extremly 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				
Dimensiones	Alto	mm	310	310	360	360	435
	Ancho	mm	1133	1133	1133	1445	1445
	Prof.	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 crystall display T-MB (2) (3)	9066331E						
Receiving board for centralized control SEL-S	9079109						
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						
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	14	24	34	44	54	-	-
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 crystall display T-MB (to be used with UPM-AU and UP-AU only) (2) (3)	9066331E						
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						
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

SMART EQUIPMENT

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 [m^3/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.

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 extremly 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
		min	4.23	7.11	8.43	11.90	18.79
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
		min	3.16	5.47	6.46	9.56	14.49
Water flow in cooling [l/h]	(1)	max	1162	1711	2348	2478	4088
		med	812	1399	1931	2281	3488
		min	728	1224	1451	2048	3224
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
		min	6.8	18.8	17.7	34.7	20.5
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
		min	4.11	7.81	9.35	14.37	21.23
Water flow in heating 2 pipes [l/h]	(2)	max	1217	1983	2795	3110	4866
		med	972	1561	2215	2797	4041
		min	707	1344	1609	2473	3689
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
		min	5.8	19.3	19.3	43.1	19.8
Air flow [m^3/h]		max	1040	1948	2848	3217	4521
		med	796	1471	2160	2834	3599
		min	549	1241	1484	2442	2972
Sound power level [dB(A)]		max	65	68	71	75	76
		med	58	61	66	72	77
		min	49	57	57	69	74
Sound pressure level [dB(A)]	(3)	max	54	57	60	64	70
		med	47	50	55	61	66
		min	38	46	46	58	63
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.

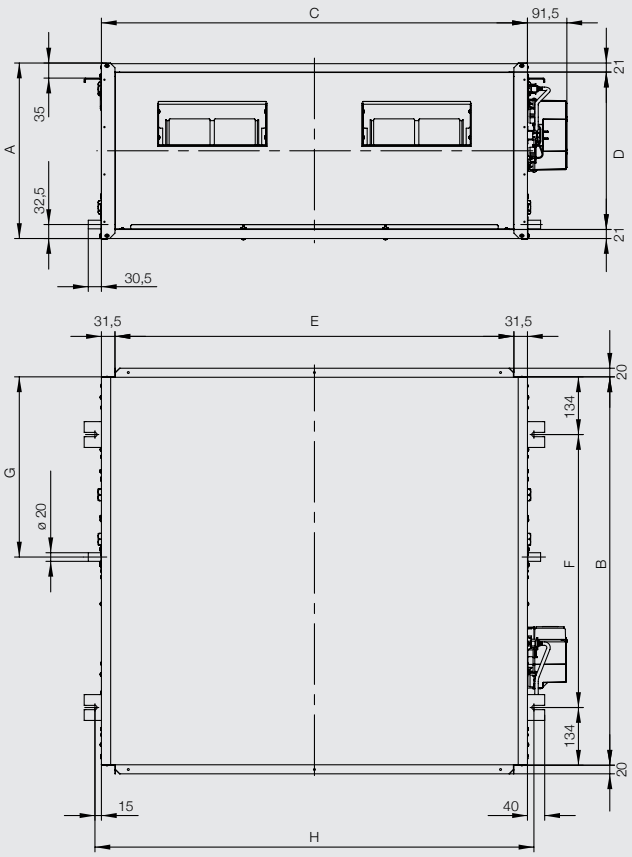
YEFB Hydro Blower
YEFB-ECM Inverter Hydro Blower
Compatibility tables

Compatibility Options / Accessories / Models

		YEFB / YEFB-ECM					
Code	**Designation**	**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

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

SMART EQUIPMENT

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.

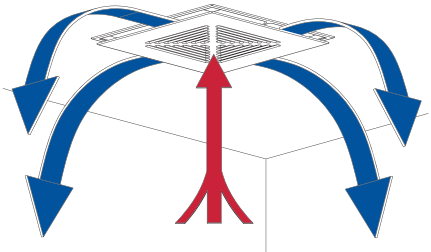
YKEY/M Special version with micro-drilled metallic grill

YKEY/H-Special version with natural condensate water discharge

Selection software

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 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 [m^3/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

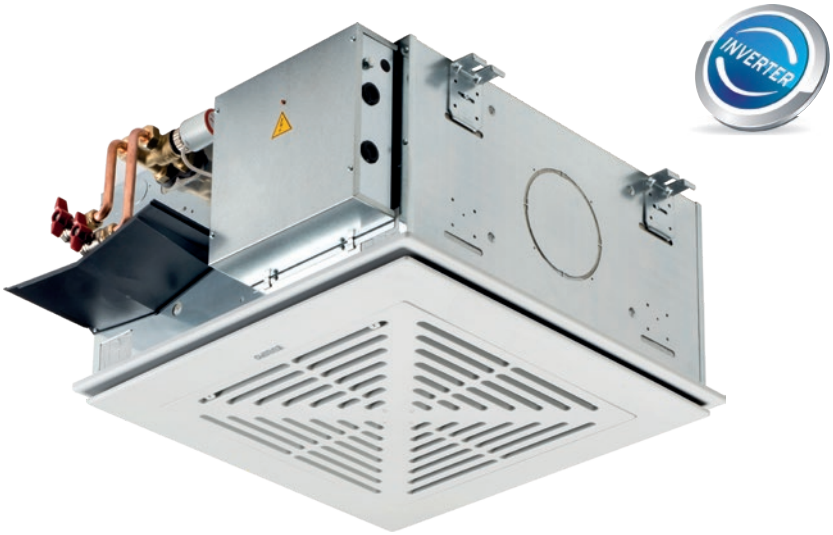
(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C
(2) Room temperature 20°C - Water temperature: 45/40 °C
(3) Room temperature 20°C - Water inlet temperature: 65/55°C
The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 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.

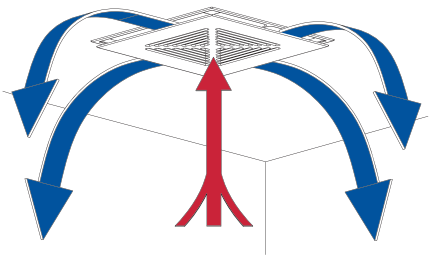
The ambient air drawn through the central air intake grill is blown into the circular heat exchanger, composed by copper pipes and aluminium fins, and then it comes out from the 4 sides of the cassette unit. Thanks to the special combination of air intake/air outlet grilles it is possible to obtain the 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

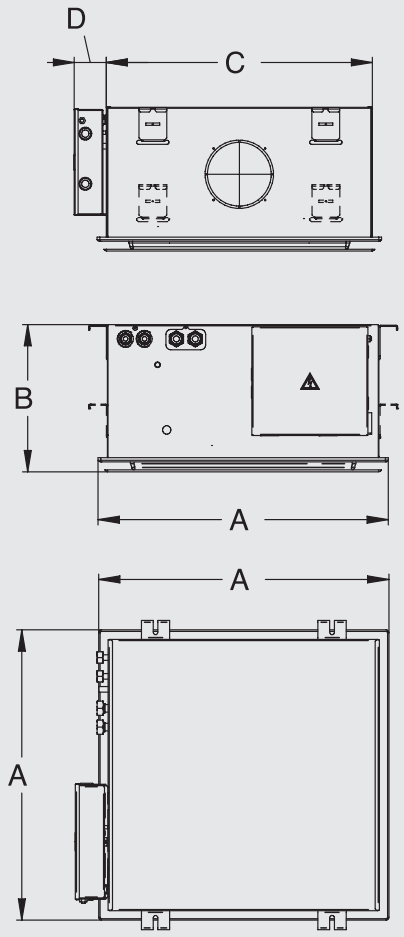
Compatibility Options / Accessories / Models

		YKEY models	621	622	623	-	921	922	641	642	643	-	941	942
Code	**Designation**	**YKEY-ECM models**	**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											

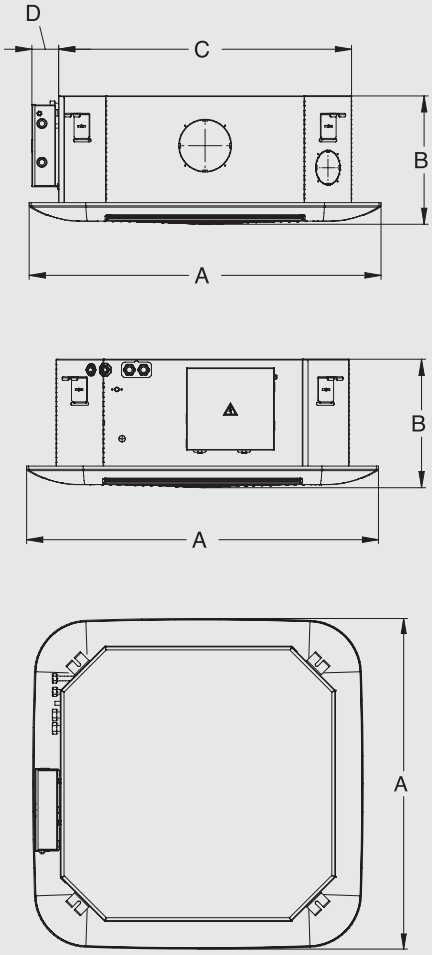
• Compatible
Compatible with conditions
Not compatible

Dimensions and Weights

YKEY600 and YKEY600-ECM



YKEY900 and YKEY900-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

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

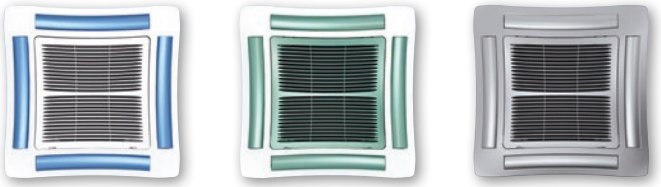
2 pipes installation	621	622
Water inlet	3/4 F	3/4 F
Water outlet	3/4 F	3/4 F

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

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

SMART EQUIPMENT

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.

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

Selection software

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 hater 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)]	(5)	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

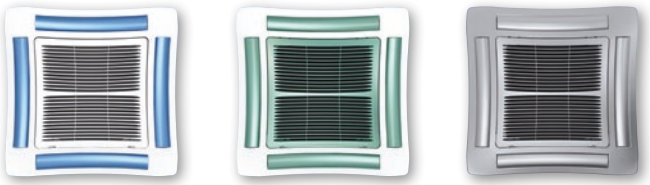
(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C (2) Room temperature 20°C - Water temperature: 45/40 °C
(3) Room temperature 20°C - Water inlet temperature: 70/60°C (4) Room temperature 20°C - Water inlet temperature: 65/55°C
(5) The sound pressure levels are 9 dB(A) lower than 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

Manufacturer reserves the rights to change specifications without prior notice.

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

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

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.

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 extremly 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]		max	28.5	44.0	81.0	43.5	126.0	105.0	195.0
Absorbed current [A]		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 enviroment

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	

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 crystall 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								

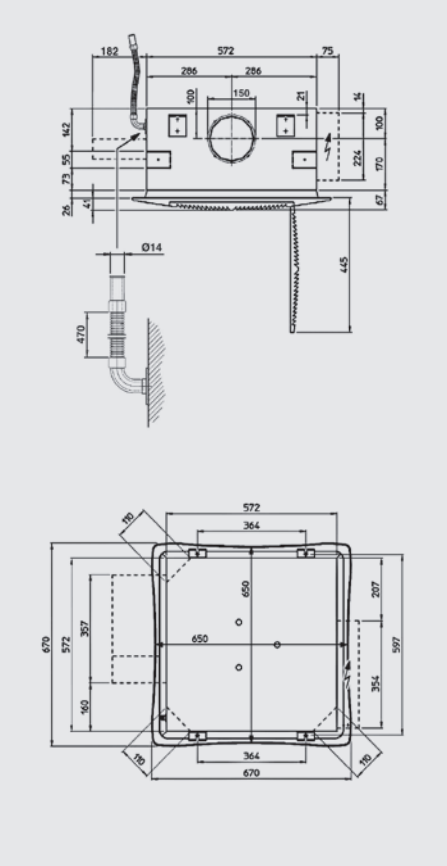
* For 4 pipes unit must consider both the valve for main coil than the valve for additional coil.
(1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out.
(3) Can be used with Change Over. (4) Not suitable with -E electric heater. (5) Not to be used with low temperature cut-out. (6) Receiver included.

Compatibility table / Codes

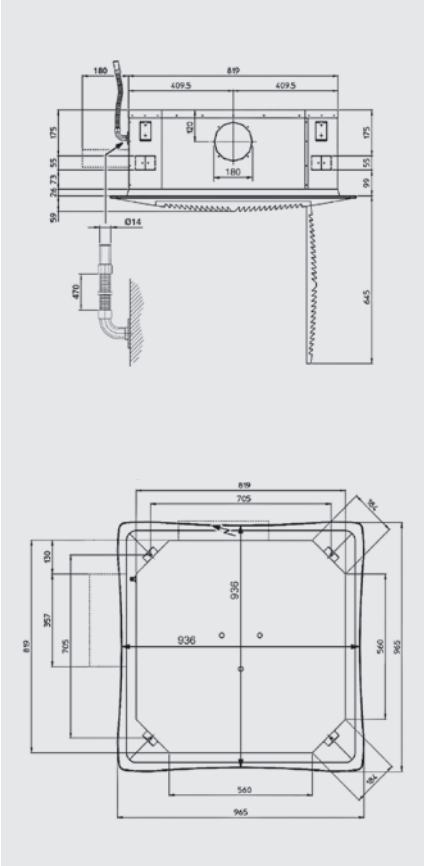
CONTROLS for YHK-MP (AC versions)	YHK 20	YHK 25	YHK 40	YHK 50	YHK 65	YHK 95	YHK 110	YHK 125	YHK 150
Wall control T-MB	9066331E							-	
Wire, receiver and IR remote control kit RCS-RT03	9079117							-	
Infra red remote control RT-03	3021203							-	
Wire and receiver kit RCS	9079116							-	
Receiver 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

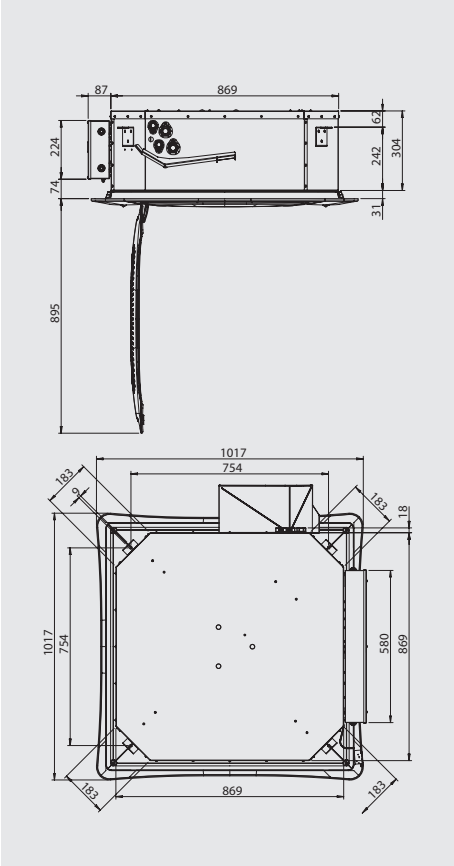
Sizes 20 to 50 (Version 600 x 600)



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 extremly 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.

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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 crystall 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

RVP-C Series
Circular VAV Terminal Boxes

A complete range from 37 m^3/h to 12 842 m^3/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

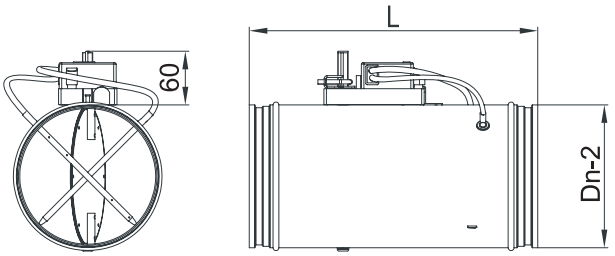
- Continuous flow regulation according to the set point.
- Assembled with factory calibrated FX-CVM regulators
- High adjustment accuracy
- No maintenance required
- Possibility of use with constant or variable flow
- Master-slave mode
- BACnet and N2Open protocols
- Adjustment of maximum-minimum cold 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

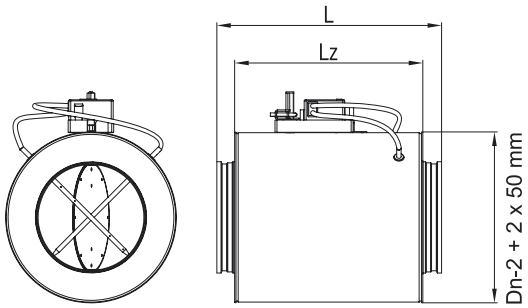
VAV Controller, PCV

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



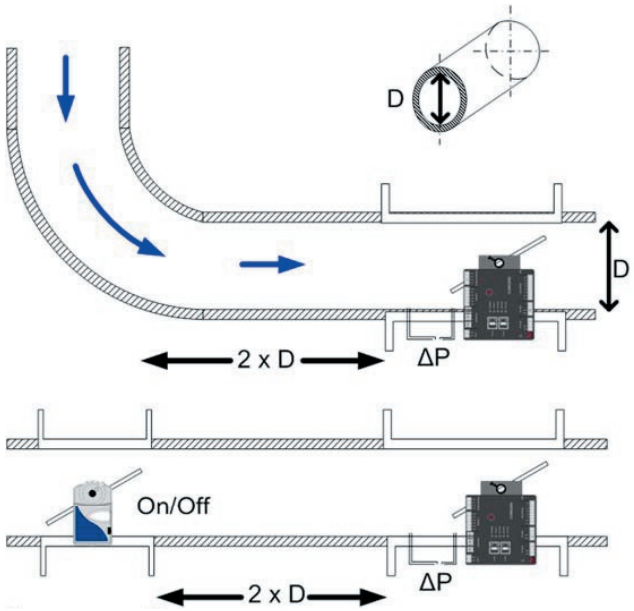


Special configurations

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



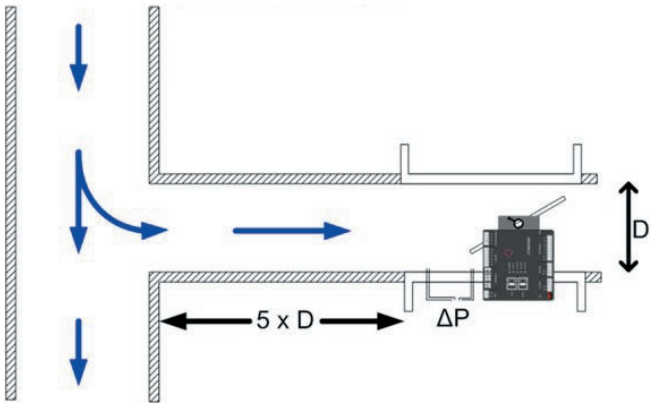


Table of order codes

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

CE 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 36 000 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

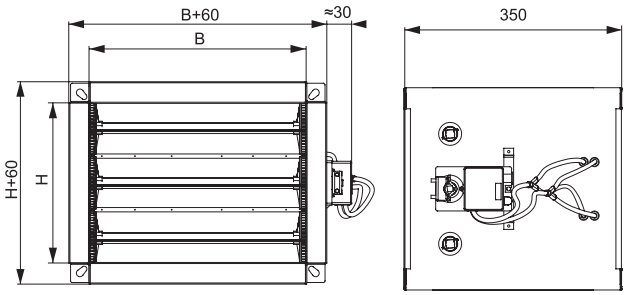
- Continuous flow regulation according to the set point.
- Assembled with factory calibrated FX-CVM regulators
- High adjustment accuracy
- No maintenance required
- Possibility of use with constant or variable flow
- Master-slave mode
- BACnet and N2Open protocols
- Adjustment of maximum-minimum cold 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

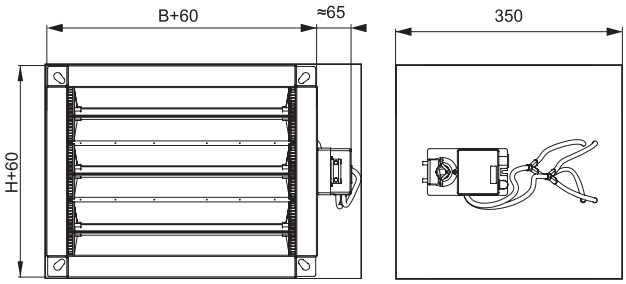
VAV Controller, PCV

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

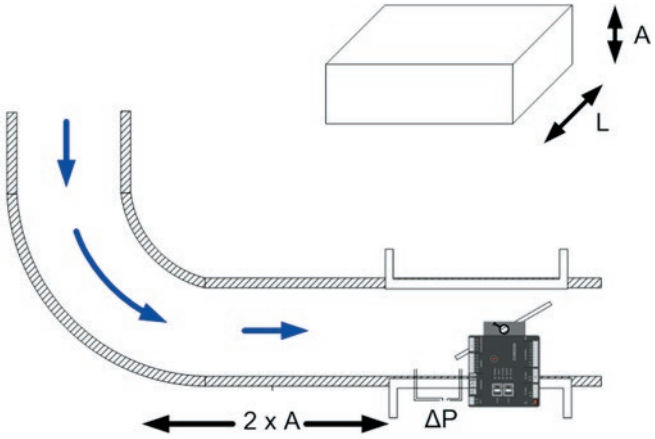
The isolated version is also available with ~ 60 mm thickness

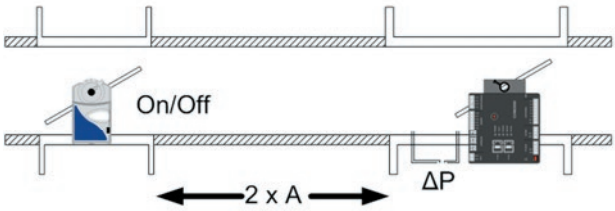
Dimensions Rectangular VAV

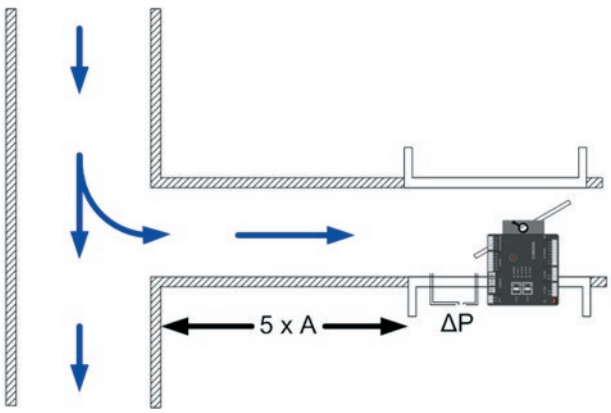
Model	Dimensions	Volume min [m³/h]	Volume max [m³/h]
BPN-RVP-P-200x100	200 mm x 100 mm	130	720
BPN-RVP-P-300x100	300 mm x 100 mm	190	1,080
BPN-RVP-P-400x100	400 mm x 100 mm	255	1,440
BPN-RVP-P-500x100	500 mm x 100 mm	315	1,800
BPN-RVP-P-600x100	600 mm x 100 mm	380	2,160
BPN-RVP-P-200x200	200 mm x 200 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

CE Manufacturer reserves the rights to change specifications without prior notice.

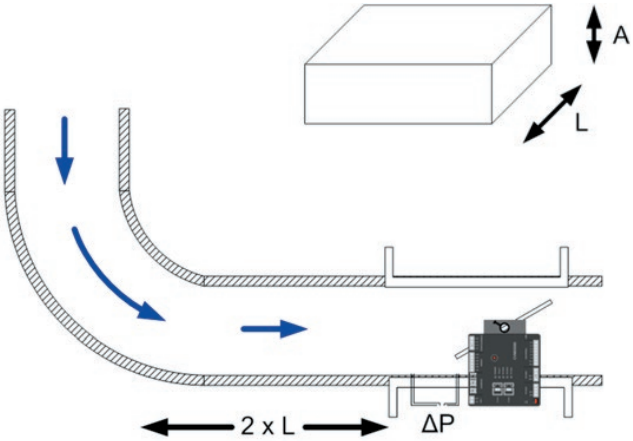
Installation with duct from top to bottom

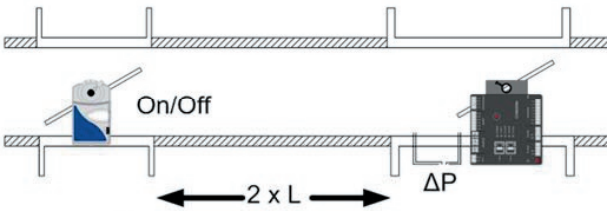






Flat duct installation





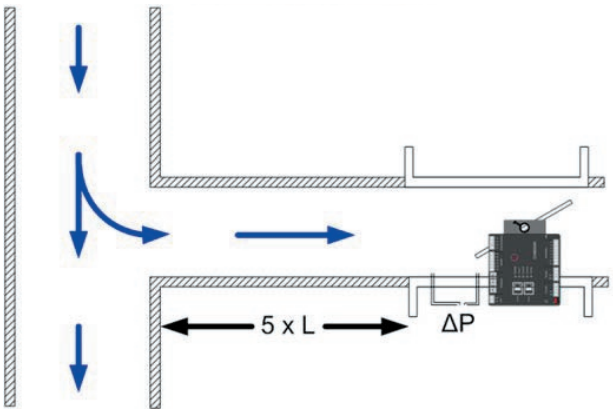


Table of order codes

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	PN-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

Modelli BPN-RVP-P- x00 x 1000 models

Code	BPN-RVP-P-1000x1000
FX-PCV1630-1	BPN-RVP-P-1000x1000-PCV1630

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 160kw (chilled water) or 94kw (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 8.0 kW up to 160.3 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 CO_2 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 hydrophylic 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.

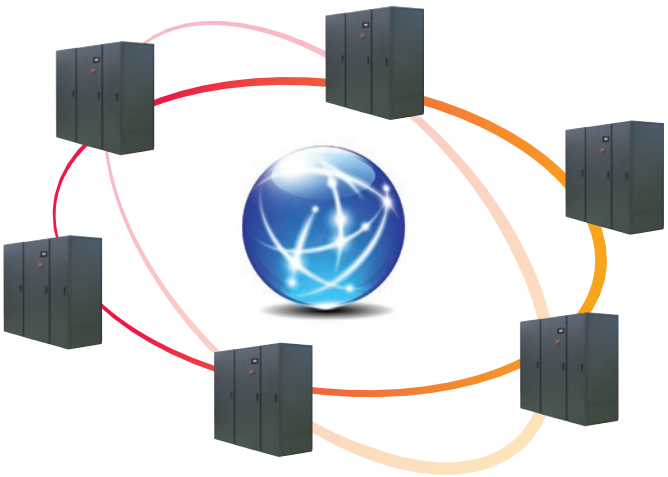
The innovative smart net system allows to revolutionize the local network concept. In fact, taking advantage of the modulation capabilities of the components, this system allows you to actively share the workload between all units in the local network.

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.



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 ar 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 plant.

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 aeraulic 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.

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.

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).

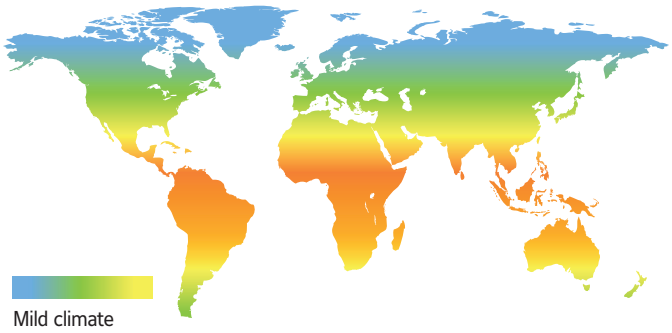
Focus on Free Cooling

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

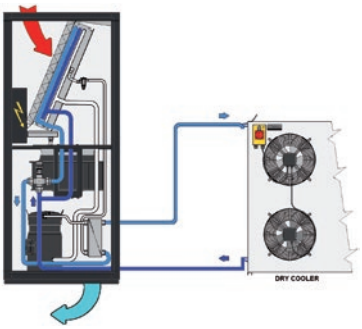
The indirect FREE COOLING system is characterised by a hybrid unit, consisting of a primary water circuit and a secondary direct expansion or chilled water circuit. The primary water circuit is connected to a dry cooler that uses outside air – a source of renewable energy – to cool water. The secondary circuit on the other hand exploits the mechanical cooling.

Optimised operating procedures

Depending on the outside air temperatures, three possible operating procedures are possible:

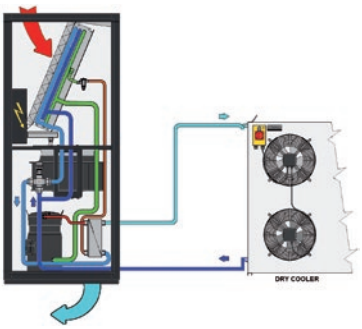
Total Free Cooling

The unit completely operates in **FREE COOLING** without triggering mechanical cooling.



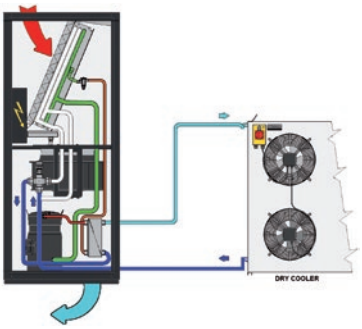
Partial Free Cooling

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.cooling.



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.

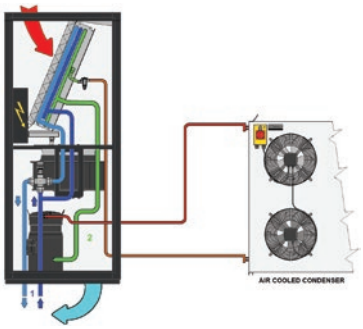
So as to avoid these problems, specific **TWO SOURCES (TS)** units have been developed providing a second source of cooling, complete with its own control valve and totally independent from the primary one.

A safe, flexible system

The Two Sources system is very flexible and allows three different types of systems:

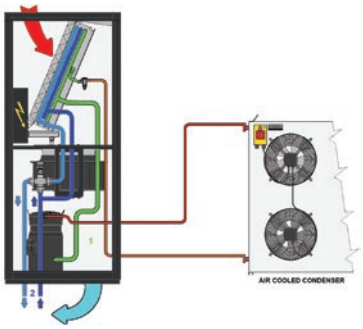
Chilled water + direct expansion Two Sources

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

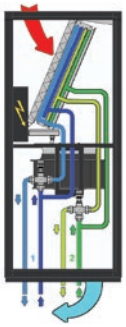
The direct expansion primary source of the unit is connected to remote air or in-built water condensers, whereas the secondary, emergency, and water one is connected to a dedicated chiller, to a groundwater/aqueduct water distribution network or to District Cooling.



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**	**302**	**361**	**461**	**422**	**512**	**662**	**852**	**932**
Performances														
Total cooling capacity	kW	8.0	14.8	21.4	26.4	33.2	31.1	37.9	47.9	43.7	54.7	68.9	86.8	94.4
Sensible cooling capacity	kW	7.6	13.1	21.4	25.7	32.0	31.1	37.9	47.4	43.7	53	66.9	75	85
EER		3.72	3.46	3.36	3.28	3.17	3.36	3.49	3.57	3.42	3.4	3.41	3.46	3.63
Airflow	m^3/h	2 200	3 200	7 000	7 000	8 700	8 700	14 500	14 500	14 500	14 500	17 900	17 900	20 700
Sound pressure level	dB(A)	51	57	56	57	60	60	59	59	59	59	60	60	61
Dimensions & weight														
Lenght	mm	750	750	860	860	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
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
Net weight	kg	180	210	270	270	320	340	440	450	450	500	640	660	860
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**	**302**	**361**	**461**	**422**	**512**	**662**	**852**	**932**
Performances														
Total cooling capacity	kW	8.0	14.8	21.4	26.4	33.2	31.1	37.9	47.9	43.7	54.7	68.3	86.8	94.4
Sensible cooling capacity	kW	7.6	13.1	21.4	25.7	32.0	31.1	37.9	47.4	43.7	53	66.9	75	85
EER		3.72	3.46	3.36	3.28	3.17	3.36	3.49	3.57	3.42	3.4	3.41	3.46	3.63
Airflow	m^3/h	2 200	3 200	7 000	7 000	8 700	8 700	14 500	14 500	14 500	14 500	17 900	17 900	20 700
Sound pressure level	dB(A)	51	57	56	57	60	60	59	59	59	59	60	60	61
Dimensions & weight														
Lenght	mm	750	750	860	860	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
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
Net weight	kg	180	210	270	270	320	340	440	450	450	500	640	660	860
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		**10a**	**20a**	**30**	**50**	**80**	**110**	**160**	**220**
Performances									
Total cooling capacity	kW	10.1	18.2	32.4	43.6	66.8	80.2	121.9	160.3
Sensible cooling capacity	kW	9.4	15.7	29.8	38	62	72	110	144
EER		36.07	33.09	27.93	24.36	27.83	28.04	27.09	28.02
Airflow	m^3/h	2 200	3 200	7 400	8 200	15 400	17 000	26 000	34 000
Sound pressure level	dB(A)	51	57	58	61	60	61	63	64
Dimensions & weight									
Lenght	mm	750	750	860	860	1 750	1 750	2 640	3 495
Depth	mm	601	601	880	880	880	880	880	880
Height	mm	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990
Net weight	kg	155	160	220	240	340	360	540	700
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**	**80**	**110**	**160**	**220**
Performances									
Total cooling capacity	kW	10.1	19.2	32.4	43.6	66.8	80.2	121.9	160.3
Sensible cooling capacity	kW	9.4	15.7	29.8	38.1	62.1	72	109.7	144
EER		36.07	33.09	27.93	24.36	27.83	28.04	27.09	28.02
Airflow	m^3/h	2 200	3 200	7 400	8 200	15 400	17 000	26 000	34 000
Sound pressure level	dB(A)	51	57	58	61	60	61	63	64
Dimensions & weight									
Lenght	mm	750	750	860	860	1 750	1 750	2 640	3 495
Depth	mm	601	601	880	880	880	880	880	880
Height	mm	1 990	1 990	1 990	1 990	1 990	1 990	1 990	1 990
Net weight	kg	155	160	220	240	340	360	540	700
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 perimetral installation inside the Data Centre: the height of the raised floor must be minimum 550 mm.

Version for perimetral 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.

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		○	●

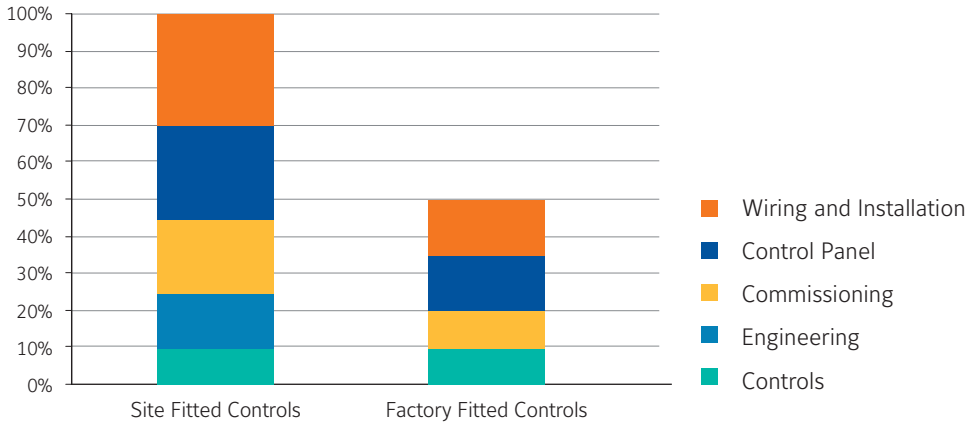
(1) Performance refers to: R410A refrigerant; condensing temperature 45°C; incoming air 32°C-30%Rh; water 15/20°C; external static pressure 30 Pa.
The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.
(2) EER (Energy Efficiency 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.

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

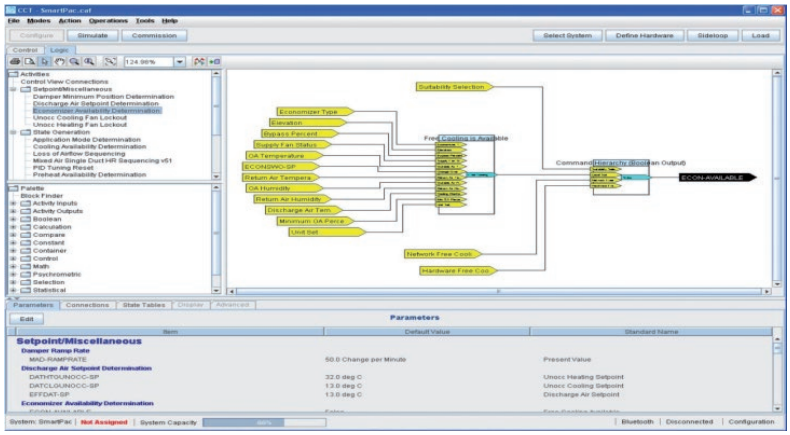
The Air Handling Unit arrives on site **ready to connect** to the site network, and final commissioning is simplified through the unit's keypad and display.

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 exisiting 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.

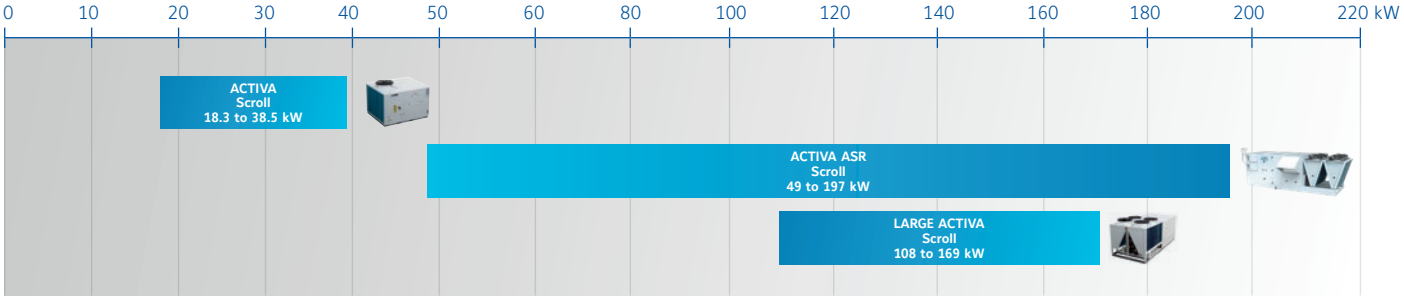
CE Manufacturer reserves the rights to change specifications without prior notice.


维修中
维修中

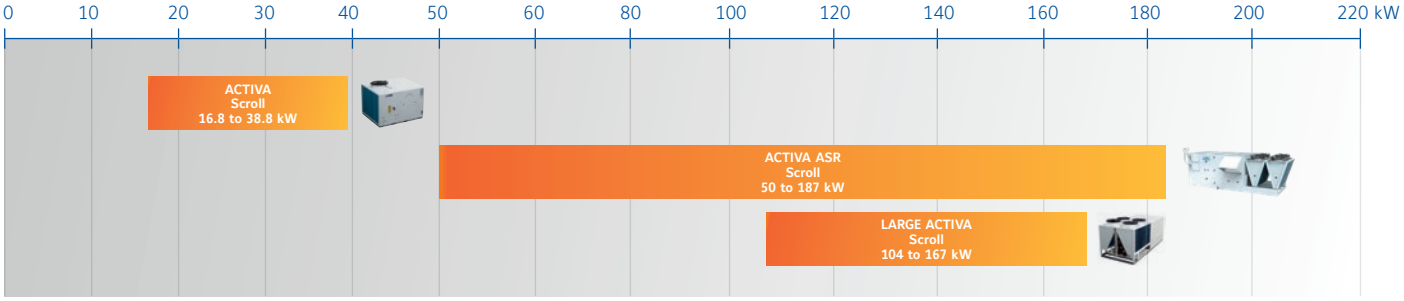
Rooftop Equipment

YORK offers a complete range of rooftop equipments within **18 kW to 194 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 2018 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

Nomenclature

A R C 032 A B

- B = Blue fin
  C = Copper fin (ask JCI)
- A, B = version
- **Capacity range:**
  032 = 32 kW
- **Product category:**
  C = Cooling
  H = Heat pump
  G = Cooling & Gas
  D = Heat pump & Gas (Dual)
- Rooftop
- Activa series

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
ηs,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**	**ARH 040 AB**
Net cooling capacities		kW	18.3	22.3	31	38.5
Power input in cooling		kW	5.3	7.0	8.67	14.1
Heating capacities (1)		kW	16.8	22.1	31.4	38.8
Power input in heating		kW	4.7	5.9	8.72	11.8
SCOP			3.23	3.24	3.27	3.20
ηs,h			126	127	128	125
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**	**ARD 040 AB**
Net cooling capacities		kW	18.3	22.3	31	38.5
Power input in cooling		kW	5.3	7.0	8.67	14.1
Heating capacities (1)		kW	16.8	22.1	31.4	38.8
Power input in heating		kW	4.7	5.9	8.72	11.8
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			
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	591 / 652

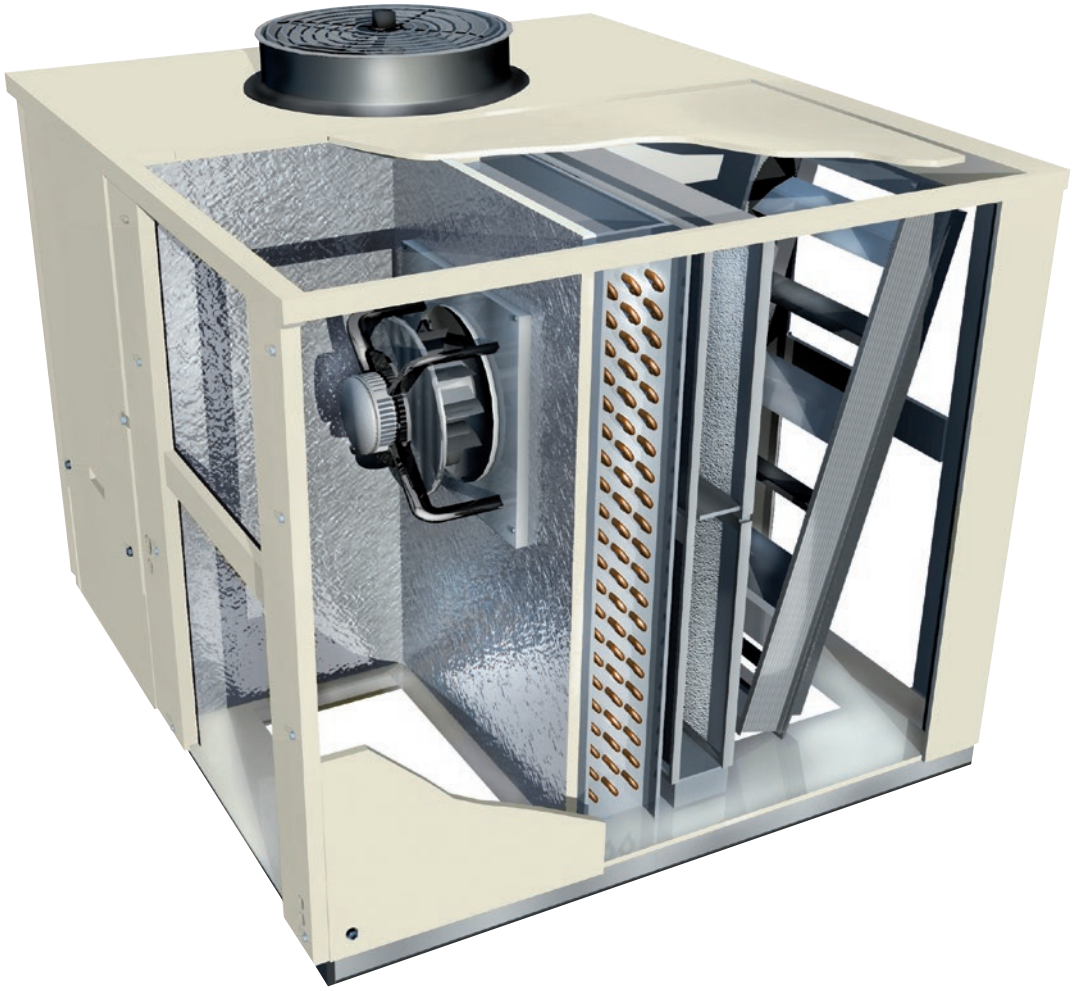
All the data are at EUROVENT conditions with 400V/3+N/50Hz.
Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB
(1) Add indoor fan motor consumption to know total heating capacity.

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**	**ARH 040 AB**
	S661752513	S661752127	S661752133	S661752153
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**	**ARD 040 AB**
	S661752118	S661752128	S661752132	S661752152
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	040	017	022	032	040	017	022	032	040
Thermostat DPC-1		S603786044	A	A	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	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	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			O	O
Enthalpy probes		S613990081	O	O	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	O/A	O/A
Power Exhaust		S611752302	A	A			A	A			A	A			A	A		
		S611752312			A	A			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			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			A	A
Low ambient kit		S611752381	O	O	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			A	A
Fixed roof curb		S611752881	A	A			A	A			A	A			A	A		
		S611752882			A	A			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			A	A
Dirty filter switch		S613990085	O	O	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	O	O
Fire detection thermostat		S613903003	O	O	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	O								
Electric heaters	16 kW	S611752516	O	O			O	O										
	16 kW	S611752616			O	O			O	O								
	25 kW	S611752525	O	O			O	O										
	25 kW	S611752625			O	O			O	O								
	37 kW	S611752537			O	O			O	O								
Propane conversion Kit		S611752780									A	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			O	O
Filter kit F7		S611752411	O	O			O	O			O	O			O	O		
		S611752412			O	O			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			O	O
Antivibration mounting kit		S611752461	A	A	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			A	A
Filter kit F6 for energy recovery		S611755506	O	O			O	O			O	O			O	O		
		S611755516			O	O			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			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	O/A	O/A
Copper-copper coil		Contact us	O	O	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

NEW

Cooling capacity from 49.6 kW up to 197.6 kW
Heating capacity from 50.7 kW up to 187.3 kW

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 independant 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 BREEAM 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

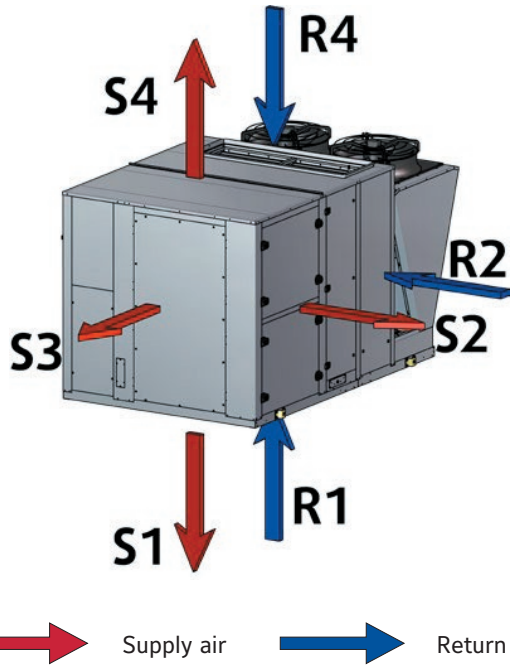
ASR 50 to 190

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
Nominal cooling capacities	kW	49.57	62.81	78.99	95.13	111.08	119.87	142.09	164.98	197.06
Power input in cooling	kW	15.81	19.46	23.23	30.66	33.56	37.10	47.09	51.19	60.61
SEER (1)		3.57	3.58	3.74	3.54	3.66	3.57	3.52	3.91	3.94
ηs,c (1)		140	140	147	138	143	140	138	154	154
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**
Nominal cooling capacities	kW	48.12	60.95	76.67	92.34	107.81	116.34	137.88	160.10	191.21
Power input in cooling	kW	15.81	19.46	23.23	30.66	33.56	37.10	45.69	51.19	60.61
SEER (1)		3.53	3.52	3.63	3.52	3.55	3.52	3.52	3.80	3.82
ηs,c (1)		138.15	138	142.23	138	139.17	138	138	148.92	149.82
Heating capacities	kW	50.65	59.65	76.63	90.66	106.95	117.10	148.70	157.90	187.31
Power input in heating	kW	14.81	17.49	21.77	26.59	30.38	34.14	42.85	46.17	54.29
SCOP (2)		3.20	3.22	3.22	3.23	3.22	3.21	3.20	3.19	3.23
ηs,h (2)		125	126	126	126	126	125	125	125	126
Common characteristics										
Nominal airflow rate	m³/h	9 720	11 500	15 500	17 500	19 200	21 580	25 500	28 000	30 000
Nominal ESP	Pa	220	220	225	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
Refrigerant type		R410A								
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Compressor type		Scroll								
Number of compressors		2	2	2	2	2	2	2	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
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

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

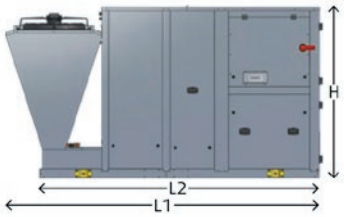
Supply air	**S1.** Down supply air *
	S2. Left supply air
	S3. Front supply air
	S4. Up supply air*
Return air	**R1.** Down return air
	R2. Left return air
	R4. Up return air **

* S1 and S4 configurations not available with the gas burner option
** R4 configuration not available with RECO and TRECO options

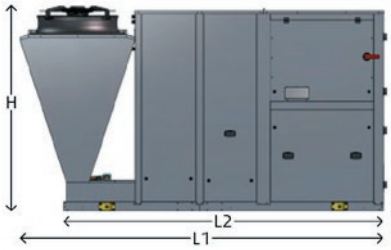
Manufacturer reserves the rights to change specifications without prior notice.

Dimensions and Weights

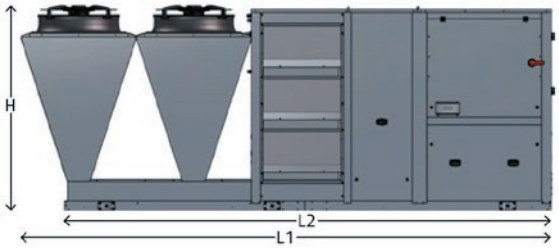
ASR 50-80



ASR 95-140



ASR 160-190



Dimensions

ASR models - Standard unit		50	65	80	95	105	120	140	160	190
(L1) Overall length	mm	3 250	3 250	3 250	3 760	3 760	3 760	3 760	5 450	5 450
(L2) Base frame length	mm	2 895	2 895	2 895	3 310	3 310	3 310	3 310	5 000	5 000
Width	mm	2 030	2 030	2 030	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
ASR models - 3 Dampers		**50**	**65**	**80**	**95**	**105**	**120**	**140**	**160**	**190**
(L1) Overall length	mm	3 880	3 880	3 880	4 430	4 430	4 430	4 430	5 930	5 930
(L2) Base frame length	mm	3 525	3 525	3 525	3 980	3 980	3 980	3 980	5 480	5 480
Width	mm	2 030	2 030	2 030	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
ASR models - Gas burner		**50**	**65**	**80**	**95**	**105**	**120**	**140**	**160**	**190**
(L1) Overall length	mm	3 250	3 250	3 250	3 760	3 760	3 760	3 760	5 950	5 950
(L2) Base frame length	mm	2 895	2 895	2 895	3 310	3 310	3 310	3 310	5 500	5 500
Width	mm	2 030	2 030	2 030	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
ASR models - 3 Dampers + gas burner		**50**	**65**	**80**	**95**	**105**	**120**	**140**	**160**	**190**
(L1) Overall length	mm	3 880	3 880	3 880	4 430	4 430	4 430	4 430	6 430	6 430
(L2) Base frame length	mm	3 525	3 525	3 525	3 980	3 980	3 980	3 980	5 980	5 980
Width	mm	2 030	2 030	2 030	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

Weights

ASR models - Standard unit			50	65	80	95	105	120	140	160	190
Unit weight		kg	1 085	1 155	1 225	1 470	1 685	1 805	1 855	2 350	2 555
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
3 Dampers RECO		kg	375	385	415	430	430	450	450	515	515
TRECO		kg	125	125	125	165	165	165	165	215	215
FRECO		kg	25	25	25	30	30	30	30	30	30
Electric heater		kg	25	25	25	30	30	30	30	50	50
Hot water coil		kg	25	25	25	30	30	30	30	30	30
Gas Burner		kg	65	80	80	105	105	105	105	460	460

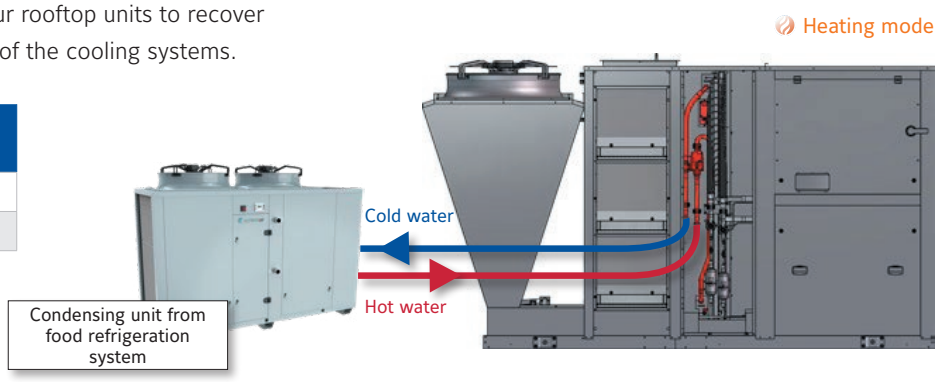
Energy recovery systems

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.

	Additionnal heating capacity
Mixed air T° = 20°C	+60%
Mixed air T° = 0°C	+130%

Water +30% Glycol 45/40°C

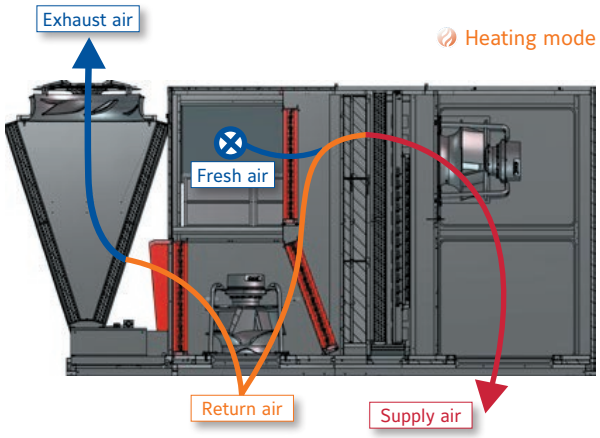


RECO - Standard energy RECOvery (3 Dampers)

Energy recovery on the exhaust air.

	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

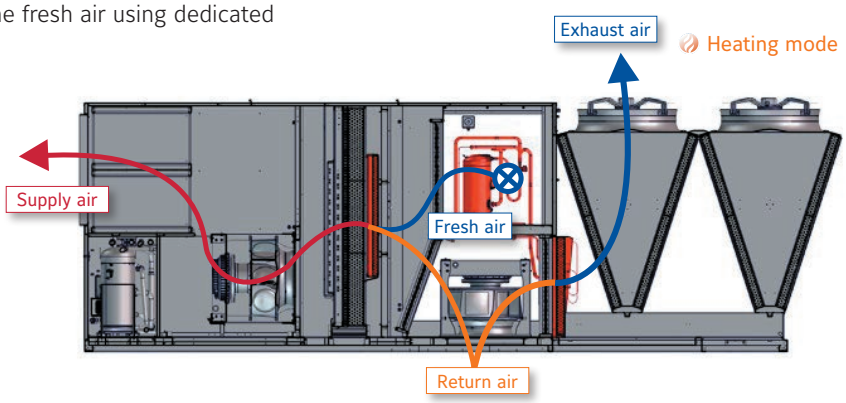


TRECO - Thermodynamic energy RECOvery (3 Dampers)

Active energy recovery between the exhaust air and the fresh air using dedicated thermodynamic system.

	Pc	EER	Ph	COP
3 dampers + TRECO 20% fresh air	+21%	0%	+20%	+3%
3 dampers + TRECO 60% fresh air	+20%	-2%	+21%	+4%

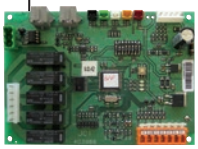
According to Eurovent conditions



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)

Nomenclature

A R C 150 A B

- B = Blue fin
  C = Copper fin (ask JCI)
- A = version
- **Capacity range:**
  150 = 150 kW
- **Product category:**
  C = Cooling
  H = Heat pump
- Rooftop
- Activa series

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
ηs,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
ηs,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 mm²	3 x 35	3 x 50	3 x 50	3 x 70
Cable to thermostat		Nbr. x mm²	10 x 0,22			
Number of circuits / Compressor type			2 (tandem) / 4 x scroll			
Evaporator fan at nominal airflow	Airflow	m³/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

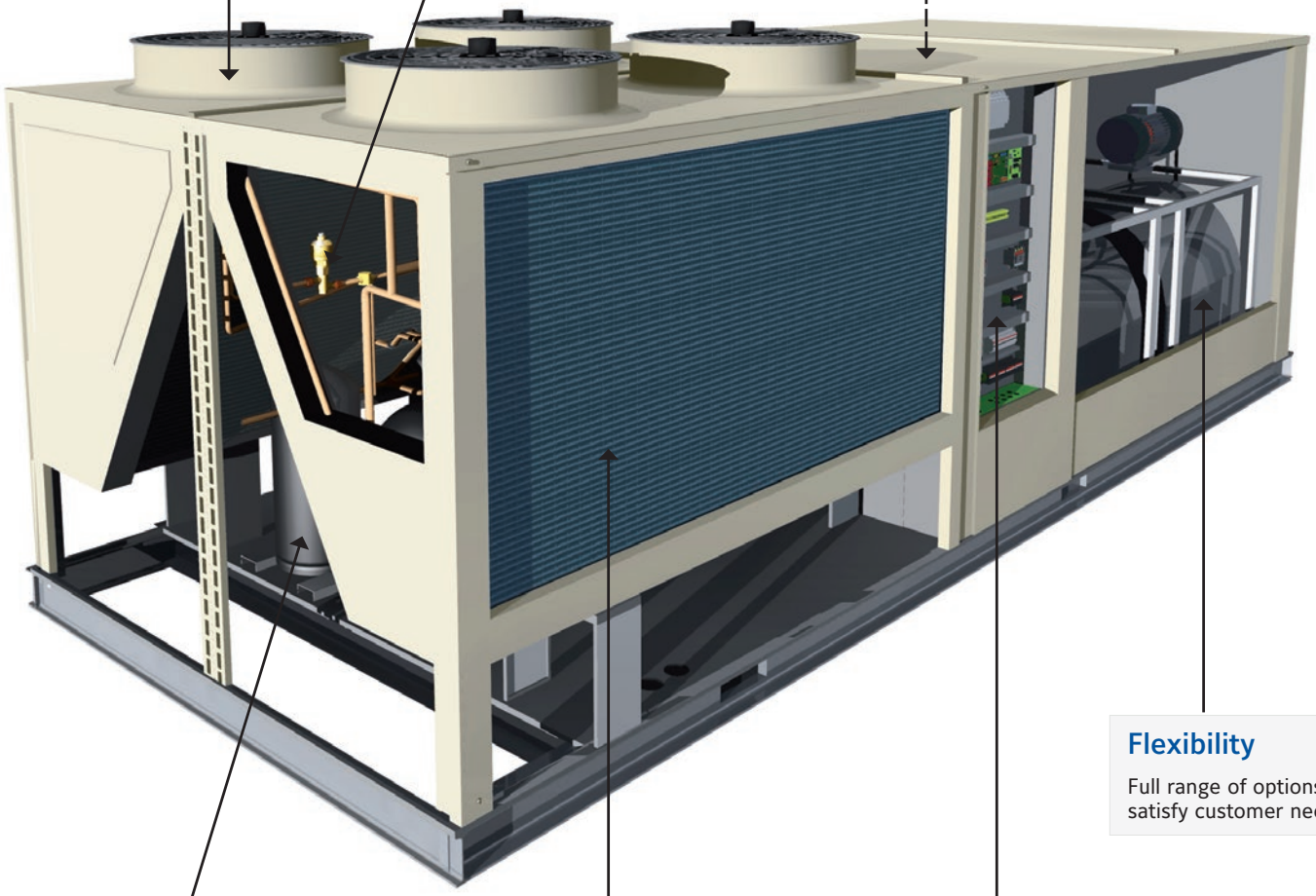
Cooling only models	ARC 100 AB	ARC 125 AB	ARC 150 AB	ARC 175 AB
	S661852400	S661852420	S661852450	S661852480
Heat pump models	**ARH 100 AB**	**ARH 125 AB**	**ARH 150 AB**	**ARH 175 AB**
	S661852403	S661852423	S661852453	S661852483
Thermostat				
to be ordered separately	DPC-1			

Large Activa rooftop details

Quiet
High efficiency condenser fans for a low noise operation.

Reliable
Electronic expansion valve to keep the refrigerant circuit working at optimal conditions.

Healthy
Full range of filters available to improve air quality.



Flexibility
Full range of options to satisfy customer needs.

Efficient
Multiscroll compressors providing high efficiency at full and partial loads.

Durable
Cabinet and coil treated to withstand extreme outdoor conditions.

Usable
Electronic control with BMS communcation.

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	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	O
	11.5 kW	S606744691	O	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	O
	50 kW	S611751050	O	O	O	O	O	O	O	O
	60 kW	S611751060	O	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.

Comprehensive Solutions

Verasys Configurable building controls system for smarter buildings

Metasys Building Automation and Control Systems

Lifecycle Services

VERASYS™

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.

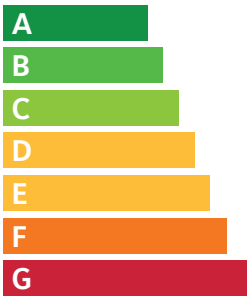
Making buildings smarter by optimizing equipment.

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 embeded. 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.

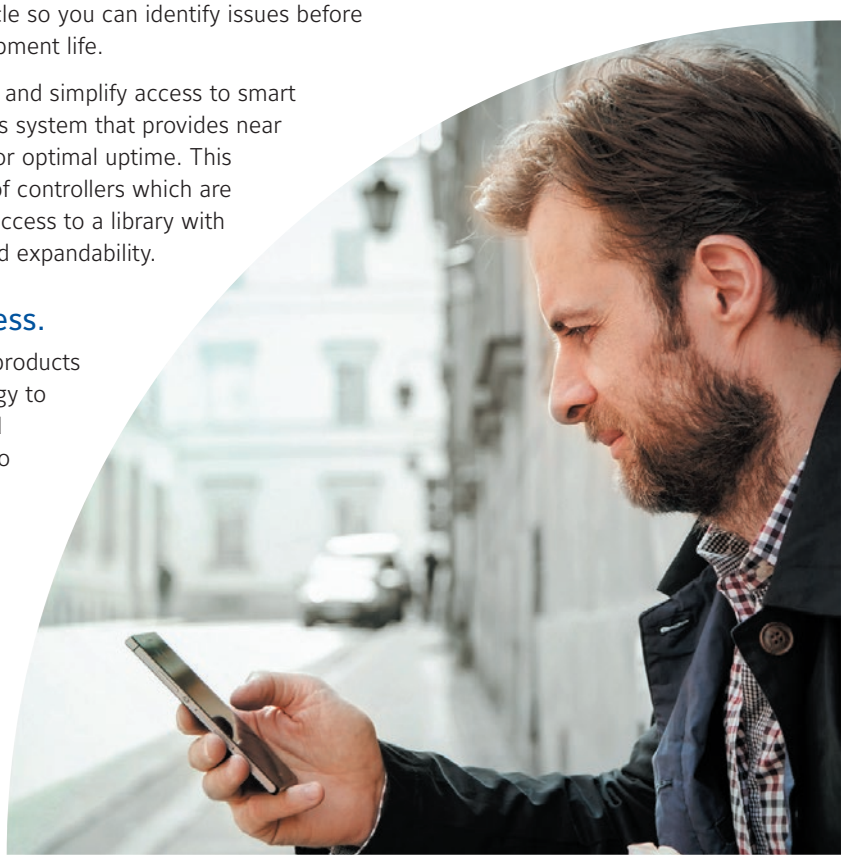
The primary benefit of Smart Equipment is that it already has controls embedded by the manufacturer. This means it can connect seamlessly to controls systems like Verasys. It uses on-board controls to support data analytics, including fault detection, to support proactive maintenance and minimize downtime. 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 Building Automation and Control Systems

Metasys building management system from Johnson Controls ensures all of the building systems – comfort controls, lighting, fire safety, security and HVAC equipment – operate together in harmony. With an innovative, IT-based infrastructure, software and wireless capabilities, Metasys is the one building management system that coordinates and organizes all the information logically to deliver it where and when needed, giving more control and easier access to information than any other system of its kind.

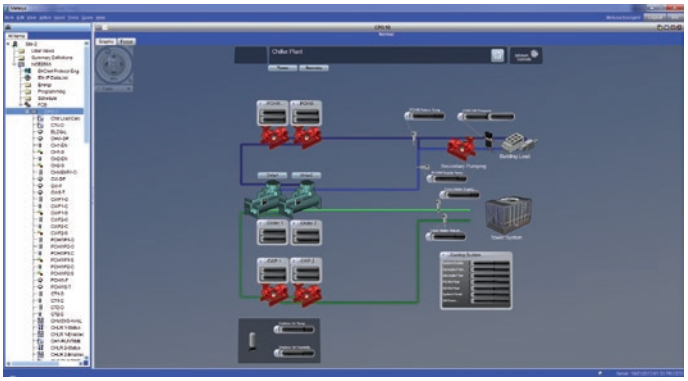
Previously a winner of the Frost & Sullivan North American BAS Market Leadership Award, Metasys now offers even more.

Ease of use

- Easy to configure and deploy
- No special training is required to use it
- The new Metasys UI is designed to enhance our customers' productivity and effectiveness. It allows users to navigate by space to view summaries, trends, and activities, emulating the way they work every day. The new user interface is also optimized for all devices, enabling our customers to work smarter from any device and any location.

More efficiency, less costs

- The Energy Essentials leverages the Metasys Advanced Reporting System to take the existing data and present it in an organized and informative way, providing easy-to-configure, easy-to-use and actionable energy reports
- The improved Johnson Controls Central Plant Optimization 10 (CPO 10) helps facility managers operate their chiller plants more efficiently. CPO algorithms are used to operate and sequence plant equipment in an efficient and reliable manner, and to ensure that runtime, starts and stops are equalized across the individual plant components saving energy and improving reliability in the facility.



Single platform communication

- Enhanced, single platform interface of thousands of different hardwired and wireless systems, devices and equipment.
- Even more control options and better information access by users, thanks to:
  - Field Equipment Controllers redesigning
  - Terminal Equipment Controller updates and improvements
  - Added wireless and network sensors
  - Enhanced software and firmware

Wireless capabilities

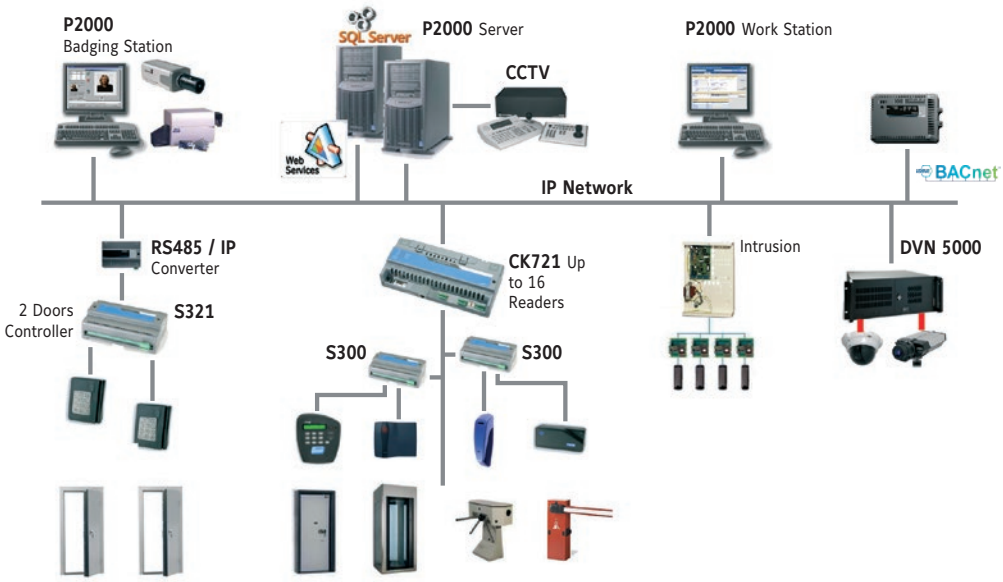
- Increased control flexibility, streamlines retrofits and faster download times, thanks to the latest wireless technologies that Metasys incorporates into more devices.
- At system's user interface, network automation, field controller or room sensing levels, Wireless Building Technologies from Johnson Controls always result in increased application flexibility and cost effectiveness.

Room Automation Solution and Hotel Guest Room Management Solution

- Transponder readers, transponder holders, transponder encoders, transponder cards, key holders, electronic door panels... A complete access control solution where this kind of application is required.
- JSuite software dedicated for hotel management, for the supervision of KNX environments, access control and alarms.

Security features

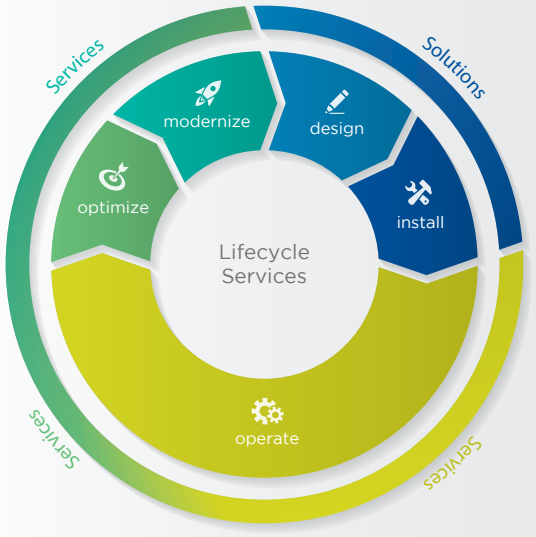
- Metasys now incorporates P2000 Security Management System, whose software and network controllers ensure the safety of employees and security of company assets.
- P2000 open integration platform, designed for interoperability with a variety of security subsystems including access control, alarm & intrusion detection, video surveillance, visitor management.



CE Manufacturer reserves the rights to change specifications without prior notice.

Lifecycle Services
Get the most out of your building

Johnson Controls Building Solutions and Services Lifecycle Program



Making your business and facilities run at peak performance

Johnson Controls helps you **drive the outcomes that matter most in your building.** Ensuring the key stakeholders are involved during the design and installation cycles, this helps in providing the best solutions for creating comfortable, easy-to operate and sustainable smart buildings.

Our service experts are at the forefront of the best field and digital practices right from installation supervision, start-up and commission, to operate and maintain, untill optimize and modernize. This preserves and enhance the building value by improving safety, productivity and sustainability, thereby optimizing the total cost of building onwership.

Design
Optimizing business facilities from the very beginning.

Install
Making business facilities work from day one.

Operate
Peace of mind and performance your facility needs.

Optimize
Optimizing business facilities with evolving regulations, solutions and requirements.

Modernize
Improve safety, productivity and sustainability with smart enhancements.

Rental Solutions I Comfort and Process Cooling

Temporary temperature control services that ensure uninterrupted business operations

Ensure your temperature control process operates smoothly anytime, anywhere from emergency needs to contingency planning. It is essential for critical operations such as comfort or process cooling and heating to have a backup plan. Experience an extensive fleet of YORK equipment by renting directly from the original equipment manufacturer. This assures a large assortment of equipment, skillfully maintained and expertly installed and dismantled.

- **Fleet:** High-efficiency and low-noise equipment **that covers all your needs.**
- **Industries:** Comfort or process cooling and heating.
- **Agreement Modalities:** Tailored solutions adapted to any budget.

Optimizing business facilities from the very start

Knowledge and action – elements vital to continuous improvement

Using data and technology to ensure building systems are designed and built, with lifecycle costs in mind. It continues by integrating green practices to meet energy and other standards.

Johnson Controls' building design services are:

- **Technology navigation**
  Showcase HVAC YORK technologies like air-cooled, water-cooled and absorption chillers, rooftops, air handling units, close control units and fancoils.
- **Design assist**
  Collaborative approach assures success.

Making business facilities work from day one

Reliable execution – Customized solutions that meet your expectations

Technology and data, coupled with our expertise, can provide tailor-made solutions for installing building systems according to manufacturer's specifications.

Johnson Controls buildings installation services, includes:

- **Installation Supervision**
  Assist in ensuring your facility ramps up smoothly
- **Startup and Commissioning**
  Peace of mind to ensure your operations run smoothly from day one.

Unlock the complete potential of your facility

Ensure you facility delivers optimum value

Achieve complete peace of mind regarding the needs of your facility during the service life of equipment systems. Technology, data, and expertise ensure that building systems are **operated** and **maintained** according to manufacturer's **recommendations.**

Operate

Operation excellence helps to run facilities smoothly.

- **Remote Operations**
  Ensure your facility is operated at optimal performance
- **Field Operations**
  Experience and expertise to run your critical facilities

Maintain

Assistance to ensure your facility works at optimal performance with tailored planned maintenance agreements or ondemand.

- **Predictive Maintenance**
  Advanced analytics and machine learning
- **Condition-Based Maintenance**
  Diagnostics: oil, vibrations, thermographies, efficiency and more
- **Preventative Maintenance**
  Customized onsite maintenance plans
- **Remote Maintenance**
  Remote inspections to optimize maintenance plans
- **Emergency Management**
  Prevent and mitigate damages during critical events
- **Repair**
  Faster restarts and specifications recovery
- **Extended Warranty**
  Optimized budget of your business beyond factory warranty.

Replacement parts

Genuine parts and accessories you need to complete your work.

Training

Skills required for the smooth operation of your facility.

Plan ahead, get your buildings ready for the future

Optimizing business facilities because regulations, solutions and needs evolve

Equipment and systems, age because of usage, obsolete because of new generations with enhanced features, and unmatch your needs because them evolve along with the industry you are playing in. Despite annual reviews with your facility managers to analyze data and targets, to identify open issues and next course priorities, to discuss on budget deviations and next year budget planning based on business as usual.

- **Regulatory Compliance**
  Assist in ensuring regulations-compliant facilities
- **Asset Management**
  Align your asset management practices with your business strategy: Maintenance assist, Asset diagnostic and Modernization plans
- **Efficiency Management**
  Operational efficiency helps to make buildings more productive: Energy efficiency services and Asset efficiency studies

Sustainable facilities with longer life

Ensure your facilities deliver their best for longer duration while maintaining sustainability

Discover a **wide program of solutions** to keep facilities at a peak performance while optimizing operational costs extending their service. Every solution is customized to your budget and business needs.

Multiple factors like the condition of the system, its age, or its critically in business operations will determine the ease of each solution.

- **Enhance**
  Smart upgrades for augmenting your facility's potential: Chiller plant alarm system, EC fans, Variable Speed Driver, Controller software, Chiller Plant Optimization and more
- **Retrofit**
  Cost-efficient and high-performing replacement solutions for extending equipment lifespan:
  Compressor, Heat exchanger, Controller, Refrigerant migration and more
- **Renew**
  Renovation solutions that are safe, efficient and reliable.

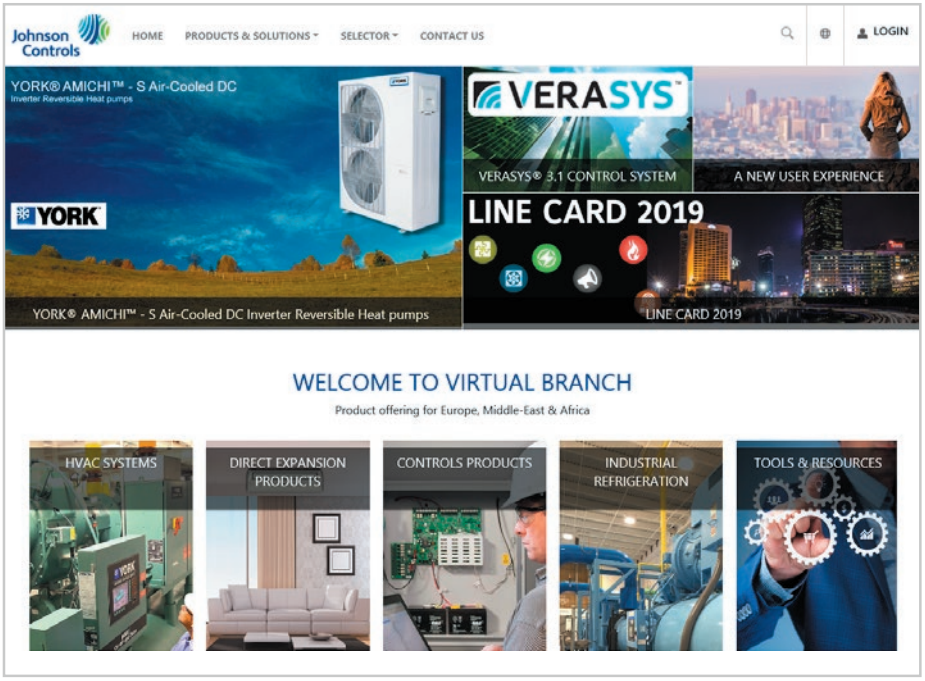
Johnson Controls' eCatalog

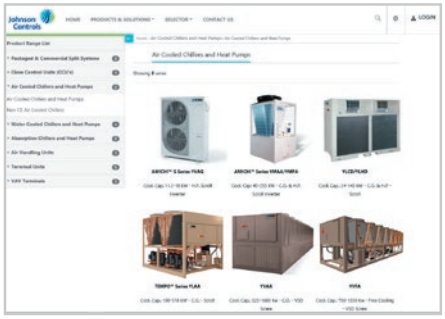
Johnson Controls' eCatalog, also known as the "Virtual Branch", is not only an extensive database of product information but also a point of entry into our organization.

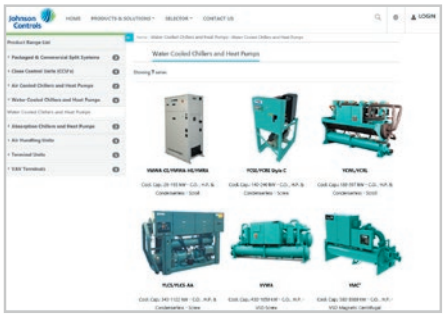
Within the eCatalog you are connected to the cloud and hence stay up-to-date on all new product launches, product selection tool releases and updates, technical documents, eLearning modules and much more. You will reach our products in 3-clicks or less through the use of a powerful search engine and a very easy-to-browse navigation menu. You can also view the purchase prices online for many of our products and check the availability of stocked items at a glance. Also, rest assured that access to our network of Sales Representatives and Technical Support teams is directly available for your use.

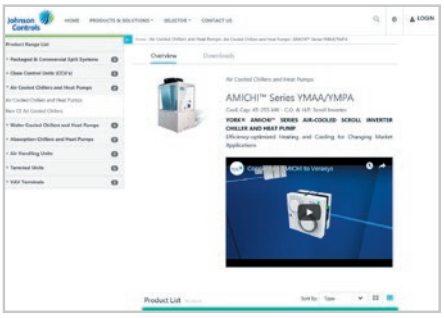
Call your Sales Representative and request access now.

https://virtualbranch.johnsoncontrols.com/vb/










Johnson
Controls

YORK

About Johnson Controls

At Johnson Controls, we transform the environments where people live, work, learn and play. From optimizing building performance to improving safety and enhancing comfort, we drive the outcomes that matter most. We deliver our promise in industries such as healthcare, education, data centers and manufacturing.

With a global team of 100,000 experts in more than 150 countries and over 130 years of innovation, we are the power behind our customers' mission. Our leading portfolio of building technology and solutions includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Sabroe®, Frick®, ZETTLER® and Sensormatic®.

For additional information, please visit **www.johnsoncontrols.com** or follow us **@johnsoncontrols** on Twitter.

For additional information about YORK HVAC products, please visit **www.johnsoncontrols.co.uk**

The power behind **your mission**

Johnson Controls