



# YORK<sup>®</sup> Commercial & Industrial HVAC 2018



A more comfortable,  
safe and sustainable world

# Take advantage of a broader range of capabilities

Johnson Controls now provides a wider spectrum of innovative products, expert installation and services, and systems integration to help improve operational and energy outcomes for customers worldwide.



-  BUILDING AUTOMATION SYSTEMS
-  CONTROLS
-  HVAC EQUIPMENT
-  AIR SYSTEMS
-  SECURITY
-  FIRE & HAZARD PROTECTION
-  BUILDING SERVICES & PARTS
-  LIGHTING, CONTROL & RETROFIT
-  OPERATIONAL INTELLIGENCE & LOSS PREVENTION
-  ENERGY STORAGE
-  RETAIL SYSTEMS
-  BUILDING WIDE SYSTEMS INTEGRATION

## 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; connected
- Condensers and condensing units
- Dedicated outdoor air systems (DOAS)
- Duct-free mini-split systems
- Indoor packaged equipment and Rooftop units
- Variable refrigerant flow (VRF) systems

## SECURITY

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

- 24/7 remote monitoring
- Access control
- Advanced video surveillance
- Intrusion detection
- Managed services

## CONTROLS

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

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

## FIRE, LIFE-SAFETY & 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
- Mass notification systems
- Special hazard solutions

## OPTIMIZATION & 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

## LIGHTING CONTROLS & 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
- Turn-key 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 & 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 & 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

## 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

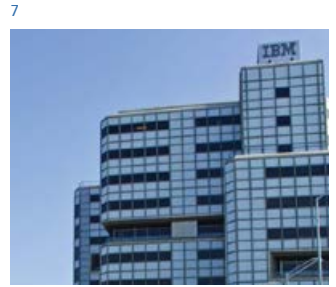
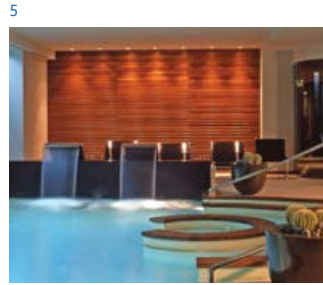
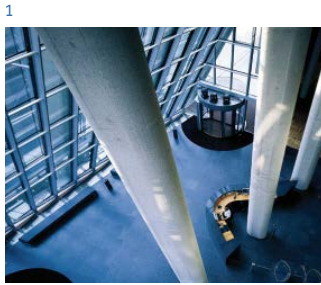
Construct a smarter building by converging building, business/IT and specialty systems on an intelligent infrastructure. Let us streamline the process to measurably improve initial and lifecycle costs, enhance function, ensure connectivity and create an innovative, optimized, sustainable environment.

## 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.





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

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

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

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

**5**  
**THI GROUP**  
 Solutions for the hospitality industry.

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

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

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

# Catalogue content

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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 AHRI site at: [http://www.ahrinet.org/water\\_chilling+packages+using+vap+or+compression+cycle+\\_water\\_cooled\\_.aspx](http://www.ahrinet.org/water_chilling+packages+using+vap+or+compression+cycle+_water_cooled_.aspx) for complete 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](http://www.ahridirectory.org).



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# Chillers & Heat Pumps

SCROLL COMPRESSOR CHILLERS  
AND HEAT PUMPS

SCREW COMPRESSOR CHILLERS  
AIR-COOLED & WATER-COOLED

CENTRIFUGAL COMPRESSOR CHILLERS  
WATER-COOLED

ABSORPTION CHILLERS AND HEAT PUMPS

CENTRAL PLANT OPTIMISATION™ 10

# AMICHI™ Series Air cooled Scroll DC Inverter chiller and heat pump

YMAA 045 to 260 / YMPA 045 to 260  
A complete range from 44 kW up to 255 kW



**NEW**



**SMART EQUIPMENT**

## Exceeding Efficiency Standards

The YORK® Amichi™ Series Air-cooled DC Inverter Scroll Chiller and 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	<b>Amichi™ Heat Pump:</b> Sept. 2017 Compliant (Tier 2)
Comfort Cooling	SEER/ηsc	<b>Amichi™ Chiller:</b> Jan. 2021 Compliant (Tier 2)
Process Cooling (Med. Temp.)	SEPR	<b>Amichi™ Chiller:</b> July 2018 Compliant (Tier 2)
Process Cooling (High Temp.)	SEPR	<b>Amichi™ Chiller:</b> 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.

## A History of Reliability

With the YORK® Amichi™ Series Air-cooled Scroll Chiller and Heat Pump, we're building on our legacy of cooling solutions and technology leadership. We don't judge success based on theoretical findings, but real-world experience. Our first generation modular chiller was built over a decade ago. We use DC inverter technology proven in over three decades of use. Our use of inverter scroll technology dates to 1985. And 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.



# Air cooled Scroll DC Inverter chiller and heat pump

YMAA 045 to 260 / YMPA 045 to 260

## Technical features

Model			YMAA / YMPA								
			45	65	80	100	130	160*	200*	230*	260*
<b>Performance</b>	Cooling capacity c/o units	kW	44	60	77	99	122	164	189	219	255
	EER		2.87	2.78	3.08	2.99	2.94	3	3	3	3
	SEER		4.30	4.21	4.35	4.37	4.33	Meet Ecodesign Regulations			
	$\eta_{s,c}$		169	166	171	172	170				
	Cooling capacity h/p units	kW	44	60	77	99	122	164	189	219	255
	Heating capacity h/p units	kW	50	61	88	100	132	167	190	232	256
	COP		3.03	3.04	3.27	3.18	2.98	3,04	2,99	3,03	2,98
	SCOP		3.32	3.28	3.39	3.36	3.31	Meet Ecodesign Regulations			
	$\eta_{s,h}$	%	130	128	133	131	129				
Sound power level STD / LN	dB(A)	80/75	82/77	81/77	83/79	84/80	87/81	89/82	91/84	92/85	
<b>Refrigerant</b>	Refrigerant circuits	#	1	1	2	2	2	3	3	4	4
	Refrigerant (R410A) charge	kg	9.5	12.3	17.6	20.5	22.8	29.5	32	43.3	46
<b>Compressor</b>	Type		DC Scroll Inverter + Scroll								
	Capacity steps	%	Stepless (Inverter)								
	Quantity		2	2	3	3	4	5	6	7	8
<b>Air side heat exchanger</b>	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								
<b>Water side heat exchanger</b>	Type		Plate Heat Exchanger								
	Unit water volume (w/o pump kit)	l	9	10	11	14	15	27	29	32	34
	Pump Type		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	kPa	25	24	23	30	38	23	29	41	38
	Working range water leaving temp. cooling		-8 ~ 20°C								
	Working range water leaving temp. heating		25 ~ 55°C								
<b>Dimensions &amp; Weight</b>	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	575	598	875	901	979	1922	2003	2235	2316

YMAA: Cooling only units models. YMPA: Air to water heat pump models.

\* models with preliminary info.

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature  $\Delta t$  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

$\eta_s$  calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281)

For other Ecodesign calculations, please contact your JCI representative.

The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects

## Advanced Control Made Easy

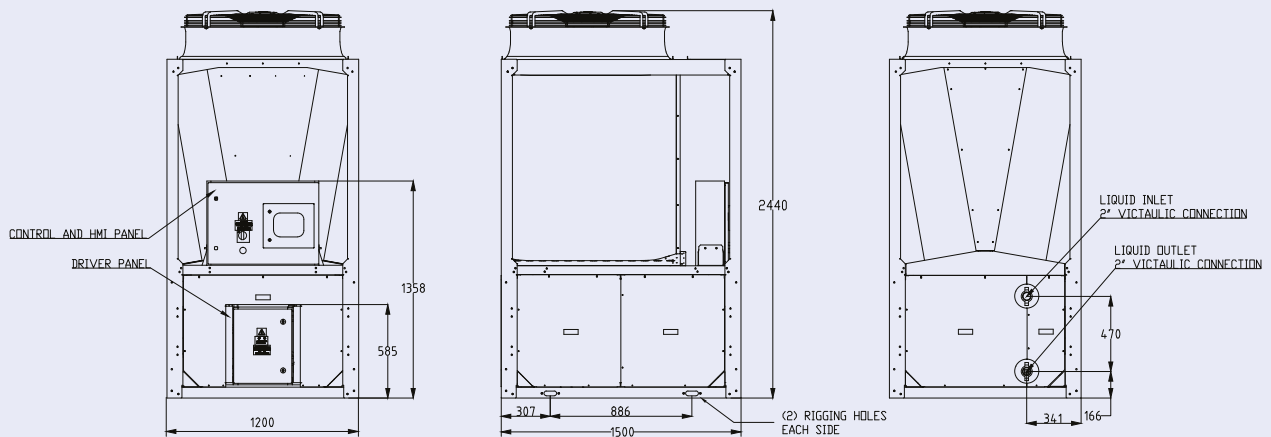
To help maximize efficiency and keep you in control, the YORK® Amichi™ Series comes standard with integrated Smart Equipment. This technology allows the equipment to connect seamlessly to building controls like our world-class Verasys™ system, where smart-enabled equipment can self-identify and interoperate.



Manufacturer reserves the rights to change specifications without prior notice.

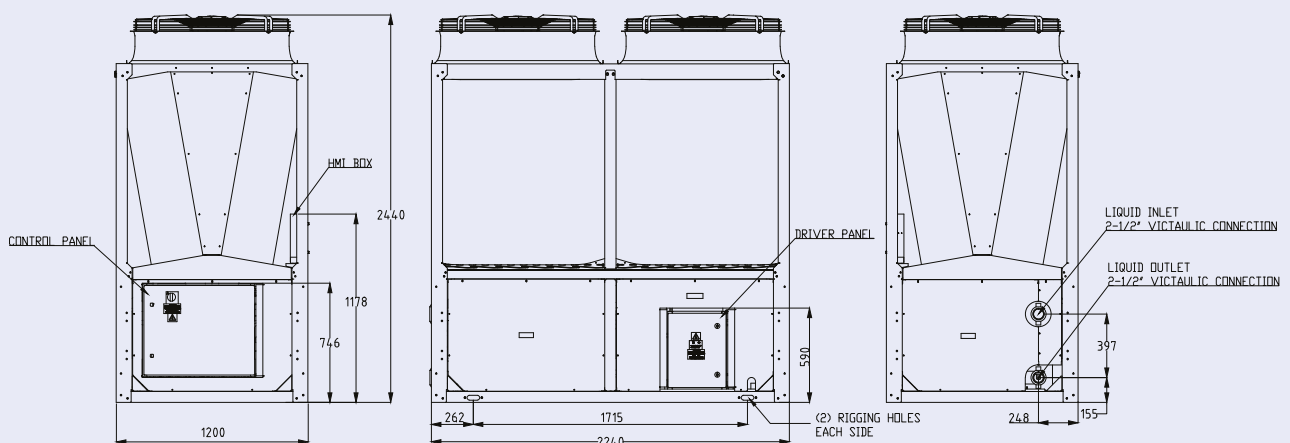
# Dimensions, hydraulic connections

## YMAA-YMPA 045 and 065 Single unit



All dimensions in mm. Drawings not a scale.

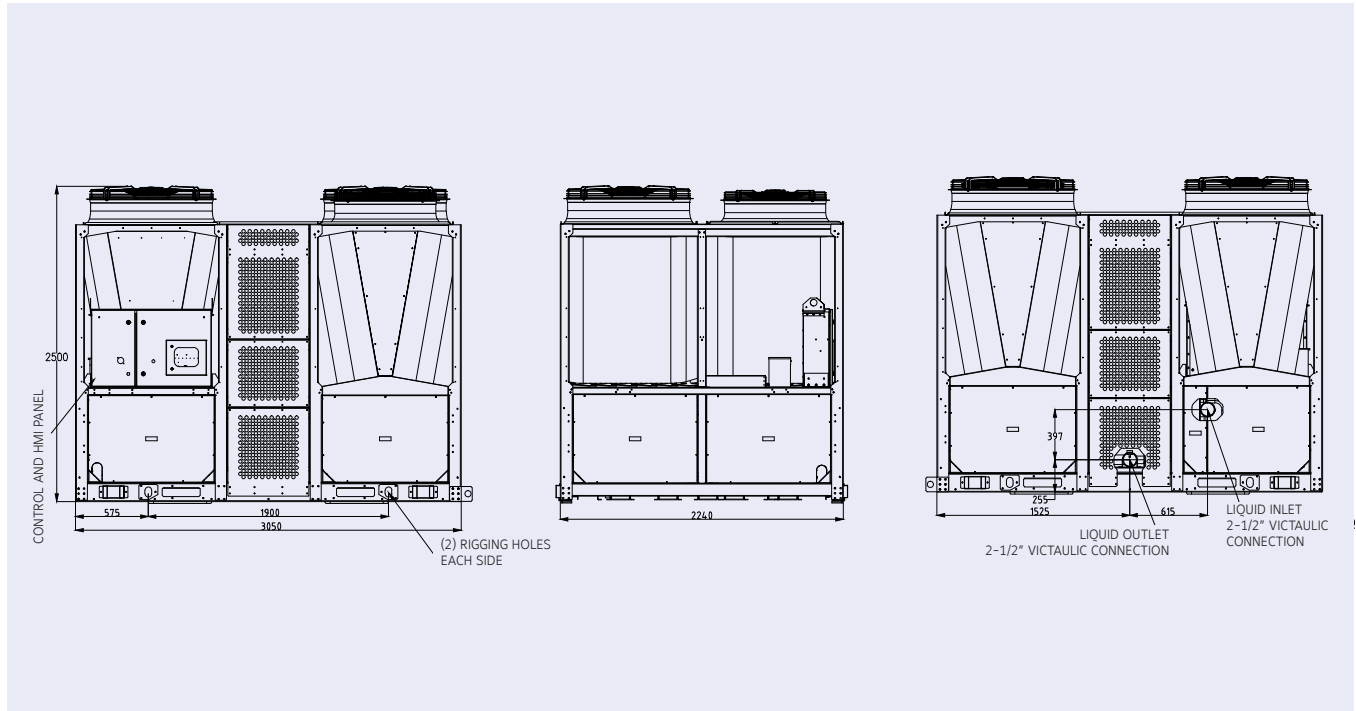
## YMAA-YMPA 080 to 130 Single unit



All dimensions in mm. Drawings not a scale.

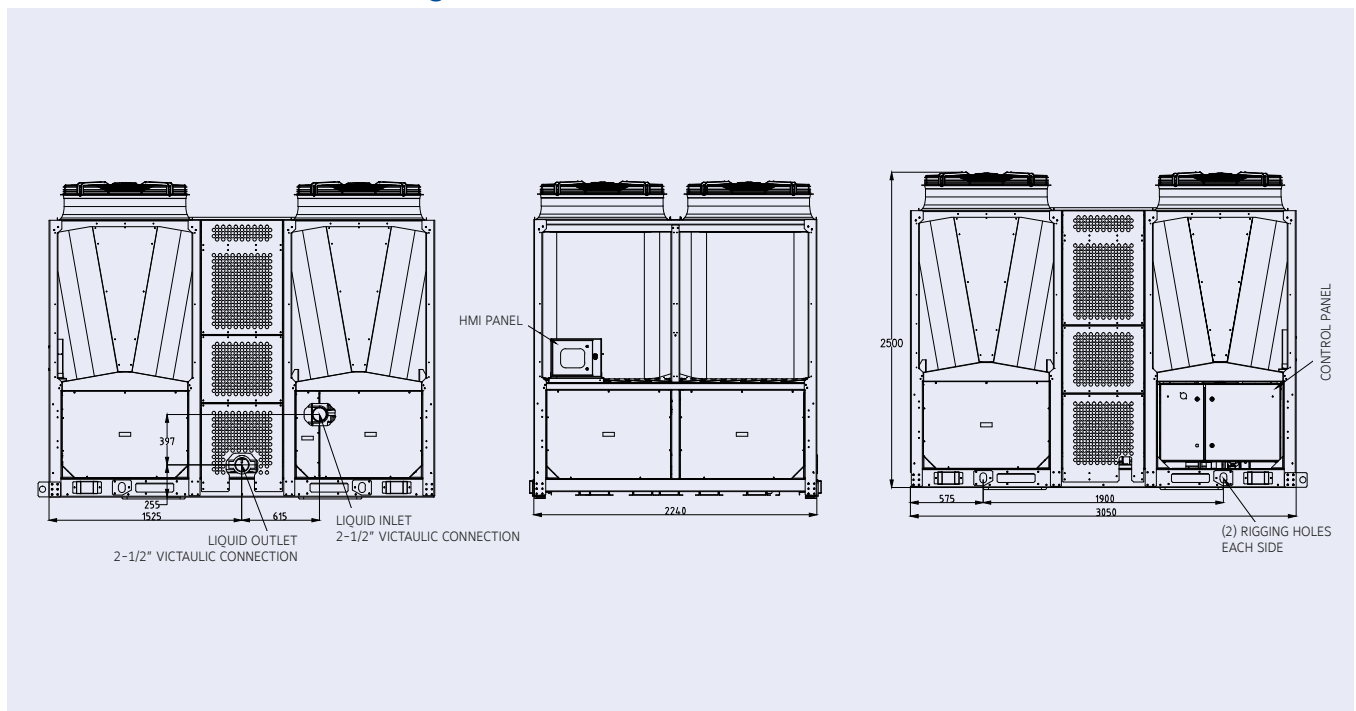
# Dimensions, hydraulic connections

## YMAA-YMPA 160 and 200 Single unit



All dimensions in mm. Drawings not a scale.

## YMAA-YMPA 230 and 260 Single unit



All dimensions in mm. Drawings not a scale.

# YLHD

## Air to water scroll heat pump

YLHD 0040 to 0150

A complete range from 39.8 kW up to 145 kW



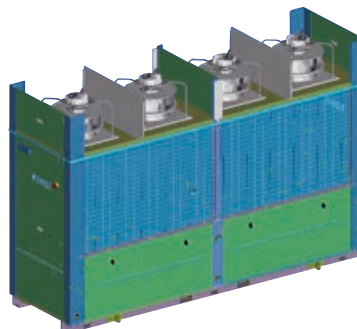
The new **YORK YLHD** air to water scroll heat pumps with powered fans are ideal solution for units to be installed in technical rooms or in louvered/hidden spaces on the roof.

Sharing the reliable and proven designed with YLHA, these new units using R410A aims to help the installer and the user to help to find solutions for special and difficult installations.

The bigger sizes (from 100 to 150 kW) utilize new EC Inverter radial fans, that will keep always the right performance for the unit at any outdoor condition.

### Features

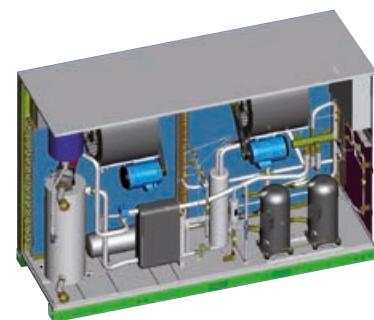
- Centrifugal or radial fans
- Scroll compressor
- Vertical and horizontal discharge
- Integrated Hydro kit (P versions)
- LAK (-18°C) standard (sizes 100-150)
- Flow switch standard



EC Radial Fans (sizes 100 to 150), using new high efficiency ventilation technology to improve the overall performance.

### Options / Accessories

- Vertical Discharge kit (sizes 40 to 70)
- Low Noise (sizes 100 to 150)
- Dual Water Pumps (sizes 100 to 150)
- Water filter and water flow switch
- Antivibration mounting
- Remote control and remote terminal
- BMS communication (Carel and Modbus protocol)



Integrated Hydrokit, shared with YLHA product platform, for a compact and quick installation.





# Air to water scroll heat pump

YLHD 0040 to 0150

## Technical features

T Three phases supply P Hydro Pack H Heat pump

Models		YLHD					
		0040 T-TP	0070 T-TP	0100 T-TP	0120 T-TP	0150 T-TP	
	Cooling capacity (1)	kW	39.8	67.5	95.4	116.5	142.5
	Heating capacity (1)	kW	43.2	72.5	104.6	120.1	159.5
	Total Input Power cool/heat mode (1)	kW	15.13 / 15.6	26.57 / 26.46	36.27 / 37.63	42.21 / 43.2	60.13 / 59.07
	EER / COP (1)		2.63 / 2.77	2.54 / 2.74	2.63 / 2.78	2.76 / 2.78	2.37 / 2.7
	SCOP		3.3	3.38	3.7	3.57	3.42
	ηs, h		129	136	145	140	134
	Capacity steps	%	50-100		25-50-75-100		
Sound power level	dB(A)	83	86	86	86	87	
<b>Compressor</b>	Type	Scroll					
	Quantity	2	2	4	4	4	
<b>Air side heat exchanger</b>	Fans quantity	2	2	4	4	4	
	Nominal air flow	m³/h	18 000	23 000	36 000		48 000
	Nominal static pressure	Pa	100	150	200		
	Working ambient temp. cool. / heat. mode		(4) (-18°C) ~ 46°C / -10°C ~ 20°C		-18°C ~ 46°C / -10°C ~ 20°C		
<b>Water side heat exchanger</b>	Type	Single plate heat exchanger		Dual plate heat exchanger			
	Unit water volume	Litres	84	92	193	195	214
	Pump Type	Multistage horizontal pump					
	Nominal water flow	l/h	6 880	12 040	17 030	20 470	24 940
	Available pressure (1) (2)	kPa	105	120	187	202	186
	Pressure drop (1) (3)	kPa	31	53	54	32	24.5
	Working range water leaving temperature cooling / heating (5)		-5°C ~ 15°C / 30°C ~ 50°C				
Water connections	inch	2"		2-1/2"			
<b>Dimensions &amp; Weight</b>	Height	mm	1 794	1 794	2 460	2 460	2 480
	Width	mm	2 659	2 659	3 466	3 416	3 768
	Depth	mm	897	897	1 101	1 101	1 101
	Weight without pack / pack	kg	750 / 790	760 / 800	1 284 / 1 380	1 284 / 1 380	1 700 / 1 796
<b>El. supply</b>	Voltage / Phases / Frequency	V/ph/hz 400 / 3 / 50 + N + E					

(1) net values at Eurovent nominal conditions (2) version P with hydro kit with filter (3) version without hydro kit (4) -18°C with LAK option (5) below 6°C with glycol  
 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. For other Ecodesign calculations, please contact your JCI representative.  
 ηs calculated according to Ecodesign regulation for heating (813/2013).

## Compatibility table / Codes

Models	0040 T	0070 T	0100 T	0120 T	0150 T
Heat pump unit YLHD	S668574083	S668577083	S668571083	S668571283	S668571583
Models	0040 TP	0070 TP	0100 TP	0120 TP	0150 TP
Heat pump unit YLHD	S668574080	S668577080	S668571080	S668571280	S668571580

Use this unit code when a factory fitted option is NOT required

### Accessories (Supplied loose)

AVM mounting	S613029002	S613028180	S613021580		
Flow switch	S611992021				
Remote control	S613802011				
Remote terminal	S613802231				
Cable for remote connection of the terminal	-			S613802241	
B.M.S. Communication	S613802041			S613802051	

Models	0040 T	0070 T	0100 T	0120 T	0150 T
Heat pump unit YLHD	S668000266	S668000270	S668000274	S668000278	S668000282
Models	0040 TP	0070 TP	0100 TP	0120 TP	0150 TP
Heat pump unit YLHD	S668000267	S668000271	S668000275	S668000279	S668000283

Use this unit code when a factory fitted option is required

### Options (Factory fitted)

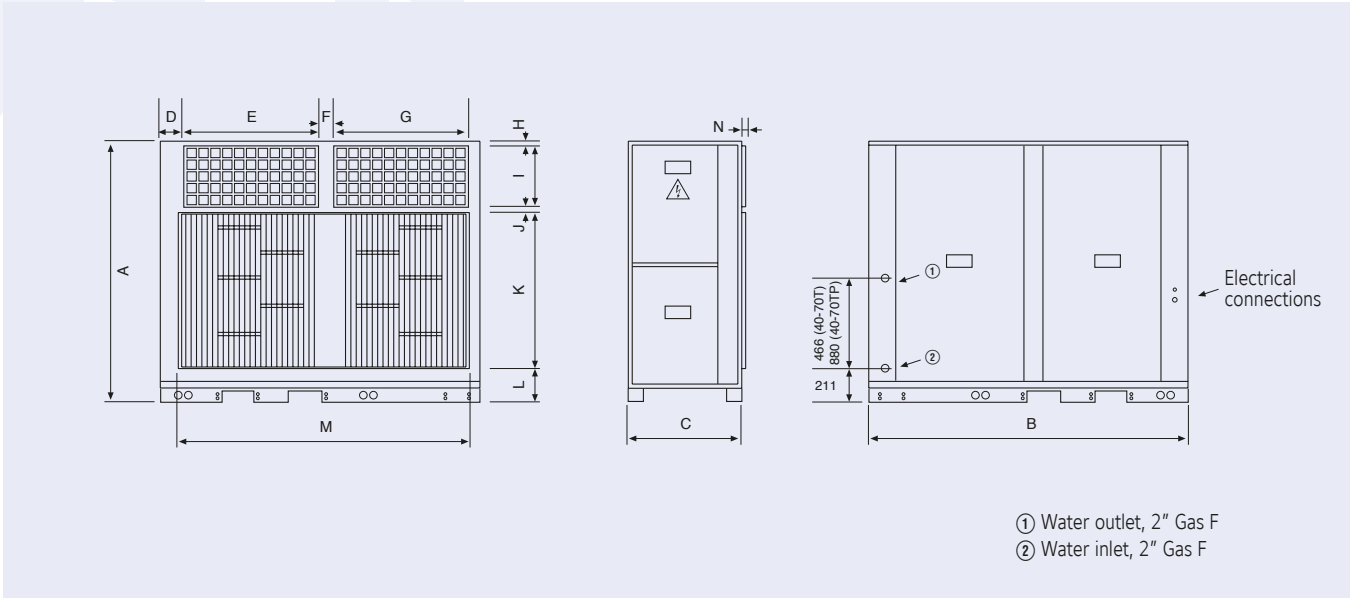
Low noise	S613990550	NA	S613991050	S613991285	S613991584
Dual pump	NA	NA	S613991040	S613991286	S613991585
Coil guard net	Standard		S613995093		S613995094
Low Ambient Kit	S613111084			Standard	
Soft start	S606744693			S606744694	
Vertical air discharge	S612828205			Standard	
Copper/copper condenser	Contact Johnson Controls				



Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

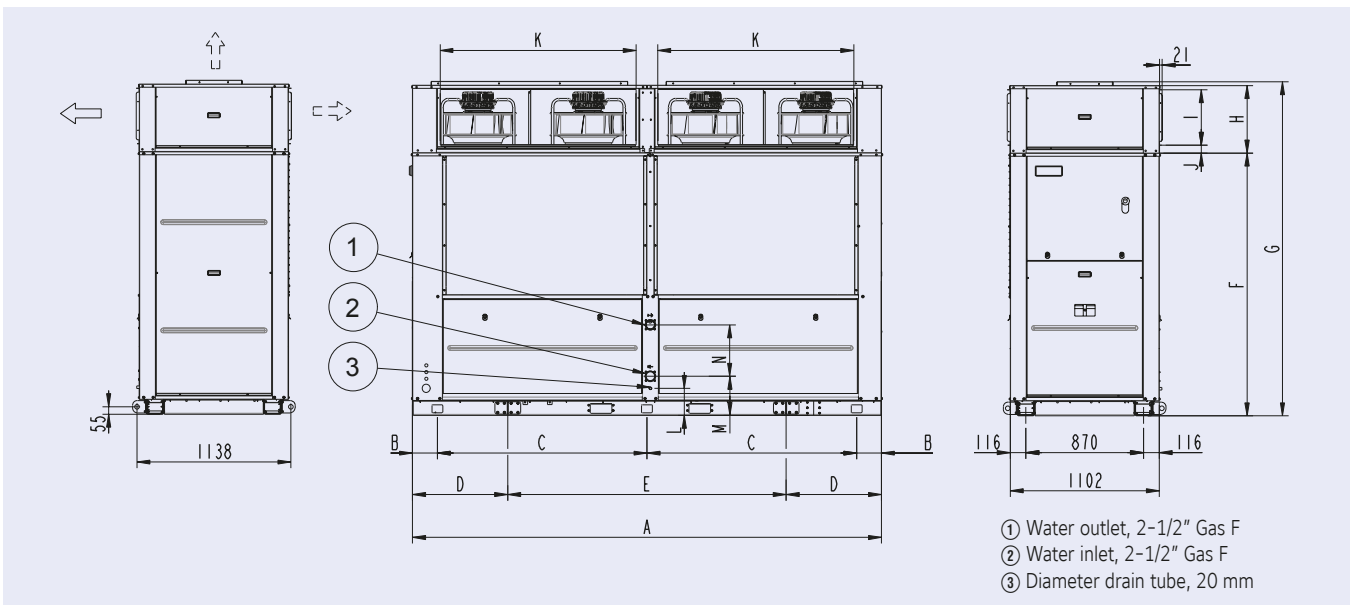
## YLHD 0040-0070 T/TP



All dimensions in mm. Drawings not a scale.

Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N
YLHD 0040 T/TP	1 794	2 658	897	148	1 155	95	1 155	30	389	37	1 200	138	2 479	23
YLHD 0070 T/TP	1 794	2 658	897	148	1 155	95	1 155	30	389	37	1 200	138	2 479	23

## YLHD 0100-0120 T/TP



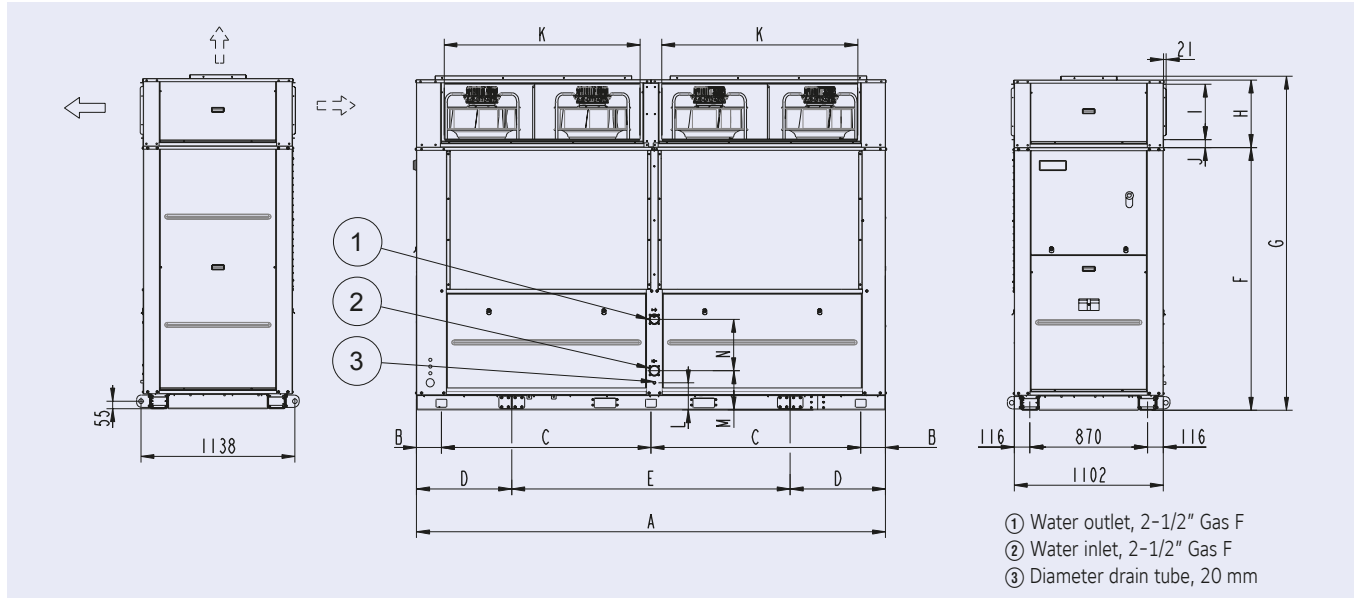
All dimensions in mm. Drawings not a scale.

Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N
YLHD 0100 T/TP	3 466	183	1 550	704	2 058	1 942	2 460	500	410	59	1 450	200	290	380
YLHD 0120 T/TP	3 416	183	1 525	604	2 208	1 942	2 460	500	418	55	1 438	200	290	380

# YLHD 0040 to 0150



## YLHD 0150 T/TP



All dimensions in mm. Drawings not a scale.

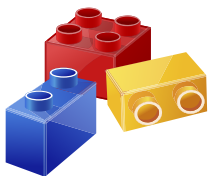
Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N
YLHD 0150 T/TP	3 768	254	1 630	605	2 558	1 992	2 480	470	386	55	1 617	410	210	458

# YCME / YHME Series 2 Modular screw chillers and heat pumps

YCME/YHME 0162HE to 0222HE  
A complete range from 160 kW up to 225 kW



**NEW**



## Modular concept

### Provide flexibility and achieve reliability

Up to 8 modules in one water system brings important benefits.

### Achieve reliability

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

Example of module configurations



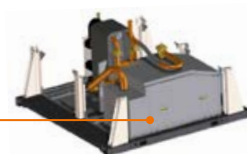
## Fully configurable units

### Increase the versatility

Up to 60 different options and accessories make our chiller as unique as the project needs.

Some of the most interesting are:

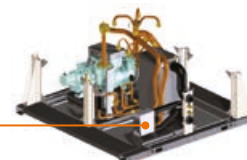
Sound attenuation  
compressor enclosure



Dual pump option



Heat recovery option



# Modular screw chillers and heat pumps

YCME/YHME 0162HE to 0222HE



## YCME Air-cooled Chiller Performance Data

Individual modules		YCME0162HE	YCME0182HE	YCME0202HE	YCME0222HE
Cooling capacity	kW	160	180	205	225
Total power input	kW	51.3	57.7	65.4	70.9
SEER		Meet Ecodesign requirements			
$\eta_{s,c}$		Meet Ecodesign requirements			
Sound power level	dB(A)	96	97	98	99
Dimensions (H x W x D)	mm	2450 x 1955 x 2290		2450 x 1955 x 3230	
Operating weight	kg	1300	1340	1590	1680
Chilled Water Outlet (std, options Low / High)	°C	+5°C ~ +15°C, with Options -10°C ~ +5°C / +15°C ~ +30°C			
Ambient Air Temperature	°C	-15°C ~ +46°C			
Electrical Power Supply		3N - 400V 50Hz			

## YHME Air-cooled Heat Pump Performance Data

Individual modules		YHME0162HE	YHME0182HE	YHME0202HE	YHME0222HE
Cooling capacity	kW	150	170	195	210
Total power input	kW	51.1	58.0	66.1	70.2
Heating capacity	kW	145	145	185	186
Total power input	kW	51.5	51.6	65.3	65.4
SCOP		Meet Ecodesign requirements			
$\eta_{s,h}$		Meet Ecodesign requirements			
Sound power level	dB(A)	96	97	98	99
Dimensions (H x W x D)	mm	2450 x 1955 x 2290		2450 x 1955 x 3230	
Operating weight	kg	1400	1420	1680	1760
Chilled Water Outlet (std, options Low / High)	°C	+5°C ~ +15°C, with Options -10°C ~ +5°C / +15°C ~ +30°C			
Heated Water Outlet	°C	+35°C ~ +55°C			
Ambient Air Temperature (Cool / Heat)	°C	-15°C ~ 46°C / -9.5 (DB), -10 (WB) ~ +21 (DB), +15.5 (WB)			
Electrical Power Supply		3N - 400V 50Hz			

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature  $\Delta t$  5°C and 35°C ambient temperature.

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

For Ecodesign calculations, please contact your JCI representative.

Sound Pressure: measured at 1.5m height, and at 1m distance from the control panel.

The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects.



## Widest operating range at highest efficiency

### YCME/YHME Cooling operating range

Chilled water outlet temperature: -10°C to +30°C

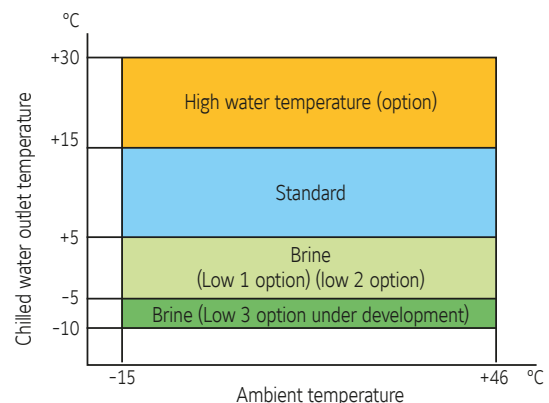
Ambient temperature: -15°C to +46°C

### YHME Heating operating range

Hot water outlet temperature: +35°C to +55°C

Ambient temperature: -10°C (WB) to +15.5°C (WB)

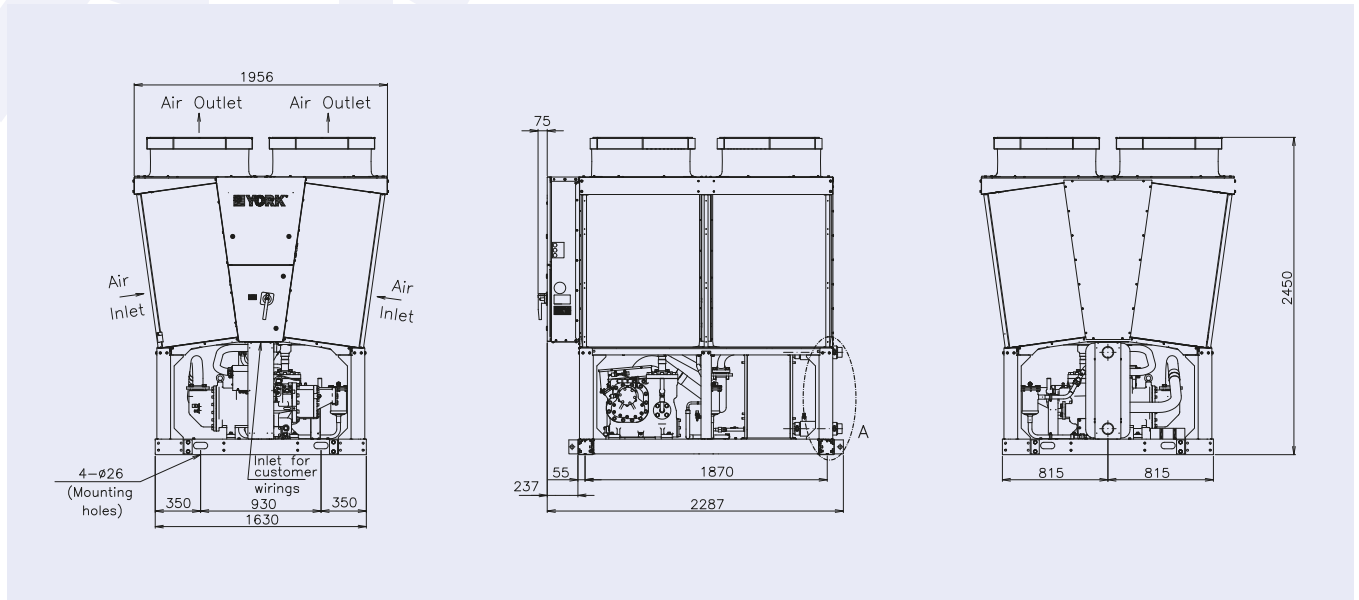
Two operating modes selectable at commissioning allow the installation's performance to focus on either high efficiency or high accuracy outlet water temperature.



Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

YCME/YHME 0162-0182

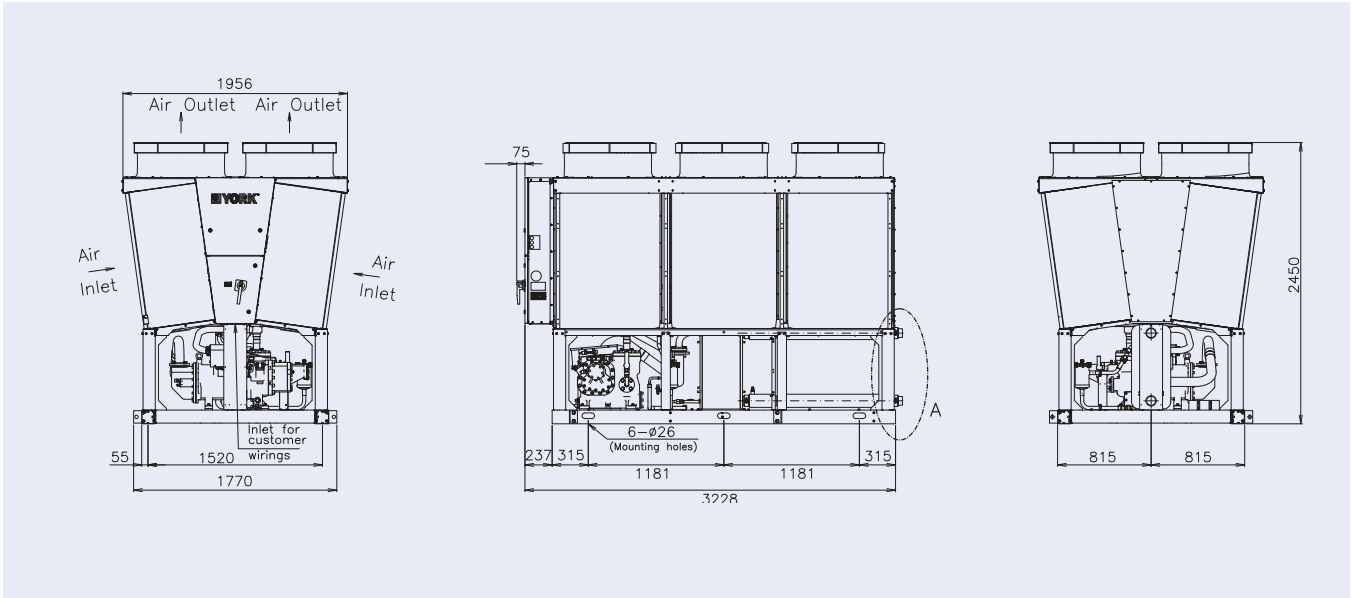


All dimensions in mm. Drawings not a scale.

# YCME/YHME 0162HE to 0222HE



## YCME/YHME 0202-0222



All dimensions in mm. Drawings not a scale.

# YLAA

## Air-cooled scroll compressor chiller

Cooling capacities from 198 kW to 527 kW



### Options / Accessories

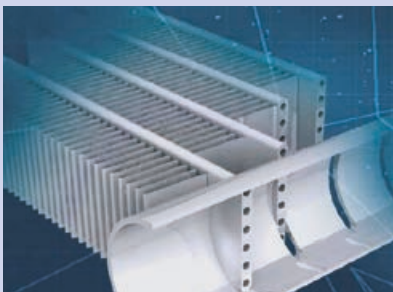
- Soft start
- Power Factor Correction Capacitors
- Low ambient kit
- BMS Interfacing options
- Dual pressure relief valves
- Victaulic coupling
- Flow switch
- Heat recovery option
- Enclosure options
- Sound attenuation options
- Anti-vibration mounts options
- Hydrokits with single and dual pump
- Epoxy Post-coated Dipped Microchannel Coils
- VSD Fans

### Features

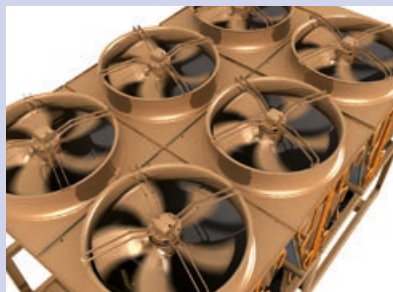
The **YORK YLAA TEMPO** air-cooled chiller is an environmental leader.

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.

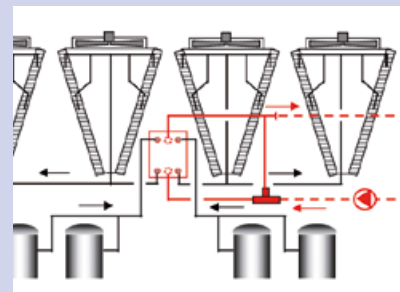


The TEMPO delivers energy efficiency levels that surpasses Eurovent A Class requirements. Aluminium microchannel condenser coil technology is one reason for this premium efficiencies.



Ultra quiet operation can be obtained through optional dual or low speed fans and a compressor accoustic enclosure.

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 50°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	0261	0286	0301	0350	0391	0442	0457	0517
Cooling capacity (kW)	198	211	248	273	298	348	380	433	459	527
EER	3.09	3.20	3.10	2.60	3.00	2.94	2.99	2.96	2.96	2.95
SEER	Meet Ecodesign Requirements									
$\eta_{s,c}$	Meet Ecodesign Requirements									
Sound power level dB(A)	89	91	93	93	93	94	95	95	96	96
Sound power level Low Noise Version dB(A) (1)	82	84	87	87	86	87	88	88	89	89

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature  $\Delta t$  5°C and 35°C ambient temperature

For Ecodesign calculations, please contact your JCI representative.

(1) Low noise version fits Ultra Quiet Fans and compressor acoustic enclosures

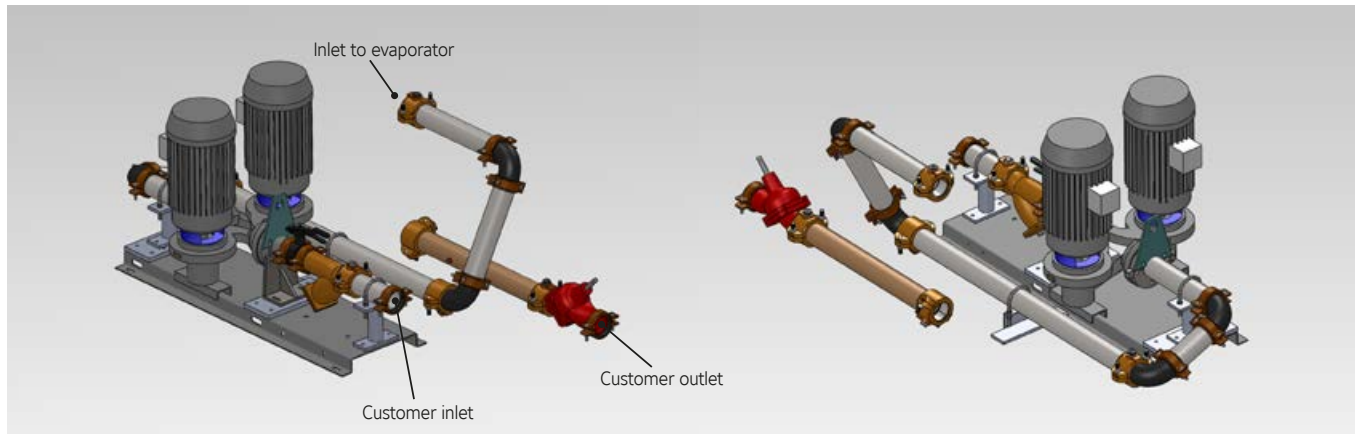
The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects

## Technical data

YLAA			0195	0221	0261	0286	0301	0350	0391	0442	0457	0517
Dimensions	Length	mm	2911				3614			4769		
	Width	mm	2254			2242		2254				
	Height	mm	2507									
Operating weight kg			1706	1721	1851	1853	2170	2339	2508	3343	3481	3615

## YLAA Pump Kit

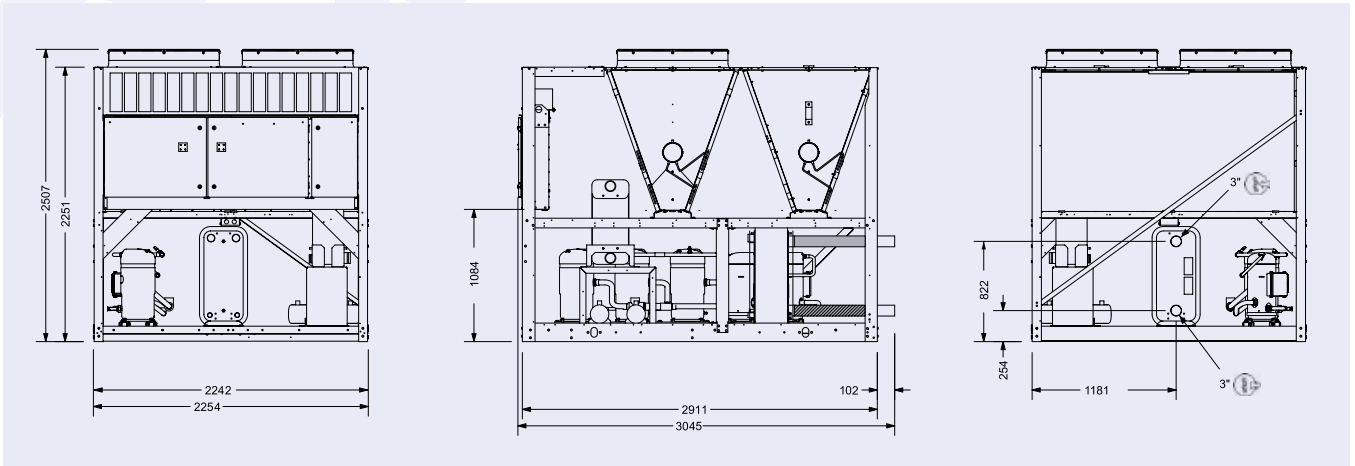
- Two option levels - basic and full featured - for maximum flexibility
- More impeller size options for better match to customer requirements
- New, smaller pump motors suitable for primary-secondary systems



Manufacturer reserves the rights to change specifications without prior notice.

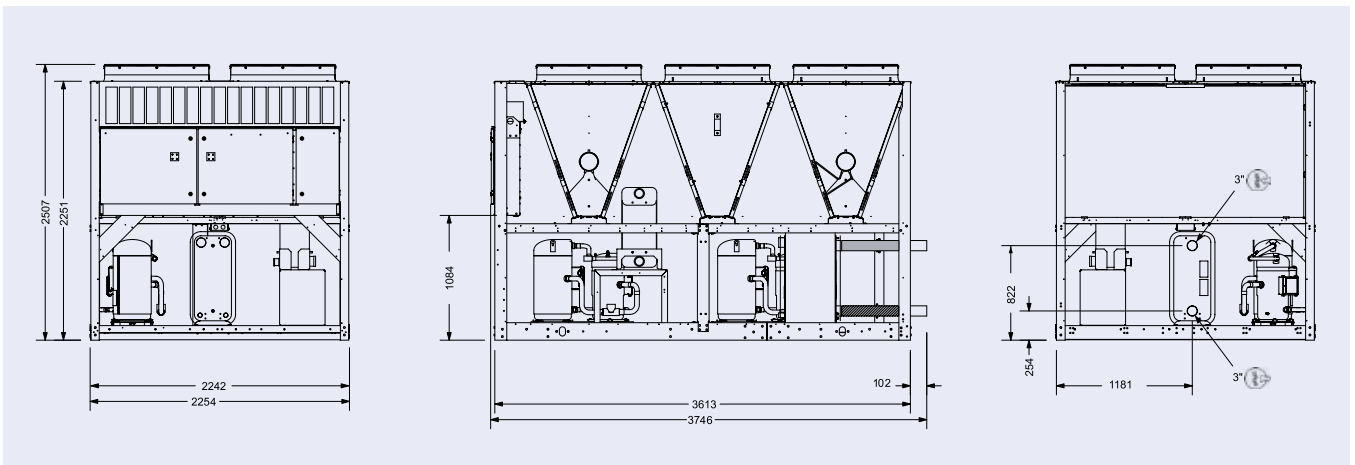
# Dimensions and hydraulic connections

## YLAA 0195, 0221 & 0261



All dimensions in mm. Drawings not a scale.

## YLAA 0301 & 0391

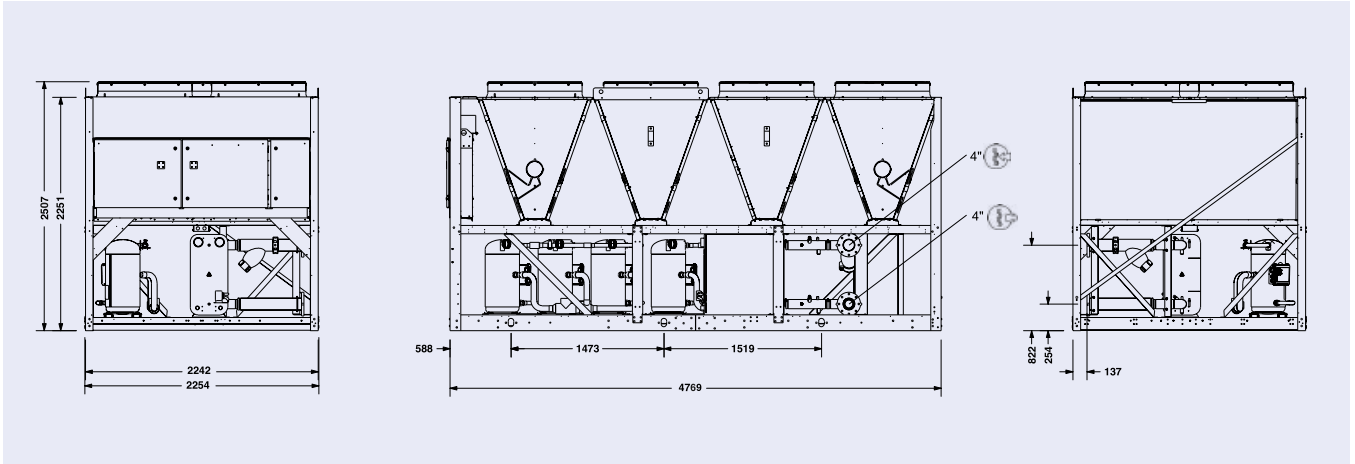


All dimensions in mm. Drawings not a scale.

# YLAA 0195 to 0517

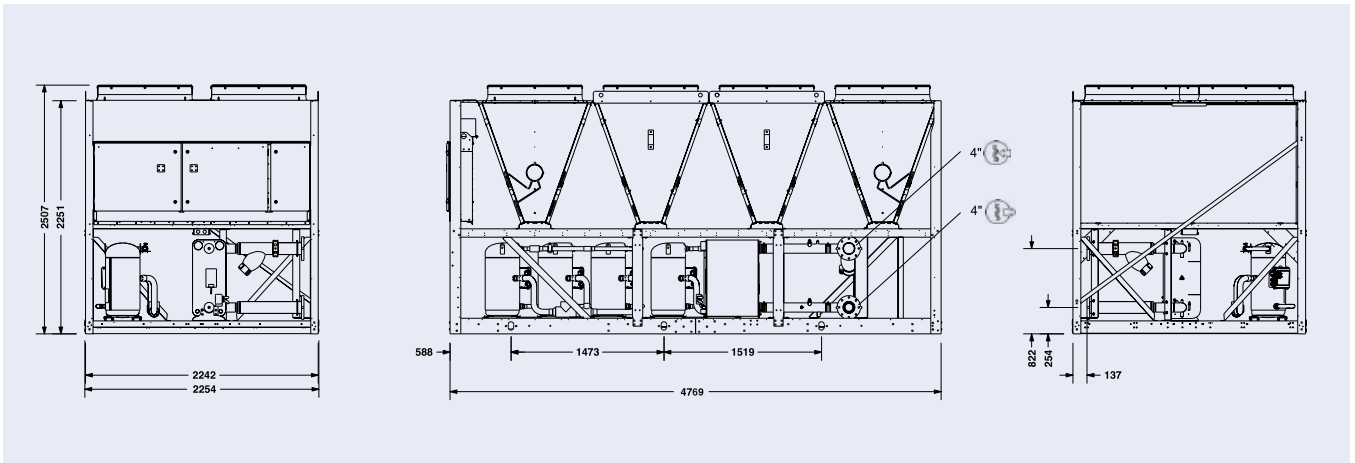


## YLAA0442



All dimensions in mm. Drawings not a scale.

## YLAA0457 & 0517



All dimensions in mm. Drawings not a scale.

# YLRA

## Air cooled heat pump scroll compressor

Cooling capacities from 182 kW to 309 kW

Heating capacities from 200 kW to 328 kW

At Eurovent Standard Conditions all models meet A Class energy efficiency levels for heating mode.



### Features

YLRA are available in 6 models, from 200 to 330, with a nominal capacity range from 182 to 309 kW in cooling mode and from 200 to 328 kW in heating mode. Up to 3.99 ESEER with EC fans.

Except for the fans all the units have the same configuration of base units (structure, electrical board, compressors and coils).

Each model is available in the following acoustic versions:

- Basic Low Noise version (BLN): These models are equipped with delta connected fans running at a fixed rpm and are fitted with compressor boxes to reduce noise emissions.
- Super Low Noise version (SLN): Those models are equipped with special inverter fans driven by EC (electronic brushless type), fitted with a variable speed controller which allows the fans to operate at a very low rpm. The chillers are supplied with compressor boxes and soundproof jackets on compressors reducing significantly the noise emissions.

The BLN model is also available in an EC version (developed for high seasonal efficiency) which has the same equipment as that of the standard BLN model, except that the units are equipped with special inverter fans driven by EC (electronic brushless type) motors with integrated electronic inverter, to ensure low energy consumption.

### Options / Accessories

- ModBus protocol kit for BMS (standard)
- Lonwork protocol kit for BMS
- Bacnet protocol kit for BMS
- Soft start
- Power factor correction capacitors
- Compressors overload protection
- Condensing control kit (down to  $-14^{\circ}\text{C}$  ambient temperature in cooling mode)
- Polar version (down to  $-18^{\circ}\text{C}$  ambient temperature in heating mode)
- Double set point
- HP & LP manometers
- E-coating Al/Cu condenser coils
- Chiller grilles
- Desuperheater
- Optional hydro kits
- Remote ON/OFF control
- Remote keyboard panel
- Sequencer unit
- Spring isolators
- Flow switch
- Water filter

# Heat pump scroll compressor

YLRA 0200 to 0330



## Nominal capacity

YLRA BLN versions	0200	0230	0260	0280	0300	0330
Cooling capacity (kW)	182	213	244	261	288	309
EER	2.93	2.92	2.91	2.88	2.92	2.97
Heating capacity (kW)	200	229	262	279	306	328
COP	3.23	3.23	3.21	3.21	3.22	3.21
SCOP	3.25	3.43	3.43	3.43	3.33	3.43
$\eta_s$ , h	127	134	134	134	130	134
Sound power level (dBA)	92	92	93	93	94	95

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature  $\Delta t$  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 EN14825

$\eta_s$  calculated according to Ecodesign regulation for heating (2016/2281)

Sound levels are at fully loaded conditions. Sound power level values refer to ISO standard 3744 and Eurovent 8/1

The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects

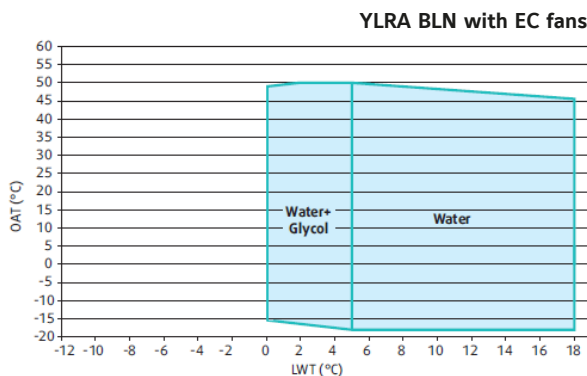
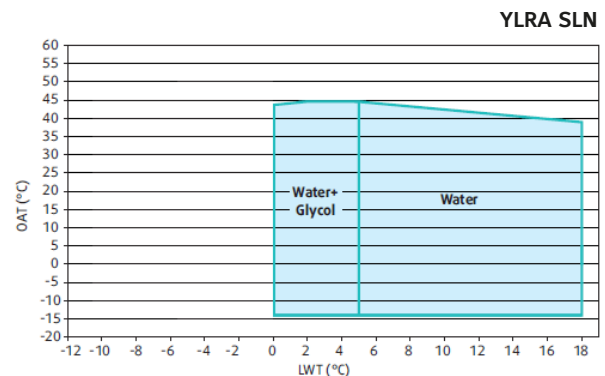
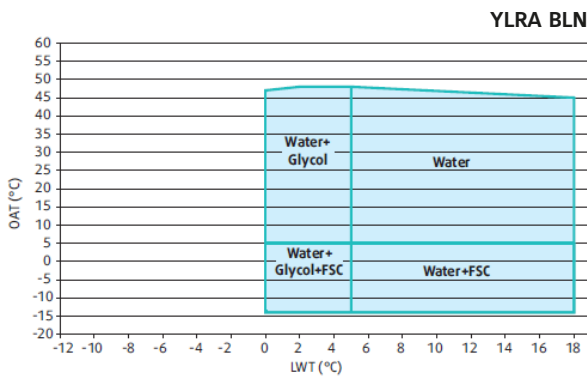
## Technical data

YLRA BLN versions			0200	0230	0260	0280	0300	0330
Dimensions	Length	mm	3 500				4 550	
	Width	mm	2 150					
	Height	mm	2 600					
Operating weight (kg)			1858	1993	2216	2226	2806	2899

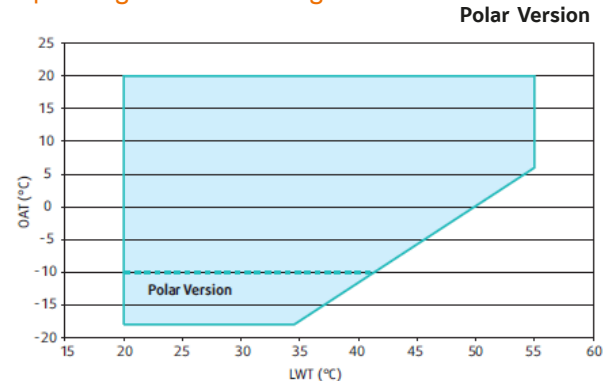
## Operating limits

Thanks to the different versions available, the **YLRA** is working in a wide operating envelope in cooling mode. Special attention to the **Polar Version** optional, which is extending the heating envelope of the units to allow operation at ambient temperatures as low as **-18°C**.

### Operating limits in cooling mode



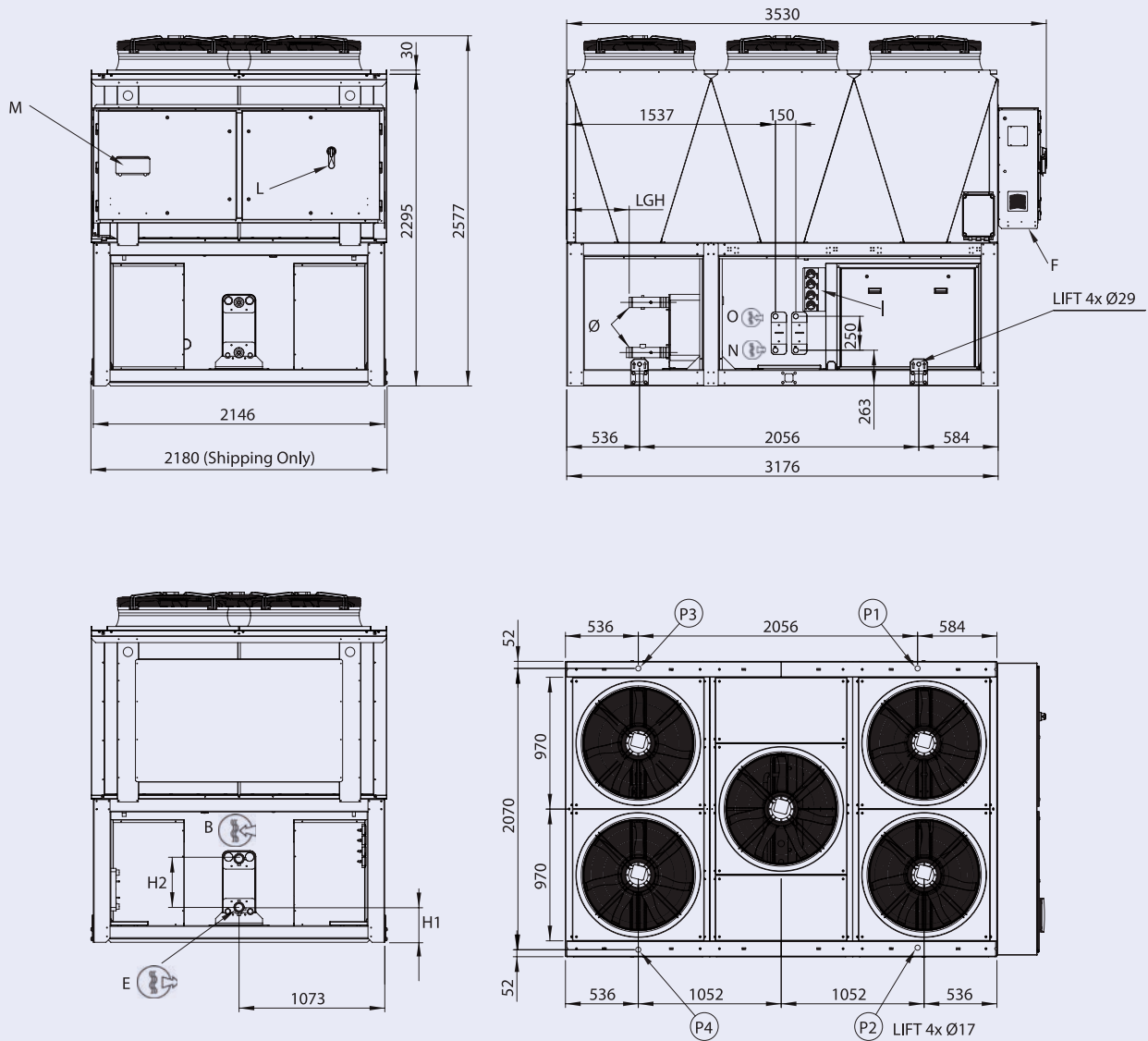
### Operating limits in heating mode



Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

YLRA 0200 to 0280



All dimensions in mm. Drawings not a scale.

**NOTES:**

- B, E** - WATER CONNECTION GAS M
- F** - ELECTRICAL POWER SUPPLY
- I** - GAUGE KIT (ACCESSORY)
- L** - MAIN SWITCH
- M** - CONTROL KEYPAD / DISPLAY

**OPTIONAL DESUPERHEATER**

- N** - WATER INLET Ø1" GAS M
- O** - WATER OUTLET Ø1" GAS M

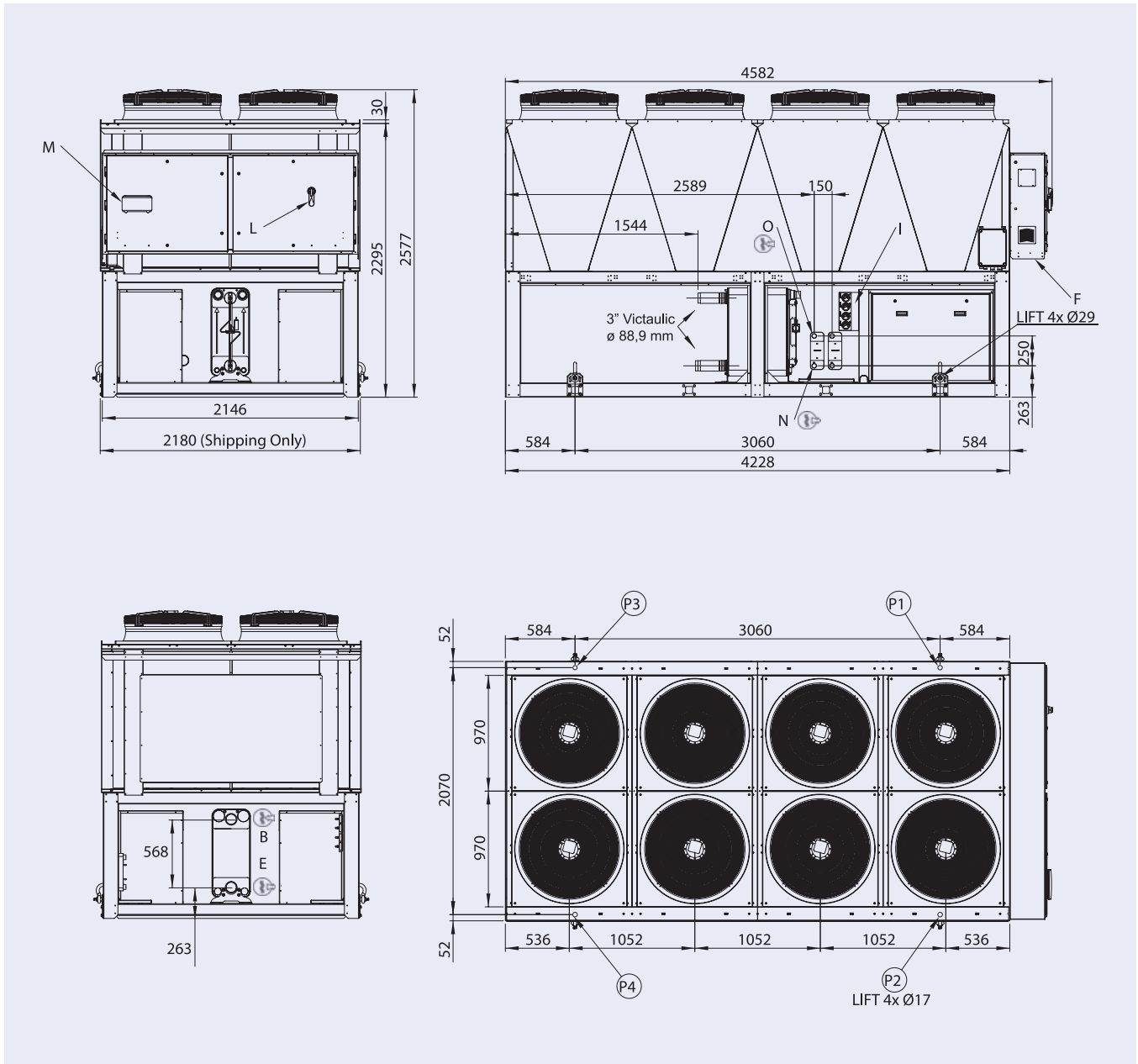
**P1, P2, P3, P4** AVM POSITION

Size	LGH	Ø
YLRA 0200	440	2" 1/2 Victaulic Ø 76.1 mm
YLRA 0230 to 0280	344	3" Victaulic Ø 88.9 mm

Size	H1	H2
YLRA 0200	246	370
YLRA 0230 to 0280	205	520

# Dimensions and hydraulic connections

## YLRA 0300 and 0330



All dimensions in mm. Drawings not a scale.

**NOTES:**

- B, E** - WATER CONNECTION 3-GAS M  $\varnothing$ 88.9 mm
- F** - ELECTRICAL POWER SUPPLY
- I** - GAUGE KIT (ACCESSORY)
- L** - MAIN SWITCH
- M** - CONTROL KEYPAD / DISPLAY

**OPTIONAL DESUPERHEATER**

- N** - WATER INLET  $\varnothing$ 1" GAS M
- O** - WATER OUTLET  $\varnothing$ 1" GAS M

**P1, P2, P3, P4** AVM POSITION

# YLPB Heat pump scroll compressor

Cooling capacities from 335 kW to 626 kW  
Heating capacities from 345 kW to 656 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 units 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)	335	411	477	557	626
EER	3.00	2.93	2.88	2.95	3.00
Heating capacity (kW)	345	429	515	577	656
COP	3.05	3.05	3.02	2.97	2.99
SCOP	3.25	3.25	3.25	3.25	3.25
$\eta_s$ , h	127	127	127	127	127
Sound Power Level (dBA)	95	95	97	99	101

Net values at Eurovent nominal conditions:

Cooling capacities in kW given for 7°C water leaving temperature  $\Delta t$  5°C and 35°C ambient temperature

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

SCOP calculated according to EN14511 and EN14825

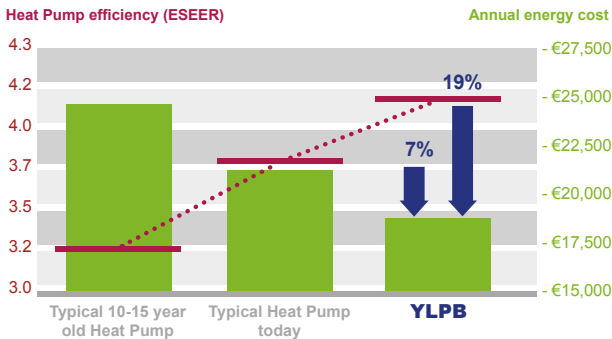
$\eta_s$  calculated according to Ecodesign regulation for heating (813/2013)

The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects

## Technical data

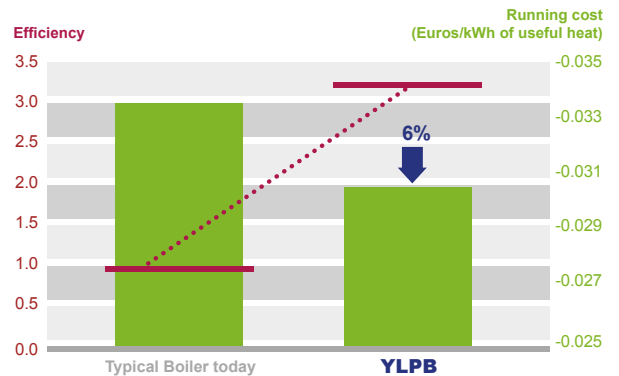
YLPB			0345	0430	0525	0575	0650
Dimensions	Length	mm	4721			5838	6955
	Width	mm	2242				
	Height	mm	2501				
Operating weight kg			3753	3993	4150	4687	5436

### High Efficiency Cooling Mode



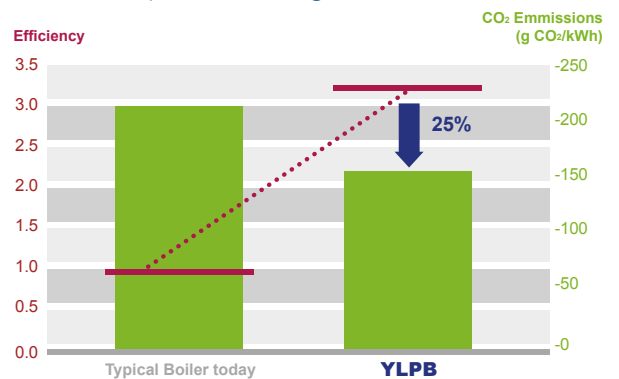
500 kW unit, 3000 operating hours, energy rate = 0.1 EUR / kWh

### Additional Energy Savings in Heating Mode



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

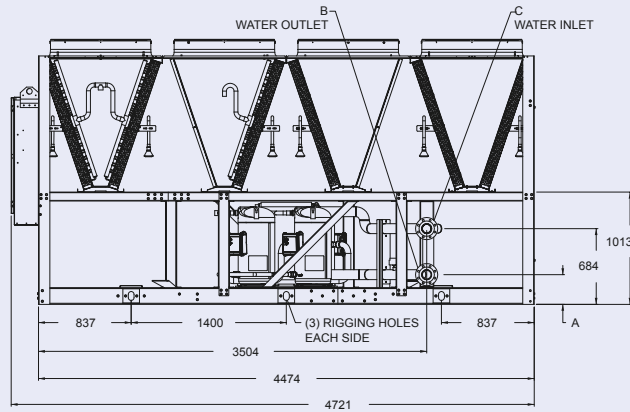
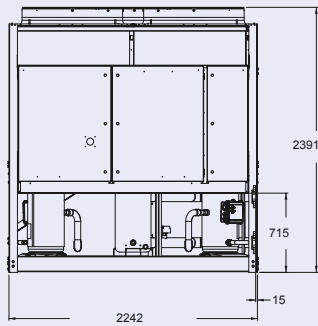
### Carbon footprint in Heating Mode



Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

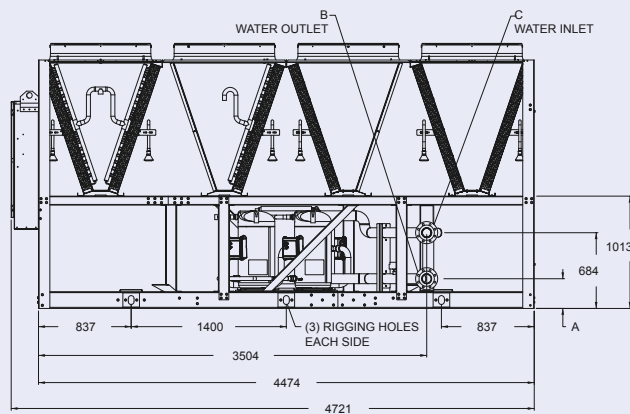
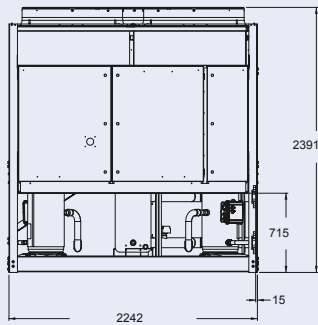
## YLPB 0345, 0430 & 0525



Unit	A	B	C
YLPB 0345	268	3"	3"
YLPB 0430	268	3"	3"

All dimensions in mm. Drawings not a scale.

## YLPB 0345, 0430 & 0525



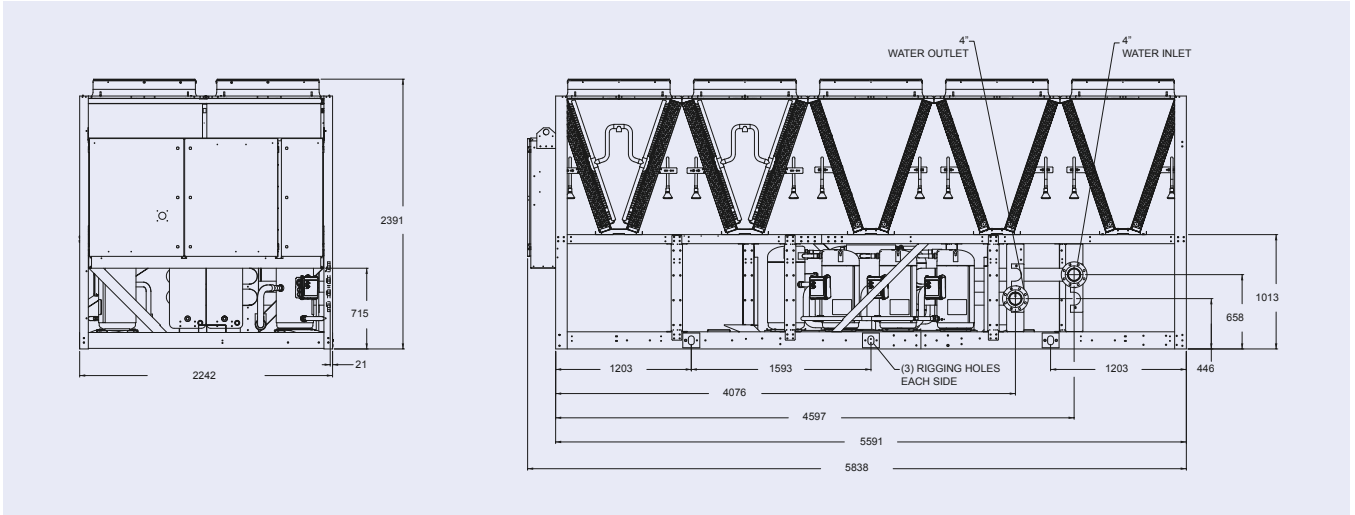
Unit	A	B	C
YLPB 0525	281	4"	4"

All dimensions in mm. Drawings not a scale.

# YLPB 0345 to 0650

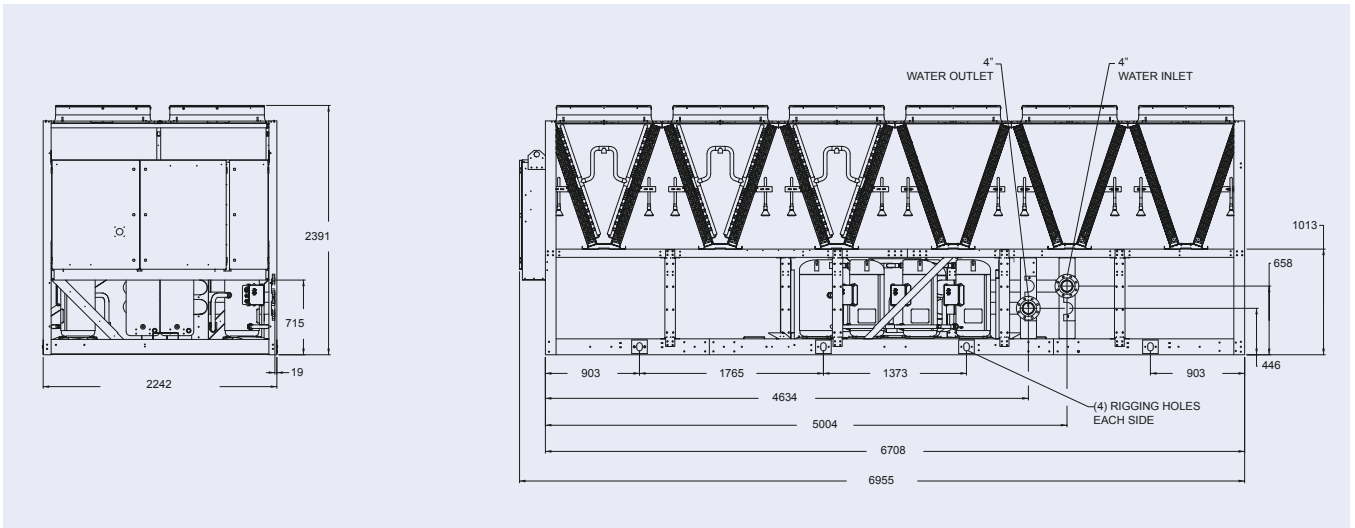


## YLPB 0575



All dimensions in mm. Drawings not a scale.

## YLPB 0650



All dimensions in mm. Drawings not a scale.

# YVAA Air-cooled VSD screw chiller

Cooling capacities from 569 kW to 1654 kW

At Eurovent Standard Conditions this equipment meets A Class energy efficiency levels.



Compatible range



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

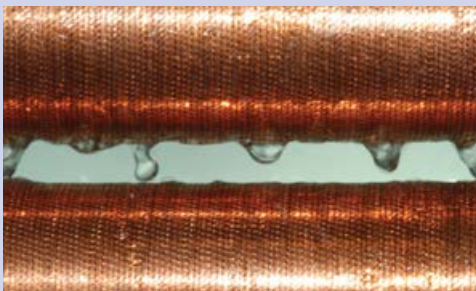
## Features

- 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 0588 to 1843

## Application flexibility (\*) example of selections

YVAA	0588	0643	0665	0688	0700	0743	0765	0788	0843	0865	0888	0943
Cooling capacity (kW)	569	573	588	639	614	658	649	738	748	768	808	812
EER	3.24	3.07	3.17	3.23	2.83	3.13	3.16	3.15	2.90	3.14	3.17	2.99
SEER	4.32	4.27	4.40	4.58	4.15	4.41	4.63	4.73	4.50	4.73	4.80	4.61
$\eta_{s,c}$	170	168	173	180	163	173	182	186	177	186	189	181
Sound power level (dBA)	98	96	97	98	95	97	96	98	98	98	98	99

YVAA	0960	0963	0965	0988	1015	1065	1088	1093	1143	1173	1188	1193	1215
Cooling capacity (kW)	832	867	898	933	948	971	997	964	1002	1008	1022	1017	1047
EER	3.06	3.07	3.09	3.15	3.13	3.02	3.15	2.92	2.95	2.92	3.18	3.07	3.11
SEER	4.48	4.71	4.87	5.00	4.85	4.74	4.97	4.61	4.68	4.61	5.02	4.78	4.90
$\eta_{s,c}$	176	186	192	197	191	187	196	181	184	182	198	188	193
Sound power level (dBA)	98	99	99	100	99	100	100	100	99	100	100	100	100

YVAA	1288	1315	1343	1388	1443	1488	1515	1543	1650	1665	1693	1700	1843
Cooling capacity (kW)	1118	1077	1221	1260	1455	1237	1346	1371	1385	1390	1545	1569	1654
EER	3.23	3.17	3.11	3.11	2.92	3.17	3.14	3.16	3.08	3.04	3.07	2.91	2.96
SEER	4.84	4.72	4.68	4.63	4.56	4.87	4.83	4.86	4.73	4.62	4.75	4.57	4.67
$\eta_{s,c}$	190	186	184	182	179	192	190	192	186	182	187	180	184
Sound power level (dBA)	100	100	101	100	101	101	102	102	103	102	102	103	105

Net values at Eurovent nominal conditions for models using R134a: Cooling capacities in kW given for 7°C water leaving temperature  $\Delta t$  5°C and 35°C ambient temperature. SEER calculated according to EN14511 and EN14825.

$\eta_{s,c}$  calculated according to Ecodesign regulation for chillers comfort cooling (2016/2281). 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 R134a refrigerant.

For R513a 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 Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects.

## Technical data

YVAA			0588	0643	0665	0688	0700	0743	0765	0788	0843	0865	0888	0943
Dimensions	Length	mm	7397	6274	7397	8514	5741	7397	7397	8514	7397	8514	9631	8514
	Width	mm	2241											
	Height	mm	2401											
Operating weight kg			7554	6208	6551	7012	6977	6589	7668	8011	6793	8100	8445	7151
Refrigerant charge kg			204	150	164	189	186	160	204	218	182	216	228	192

YVAA			0960	0963	0965	0988	1015	1065	1088	1093	1143	1173	1188	1193	1215
Dimensions	Length	mm	7397	8514	8514	9631	9631	10748	10748	9631	9631	10748	11865	10748	11865
	Width	mm	2241												
	Height	mm	2401												
Operating weight kg			7412	8314	8651	8996	9201	9007	9546	8665	9362	8612	9891	9704	10049
Refrigerant charge kg			228	240	242	246	261	248	268	243	268	264	277	282	286

YVAA			1288	1315	1343	1388	1443	1488	1515	1543	1650	1665	1693	1700	1843
Dimensions	Length	mm	12987	11864	11864	14104	11864	15222	14104	14104	11864	15222	15222	11865	15222
	Width	mm	2241												
	Height	mm	2401												
Operating weight kg			12435	12086	11169	12939	10558	13284	11249	12802	11287	14066	13149	12951	14066
Refrigerant charge kg			360	353	302	378	365	390	382	336	358	404	350	368	404

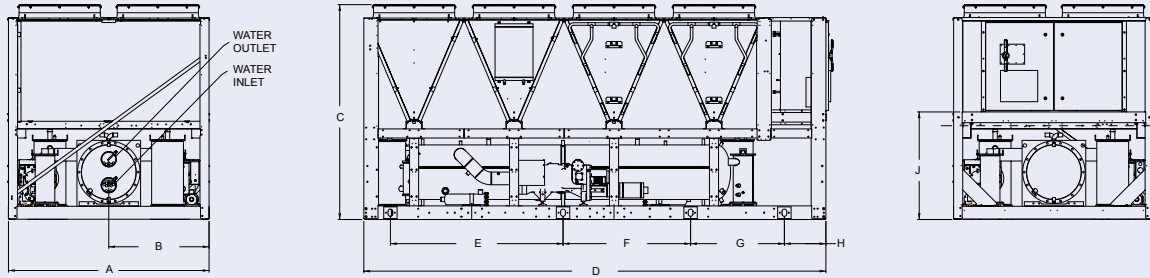


Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

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

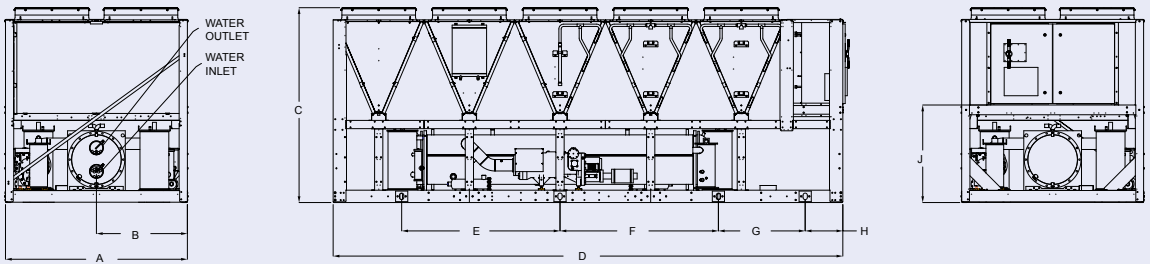
## YVAA 0700



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 a scale.

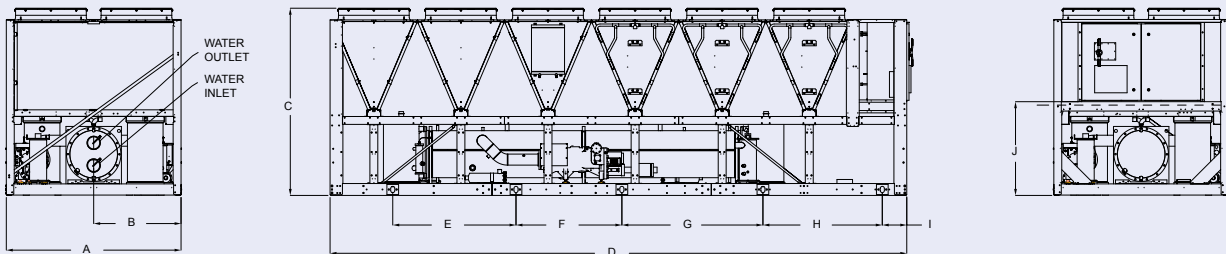
## YVAA 0643



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 a scale.

## YVAA 0588, 0665, 0743, 0765, 0843 & 0960



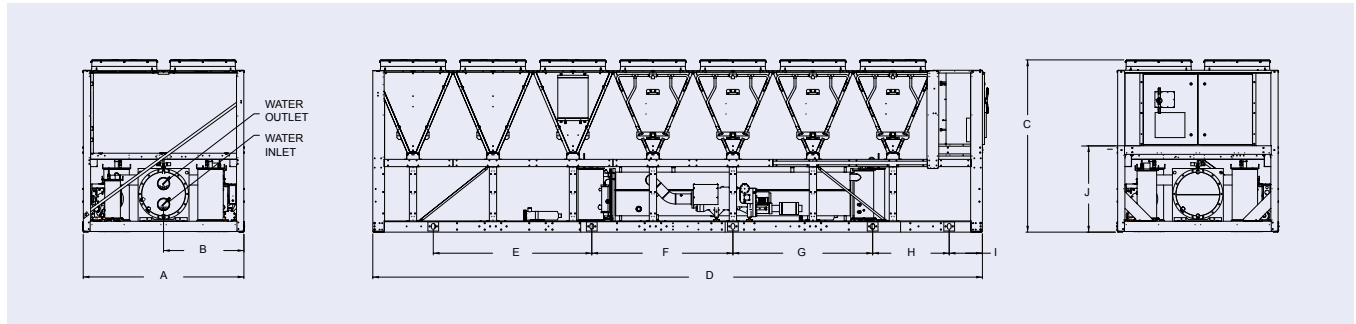
Unit frame	A	B	C	D	E	F	G	H	I	J
YVAA 0588 & 0765	2241	1121	2401	7397	1581	1358	1809	1531	314	1202
YVAA 0665 & 0743	2241	1121	2401	7397	1159	2125	2103	1069	464	1202
YVAA 0843	2241	1121	2401	7397	1464	1971	1951	1069	464	1202
YVAA 0960	2244	1122	2405	7397	1421	1358	1799	1541	314	1206

All dimensions in mm. Drawings not a scale.

# Dimensions and hydraulic connections

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

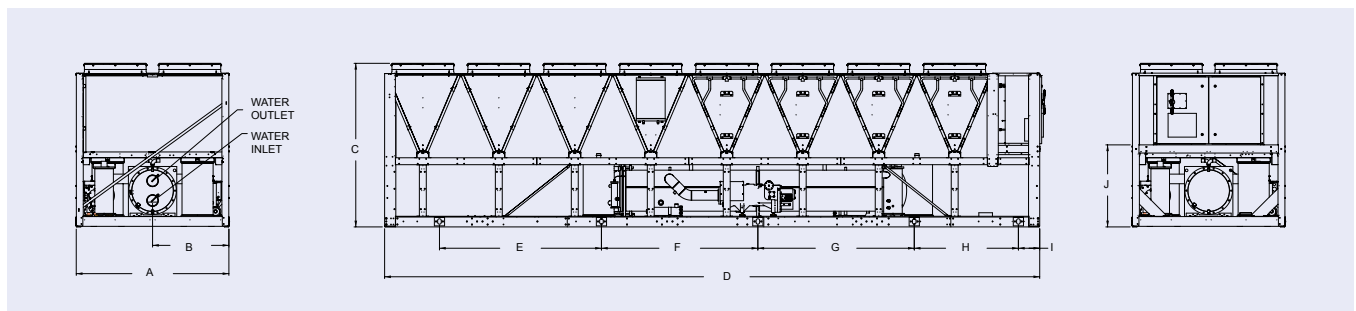
## YVAA 0688, 0788, 0865, 0943, 0963 & 0965



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 a scale.

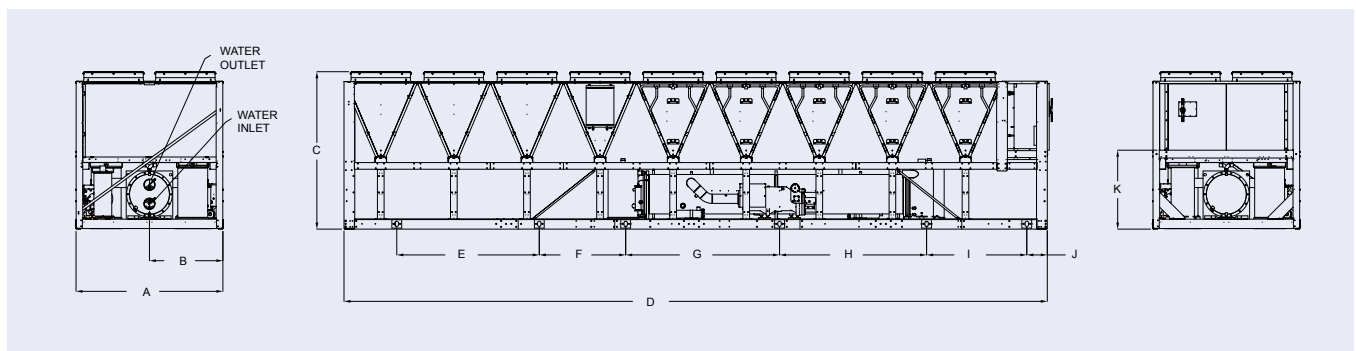
## YVAA 0888, 0988, 1015, 1093, & 1143



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 a scale.

## YVAA 1065, 1088, 1173, & 1193



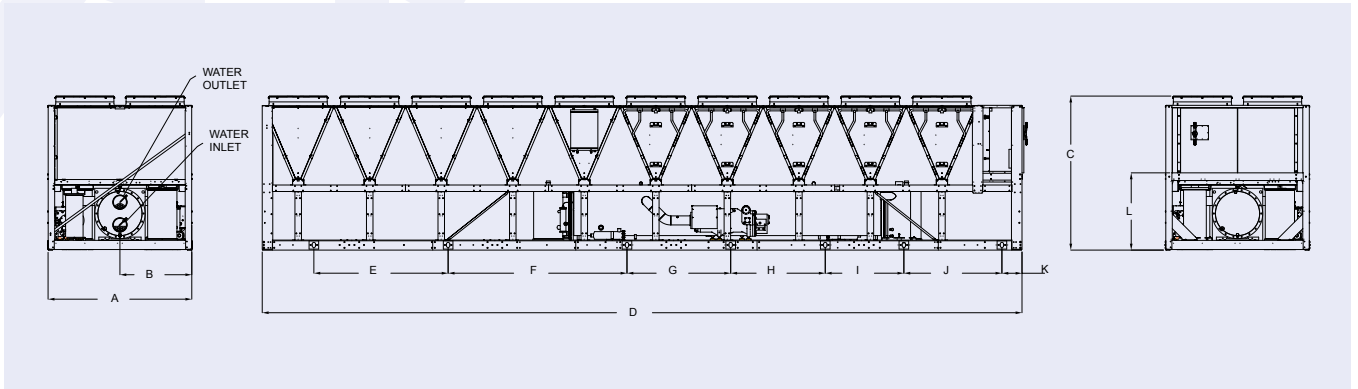
Unit frame	A	B	C	D	E	F	G	H	I	J	K
YVAA 1065	2244	1122	2405	10748	2178	1320	2351	2247	1531	314	1206
YVAA 1088	2244	1122	2405	10748	2433	1340	1620	1477 + 1228	1531	314	1206
YVAA 1173	2244	1122	2405	10748	2177	1323	2299	2299	1531	314	1206
YVAA 1193	2244	1122	2405	10748	2433	1340	1568	1529 + 1228	1531	314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

All dimensions in mm. Drawings not a scale.

# Dimensions and hydraulic connections

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

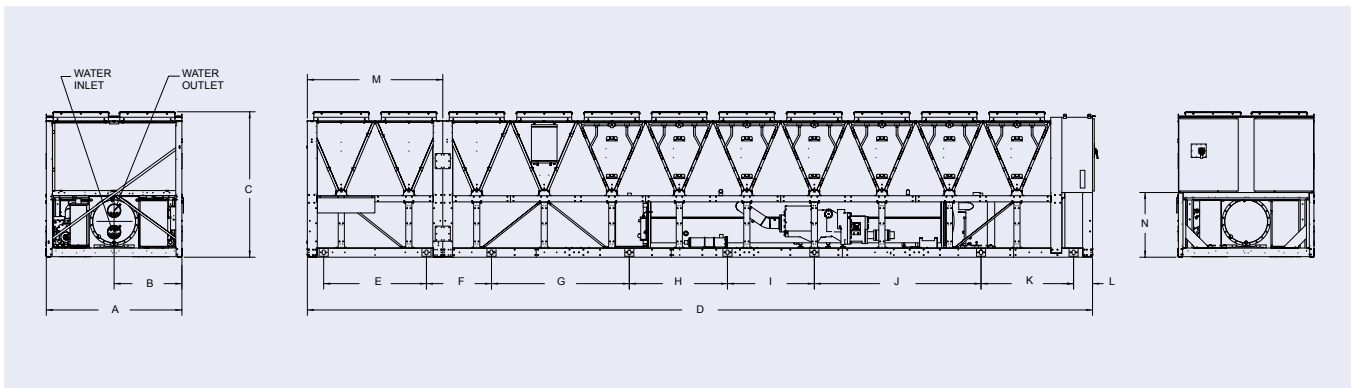
## YVAA 1188, 1215, 1315, 1343, 1443, 1650 & 1700



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 a 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

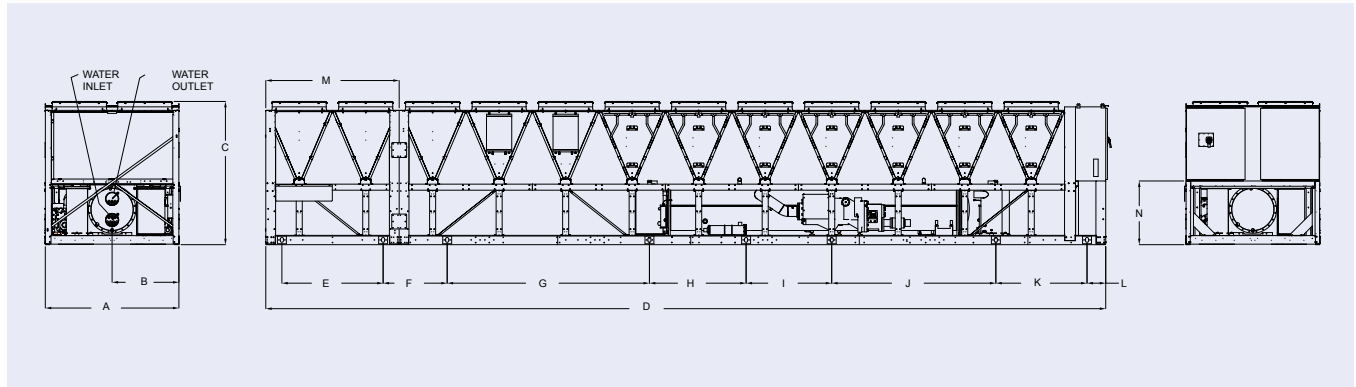
All dimensions in mm. Drawings not a scale.



# Dimensions and hydraulic connections

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

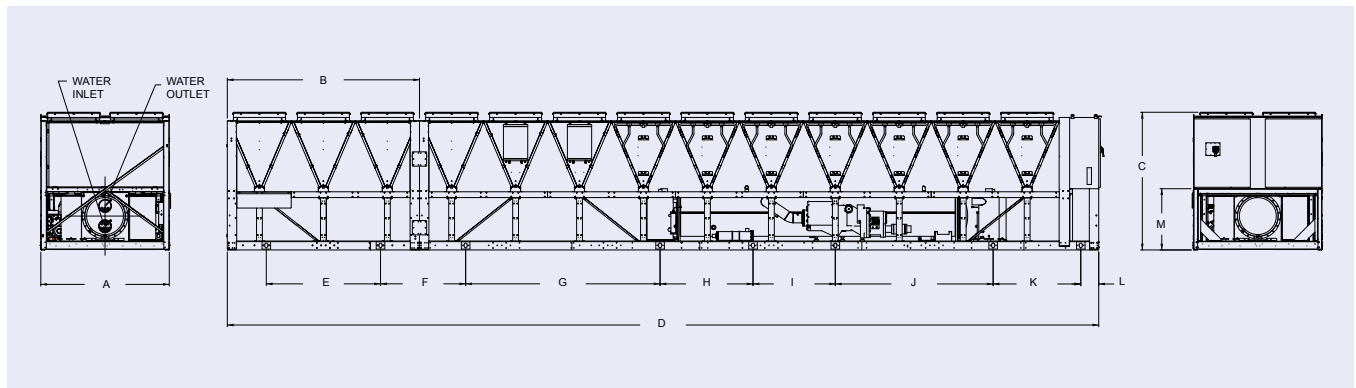
## YVAA 1388, 1515 & 1543



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 a scale.

## YVAA 1488, 1665, 1693 & 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

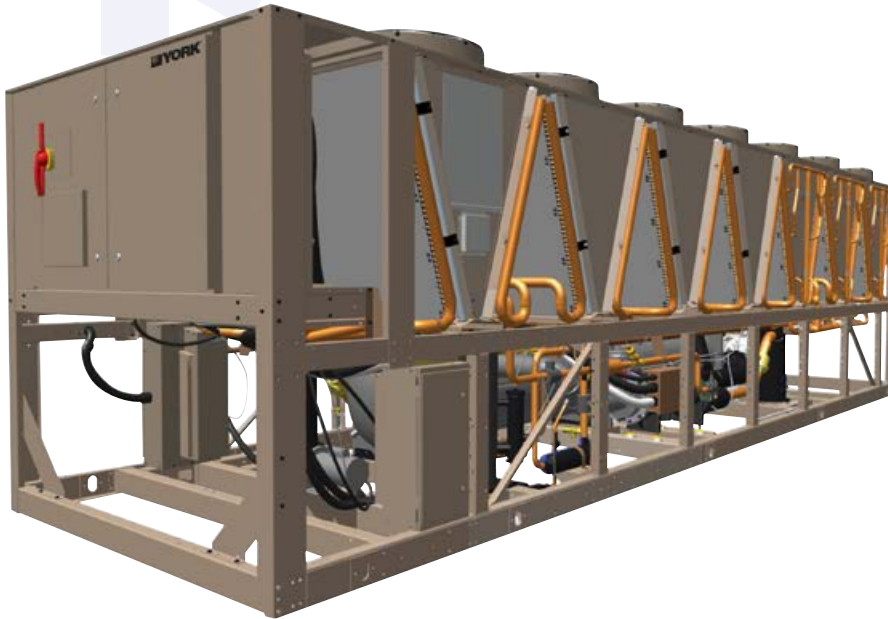
All dimensions in mm. Drawings not a scale.

# YVFA

## Air-cooled VSD screw chiller with integrated Free-cooling

Cooling capacities from 525 kW to 1575 kW

At Eurovent Standard Conditions this equipment meets A Class energy efficiency levels.



Compatible range

### 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

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

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

#### Open-loop configuration

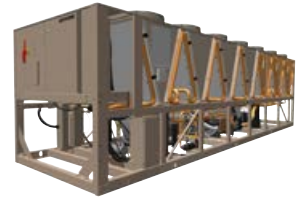
Open-loop design permits building glycol to flow through the free cooling coils directly, with the best performance and the lowest first cost.

#### Closed-loop configuration

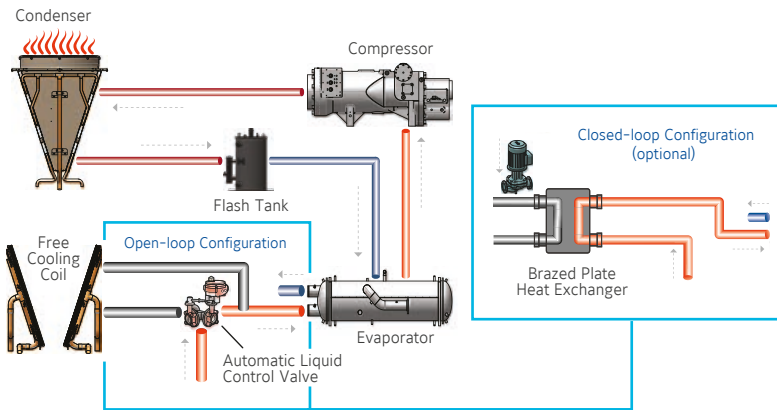
Closed-loop design integrates a brazed plate heat exchanger and pump loop. The building water loop is isolated from the free cooling coils, and the YVFA pump circulates glycol between the brazed plate heat exchanger and the free cooling coils. This provides the lowest pump pressure drop and a building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

# Air-cooled VSD screw chiller with integrated Free-cooling

YVFA

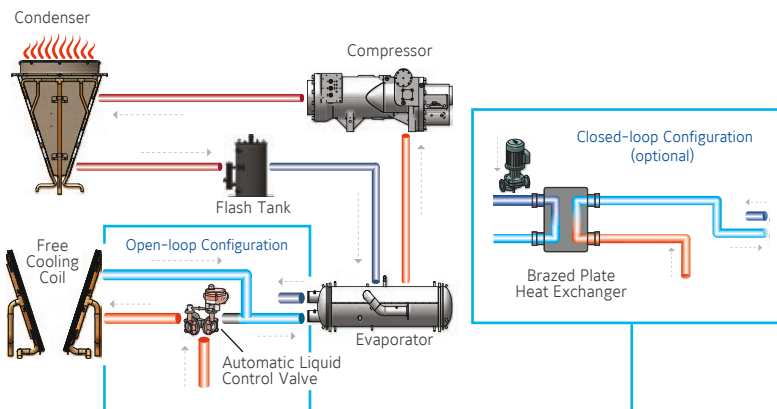


Saving energy is simple in every situation



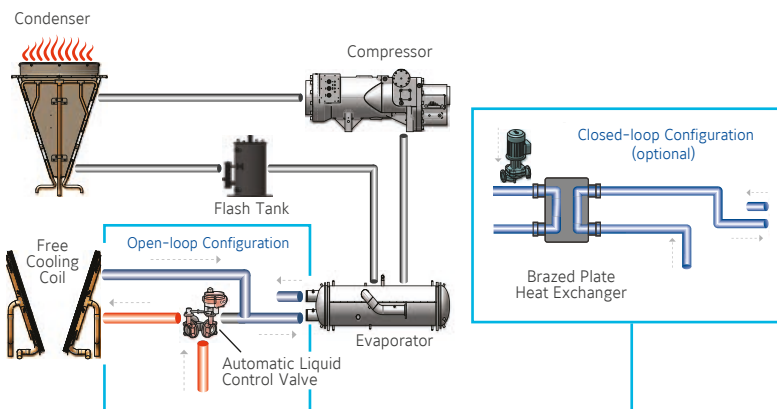
## 1 Mechanical Cooling Mode

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



## 2 Hybrid Cooling Mode

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



## 3 Free Cooling Mode

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

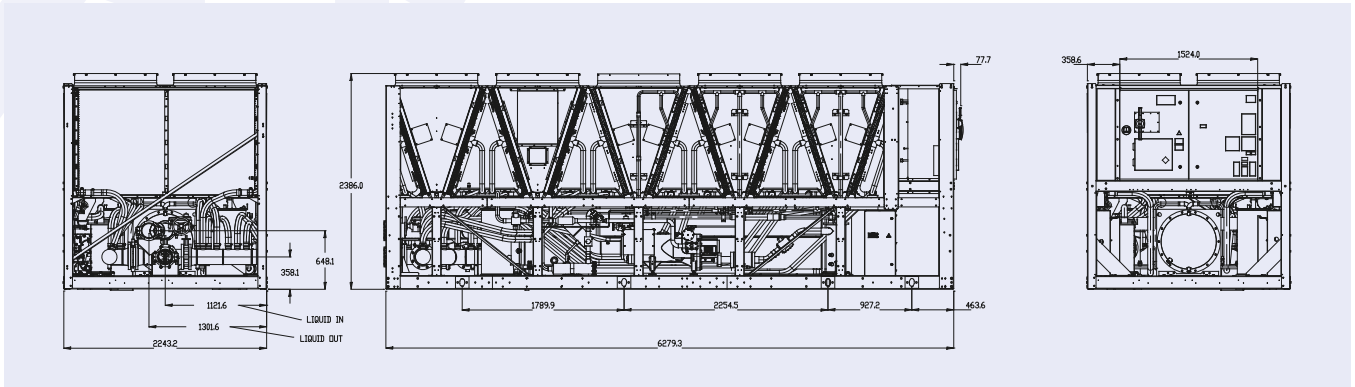


Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

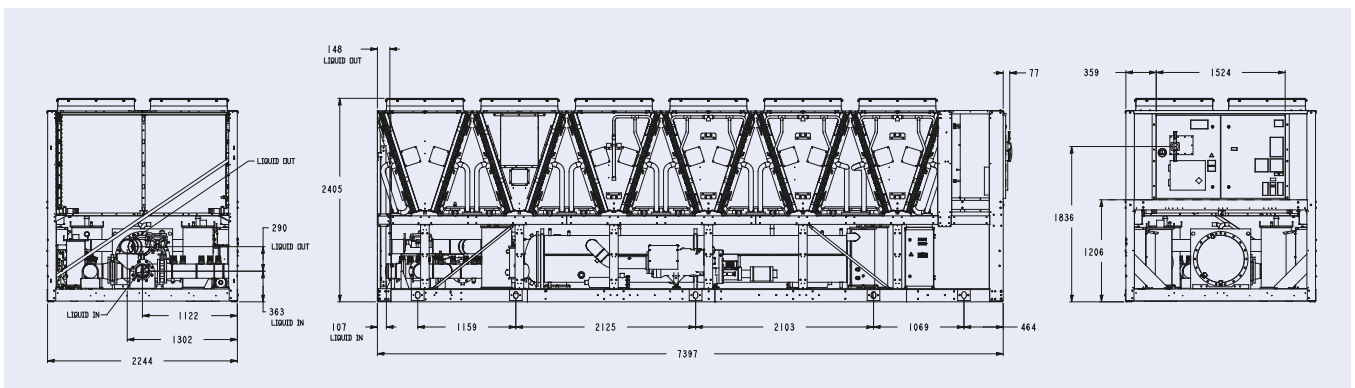
## Open-loop configuration models

### YVFA 0539 OL



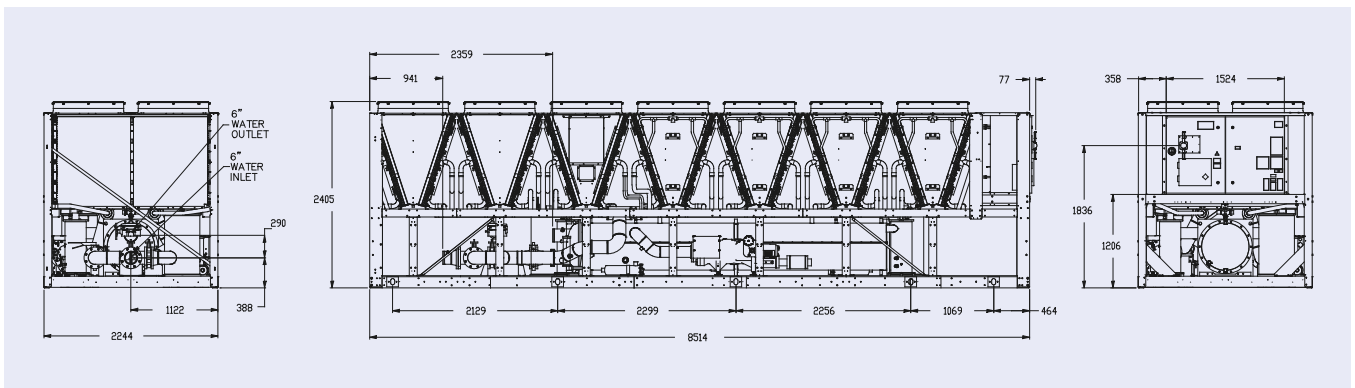
All dimensions in mm. Drawings not a scale.

### YVFA 0709 OL



All dimensions in mm. Drawings not a scale.

### YVFA 0889 OL

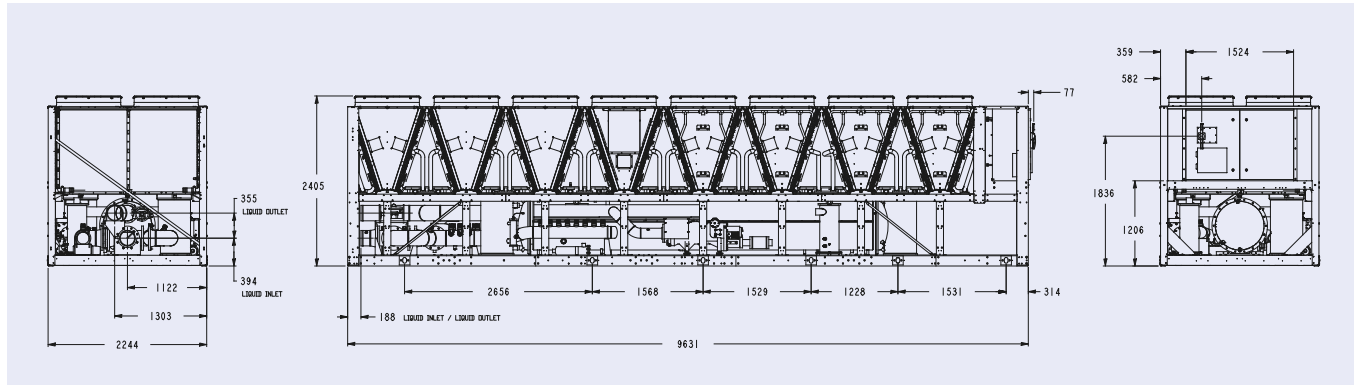


All dimensions in mm. Drawings not a scale.

# Dimensions and hydraulic connections

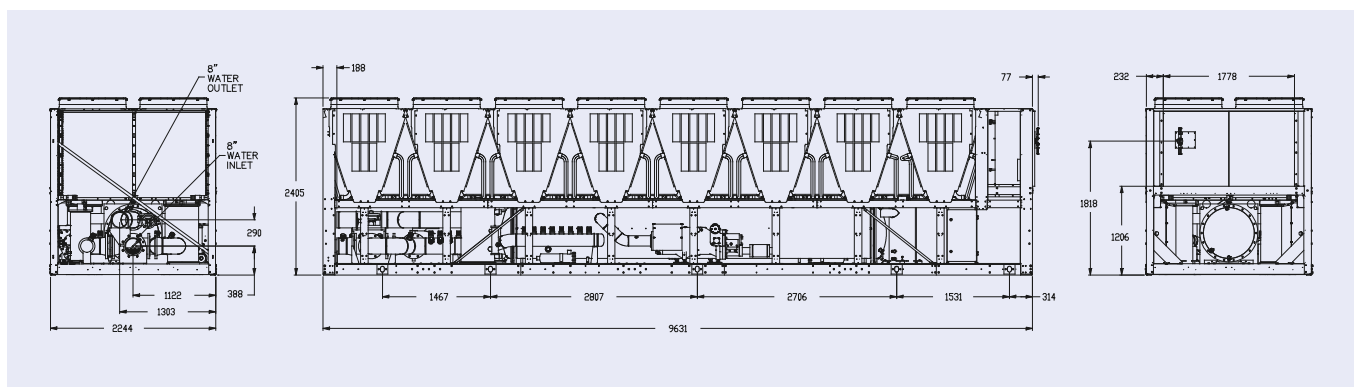
## Open-loop configuration models

### YVFA 1009 OL



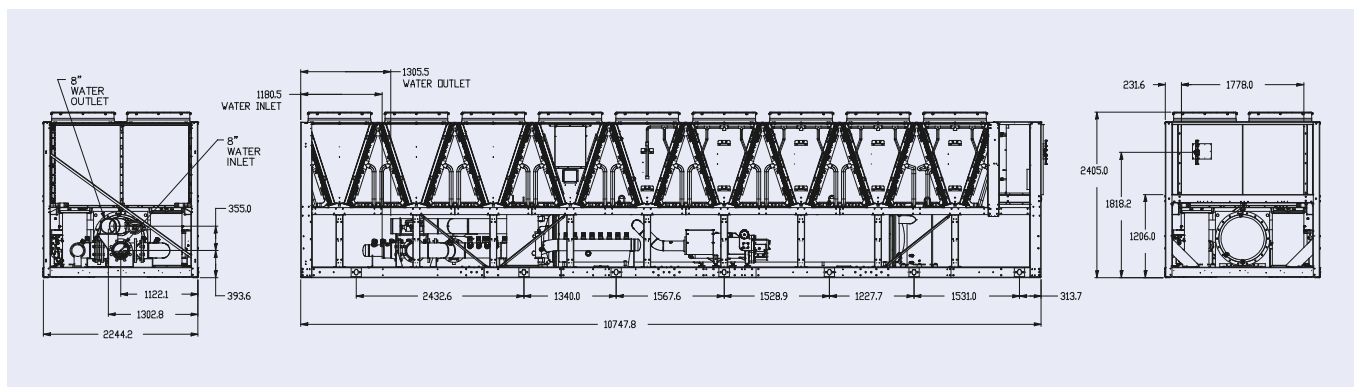
All dimensions in mm. Drawings not a scale.

### YVFA 1069 OL



All dimensions in mm. Drawings not a scale.

### YVFA 1239 OL

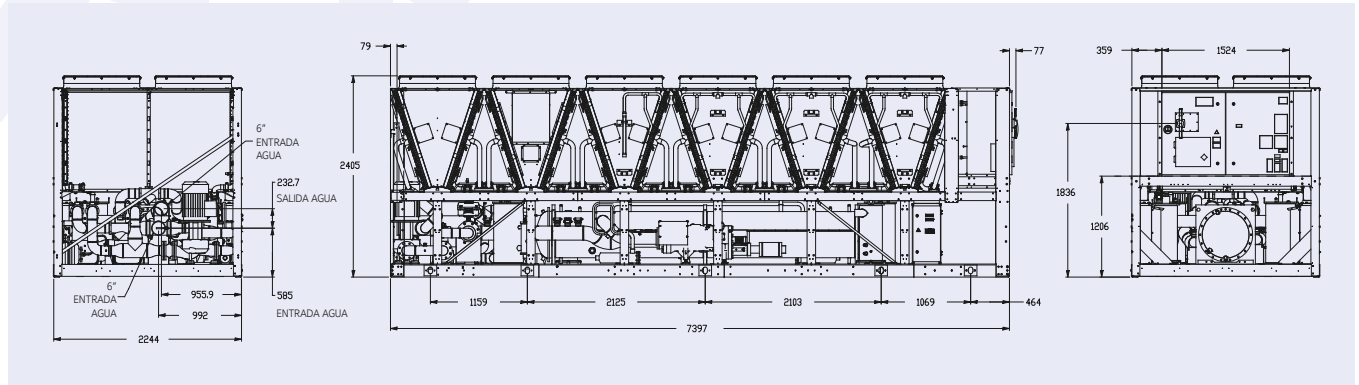


All dimensions in mm. Drawings not a scale.

# Dimensions and hydraulic connections

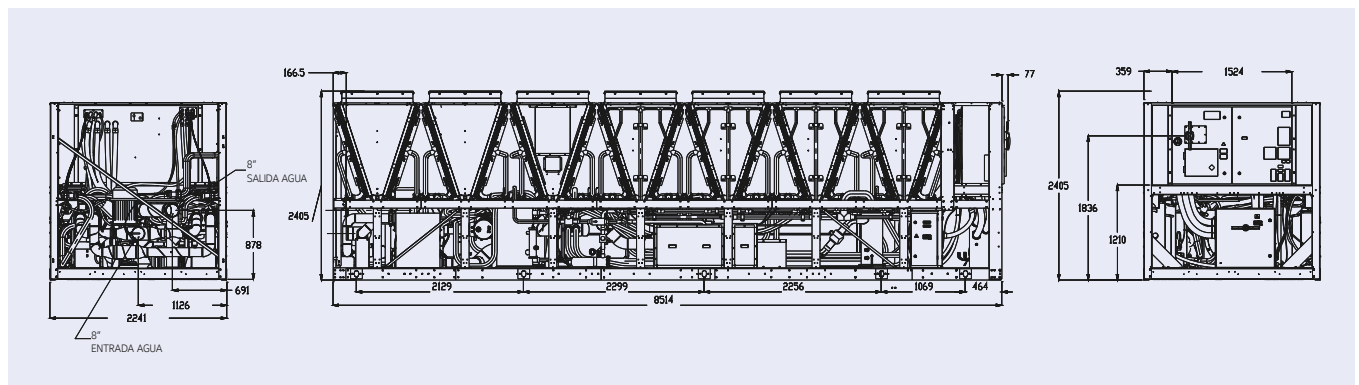
## Closed-loop configuration models

### YVFA 0709 CL



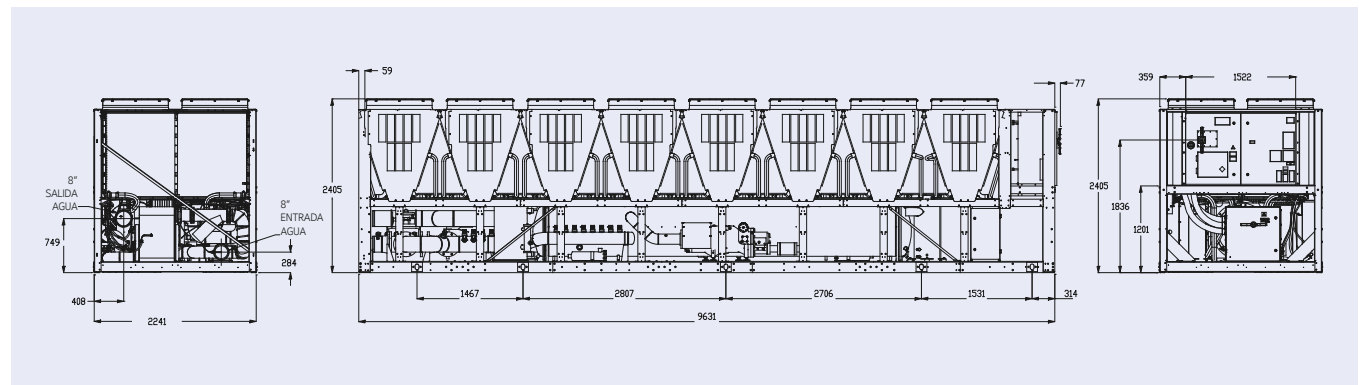
All dimensions in mm. Drawings not a scale.

### YVFA 0889 CL



All dimensions in mm. Drawings not a scale.

### YVFA 1069 CL

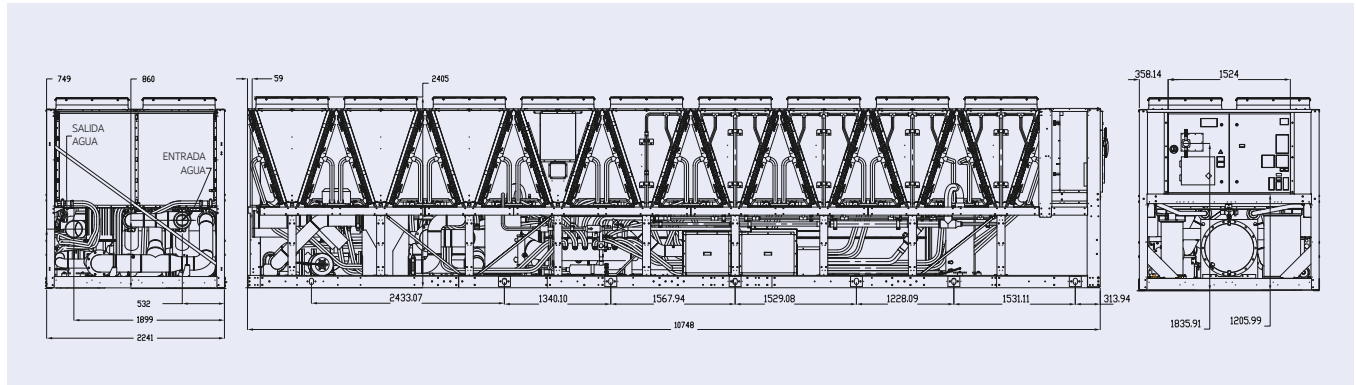


All dimensions in mm. Drawings not a scale.

# Dimensions and hydraulic connections

## Closed-loop configuration models

### YVFA 1239 CL



All dimensions in mm. Drawings not a scale.

### Application flexibility (\*) example of selections

YVFA	0539	0709	0889	1009	1069	1239
Mechanical Cooling capacity (kW)	500	648	846	946	1050	1195
Full Load Efficiency (EER) - Mechanical	3.03	2.98	3.02	3.17	3.05	2.97
Part Load Efficiency (SEPR) - Mechanical	6.31	6.31	6.53	6.83	6.56	6.29
Sound power level (dBA) - Mechanical	102	104	106	105	106	108
Total Temperature Free-Cooling (°C)	1.4	0.9	0	0.2	-0.8	-0.9
Efficiency during Hybrid Mode	7-25	7-26	6-25	6-25	6-20	6-20
Efficiency during Total Free-Cooling Mode	25-94	25-86	25-71	25-75	20-62	20-61

Cooling Capacity at: entering/leaving chilled water temperature 15°C/10°C (30% Glycol), ambient temperature 35°C  
 Sound Pressure according to Eurovent conditions.

(\*) YVFA is a tailor and tune chiller. Its performance will be factory-adjusted to match the exact site requirements based on the specific project operating conditions. The table above shows only a representative sample of performance points based on generic project operating conditions working with R134a refrigerant. For R513a 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 Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects.

### Technical data

YVFA			0543	0565	0588	0643	0665	0888
Dimensions	Length	mm	6280	7397	8514	9631	9631	10748
	Width	mm	2242					
	Height	mm	2405					
Operating weight kg			7394	8504	10396	11842	11884	12900
Refrigerant charge kg			172	164	216	246	262	282

# YMWA / YMRA

## Water-cooled cooling only, remote condenser and heat pump scroll compressor chiller

Cooling capacities from 21 kW to 193 kW



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

### Available versions

14 available YMWA sizes in three versions:

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

### 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	26	31	35	39	47	51	61	77	91	119	147	170	193
EER	4.59	4.55	4.46	4.54	4.49	4.58	4.30	4.47	4.48	4.37	4.46	4.46	4.50	4.51
SEER	Meet Ecodesign Requirements													
ηs, c	Meet Ecodesign Requirements													
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	26	31	35	39	46	51	62	78	91	119	148	169	193
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	31	34	38	46	50	59	76	89	115	145	166	186
Heating Capacity (kW)	24	29	34	39	43	51	58	68	86	102	132	164	190	212
EER	4.45	4.47	4.46	4.35	4.33	4.39	4.2	4.27	4.4	4.23	4.29	4.36	4.36	4.3
COP	3.88	3.85	3.73	3.79	3.77	3.85	3.83	3.81	3.92	3.89	3.92	3.95	3.93	3.93
SCOP	Meet Ecodesign Requirements													
ηs, h	Meet Ecodesign Requirements													
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, condenser EWT/LWT 40°C/45°C

SEER and SCOP calculated according to EN14511 and EN14825

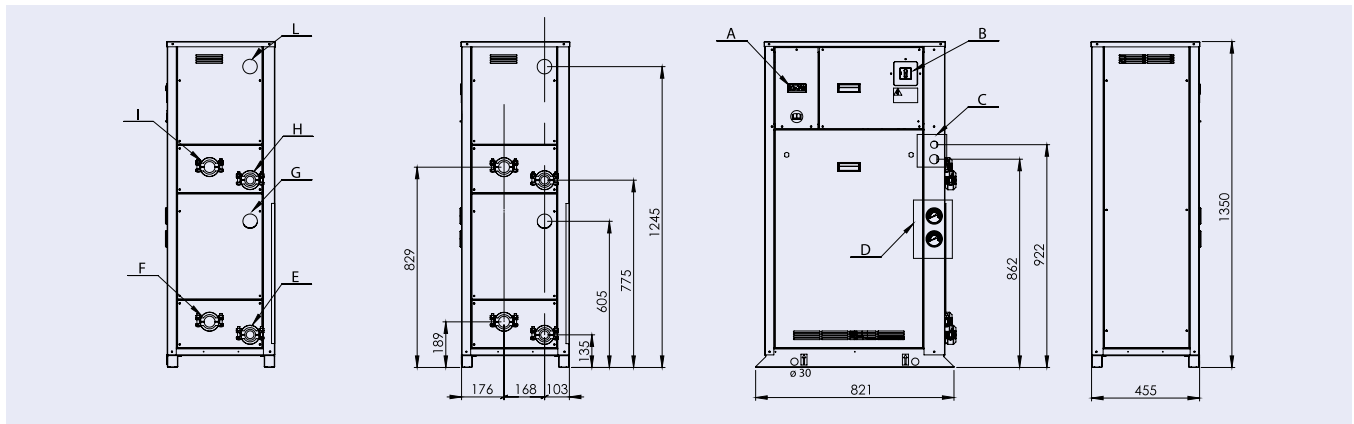
ηs calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281). For other Ecodesign calculations, please contact your JCI representative.

The above data is based on Johnson Control's selection software YORKworks 18.02. Please refer to the latest version of the software for specific projects



# Dimensions and hydraulic connections

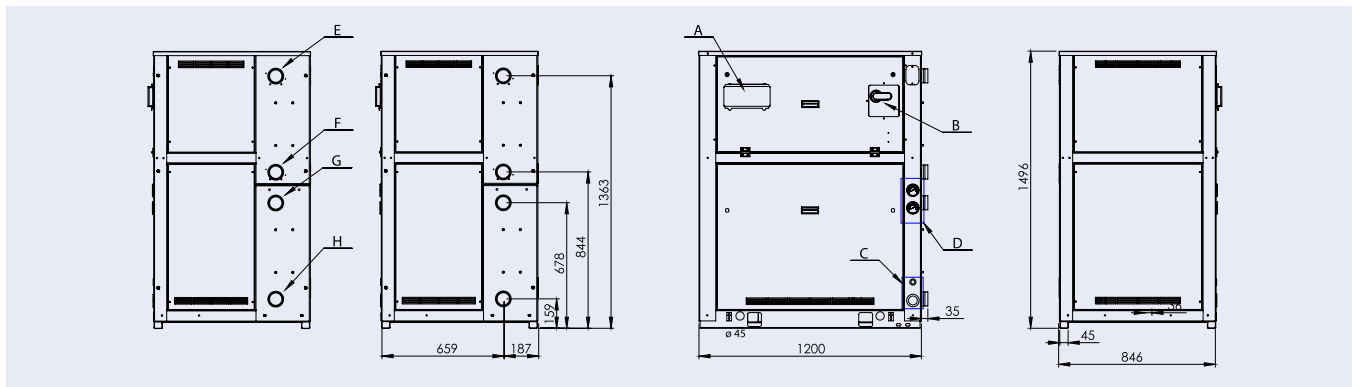
## YMWA-CO/HP 0020-0045



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

All dimensions in mm. Drawings not a scale.

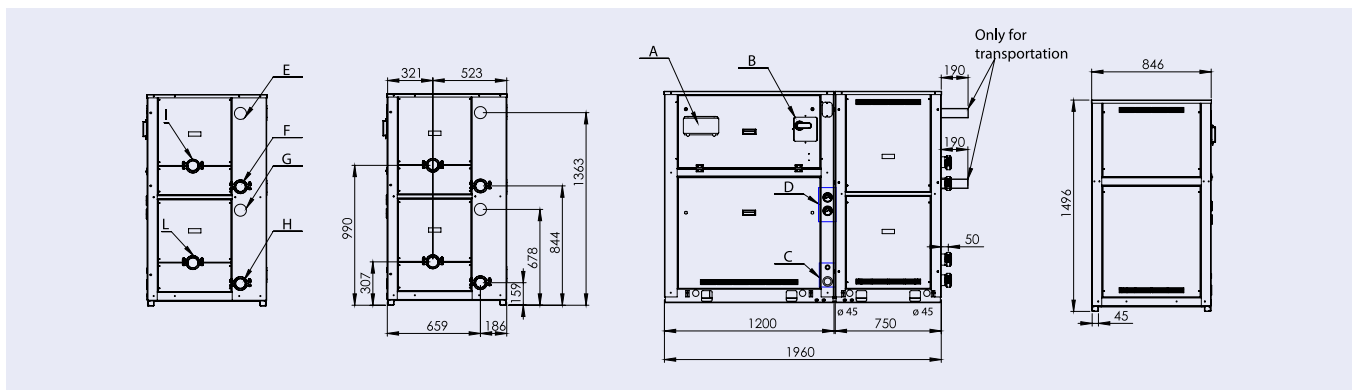
## YMWA-CO/HP 0050-0190 without Hydrokit



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

All dimensions in mm. Drawings not a scale.

## YMWA-CO/HP 0050-0190 with Hydrokit



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

All dimensions in mm. Drawings not a scale.

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



Manufacturer reserves the rights to change specifications without prior notice.

# YCSE / YCRE Style C

## Water-cooled or remote air-cooled screw compressor chiller

Cooling capacities from 140 kW to 250 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.



**Modular Concept for maximum installation flexibility**

### Features

#### Efficient screw compressors

Highly efficient the **YORK® YCSE Style C** offers the highest standard of reliability and economical operation utilizing twin-screw rotor technology and fully modulating compressor slide valve unloading, together with low inrush current star delta starters. To further improve the operating efficiency the leaving liquid temperature can be remotely reset.

#### Quiet operation

The compressor has been designed so that there is minimal external gas pulsations and integral oil separators resulting in very low sound and vibration 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 (NEW)

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 when it's working as a heat pump.

### Options / Accessories

- BMS Interface (Modbus, Bacnet)
- Compressor Circuit Breaker
- Power Meter
- Heat pump sensor kit
- Evaporator Heater
- Cable Power Routing
- High Leaving Evaporator temperature
- High Condenser Water and glycol options
- Pressure Relief Valve (single/dual)
- Dual Compressor safety valve
- Suction and/or Discharge stop valves
- Water connection flanges
- Differential Water Pressure Switch
- Water Flow Switch and Water Filter
- Anti-vibration mounts (rubber or springs)

### Nominal capacity and technical data

Model	YCSE				YCRE		
	0141	0181	0221	0241	0141	0181	0221
Cooling Capacity (kW) *	140	180	220	250	135	175	215
EER	4.83	4.80	4.71	4.72	4.22	4.19	4.10
ESEER	5.35	5.69	5.71	5.72	Not Applicable		
SEER	Meet Ecodesign Requirements						
n <sub>s,c</sub>	Meet Ecodesign Requirements						
Sound power level (dBA)	88	89	90	91	88	89	90
Length / Width / Height (mm)	Base 1 378 max / 806 / 1 681						
Operating weight (kg)	860	950	1 040	1 075	765	835	900

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

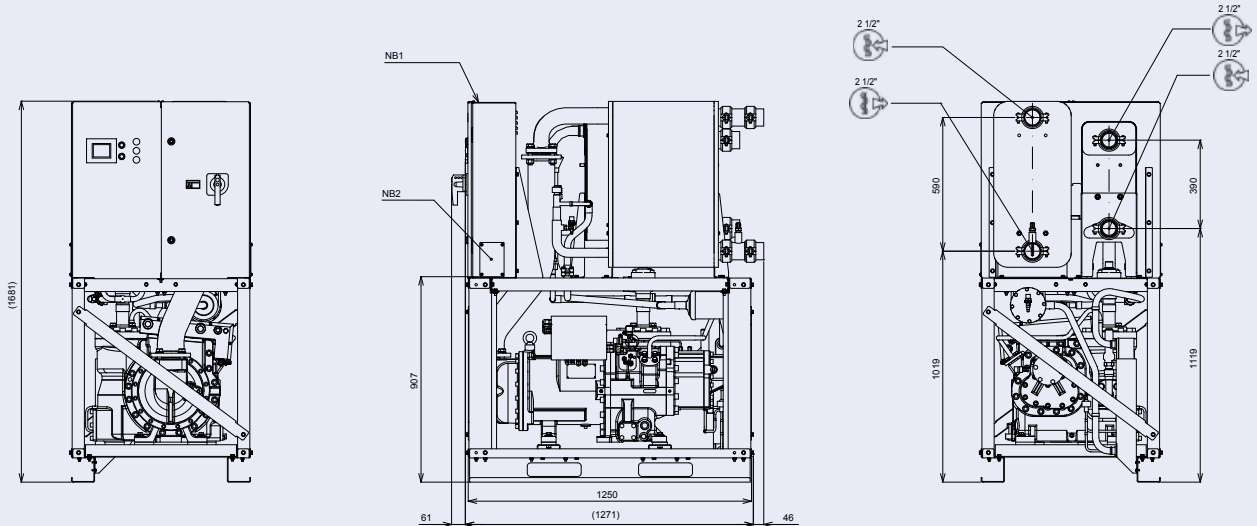
\* YCRE: At 45°C condensing temperature and 7°C leaving chilled liquid temperature

The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects

# Dimensions and hydraulic connections

## YCSE 0141 to 0241

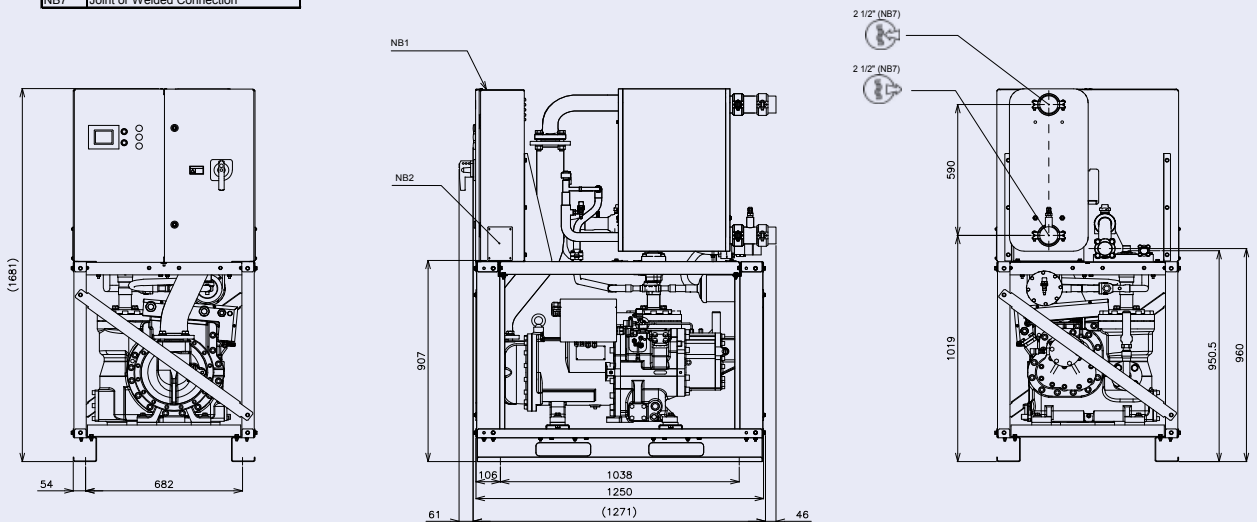
NB1	Electrical Box
NB2	Customer Wiring Entry (both sides)
NB3	2 1/2" Victaulic Connection
NB4	76.1 mm Welded Connection



All dimensions in mm. Drawings not a 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 a scale.



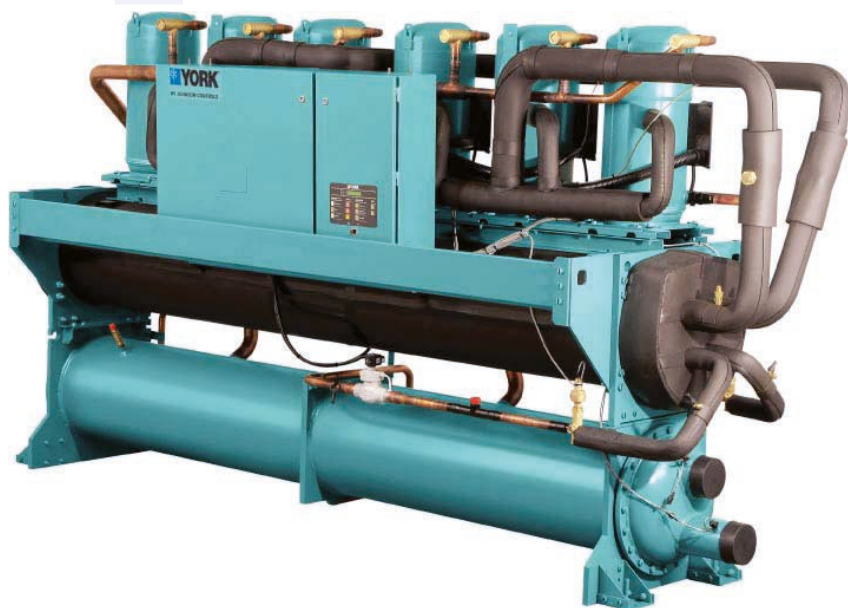
Manufacturer reserves the rights to change specifications without prior notice.

# YCWL / YCRL

## Water-cooled or remote air-cooled scroll compressor chiller

Cooling capacities from 178 kW to 596 kW

Available configurations that meet A Class energy efficiency levels at Eurovent Standard Conditions.



### Features

The **YCWL** series was designed to produce the greatest cooling capacity with the lowest sound levels. The use of scroll compressors provides optimum efficiency at part load, up to an ESEER of 7.25. Its dimensions have been optimized to pass through a doorway 2 m high by 90 cm wide.

The **YCWL** is designed for all air conditioning applications. It is equipped with two independent cooling circuits and regulated by a micro-processor that optimizes chiller performance.

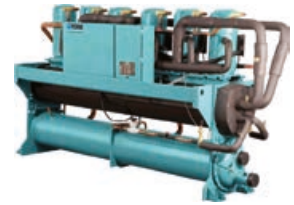
The **YCWL** is designed for indoor installation and each **YCWL** is fully tested before leaving our factories.

### Options

- Leaving Chilled Liquid from -12 to +15°C
- Leaving Condenser Liquid from +18 to +50°C
- Compressor acoustic blankets
- Flow switch or pressure differential switch
- Soft starters
- Neoprene pads or spring isolators
- Dual relief valves kit
- Electronic regulators
- Vibration isolators

# Water-cooled or remote air-cooled scroll compressor chiller

YCWL / YCRL 0201 to 0611



## Nominal capacity

YCWL-SE	0292		0343		0396	
Cooling capacity (kW) <sup>1</sup>	294		334		371	
EER <sup>1</sup>	4.72		4.69		4.71	
SEER	5.92		5.90		6	
ηs, c	229		228		232	
Sound Pressure (dB(A)) <sup>2</sup>	72		74		76	

YCWL-HE	0201	0231	0261	0302	0347	0426	0447	0532	0611
Cooling capacity (kW) <sup>1</sup>	191	219	244	308	353	411	444	498	595
EER <sup>1</sup>	5.52	5.91	6.48	6.22	6.06	6.25	5.97	6.18	5.88
SEER	213	228	251	241	234	242	231	239	227
ηs, c	5.97	6.33	7.25	6.79	6.54	6.70	6.28	6.80	6.57
Sound Pressure (dB(A)) <sup>2</sup>	68	70	72	72	74	76	74	71	72

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

1: Cooling capacity and efficiencies @ Eurovent conditions evaporator entering/leaving temperature 12C/7C condenser entering/leaving temperature 30/35C EN14511:2011.  
 2: EN 292-1991 Sound pressure is measured 1 meter away from the control panel and 1.5 meters above the floor.  
 3: Cooling capacity and efficiencies @ Eurovent conditions evaporator entering/leaving temperature 12C/7C saturated discharge temperature 45C EN14511:2007.  
 The above data is based on Johnson Control's selection software YORKworks 17.06. 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

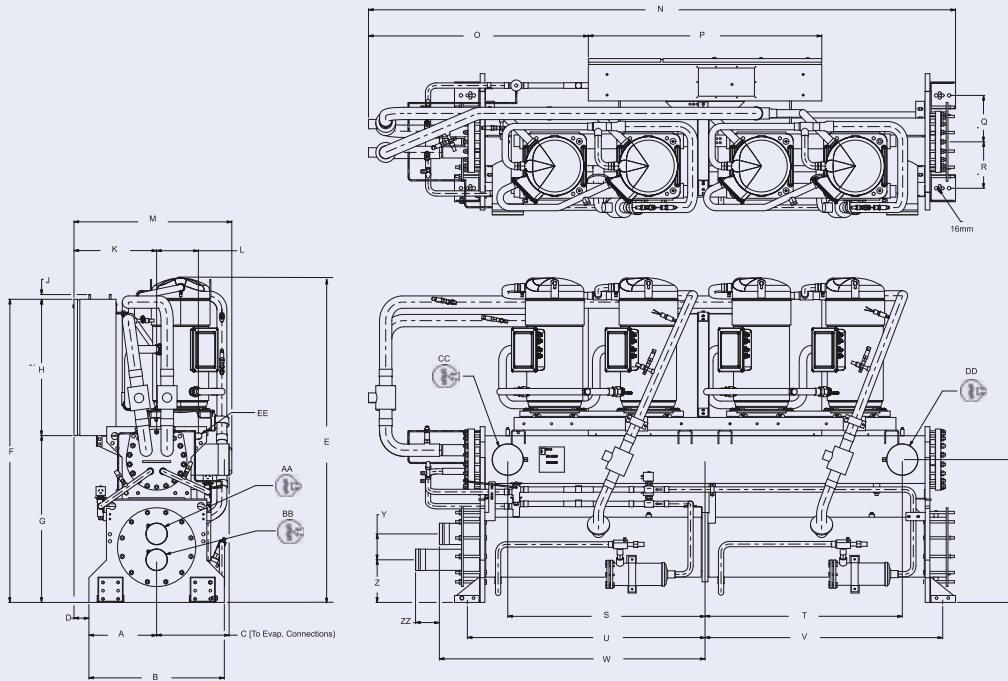
YCRL-HE			0201	0231	0261	0302	0347	0386	0447	0532	0611
Dimensions	Length	mm	3086	3061	3076		3061	3617	3576		
	Width	mm	826	856	843		856	965			902
	Height	mm	1438	1481	1471	1593	1683	1641	1638	1641	
Operating weight		kg	1309	1481	1471	1593	1682	1947	2266	2264	2263



Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

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



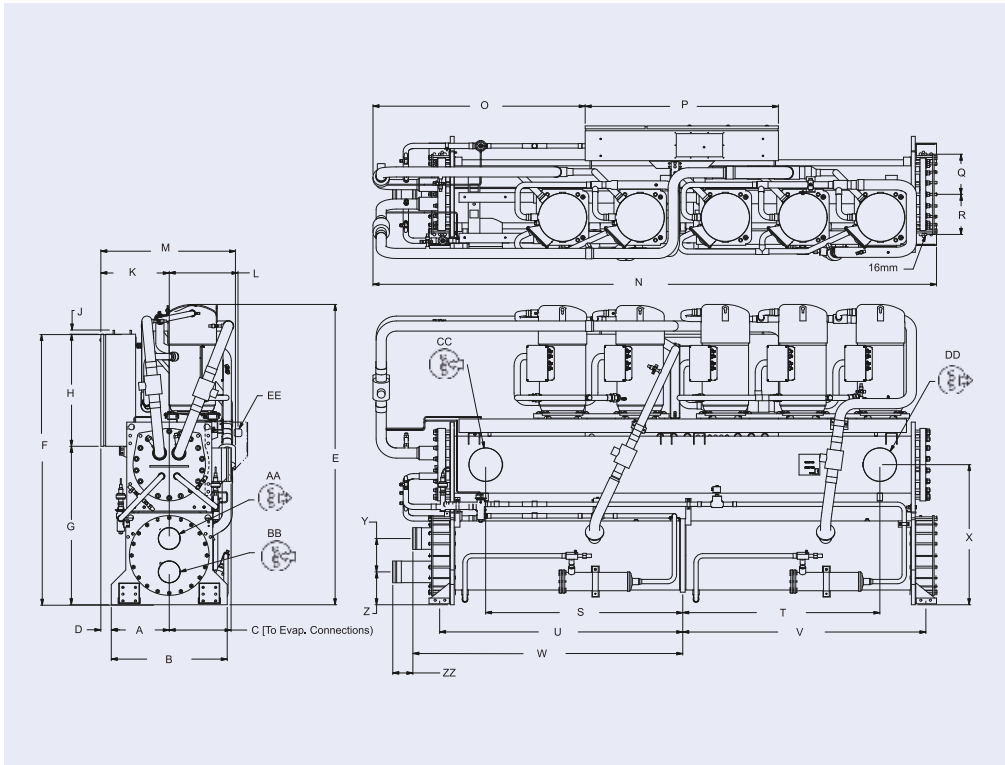
YCWL	0292SE	0343SE	0396SE	0201HE	0231HE	0261HE	0302HE	0347HE	0426HE	0447HE
<b>Dimension</b>	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
<b>A</b>	368	368	368	368	368	368	368	368	368	381
<b>B</b>	737	737	737	737	737	737	737	737	737	762
<b>C</b>	299	394	394	299	407	394	394	406	406	406
<b>D</b>	81	81	81	81	81	81	81	81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

All dimensions in mm. Drawings not a scale.

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

# Dimensions and hydraulic connections

## YCWL0532HE

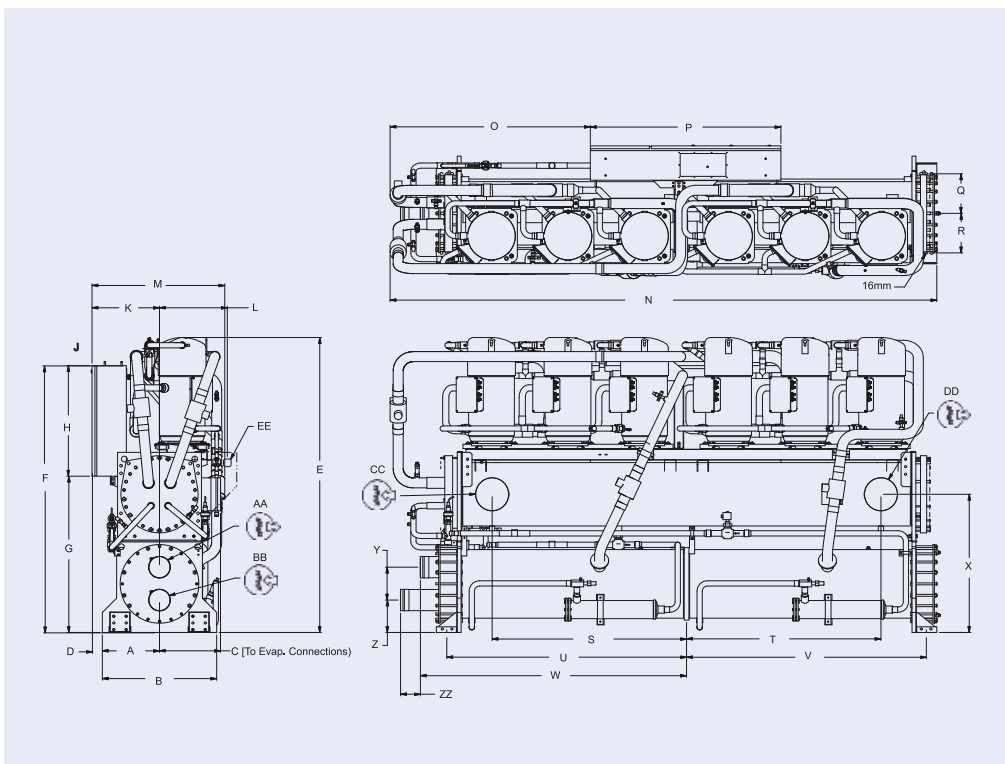


YCWL	0532HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	263
R	263
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

All dimensions in mm.

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

## YCWL0611HE



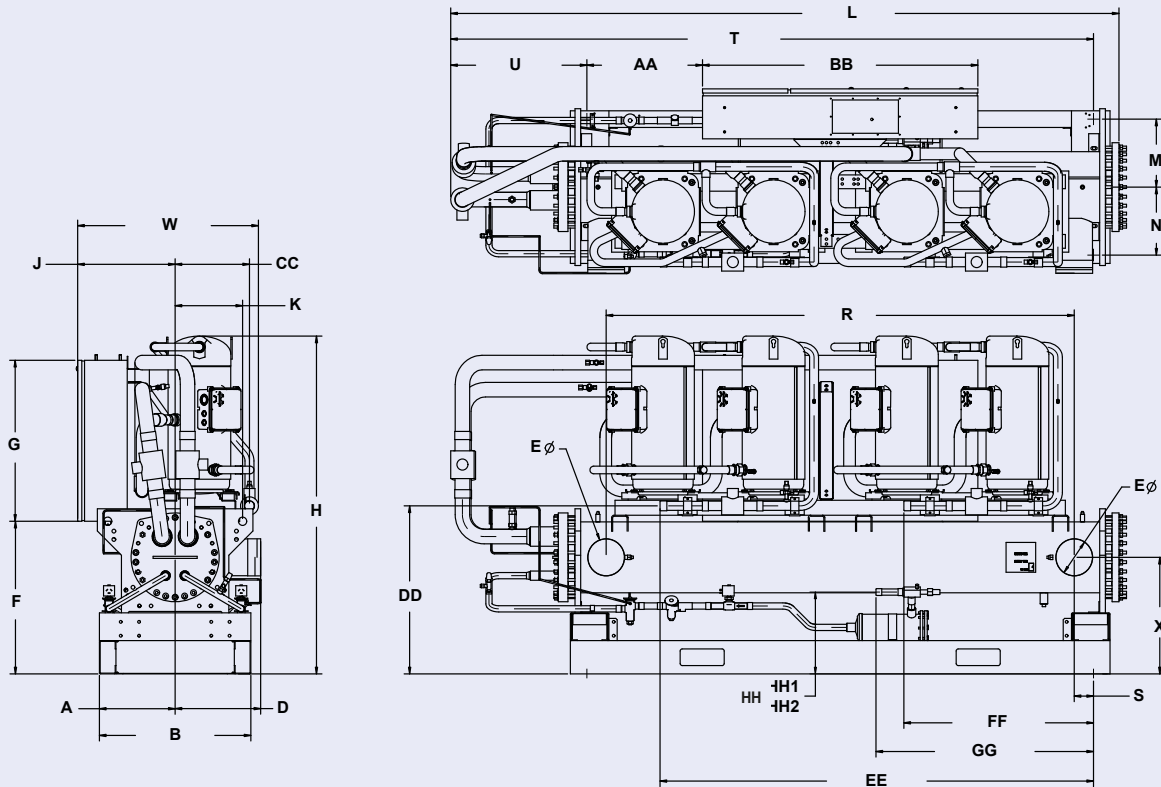
YCWL	0611HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	264
R	264
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

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



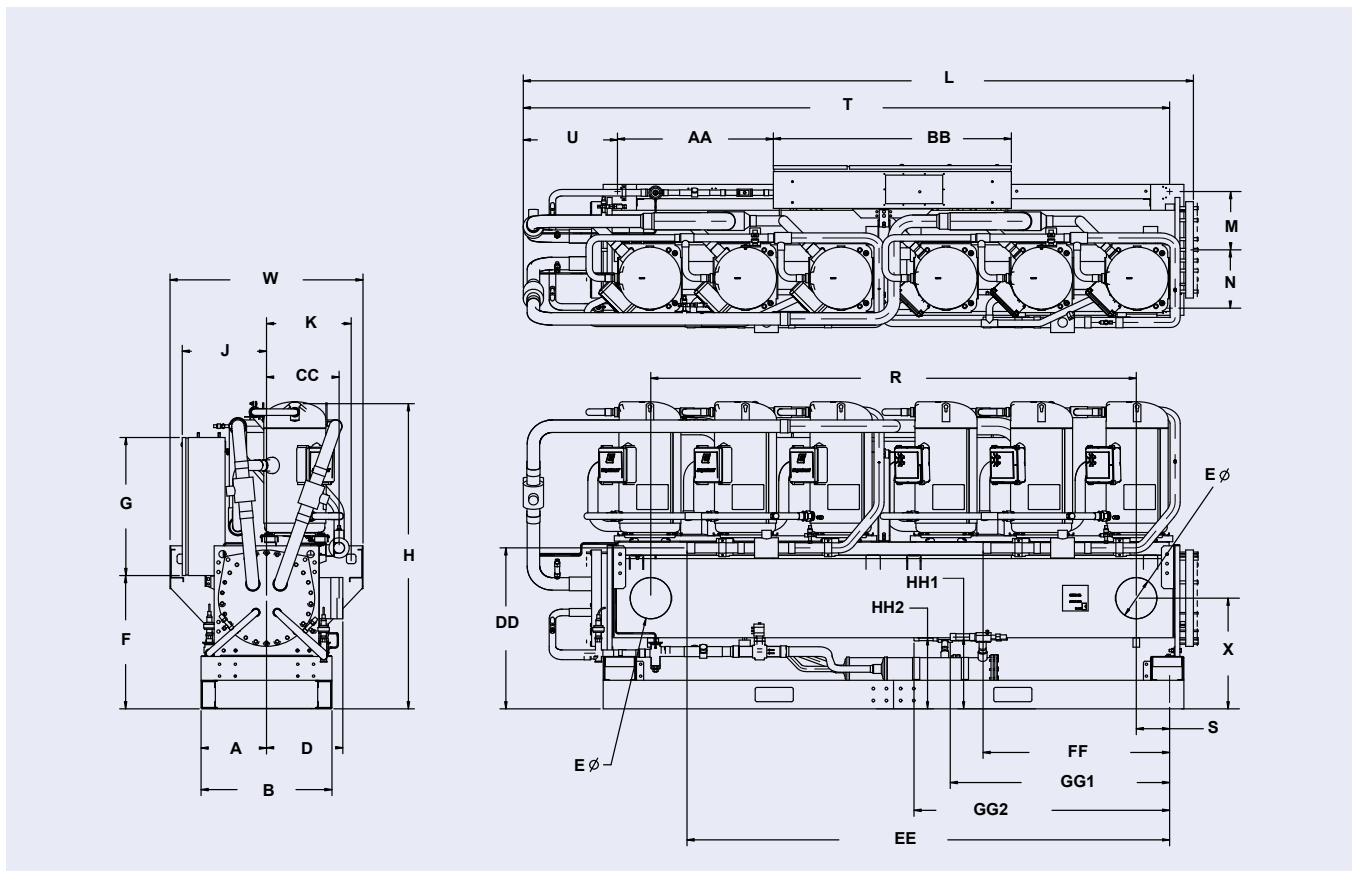
YCRL	0201 HE	0231 HE	0261 HE	0302 HE	0347 HE
W	824	834	834	834	846
H	1437	1616	1546	1544	1613
L	3085	3062	3082	3082	3062
A	349	349	349	349	349
B	699	692	699	699	699
D	299	407	394	394	407
E	219	219	168	168	219
F	622	737	699	699	737
G	737	737	737	737	737
J	450	450	450	450	450
K	311	324	311	311	324
M	311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

# YLCS

## Water-cooled or remote air-cooled screw compressor chiller Heat pump application

Cooling capacities from 342 kW to 1099 kW

Available configurations that meet A Class energy efficiency levels at Eurovent Standard Conditions.



### Features

#### One chiller, many applications

Designed to operate with leaving liquid temperature from  $-12^{\circ}\text{C}$  to  $+15^{\circ}\text{C}$ .

#### 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  $60^{\circ}\text{C}$
- 90/10 cupro/nickel condenser

# Water-cooled or remote air-cooled screw compressor chiller

YLCS 0350 to 1120



## Nominal capacity

YLCS	0350	0415	0480	0530	0575	0620
Cooling capacity (kW)	343.5	406	482.6	512.6	552.8	586.8
EER	4.01	4.1	4.14	4.16	4.14	4.14
ESEER	4.41	4.63	4.68	4.76	4.67	4.75
Sound pressure at 1 m (dBA)	74	74	74	77	76	76

YLCS	0670	0750	0860	0980	1120
Cooling capacity (kW)	644	744.3	867.3	979.9	1122
EER	4.53	4.61	4.73	4.72	4.72
ESEER	5.05	5.17	5.17	5.12	5.06
Sound pressure at 1 m (dBA)	76	76	82	82	82

At 7°C leaving chilled water and 35°C leaving condenser water.

The above data is based on Johnson Control's selection software YORKworks 17.06. 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

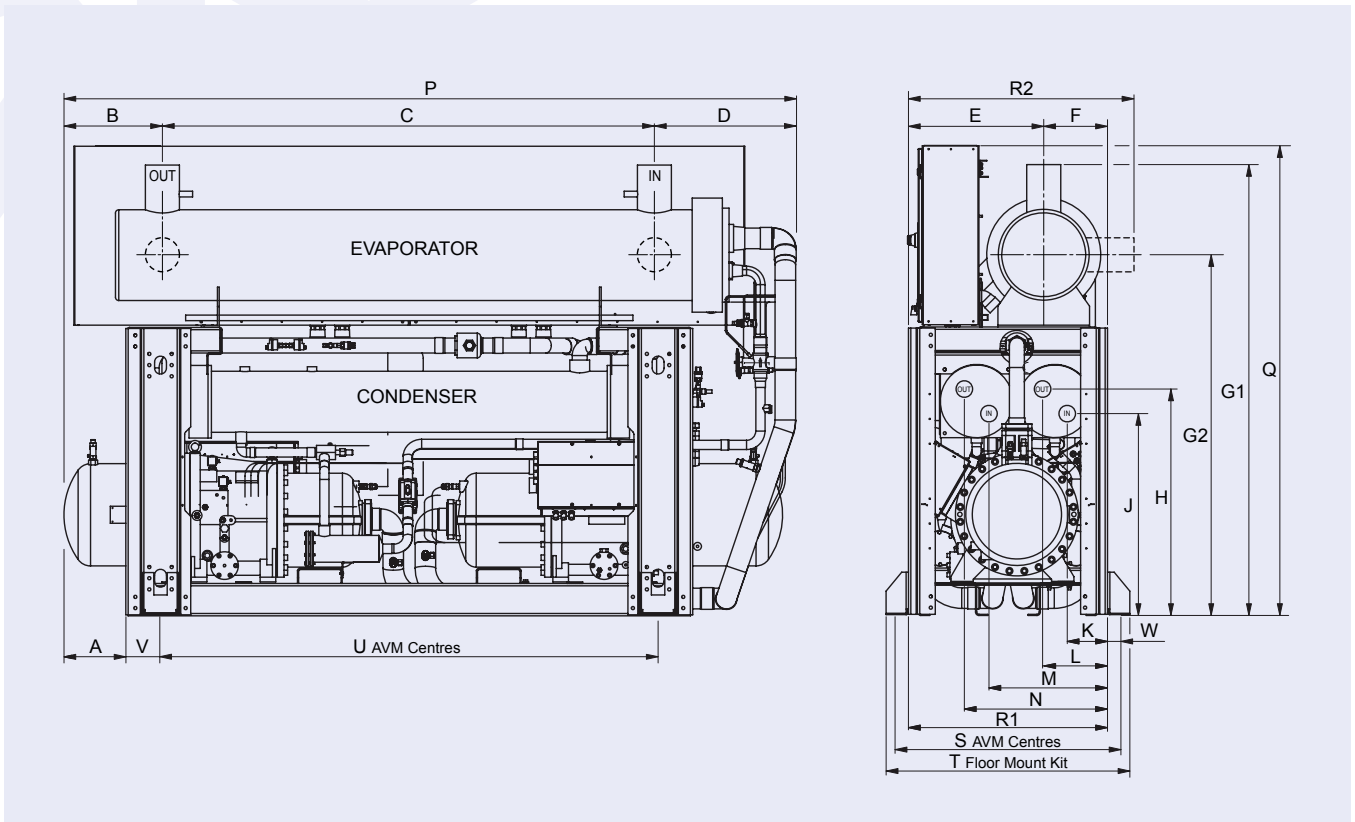
YLCS			0670	0750	0860	0980	1120
Dimensions	Length	mm	3565	3645	3830	3830	3830
	Width	mm	1290				
	Height	mm	2148				
Operating weight kg			4510	5010	5620	6090	6610



Manufacturer reserves the rights to change specifications without prior notice.

# Dimensions and hydraulic connections

YLCS 0350SA/HA to 0620SA/HA



Model	A	B	C	D	E	F	G1 <sup>(1)</sup>	G2 <sup>(2)</sup>	H	J	K	L	M	N	P	Q	R1	R2 <sup>(2)</sup>	S	T	U	V	W
350-SA & 350-HA	247	417	2250	558	605	285	1914	1550	1033	963	200	270	550	620	3225	2100	890	967	1010	1090	2225	155	60
415-SA & 415-HA	247	417	2250	558	605	285	1915	1550	1013	903	180	290	530	640	3244	2100	890	967	1010	1090	2225	155	60
480-SA & 480-HA	277	440	2200	634	605	285	2016	1615	1013	903	180	290	530	640	3274	2100	890	1010	1010	1090	2225	155	60
530-SA & 530-HA	277	440	2200	634	605	285	2016	1615	1013	903	180	290	530	640	3274	2100	890	1010	1010	1090	2225	155	60
575-SA & 575-HA	550	210	2700	634	605	285	2016	1615	1013	903	180	290	530	640	3544	2100	890	1010	1010	1090	2225	155	60
620-SA & 620-HA	550	210	2700	690	605	285	2016	1615	1013	903	180	290	530	640	3600	2100	890	1010	1010	1090	2225	155	60

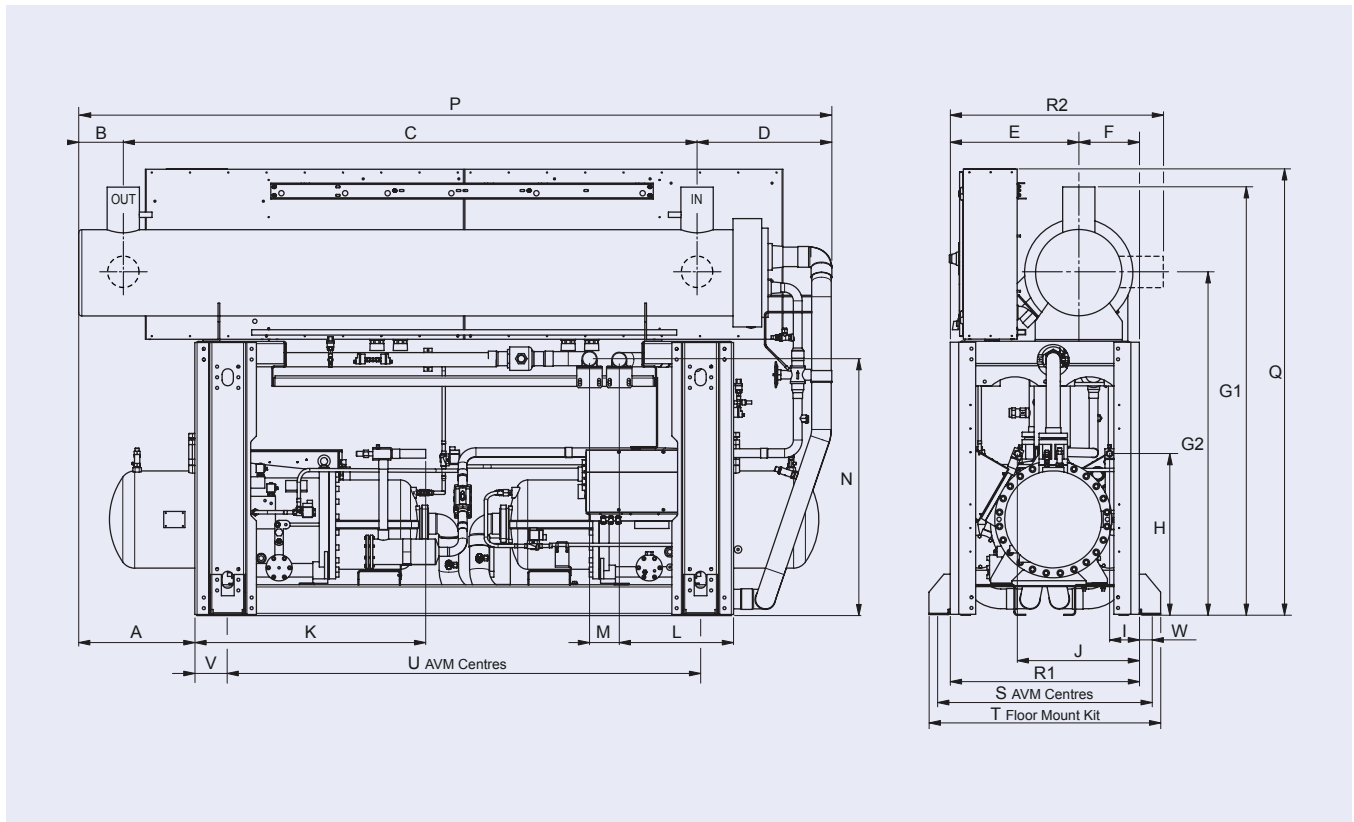
All dimensions in mm. Drawings not a scale.

Dimensions exclude insulation and options. Refer to Physical Data Section for connection sizes. For reference only, please refer to York Product drawing for complete drawing.

(1) With Vertical nozzle cooler only. (2) With horizontal nozzle cooler only.

# Dimensions and hydraulic connections

YLCS 0350AA to 0620AA



Model	A	B	C	D	E	F	G1 <sup>(1)</sup>	G2 <sup>(1)</sup>	H	I	J	K	L	M	N	P	Q	R1	R2 <sup>(2)</sup>	S	T	U	V	W
350-AA	247	417	2250	558	605	285	1914	1550	761	140	573	1032	538	140	1200	3225	2100	890	967	1010	1090	2225	155	60
415-AA	247	411	2250	583	605	285	1915	1550	761	140	573	1032	538	140	1204	3244	2100	890	967	1010	1090	2225	155	60
480-AA	277	440	2200	634	605	285	2016	1615	761	140	573	1087	538	140	1204	3274	2100	890	1010	1010	1090	2225	155	60
530-AA	277	440	2200	634	605	285	2016	1615	761	140	573	1087	538	140	1200	3274	2100	890	1010	1010	1090	2225	155	60
575-AA	550	210	2700	634	605	285	2016	1615	761	140	573	1087	538	140	1204	3544	2100	890	1010	1010	1090	2225	155	60
620-AA	550	210	2700	690	605	285	2016	1615	761	140	573	1087	538	140	1204	3600	2100	890	1010	1010	1090	2225	155	60

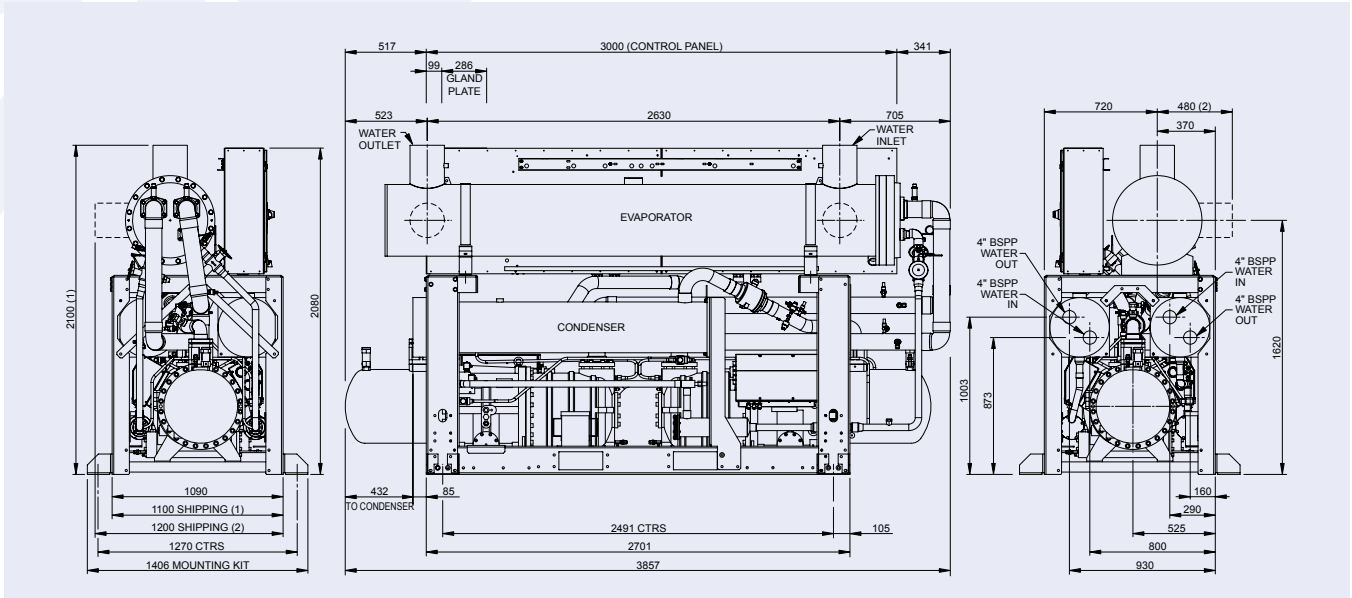
All dimensions in mm. Drawings not a scale.

Dimensions exclude insulation and options. Refer to Physical Data Section for connection sizes. For reference only, please refer to York Product drawing for complete drawing.

(1) With Vertical nozzle cooler only. (2) With horizontal nozzle cooler only.

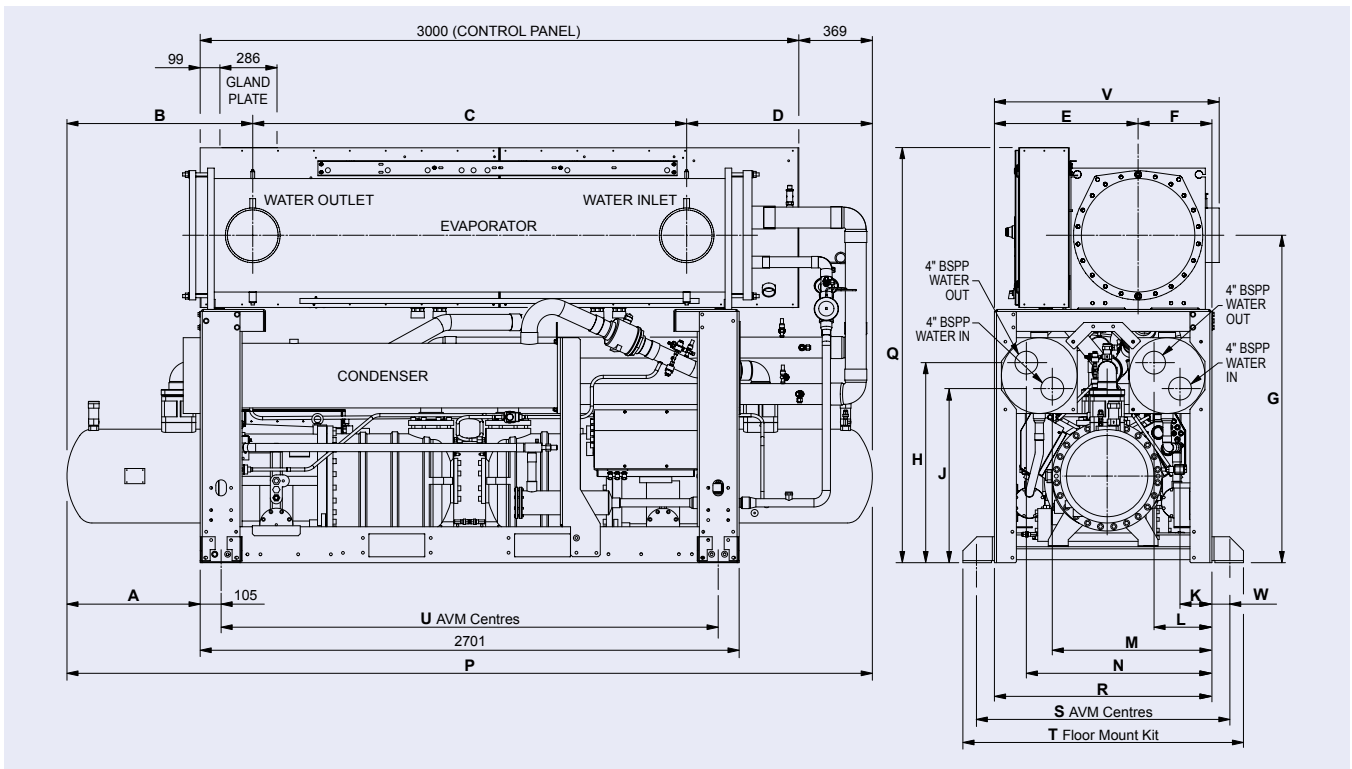
# Dimensions and hydraulic connections

## YLCS 0670SA/HA - 0750SA/HA



All dimensions in mm. Drawings not a scale.  
 Dimensions exclude insulation and options. Refer to Physical Data Section for connection sizes. For reference only, please refer to York Product drawing for complete drawing.  
 (1) With Vertical nozzle cooler only. (2) With horizontal nozzle cooler only.

## YLCS 0860SA/HA to 1120SA/HA

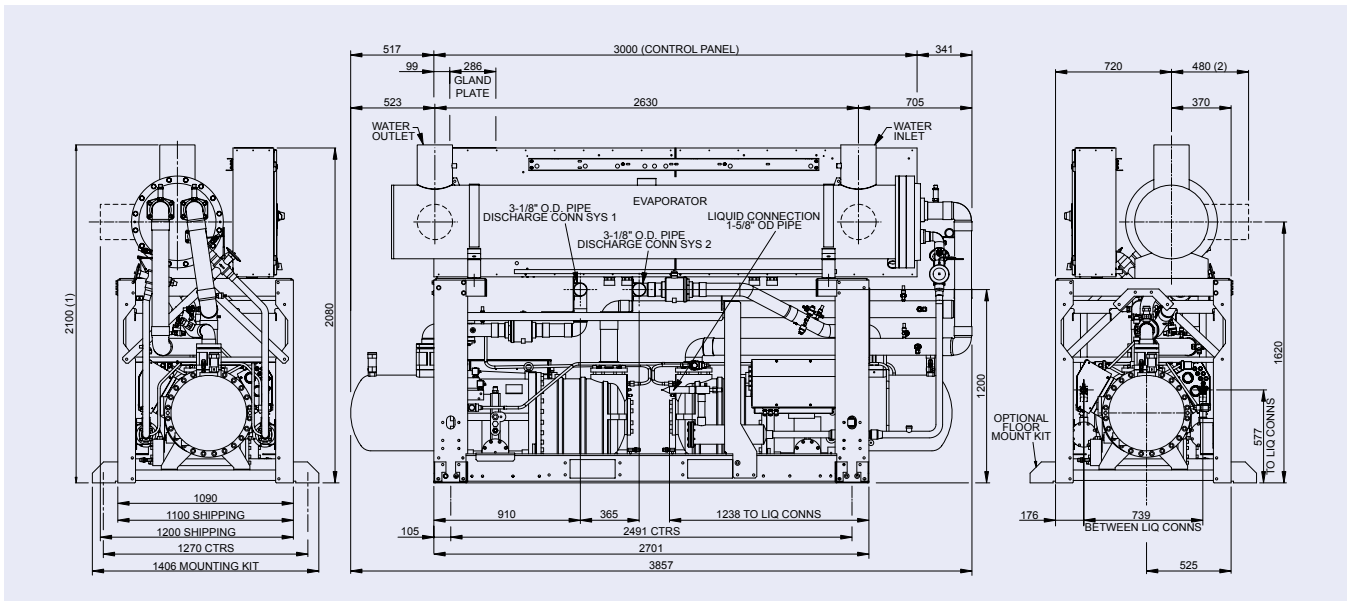


Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W
860-SA & 860-HA	517	780	2175	930	720	370	1641	1003	873	160	290	800	930	3885	2080	1090	1270	1406	2491	1136	90
980-SA & 980-HA	668	930	2175	930	720	370	1641	1003	873	160	290	800	930	4036	2080	1090	1270	1406	2491	1126	90
1120-SA & 1120-HA	668	1025	2010	1000	835	455	1721	1045	915	211	341	950	1080	4036	2144	1290	1470	1606	2491	1295	90

All dimensions in mm. Drawings not a scale.  
 Dimensions exclude insulation and options. Refer to Physical Data Section for connection sizes. For reference only, please refer to York Product drawing for complete drawing.

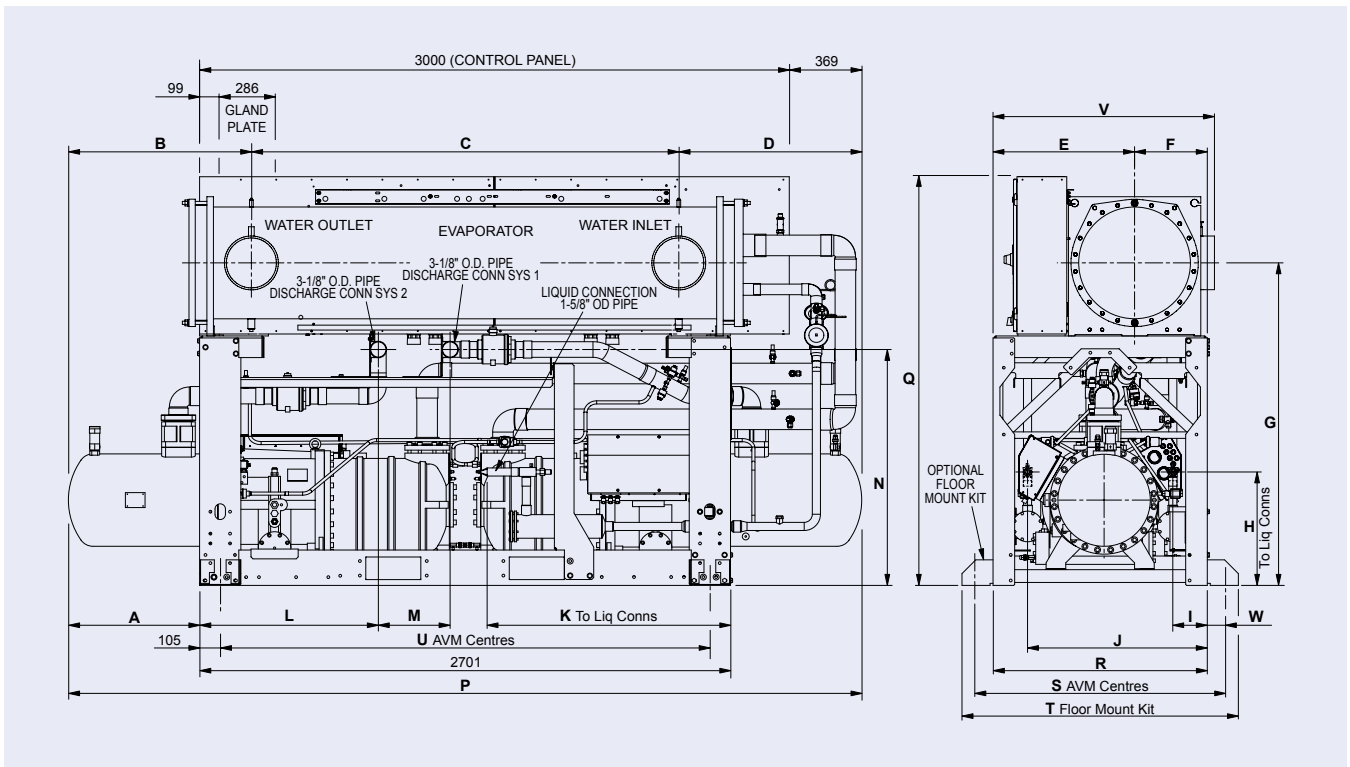
# Dimensions and hydraulic connections

## YLCS 0670AA - 0750AA



All dimensions in mm. Drawings not a scale.  
 Dimensions exclude insulation and options. Refer to Physical Data Section for connection sizes. For reference only, please refer to York Product drawing for complete drawing.  
 (1) With Vertical nozzle cooler only. (2) With horizontal nozzle cooler only.

## YLCS 0860AA to 1120AA



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	W
860-AA	517	780	2175	930	720	370	1641	577	175	915	1238	910	365	1200	3885	2080	1090	1270	1406	2491	1136	90
980-AA	668	930	2175	930	720	370	1641	577	175	915	1238	910	365	1200	4036	2080	1090	1270	1406	2491	1126	90
1120-AA	668	1025	2010	1000	835	455	1721	577	275	1015	1407	785	246	963	4036	2144	1290	1470	1606	2491	1295	90

All dimensions in mm. Drawings not a scale.  
 Dimensions exclude insulation and options. Refer to Physical Data Section for connection sizes. For reference only, please refer to York Product drawing for complete drawing.

# YVWA Water-cooled VSD screw chiller

Cooling capacities from 451 kW to 1403 kW

At Eurovent Standard Conditions this equipment meets A Class energy efficiency levels.



Compatible range



## Features

Our newest water-cooled chiller offers the following benefits:

### Premium efficiency

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

### Application flexibility

Tailor and tune flexibility makes the **YVWA** ideal for any application from thermal storage to heat pump duty.

### Enhanced sustainability

Achieved through high efficiency operation and low refrigerant charges.

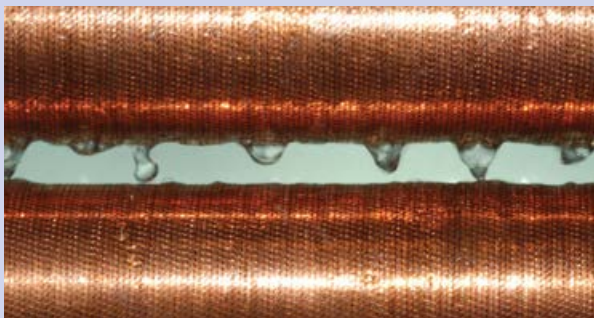
### Product confidence

Improve your peace of mind knowing our experience stands behind every chiller.

## Options / Accessories

- BMS Interfacing options
- 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 ITCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland



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



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

Photo courtesy of Baltimore Air Coil



# Water-cooled VSD screw chiller

YVWA



## Application flexibility (\*) example of selections

Model	YVWABBBBFX	YVWACDCDFX	YVWABBBBGX	YVWACDCDGX	YVWAM2M2EE	YVWAM2MCEE	YVWAMBMCCE
Cooling capacity (kW)	451	525	575	650	700	750	800
EER 100%	5	5.41	4.72	5.14	4.81	5.13	5.3
SEER	6.68	7.05	6.79	7.46	6.49	6.83	7.08
ηs, c	259	274	264	291	251	265	275

Model	YVWAMDMCFE	YVWAMDMDFE	YVWAMDMEFE	YVWAMEMEFF	YVWANENEFF	YVWAUDUDGF	YVWAUEUEGG
Cooling capacity (kW)	850	900	950	1000	1070	1224.0	1403
EER 100%	5.39	5.35	5.32	5.3	5.33	5.5	5.43
SEER	7.15	7.20	7.30	7.23	7.25	7.63	7.69
ηs, c	278	280	284	281	282	297	300

Net values at Eurovent nominal conditions for models using R134a: Cooling capacities in kW given for entering / leaving chilled water temperature 12/7 °C condenser water 30/35 °C SEER calculated according to EN14511

ηs calculated according to Ecodesign regulation for chillers comfort cooling (813/2013). For other Ecodesign calculations, please contact your JCI representative.

(\*) The taylor and tune models allow over 7000 component combinations in stepless selection capacities / operating conditions. Specific selections may achieve an operating envelope of -10 to + 16 °C evaporator liquid and from 18 to 65 °C condenser liquid. Models are using selected components from the quick ship program.

The table above shows only a representative sample of performance points based on generic project operating conditions working with R134a refrigerant.

For R513a information contact your JCI Representative.

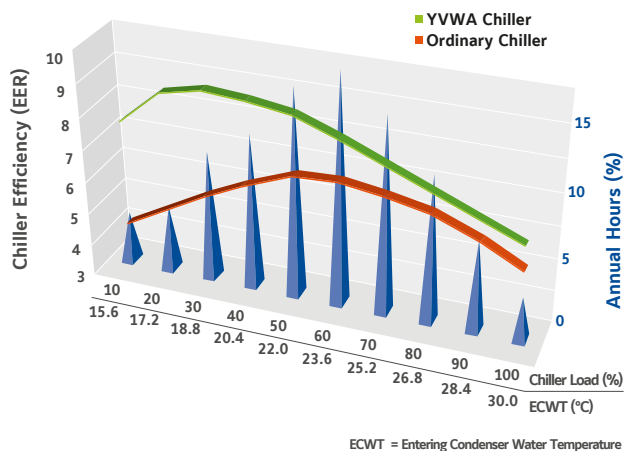
The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects

## Technical data

Model	YVWABBBBFX	YVWACDCDFX	YVWABBBBGX	YVWACDCDGX	YVWAM2M2EE	YVWAM2MCEE	YVWAMBMCCE	
Compressors / Circuite(s)	1	1	1	1	2	2	2	
Dimensions	Length	mm	3110	3571	3110	3720	4390	4390
	Width	mm	1413	1413	1413	1413	1405	1405
	Height	mm	1846	1846	1846	1846	1824	1824
Operating weight (kg)	3692	4169	3822	4299	5701	5884	6032	
Refrigerant charge (kg)	127	153	137	163	250	250	250	

Model	YVWAMDMCFE	YVWAMDMDFE	YVWAMDMEFE	YVWAMEMEFF	YVWANENEFF	YVWAUDUDGF	YVWAUEUEGG	
Compressors / Circuite(s)	2	2	2	2	2	2	2	
Dimensions	Length	mm	4390	4390	4390	5000	4875	4875
	Width	mm	1405	1405	1405	1405	1730	1730
	Height	mm	1824	1824	1824	1824	1999	1999
Operating weight (kg)	6265	6315	6421	6540	7052	9393	9746	
Refrigerant charge (kg)	255	255	255	260	300	430	440	

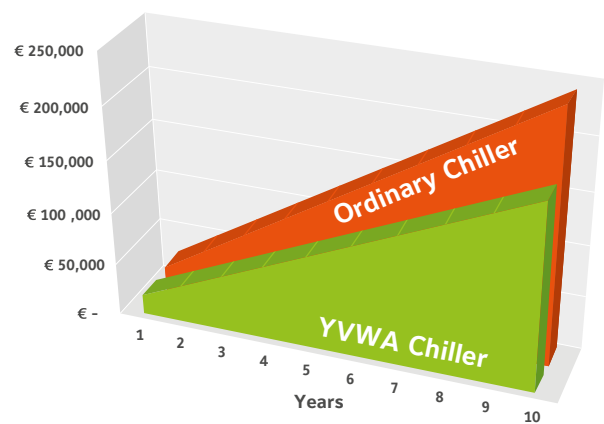
## YVWA Efficiency vs. Ordinary Chiller



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

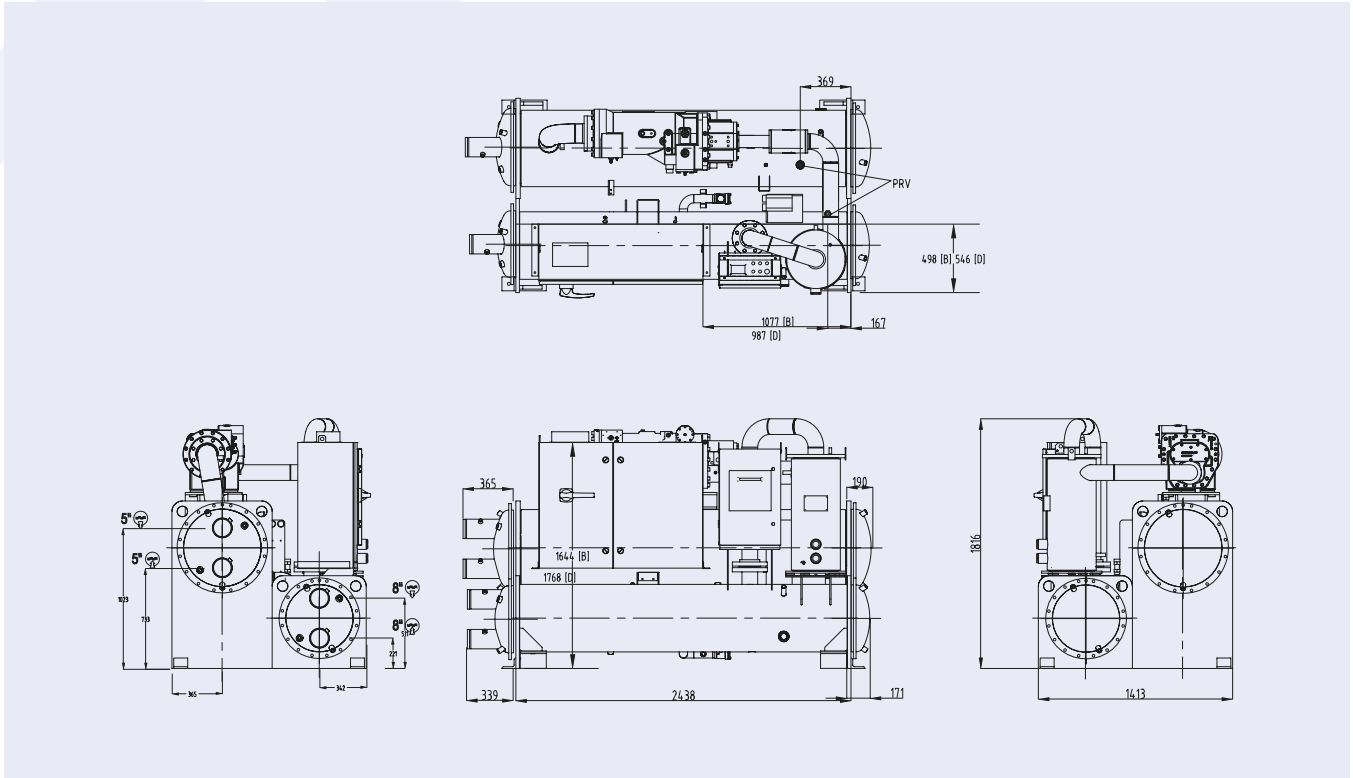
An investment in an optimized YVWA chiller reduces energy costs by 25%.



Manufacturer reserves the rights to change specifications without prior notice.

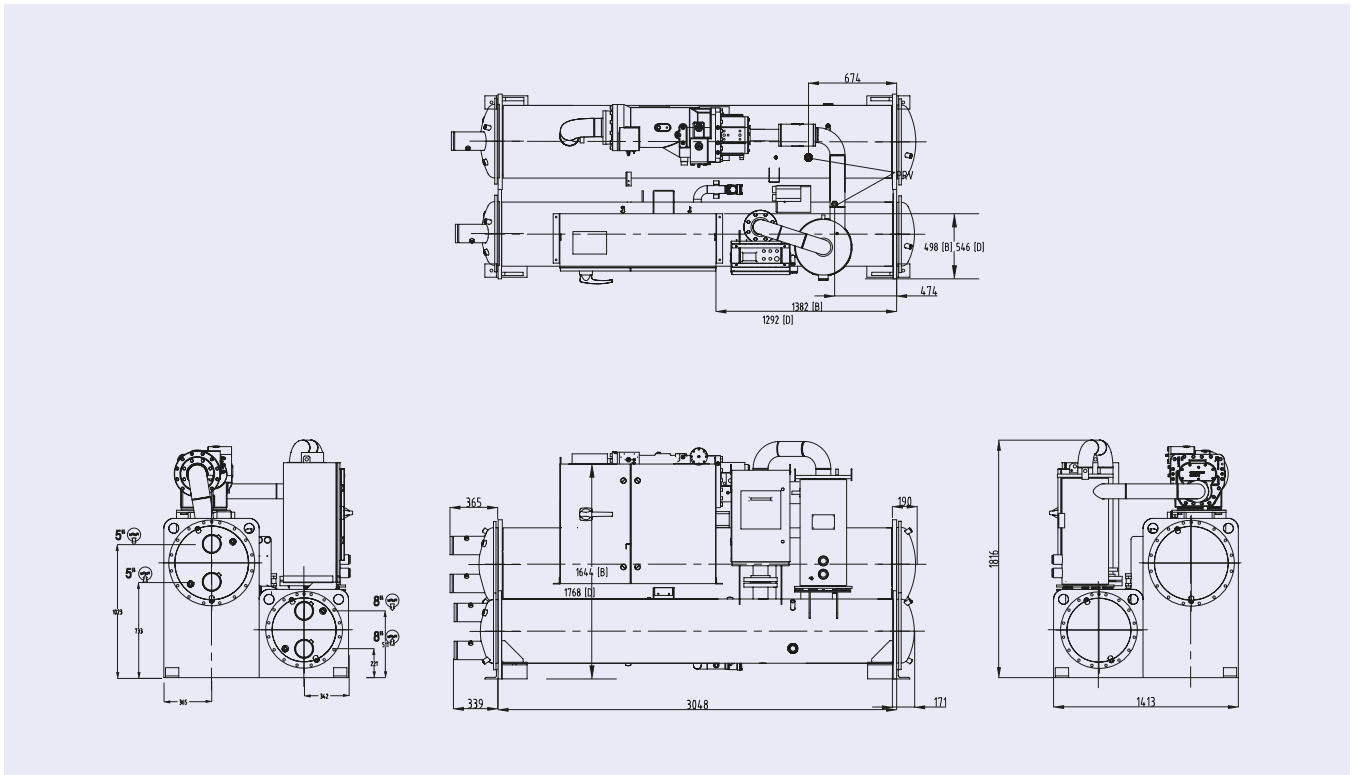
# Dimensions and hydraulic connections

## YVWA B models



All dimensions in mm. Drawings not a scale.

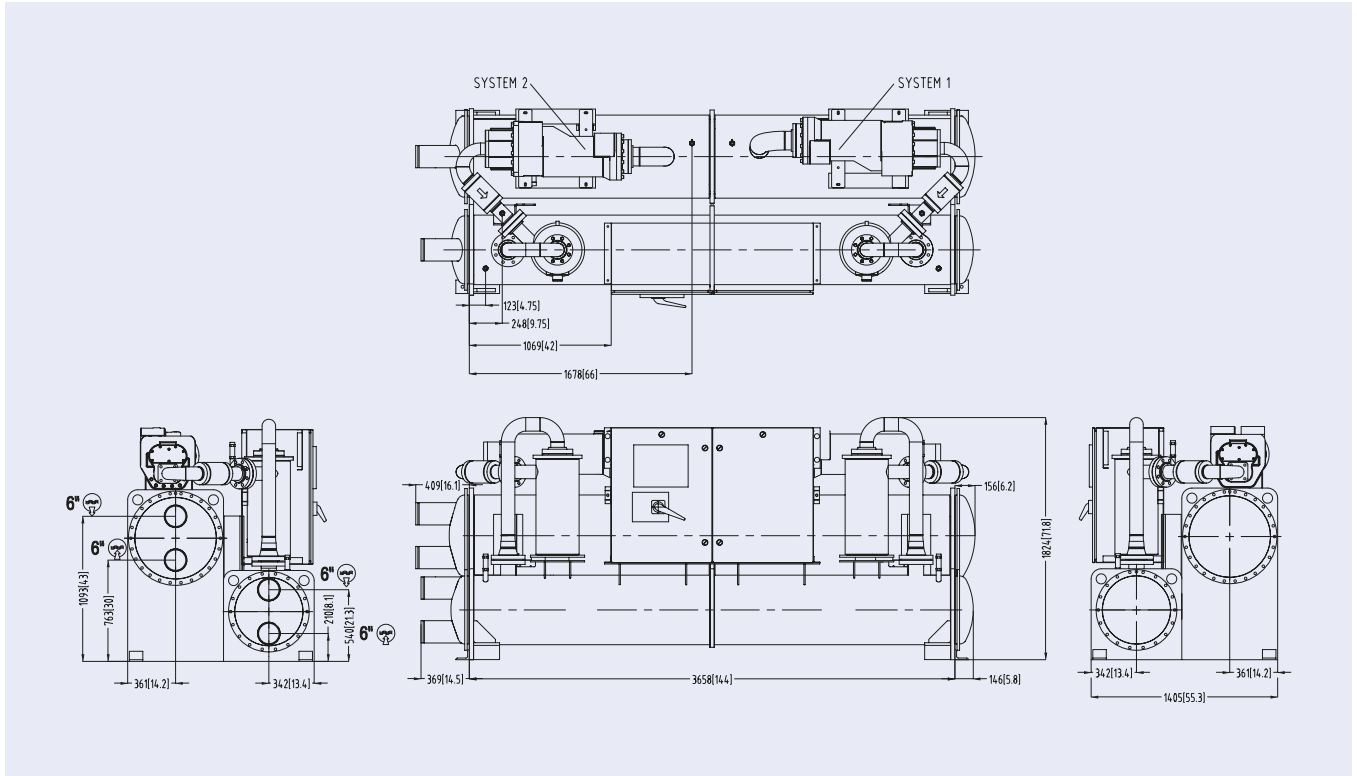
## YVWA C models



All dimensions in mm. Drawings not a scale.

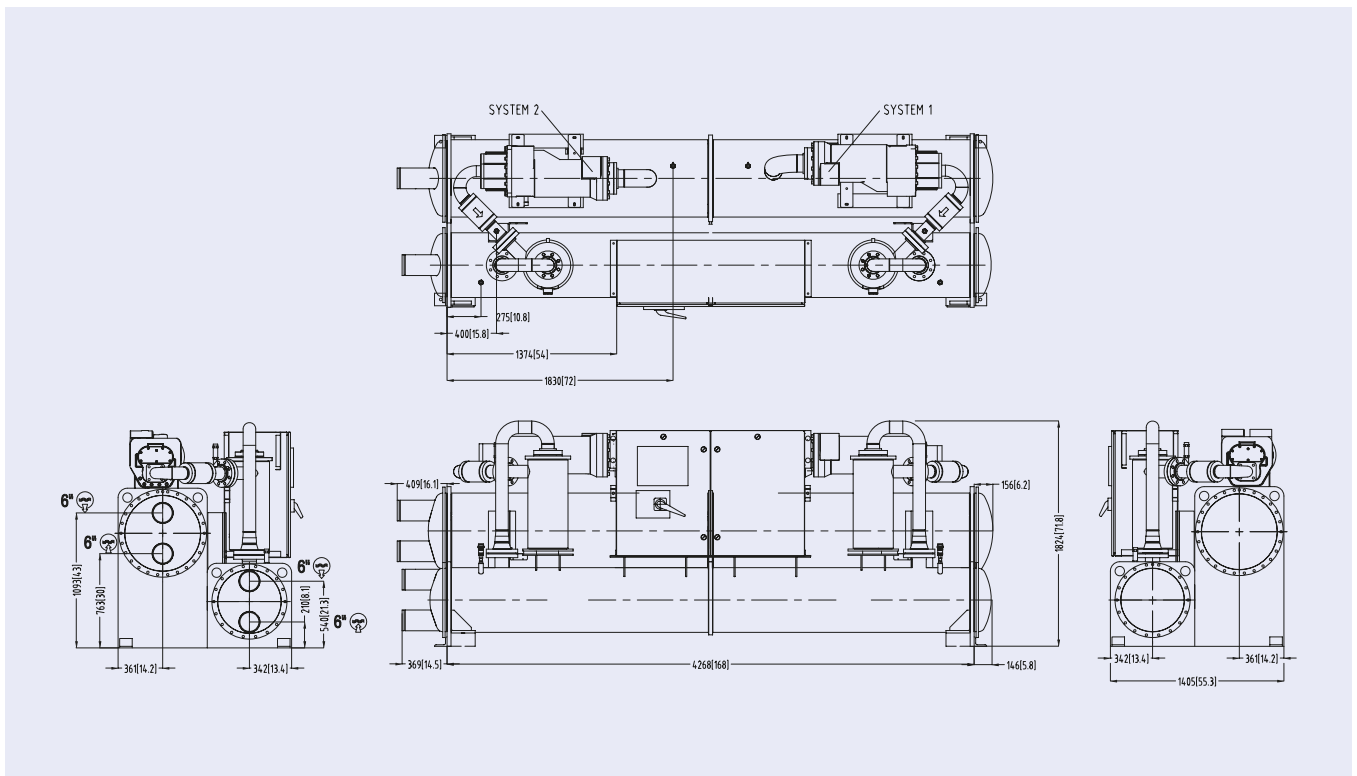
# Dimensions and hydraulic connections

## YVWA M models



All dimensions in mm. Drawings not a scale.

## YVWA N models



All dimensions in mm. Drawings not a scale.

# YZ Magnetic bearing centrifugal chiller

Cooling capacities from 581 kW to 3516 kW

At Eurovent Standard Conditions this equipment meets A Class energy efficiency levels.

**NEW**



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.

## Magnetic Driveline Superiority

The **YORK® YZ** uses an integral, variable-speed drive and advanced magnetic bearing technology to deliver extraordinary efficiency, superior durability, simplified maintenance and a wider operating envelope than any chiller using oil- or refrigerant-lubricated compressor bearings. This driveline features a single moving assembly suspended in a magnetic field that does not require lubrication. With 80% fewer moving parts than traditional oil- or refrigerant-lubricated drivelines, longevity is enhanced and maintenance is reduced.



# 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:

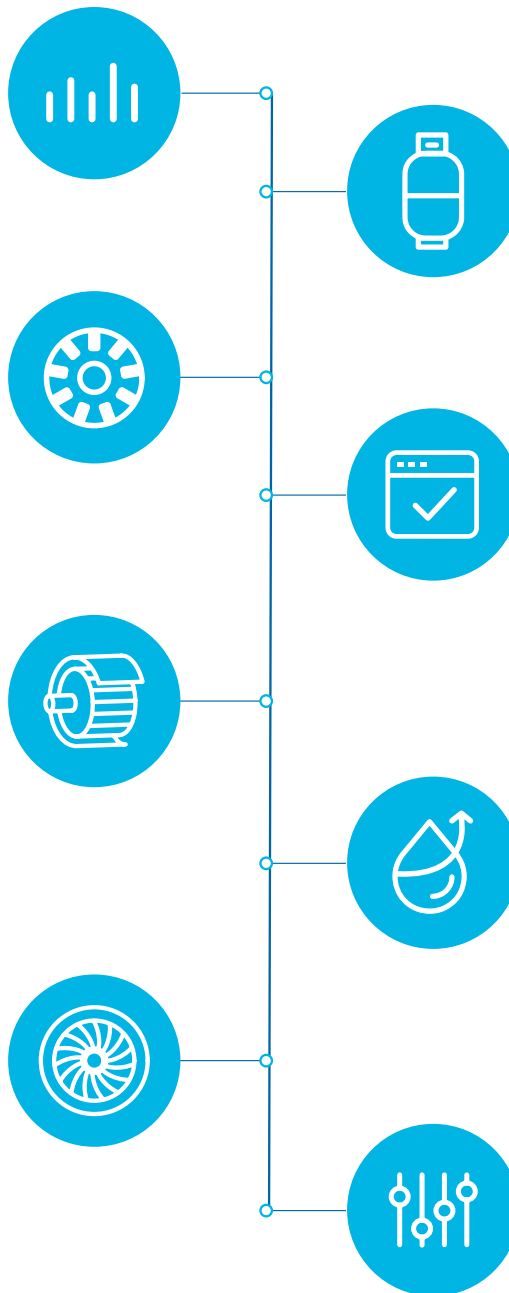
In 1998, YORK® Navy Systems pioneered reliable magnetic-bearing technology to cool submarines. The same durable and efficient technology is used on the YORK® YZ.

### 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.

### 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.



### 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.

### 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.

### Falling Film Evaporator:

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

### Capacity Control Logic:

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

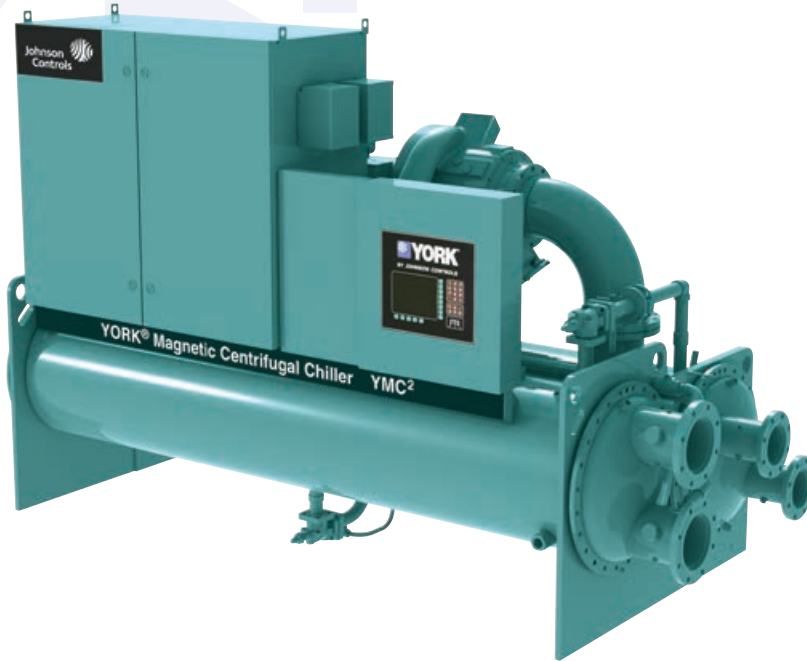


Manufacturer reserves the rights to change specifications without prior notice.

# YMC<sup>2</sup> Water-cooled magnetic centrifugal chiller

Cooling capacities from 800 kW to 3600 kW

At Eurovent Standard Conditions this equipment meets A Class energy efficiency levels.



Compatible range

## Features

Our most advanced water-cooled chiller offers the following benefits:

### 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.

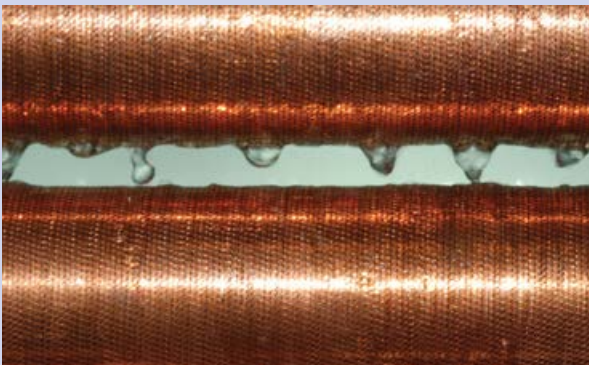
### Low sound levels

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.

Photo courtesy of the ITCM 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 YMC2 chiller utilises a permanent-magnet motor and active magnetic-bearing technology.

# Water-cooled magnetic centrifugal chiller

YMC<sup>2</sup> S0800AA to S3600AB



## Nominal capacity (\*)

YMC <sup>2</sup>	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
SEER	7.58	7.83	7.92	8.34	8.59	7.83	8.16
ηs, c	295	305	309	326	335	305	318
Sound pressure at 1 m (dBA)	77	77	76	76	77	79	80

YMC <sup>2</sup>	S2200AB	S2400AB	S2600AB	S2800AB	S3000AB	S3200AB	S3400AB	S3600AB
Cooling capacity (kW)	2200	2400	2600	2800	3000	3200	3400	3600
EER	6.2	6.25	6.1	6.15	6.2	6.2	6.1	6.1
Sound pressure at 1 m (dBA)	81	82	82	82	82	82	83	83

Cooling Capacity at Eurovent Conditions, entering/leaving chilled water temperature 12°C/7°C, entering/leaving condenser water temperature 30°C/35°C  
 (\*) YMC<sup>2</sup> is a tailor and tune chiller. Its performance will be factory-adjusted to match the exact site requirements based on the specific project operating.  
 The table above shows only a representative sample of performance points based on generic project operating conditions working with R134a refrigerant.  
 For R513a information contact your JCI Representative.  
 The above data is based on Johnson Control's selection software YORKworks 17.06. Please refer to the latest version of the software for specific projects.

## Technical data

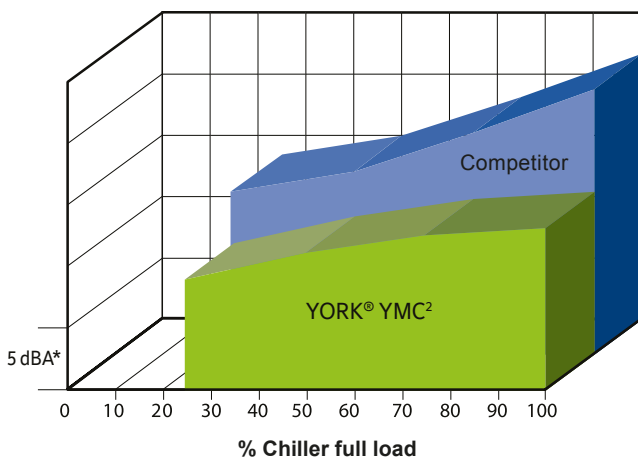
YMC <sup>2</sup>			S0800AA	S1000AA	S1200AB	S1400AA	S1600AB	S1800AB	S2000AB	
Dimensions	Length	mm	3048				4267			
	Width	mm	1880				2007			
	Height	mm	2410				2499		2573	
Shipping weight (kg)			5171		5810		6579		7809	
Refrigerant charge (kg)			278	280	423	454	445	612	656	

YMC <sup>2</sup>			S2200AB	S2400AB	S2600AB	S2800AB	S3000AB	S3200AB	S3400AB	S3600AB
Dimensions	Length	mm	5154				5054			
	Width	mm	2007				2235			
	Height	mm	2573				2656			
Shipping weight (kg)			10095	10161	10255	10432	11500	11669	12048	12254
Refrigerant charge (kg)			667	666	658	647	766	760	750	750

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.

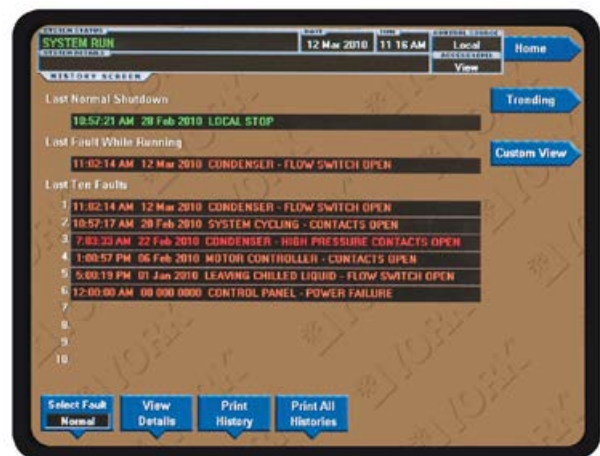
## Superior sound reduction

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



The YMC<sup>2</sup> chiller is so much quieter than competitive magnetic-bearing chillers, it sounds about half as loud. \*Note: each segment on the Y axis = 5 dBA.

## OptiView control centre



The OptiView control centre provides complete diagnostics to speed troubleshooting.



Manufacturer reserves the rights to change specifications without prior notice.

# YK Water-cooled centrifugal chiller

Cooling capacities from 800 kW to 11250 kW

Available configurations that meet A Class energy efficiency levels at Eurovent Standard Conditions.



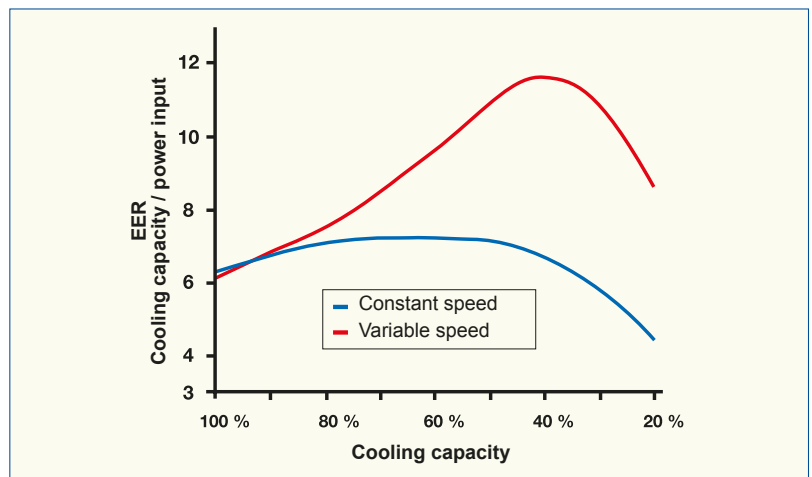
Compatible range

## Features

- The YORK YK chiller is designed for air conditioning and process applications.
- 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.
- The YK utilizes a falling film evaporator to increase chiller efficiency and reduce refrigerant charges, which makes it ideal for LEED® building applications.
- This chiller is designed for indoor mechanical room installation and it requires a cooling tower for heat dissipation
- The inherent design flexibility of this chiller allows it to be precisely selected for any building load profile.



OptiView panel



Speed comparison



# Water-cooled centrifugal chiller

YK



## Nominal capacity

Model	Code	Cooling capacity kW
YK	Q3 - Q7	800 - 2100
	P7 - P9	1750 - 2800
	H9	2400 - 3800
	K1 - K7	3200 - 9850
YK-EP	K7 & Q3	8800 - 11250

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 R134a refrigerant. For R513a 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.



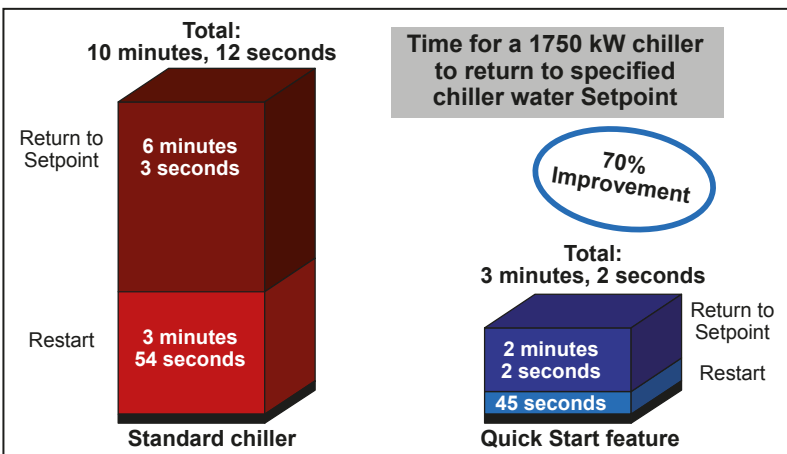
## Medium Voltage Variable Speed Drive

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.

# YHAU CL

## Single stage hot water driven absorption chiller

Cooling capacities from 105 kW to 6153 kW



### Features

#### Flexible Operating Envelope

The **YORK YHAU-CL** 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** cooling capacity ranges from 105-6,153 kW / 30-1,750 TR.

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

- Chilled water leaving temperature as low as 4C.
- Cooling water temperature entering temperature as high as 37C.
- Hot water temperature, driving heat source, entering temperature as low as 70C.

#### Refrigerant cycle

The **YORK YHAU CL** high efficiency single-stage 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 stage hot water driven absorption chiller

YHAU CL



## 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** 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** 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 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 temperature 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 Model	630EXW	700EXW	800EXW	900EXW	1000EXW	1120EXW	1250EXW	1400EXW	1500EXW	1600EXW	1680EXW	1800EXW	1900EXW	2000EXW
Cooling Capacity kW	1934	2110	2461	2708	3024	3411	3938	4431	4852	5134	5274	5626	5943	6153
COP (low temperature 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	1900	2200	2500	3100	2200	2600	3200	3800	4600	3300	3900	4700	5700
	Width	mm	1500				1800				2200				
	Height	mm	2100				2500				3200				
Operating weight kg		2700	3100	3600	4200	4400	5100	6100	7200	8500	10300	12200	14400	17400	

YHAU CL Model		630EXW	700EXW	800EXW	900EXW	1000EXW	1120EXW	1250EXW	1400EXW	1500EXW	1600EXW	1680EXW	1800EXW	1900EXW	2000EXW	
Dimensions	Length	mm	5500	6000	6700	7300	8000	6700	7300	8000	8500	9000	9500	10000	10500	11000
	Width	mm	2650				3300				3900					
	Height	mm	3300				3900				3900					
Operating weight kg		25800	27600	29500	32300	34700	43900	46400	49000	51200	53500	55800	58600	61300	64100	



Manufacturer reserves the rights to change specifications without prior notice.

# YORK® absorption chillers and heat pumps

With innovative 2-step evaporation and absorption-cycle technology

DRIVING HEAT SOURCE	MODEL AND DESCRIPTION	
HOT WATER	<b>Single Effect Hot Water</b> <b>Model:</b> YHAU-CL/CH <b>Capacity:</b> 105 - 7,034 kW / 30 - 2,000 TR <b>Application:</b> Combined heat and power (CHP), commercial cooling, industrial process cooling	
LOW TEMPERATURE HOT WATER	<b>Single Effect Double Lift Hot Water</b> <b>Model:</b> YHAU-CL-DXS <b>Capacity:</b> 176 - 4,395 kW / 50 - 1,250 TR <b>Application:</b> Combined heat and power (CHP), commercial cooling, industrial process cooling	
LOW PRESSURE STEAM	<b>Single Effect Steam</b> <b>Model:</b> YHAU-C <b>Capacity:</b> 422 - 5,275 kW / 120 - 1,500 TR <b>Application:</b> Combined heat and power (CHP), commercial cooling, industrial process cooling	
MEDIUM PRESSURE STEAM	<b>Double Effect Steam</b> <b>Model:</b> YHAU-CW <b>Capacity:</b> 422 - 14,067 kW / 120 - 4,000 TR <b>Application:</b> Combined heat and power (CHP), commercial cooling, industrial process cooling	
DIRECT FIRED	<b>Small Double Effect Natural Gas or Light Oil *</b> <b>Model:</b> YHAU-CG/CA-CXR <b>Capacity:</b> 105 - 352 kW / 30 - 100 TR <b>Application:</b> Commercial cooling	
DIRECT FIRED	<b>Large Double Effect Natural Gas or Light Oil</b> <b>Model:</b> YHAU-CG/CA <b>Capacity:</b> 422 - 5,626 kW / 120 - 1,600 TR <b>Application:</b> 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	<p><b>Double Effect Direct Exhaust Gas</b>  <b>Model:</b> YHAU-CE  <b>Capacity:</b> 527 - 5,064 kW / 150 - 1,440 TR  <b>Application:</b> Combined heat and power (CHP), commercial cooling</p>	
EXHAUST GAS AND LOW TEMPERATURE HOT WATER	<p><b>Multi Energy Exhaust and Jacket Hot Water</b>  <b>Model:</b> YHAU-CE-J  <b>Capacity:</b> 527 - 5,064 kW / 150 - 1,440 TR  <b>Application:</b> Combined heat and power (CHP), commercial cooling</p>	
EXHAUST GAS AND LOW TEMPERATURE HOT WATER AND DIRECT FIRED	<p><b>Multi Energy Exhaust, Jacket Hot Water, Direct Fired</b>  <b>Model:</b> YHAU-CGE-J  <b>Capacity:</b> Custom  <b>Application:</b> Combined heat and power (CHP), commercial cooling</p>	
NATURAL GAS AND LOW TEMPERATURE HOT WATER	<p><b>Gas Gene-Link</b>  <b>Model:</b> YHAU-CG-J  <b>Capacity:</b> 422 - 5,626 kW / 120 - 1,600 TR  <b>Application:</b> Combined heat and power (CHP), commercial cooling</p>	
MEDIUM PRESSURE STEAM AND LOW TEMPERATURE HOT WATER	<p><b>Steam Gene-Link</b>  <b>Model:</b> YHAU-CW-J  <b>Capacity:</b> 422 - 14,067 kW / 120 - 4,000 TR  <b>Application:</b> Combined heat and power (CHP), industrial process cooling</p>	
HOT WATER, STEAM, DIRECT FIRED	<p><b>Low Leaving Chilled Water Temperature (Down to -5°C)</b>  <b>Model:</b> YHAU-C-L  <b>Capacity:</b> 176 - 1,758 kW / 50 - 500 TR  <b>Application:</b> Industrial process cooling / refrigeration</p>	
HOT WATER, STEAM, DIRECT FIRED	<p><b>Absorption Heat Pump (Up to 90°C)</b>  <b>Model:</b> YHAP  <b>Capacity:</b> Custom  <b>Application:</b> District heating, industrial process heating</p>	

# YIA

## Single stage hot water or steam powered absorption chiller

Cooling capacities from 280 kW to 3150 kW



### Features

**YIA** chillers are available using low pressure steam or hot water. Compared to electrically driven chillers **YIA** chillers can dramatically lower system operating costs when using waste heat.

Applications particularly well suited to the **YORK YIA** absorption chiller include cogeneration, waste heat recovery from diesel or gas engine jacket water, turbine air inlet cooling and district heating and cooling installations.

#### Hot water units

Hot water units can operate with entering water temperature from 80 to 128°C.

#### Steam units

Steam units can operate with a steam pressure at generator inlet from 0.2 barg to 0.95 barg.

#### Refrigerant cycle

The **YORK YIA** high efficiency single-stage 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. By using the environmental friendly ADVAGuard 750 inhibitor the internal corrosion rate and hydrogen generation is up to 8 times less than using lithium molybdate.

#### Chiller control

The **YORK YIA** chiller utilizes the OptiView control panel for advanced chiller control and building system integration.

Smart Purge is included to eliminate the need for time consuming manual purging of the chiller system.

# Single stage hot water or steam powered absorption chiller

YIA



## Nominal capacity

YIA Model	1A1	1A2	2A3	2A4	2B1	3B2	3B3	4B4	4C1	5C2	5C3
Cooling Capacity kW	280	321	406	465	506	606	674	757	760	928	1048
EER (low temperature hot water)	0,61	0,68	0,69	0,69	0,69	0,69	0,69	0,69	0,68	0,69	0,61

YIA Model	6C4	7D1	7D2	8D3	8E1	9E2	10E3	12F1	13F2	14F3
Cooling Capacity kW	1145	1253	1415	1535	1885	2090	2265	2675	2940	3150
EER (low temperature hot water)	0,68	0,68	0,68	0,68	0,70	0,70	0,69	0,70	0,71	0,69

At 7°C leaving chilled water, 95°C entering generator water, and 29.4°C entering condenser water.

## Technical data

YIA Model			1A1	1A2	2A3	2A4	2B1	3B2	3B3	4B4	4C1	5C2	5C3
Dimensions	Length	mm	3720	4330	4940	5550	4940	5550	6160	6770	5550	6160	6770
	Width	mm	1760	1420			1580			1770			
	Height	mm	2320			2640			3020				
Operating weight kg			4950	5500	6130	6590	7900	8540	9490	10490	11400	12260	13620

YIA Model			6C4	7D1	7D2	8D3	8E1	9E2	10E3	12F1	13F2	14F3
Dimensions	Length	mm	7530	6160	6770	7530	6870	7630		8390		9150
	Width	mm	1770	2110	1670	2110	2290		2480			
	Height	mm	3020	3540			3840		4240			
Operating weight kg			14760	17890	19840	21800	24110	26830	29790	35550	39050	41140



Manufacturer reserves the rights to change specifications without prior notice.

# WFC SC Single stage hot water absorption chiller

Cooling capacities from 17.6 kW to 175.8 kW

# CH K & CH MG Natural gas-fired chiller/heaters

Cooling capacities from 105 kW to 703 kW

Heating capacities from 86 kW to 572 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<sub>2</sub> 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.

## Features CH K & CH MG

Natural gas-fired chiller/heaters **CH K & CH MG** from **Yazaki** work with double effect thermo-cycle and may be used for both cooling or heating distribution. Compared to electrically driven chillers **CH K & CH MG** chillers can dramatically lower system operating costs.

A low electrical energy consumption results in low CO<sub>2</sub> emissions and provide a relief for electricity grids by replacing conventional cooling demand peaks. All chillers are pre-filled and ready for "plug & chill".

### Direct fired chiller

Driving energy is provided by natural gas. Typically a COP of 1.0 or above is achievable.

### Refrigerant cycle

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



# Single stage hot water absorption chiller

WFC SC

# Natural gas-fired chiller/heaters

CH K & CH MG



## 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

## Nominal capacity CH K & CH MG

Model				CHK 30	CHK 40	CHK 50	CHK 60	CHK 80	CHK 100	CHMG 150	CHMG 200
Cooling Capacity		kW		105	141	176	211	281	352	527	703
Heating Capacity		kW		86	115	143	172	229	286	429	572
Chilled water	Temperature	Inlet	°C	12.5	12.5	12.5	12.5	12.5	12.5	12	12
		Outlet	°C	7	7	7	7	7	7	7	7
Cooling water	Temperature	Inlet	°C	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5
		Outlet	°C	35.5	35.5	35.5	35.5	35.5	35.5	35.5	34.6
Hot water	Temperature	Inlet	°C	50.5	50.5	50.5	50.5	50.5	50.5	56	56
		Outlet	°C	55	55	55	55	55	55	60	60

## Technical data CH K & CH MG

Model			CHK 30	CHK 40	CHK 50	CHK 60	CHK 80	CHK 100	CHMG 150	CHMG 200
Dimensions	Length	mm	1635	1635	1875	1875	1995	1995	3663	3735
	Width	mm	1460	1460	1780	1780	1840	1840	1951	2051
	Height (with fixed plate and vent cap)	mm	2440	2440	2440	2440	2820	2820	2763	3003
Operating weight		kg	1720	1970	2510	2770	4060	4540	6210	7340



Manufacturer reserves the rights to change specifications without prior notice.

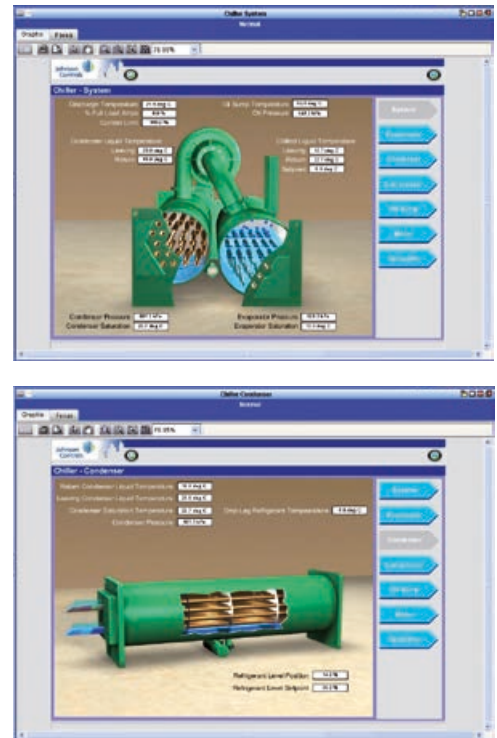


### Creating a complex program without programming

The System Selection Tool (SST) is a control program generator that relies on defining the characteristics of the chiller plant and its control strategies. The tool supports **selection and sequencing** of

- up to eight chillers of different sizes, compressor types and fixed or variable speed
- up to eight (each) primary and secondary chilled water pumps of varying pumping capacities
- up to eight condenser water pump
- of cooling towers and bypass valve, including single speed, multi-speed, and vernier control (one variable speed fan with all other tower fans at constant speed)
- up to four heat exchangers (Waterside Economizers)
- both water-cooled and air-cooled chillers

Furthermore, **control definition** for the chiller plant in a single Field Equipment Controller (FEC)/Network Controller Engine (NCE), if supported by available memory and point Input/Output (I/O), or split across multiple FECs/NCEs, is offered.



Flexibility, ready for use



A **variety of primary control strategies** are also available, including

- measuring building chilled-water flow and differential temperature
- chiller load (kW)
- flow through a decoupler pipe in a primary/secondary system
- differential temperature only, in a constant speed chilled water pump system

It is also possible to select **dozens of secondary strategies**, such as

- open loop control of the cooling towers (as defined by the American Society of Heating, Refrigerating and Air-Conditioning Engineers)
- closed loop control of condenser-water setpoint

After making the selections, SST **generates a complete program** by linking together appropriate software modules. This process removes the variability commonly found in totally custom-generated programs using a traditional software program editor.

Once the software modules are linked, the tool allows the entry of all equipment parameters. The resulting program can also be run in a simulator mode to verify proper operation before downloading it into Metasys®.



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# Heat Pump Solutions

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

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

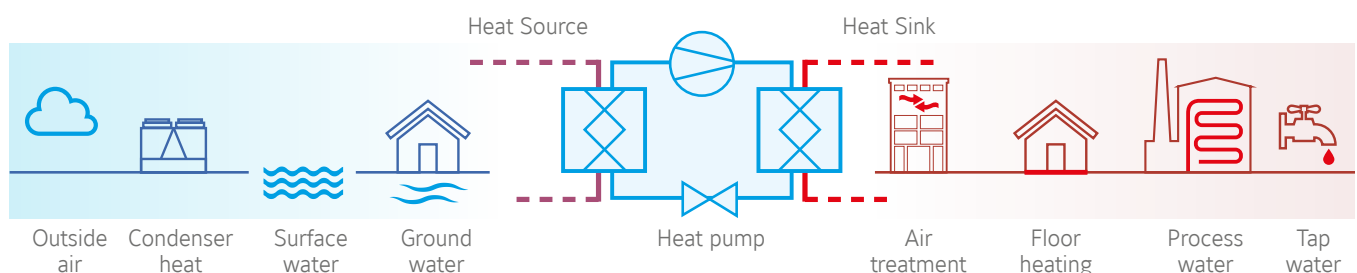
At Johnson Controls we set standards without compromising our core principles: and when passion and innovation come together, great things happen!

## What is a Heat Pump?

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

There are 4 primary system designs for heat pumps:

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



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

## Benefits of using heat pumps

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

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

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










## Reduced operating costs

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

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

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

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

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

\* Cost of Source: Eurostat Statistics web site.













## CO<sub>2</sub> footprint reductions

Another benefit that offers heat pump technology is the reduction in CO<sub>2</sub> 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<sub>2</sub> emissions is impressive.

**In fact 1322 tons of CO<sub>2</sub> annually can be saved, which is the equivalent of removing about 278 cars\* from the road!**

\* [www.epa.gov/cleanrgy/energy-resources/calculator.html](http://www.epa.gov/cleanrgy/energy-resources/calculator.html)

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

\* CO<sub>2</sub> Source Emissions: UK Department of Energy, Food and Rural Affairs and carbonindependent web site

## Reduced water and chemical consumption

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

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

**Over 26 million litres annually!**

## LEED points

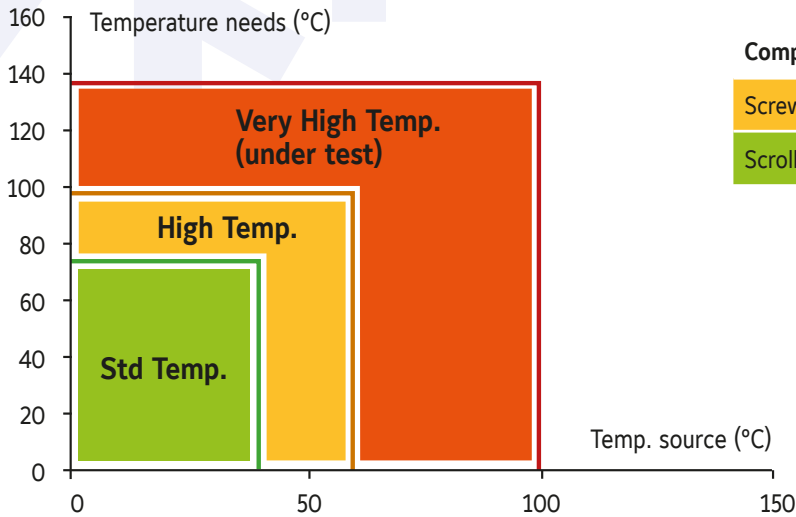
Heat pumps will help you and your customers get LEED points. LEED is one of the most recognizable bodies that certifies building designs to demonstrate leadership in environmental impact.

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



# Heat Pumps solutions

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



Compressor type	Refrigerant
Screw, centrifugal	R717, R245fa
Scroll, reciprocating, screw	R717, R134a, R410A

## Heat pumps with standard temperature



**YLHD**  
Air to water HP  
Scroll compr. / R410A  
Hot water up to 50°C  
Heating capacity:  
23 to 160 kW



**YMPA**  
Air to water HP  
Scroll compr. / R410A  
Hot water up to 55°C  
Heating capacity:  
48 to 255 kW



**YHME**  
Air to water HP  
Twin screw / R134a  
Hot water up to 55°C  
Heating capacity:  
145 to 186 kW



**YLRA**  
Air to water HP  
Scroll compr. / R410A  
Hot water up to 55°C  
Heating capacity:  
200 to 327 kW



**YLPB**  
Air to water HP  
Scroll compr. / R410A  
Hot water up to 52°C  
Heating capacity:  
352 to 669 kW



**YMWA**  
Water to water HP  
Scroll compr. / R410A  
Hot water up to 55°C  
Heating capacity:  
25 to 210 kW



**YCSE**  
Water to water HP  
Screw compr. / R134a  
Hot water up to 55°C  
Heating capacity:  
170 to 300 kW



**YCWL**  
Water to water HP  
Scroll compr. / R410A  
Hot water up to 52°C  
Heating capacity:  
210 to 675 kW



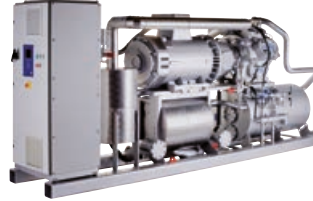
**YLCS**  
Water to water HP  
Twin screw / R134a  
Hot water up to 70°C  
Heating capacity:  
400 to 2000 kW



**YVWA**  
Water to water heat pump  
**Screw compressor / R134a**  
Hot water up to **65°C**  
Heating cap.: 650 to 1250 kW



**YMC²**  
Water to water heat pump  
**Variable speed centrif. compr. / R134a**  
Magnetic bearings  
Hot water up to **65°C**  
Heating cap.: 1600 to 3000 kW



**HeatPAC recip**  
Variable-Speed Drive  
**Reciprocating compr. / R717**  
Hot water up to **70°C**  
Heating capacity up to 1200 kW at 40°C source



**YK HP**  
Water to water heat pump  
**Centrifugal compr. / R134a**  
Hot water up to **50°C (Std)**  
Hot water up to **70°C (HP)**  
Heating cap.: 1000 to 9000 kW

## Heat pumps with high temperature



**HeatPAC HPX recip**  
Variable-Speed Drive  
**Reciprocating compr. / R717**  
Hot water up to **90°C**  
Heating capacity up to 600 kW at 40°C source



**HeatPAC**  
Variable-Speed Drive  
**Screw compressor / R717**  
Hot water up to **90°C**  
Heating capacity up to 1600 kW at 40°C source



**SHP**  
Water to water heat pump  
**Screw VSD compr. / R134a**  
Hot water up to **80°C**  
Heating cap.: 700 to 3000 kW



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

## Customized Heat Pumps



**HeatPAC Custom**  
Two-stage cascade VSD  
**Screw compressor / R717**  
Hot water up to **90°C**  
**Reciprocating compressor / R717**  
Hot water up to **70°C**  
Heating cap. up to +3000 kW at 40°C source



**CYK HP**  
Water to water heat pump  
**Dual-Centrifugal compressors, Series-Arrangement / R134a**  
Hot water up to **70°C**  
Heating capacity from 2500 to 7000 kW



**Titan OM HP**  
Water to water heat pump  
**Multi-stage Centrifugal, electric, steam or gas driven / R134a**  
Hot water up to **90°C**  
Heating capacity from 5000 to 20000 kW

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# ECODESIGN LABEL REGULATION

## Our commitment to the environment

At Johnson Controls, we've been dedicated to protecting the environment since our invention of the electric thermostat in 1885, which provided a fundamental shift in the energy efficiency of buildings. Now, all over the world, our products and services empower customers and communities to consume less energy and conserve resources.

This commitment is in line with the targets of the European climate and energy package for 2020:

### The 5 targets for the EU in 2020

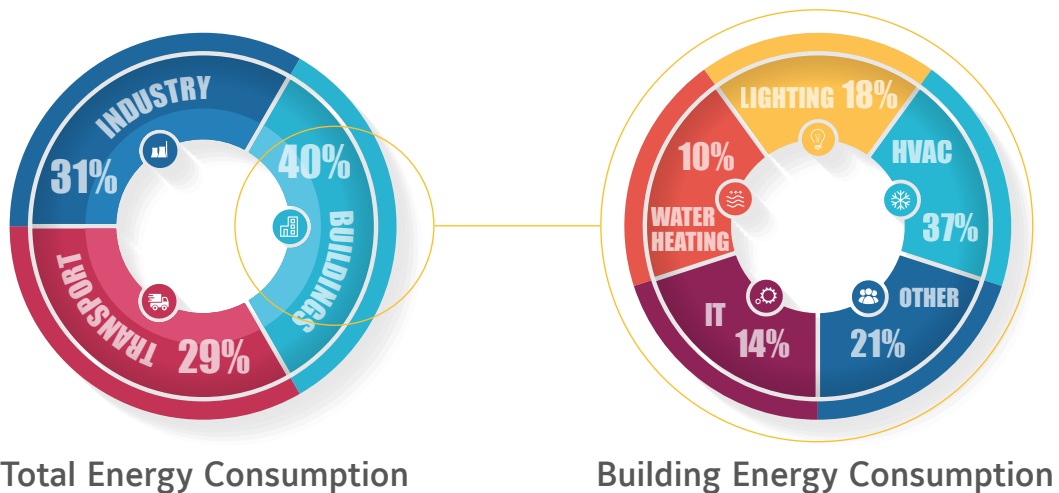
1. Employment
  - 75% of the 20-64 year-olds to be employed
2. R&D
  - 3% of the EU's GDP to be invested in R&D
3. Climate change and energy sustainability
  - greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990
  - 20% of energy from renewables
  - 20% increase in energy efficiency
4. Education
  - Reducing the rates of early school leaving below 10%
  - at least 40% of 30-34-year-olds completing third level education
5. Fighting poverty and social exclusion
  - at least 20 million fewer people in or at risk of poverty and social exclusion

Source: [http://ec.europa.eu/europe2020/index\\_en.htm](http://ec.europa.eu/europe2020/index_en.htm)



### Energy Efficiency Improvement Targets strongly influence the HVAC Market

Buildings today are the largest consumers of energy, and HVAC systems account for a significant portion of a building's energy consumption. Providing customers with energy efficient solutions is a key development opportunity for the HVAC industry.





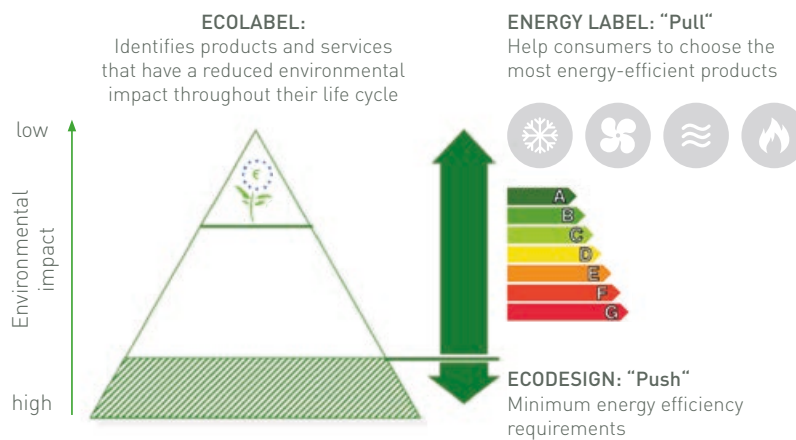
# The Regulatory Response

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. YORK Chillers and Heat Pumps are currently affected by these directives or will be affected moving forward.

## What is Ecodesign Directive?

Ecodesign Directive is a framework that regulates the environmental impact of all products using energy (excluding products in the transport sector). Application of Ecodesign Directive for Chillers and Heat Pumps is enforced through regulations specific to various products and operating ranges. Once a regulation is published and active, products affected must comply with the minimum efficiency performance, sound emissions, etc., to receive a CE mark.

The EU framework for Energy Efficient products' "push and pull effect" on the market



Source: EPEE (<https://www.epeeglobal.org/energy-efficiency/>)

## Which Products are affected by Ecodesign?

Ecodesign directive affects different types of Energy related Products (ErP) including: TVs, washing machines, lights and HVAC products and components. Energy related Products are grouped into "Lots" and the following Lots are applicable to HVAC products.

- ENER Lot 1: Space Heaters (Heat pumps)
- ENTR Lot 1: Professional refrigeration (Process Chillers brine)
- ENER Lot 21: Central heating and cooling products (Chillers)

## How and when will Ecodesign Directive affect YORK Chillers and Heat Pumps?

Minimum Efficiency Performance Standards (MEPS) are minimum performance requirements, implemented in 2 steps (Tiers), as shown in the table below.

		2015	2016	2017	2018	2019	2020	2021
<b>ECODESIGN</b> EU Framework Directive 2009 / 125 / EC Sets the General Rules	<b>ENER Lot 1</b> Reg 813/2013 Heat Pumps			T1 Oct15	T2 Oct17			
	<b>ENTR Lot 1</b> Reg 1095/2015 Process Chillers Brine			T1 Jul16	T2 Jul18			
	<b>ENER Lot 21</b> Reg 2016/2281 Process Chillers High Temperature and Comfort Chillers				T1 Jan18			T2 Jan21

## ENER Lot 1 - Space Heaters (Heat Pumps)

Published regulation 813/2013 affects all Heat Pumps (both air and water cooled) with a rated heating output below 400kW (measured at -10°C ambient).

The heat pumps affected by this regulation are classified as Low Temperature if heating outlet fluid temperature can not be supplied at 52°C (measured at -7°C ambient).

### A new KPI

Ecodesign regulation 813/2013 introduces a new Key Performance Indicator (KPI) for seasonal primary energy efficiency ( $\eta_{s,h}$ ), that allows product efficiency comparison with different energy sources.

$$\eta_{s,h}(\%) = 1/CC \times SCOP - \sum F_i$$

#### SCOP – Seasonal Coefficient of Performance

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

#### 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 source heat pumps

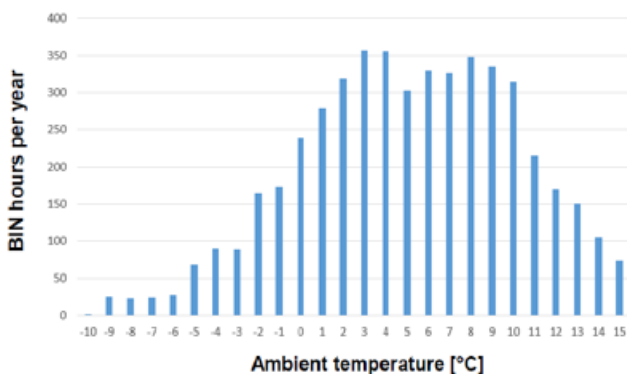
$$\sum F_i = 3\%$$

Water source heat pumps

$$\sum F_i = 8\%$$

### A better Indicator

$\eta_{s,h}$  and SCOP are better indicators than full load COP for heating efficiency, as they take into account a representative set of operating hours and real world conditions.



### Easy to Compare

$\eta_{s,h}$  is the Seasonal PRIMARY Energy Efficiency value and is used to compare heating products using different energy sources.



### Eco-Design Requirements for Space Heaters (Heat Pumps)

MEPS - Minimum Efficiency Performance Standards =  $\eta_{s,h}$

	TIER 1 (Oct'15)	TIER 2 (Oct'17)
	$\eta_{s,h}$	$\eta_{s,h}$
Heat Pump	100%	110%
Low Temperature Heat Pump < 400 kW	115%	125%

## ENTR Lot 1 – Professional Refrigeration (Process Chillers brine)

Published regulation 1095/2015 affects all Process Chillers operating at design capacity that can generate outlet fluid temperature of -25°C (Low Temperature) or -8°C (Medium Temperature).

High Temperature Process Chillers operating at design capacity that can generate outlet fluid temperature of 7°C are part of ENER Lot 21.

### A new KPI

Ecodesign regulation 1095/2013 introduces a new indicator called Seasonal Energy Performance Ratio (SEPR), which is the ratio of annual cooling demand to annual electrical energy consumption.

At this time there is no EN specification to base the SEPR calculation on. The calculation is currently based on the “Transitional method for determination of SEPR for industrial process chillers”, published with the regulation.

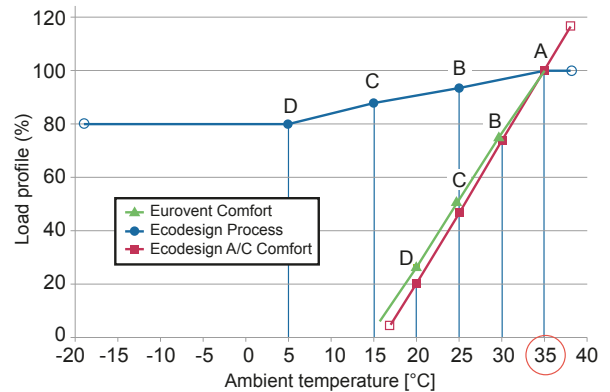
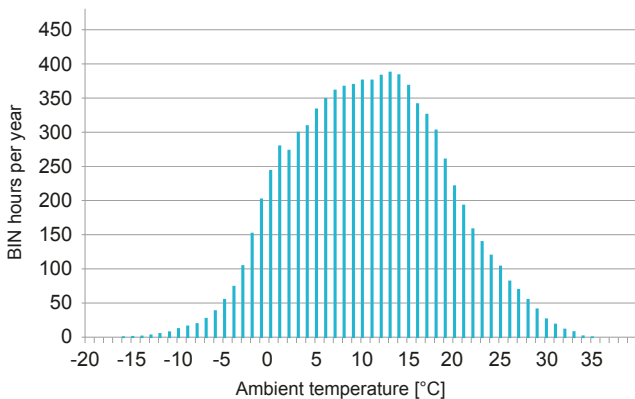
SEPR is calculated from an average climate reference with ambient temperature ranging from -19°C up to 38°C, and with corresponding operating hours at each temperature bin. For Process Cooling, the operating load ranges from 100% down to 80%.

### A better Indicator

SEPR is a better performance indicator for process cooling, as it accounts for year round, high load profile operation typical of process cooling applications.

The graph on the left and below displays the distribution of temperature bins and hours used by the regulation as a climate reference. This climate reference is based on weather data from cities throughout central Europe.

The graph on the right and below displays rating points that are part of the SEPR and SEER calculations. Note that SEPR is focused on high loads (typical of process cooling applications) and SEER is focused on variable loads (typical of comfort applications).



### Bonus for units using Low Global Warming Potential (GWP) refrigerants

As detailed in the table below, regulation 1095/2015 adjusts the Minimum Energy Performance Standard (MEPS) based on the GWP of the refrigerant used.

#### Eco-Design Requirements for Process Chillers Medium Temperature

**MEPS** - Minimum Efficiency Performance Standards = SEPR

EFFICIENCY	1st July 2016		1st July 2018	
	SEPR		SEPR	
	GWP>150	GWP<150	GWP>150	GWP<150
Air to water < 300kW	2.24	2.02	2.58	2.32
Air to water > 300kW	2.80	2.52	3.22	2.90
Water to water < 300kW	2.86	2.57	3.29	2.96
Water to water > 300kW	3.80	3.42	4.37	3.93

## ENER Lot 21 – Central Heating and Cooling products (Comfort Chillers, High Temperature Process Chillers)

Regulation 2016/2281 affects High Temperature Process Chillers and Comfort Cooling Chillers with rated cooling capacity below 2.000 kW. For Comfort Cooling Chillers, compliance is based on either Fan Coil application or Cooling Floor application. The manufacturer's technical datasheet is to specify application(s) in compliance.

### A new KPI

Ecodesign regulation introduces new Minimum Energy Performance Standards for Comfort Cooling Chillers (SEER), and Process Cooling Chillers (SEPR). In the case of SEPR it will be calculated in a similar way as for process chillers brine. In the case of ( $\eta_{s,c}$ ), it will be calculated in a similar way to  $\eta_{s,h}$  used for comfort heating applications.

$$\eta_{s,c}(\%) = 1/CC \times SEER - \sum F_i$$

### SEER – Seasonal Energy Efficiency Ratio

Ratio between the annual cooling demand and the annual electrical input energy over the entire cooling season.

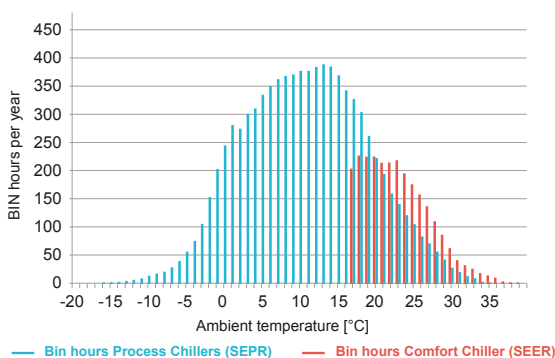
SEER is calculated using standard EN14825, which takes the following into account:

- Seasonal efficiency while the compressor is running (SEERon)
- Electrical consumption when the compressor is not running: crankcase heater, standby or OFF mode

### A better Indicator

$\eta_{s,c}$  and SEER and SEPR are better performance indicators for cooling, as they take into account temperature bins and hours based on weather data from cities throughout central Europe.

As displayed on the chart below, Process Chillers (SEPR) account for a wider range of temperatures than Comfort Chillers (SEER), which only consider temperatures down to 15°C.



### 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.

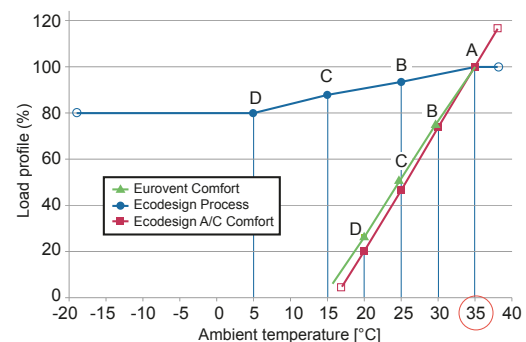
### $\sum F_i$ – Correction Factors

Air-cooled chillers  $\sum F_i = 3\%$

Water-cooled chillers  $\sum F_i = 8\%$

### Similar to current ESEER

Seasonal Energy Efficiency Ratio (SEER) is calculated similar to Eurovent Seasonal Energy Efficiency Ratio (ESEER). SEER however uses a different set of ambient temperatures and different weighting as a reference. As a result, SEER values are ALWAYS less than ESEER values.



## Eco-Design Requirements for Process Chillers High Temperature

**MEPS – Minimum Efficiency Performance Standards = SEPR**

		Minimum SEPR value	Minimum SEPR value	Minimum $\eta_{s,c}$ value	Minimum $\eta_{s,c}$ value
		TIER 1 (Jan'18)	TIER 2 (Jan'21)	TIER 1 (Jan'18)	TIER 2 (Jan'21)
Heat transfer medium at the condensing side	Rated refrigeration capacity				
	Air				
	$P_A < 400$ kW	4.5	5.0	149	161
	$P_A \geq 400$ kW	5.0	5.5	161	179
Water	$P_A < 400$ kW	6.5	7.0	196	200
	$400$ kW $\leq P_A < 1$ 500 kW	7.5	8.0	227	252
	$P_A \geq 1$ 500 kW	8.0	8.5	245	272

## 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 MEPS ( $\eta_{s,c}$ , SEPR or  $\eta_{s,h}$ ) calculation.

Below is an example of the "Technical Data Sheet" as it appears in regulation 2016/2281:

Information requirements for comfort chillers							
Model(s): Information to identify the model(s) to which the information relates.							
Outdoor side heat exchanger of chiller: (select which: air or water/brine)							
Indoor side heat exchanger chiller: (default: water)							
Type: compressor driven vapour compression or sorption process							
If applicable: driver of compressor: (electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine)							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	x,x	kW	Seasonal space cooling energy efficiency	$\eta_{s,c}$	x,x	%
Declared cooling capacity for part load at given outdoor temperature $T_j$				Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperature $T_j$			
$T_j = +35^\circ\text{C}$	$P_{dc}$	x,x	kW	$T_j = +35^\circ\text{C}$	$EER_d$ or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%
$T_j = +30^\circ\text{C}$	$P_{dc}$	x,x	kW	$T_j = +30^\circ\text{C}$	$EER_d$ or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%
$T_j = +25^\circ\text{C}$	$P_{dc}$	x,x	kW	$T_j = +25^\circ\text{C}$	$EER_d$ or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%
$T_j = +20^\circ\text{C}$	$P_{dc}$	x,x	kW	$T_j = +20^\circ\text{C}$	$EER_d$ or $GUE_{c,bin}/AEF_{c,bin}$	x,x	%
Degradation coefficient for chillers (*)	$C_{dc}$	x,x	-				
Power consumption in modes other than "active mode"							
Off mode	$P_{off}$	x,xxx	kW	Crankcase heater mode	$P_{ck}$	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 <sup>3</sup> /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 <sup>3</sup> /h
Emissions of nitrogen oxides (if applicable)	$\text{NO}_x$ (**)	x	mg/kWh input GCV				
GWP of the refrigerant			kg CO <sub>2</sub> 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 & Terminal Devices

AIR HANDLING UNITS

FAN COIL UNITS

CLOSE CONTROL UNITS

SMARTPAC – FACTORY PACKAGED 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 Packaged controls

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

Our Factory Packaged 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.



## 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.

## Factory Packaged Controls option

- AHUs Metasys® factory packaged 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.



*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 0.25 m<sup>3</sup>/s to 50 m<sup>3</sup>/s 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 0.25 m<sup>3</sup>/s to 50 m<sup>3</sup>/s



## Features

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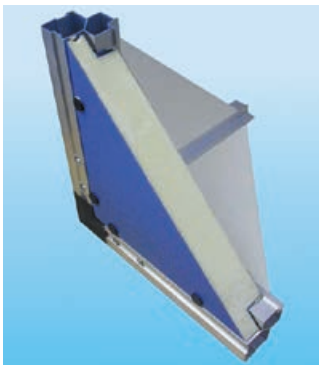


Units may include combinations of any of the following:

- 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 with YORK SmartPAC Factory Packaged Controls.  
These include all necessary piping, wiring, controls and refrigeration equipment to provide a complete central air conditioning plant.
- Hygienic construction option for hygiene sensitive environments.

## The Frame

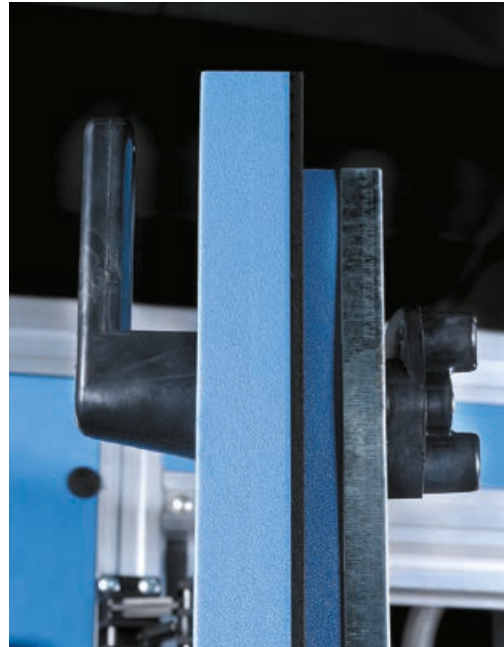
- Low weight, corrosion resistant, marine aluminium alloy twin box section profile, designed to provide strength and stability
- Gaskets between the frameworks' panels and profiles, to allow efficient cleaning and prevent trapping and harmful bacteria growth
- Optional thermal bridge free profile
- Unit sections mounted on a 3mm thick galvanized steel bolted base frame



Standard Construction



Cold Bridge Free Construction



## Panels

- Standard 60mm thick (40mm optional) double skinned galvanized panels
- 0.7mm internal and external skins with 40kg/m<sup>3</sup> 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/m<sup>3</sup> 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- prEN 1886:2007\*

\*EUROVENT DIPLOMA 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
PU8855TB	D1(M)	L1(M)	L1(M)	F9(M)	T1	TB2



Manufacturer reserves the rights to change specifications without prior notice.

# YMB / YPS Modular Air Handling Units

A complete range from 0.28 m<sup>3</sup>/s to 28 m<sup>3</sup>/s

Building and indoor climate requirements are constantly evolving. They can be influenced by many factors: energy legislation, occupancy churn, lighting, IT infrastructures... all important reasons that highlight the need for reliable, efficient Air Handling units.

Suitable for use in either new building developments or upgrades and refitting of existing buildings, our **YMB** range of AHU is a range of modular, Fixed Aspect Ratio units designed with efficiency and cost in mind to meet the needs of more 'commercial' installations.

Our knowledge, flexibility and commitment to the customer address four primary requirements of building owners and designers—efficiency, flexibility, sustainability, and confidence.



## YMBS / YMBD Modular Air Handling Unit characteristics

Available sizes	12	
Airflow range (m <sup>3</sup> /h)	1 000 ~ 100 000	
Application	<ul style="list-style-type: none"> <li>• housing and retail construction industry</li> <li>• public utility buildings</li> <li>• industrial facilities construction</li> <li>• leisure facilities</li> </ul>	
Basic options	<ul style="list-style-type: none"> <li>• G4 class filters</li> <li>• F5, F7, F9 class filters</li> <li>• heat recovery</li> <li>• water / steam / glycol / electric heater</li> <li>• water / glycol / freon cooler</li> <li>• humidification, fan and attenuation section</li> </ul>	
Additional options	<ul style="list-style-type: none"> <li>• sub-assemblies manufactured as explosion-proof</li> <li>• swimming pool version</li> <li>• hygienic version</li> <li>• YORK® SmartPAC Factory Packaged Controls</li> </ul>	
Heat recovery	<ul style="list-style-type: none"> <li>• recirculation</li> <li>• cross-flow heat exchanger</li> <li>• rotary heat exchanger</li> </ul>	<ul style="list-style-type: none"> <li>• heat pipe</li> <li>• glycol recovery system</li> <li>• heat pump</li> </ul>
Installation type	indoors (YMBS) / outdoors (YMBD)	



Manufacturer reserves the rights to change specifications without prior notice.

## YPS Modular Air Handling Unit characteristics

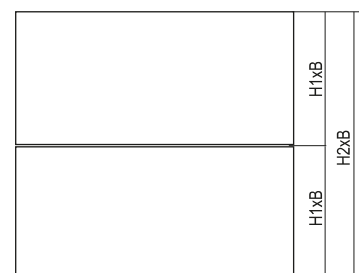
Available sizes	4
Airflow range (m³/h)	500 ~ 5 100
Application	<ul style="list-style-type: none"> <li>in suspended ceilings and wherever building construction limitations do not allow other systems to be implemented, e.g. in:                             <ul style="list-style-type: none"> <li>industrial workshops</li> <li>warehouses</li> <li>wholesale establishments</li> <li>workshops</li> <li>offices, etc</li> </ul> </li> </ul>
Basic options	<ul style="list-style-type: none"> <li>G4 class filters</li> <li>F5, F7, F9 class filters</li> <li>heat recovery</li> <li>water / steam / glycol / electric heater</li> <li>water / glycol / freon cooler</li> <li>humidification, fan and attenuation section</li> </ul>
Additional options	<ul style="list-style-type: none"> <li>sub-assemblies manufactured as explosion-proof</li> <li>automation module</li> <li>automation module designed to cooperate with intelligent BMS system</li> <li>YORK® SmartPAC Factory Packaged Controls</li> </ul>
Heat recovery	<ul style="list-style-type: none"> <li>cross-flow heat exchanger</li> <li>recirculation</li> </ul>
Installation type	indoors



## YMBS/YMBD and YPS performances

YMBS/YMBD*				
Unit size	Airflow range [m³/h]	Width B	Height H1	Height H2
<b>Insulation 50 mm</b>				
1	1 000 - 3 000	690	600	1 280
2	2 600 - 4 100	740	700	1 480
3	3 900 - 6 100	980	700	1 480
4	6 000 - 9 400	980	1 010	2 100
5	8 000 - 12 600	1 290	1 050	2 100
6	9 600 - 15 100	1 290	1 250	2 500
5-BIS	11 000 - 17 000	1 580	1 050	2 100
6-BIS	13 200 - 21 000	1 580	1 250	2 500
7	13 500 - 21 300	1 580	1 370	2 740
7-BIS	18 000 - 28 000	1 885	1 370	2 740
8	21 300 - 33 700	1 885	1 670	3 340
9	26 000 - 41 000	1 885	2 020	4 040
8-BIS	30 000 - 46 000	2 400	1 670	3 340
10	34 000 - 53 000	2 400	2 020	4 040
8A-BIS	38 000 - 59 000	3 000	1 670	3 340
11	43 000 - 69 000	2 400	2 500	5 000
10-BIS	46 000 - 71 500	3 000	2 020	4 040
12	57 000 - 90 000	3 000	2 500	5 000
12-BIS	68 000 - 106 000	4 800	2 020	-

YPS			
Unit size	Airflow range [m³/h]	Width B	Height H
<b>Insulation 40 mm</b>			
1	500 - 3 000	760	395
2	1 100 - 4 500	1 070	395
3	800 - 3 600	760	525
4	1 700 - 5 100	1 070	525



YMBS/YMBD



YPS

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

# YBV

## “Plug and Play” Air Handling Units

A complete range from 400 m<sup>3</sup>/h to 5000 m<sup>3</sup>/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, low capacity range with counter flow or cross flow heat exchanger

### YBVS Air Handling Unit characteristics

Available sizes	4
Airflow range (m <sup>3</sup> /h)	400 ~ 3 800
Application	<ul style="list-style-type: none"> <li>• offices</li> <li>• kindergatrens</li> <li>• houses, shops</li> <li>• public utility buildings, etc</li> </ul>
Basic options	<ul style="list-style-type: none"> <li>• G4 class filter</li> <li>• heat recovery</li> <li>• water / electric heater</li> <li>• 2 axial-flow centrifugal fans</li> <li>• by-pass</li> <li>• SMART EQUIPMENT™ automation module</li> </ul>
Additional options	<ul style="list-style-type: none"> <li>• EC fans</li> <li>• automation module designed to cooperate with any BMS system</li> </ul>
Heat recovery	<ul style="list-style-type: none"> <li>• counter-flow heat exchanger (in size 1)</li> <li>• cross-flow heat exchanger (in sizes 2, 3, 4)</li> </ul>
Installation type	<ul style="list-style-type: none"> <li>• indoors</li> </ul>
Other features	<ul style="list-style-type: none"> <li>• self-supporting housing structure</li> <li>• plug&amp;play installation type</li> <li>• ducts connected from the top</li> <li>• low noise level</li> </ul>



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-efficiency 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 Packaged Controls

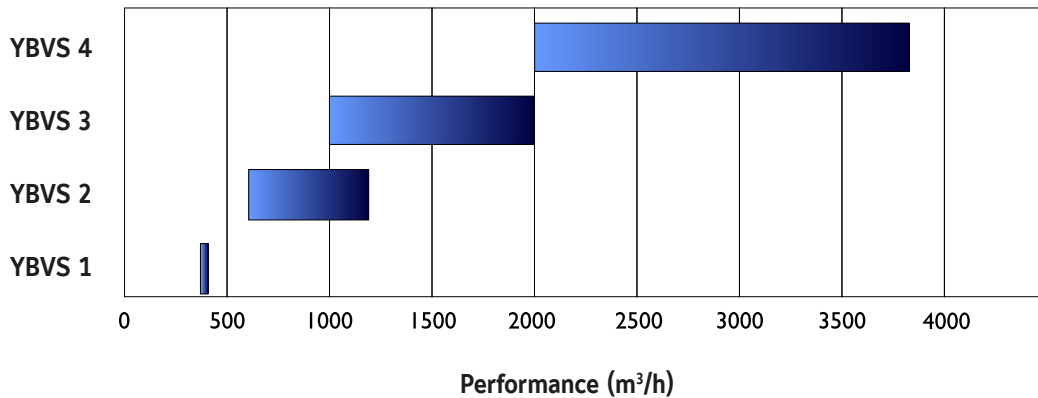
The **YBVS 2, 3, 4** unit has two axial-centrifugal fans. Supply fan removes contaminated warm air from the room and the exhaust fan, transports cold feed air.

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.

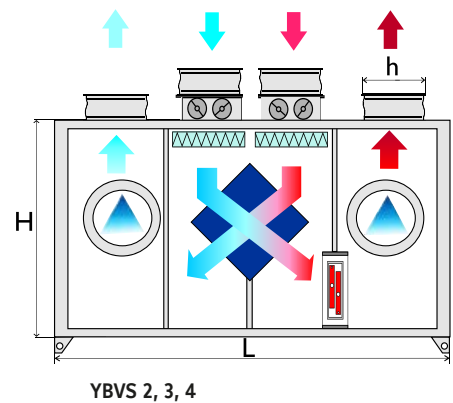
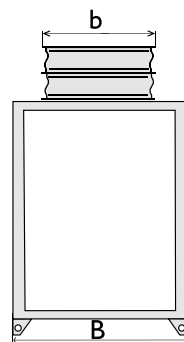
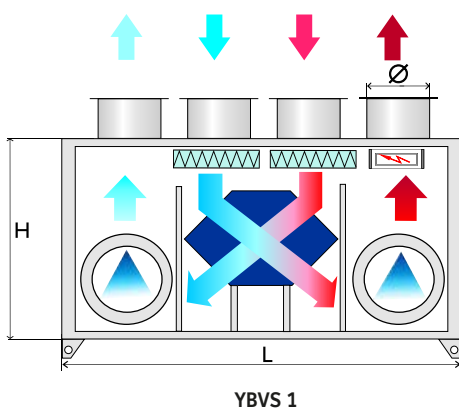
The unit has an integrated by-pass.

**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



Unit size	Weight [kg]	Dimensions [mm]				Flexible connections, dampers B x H	Airflow range [m³/h]		Max heat recovery [%]
		Width B	Height H	Length L	min		max		
1	85	550	600	1 100	φ 160	400	400	91	
2	180	750	850	1 300	400 x 200	600	1 200	72	
3	240	800	1 000	1 600	500 x 315	1 000	2 000	78	
4	380	880	1 300	2 200	630 x 400	2 000	3 800	70	



## YBVR Air Handling Unit characteristics

Available sizes	4
Airflow range (m <sup>3</sup> /h)	500 ~ 5 000
Application	<ul style="list-style-type: none"> <li>• offices, houses, shops</li> <li>• kindergatrens</li> <li>• public utility buildings, etc</li> </ul>
Basic options	<ul style="list-style-type: none"> <li>• G4, M5, F7 class filters</li> <li>• heat recovery - rotary heat exchanger</li> <li>• water / electric heater</li> <li>• 2 EC fans modules</li> <li>• SMART EQUIPMENT™ automation module</li> </ul>
Additional options	<ul style="list-style-type: none"> <li>• cooling section</li> <li>• automation module designed to cooperate with a larger BMS system</li> </ul>
Heat recovery	• rotary heat exchanger
Installation type	• indoors
Other features	<ul style="list-style-type: none"> <li>• self-supporting housing structure</li> <li>• ducts connected from the top</li> <li>• plug&amp;play installation type</li> <li>• low noise level</li> </ul>

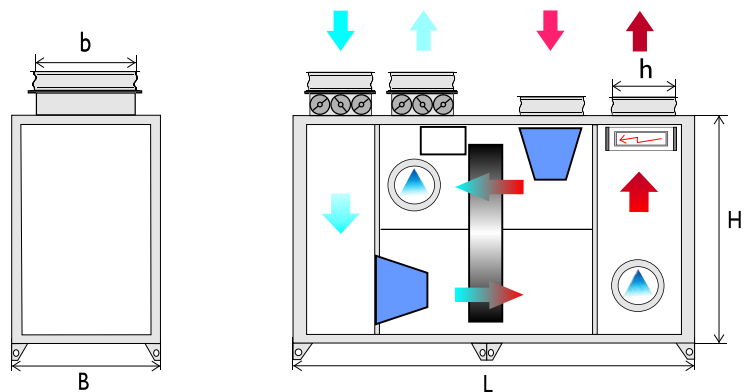
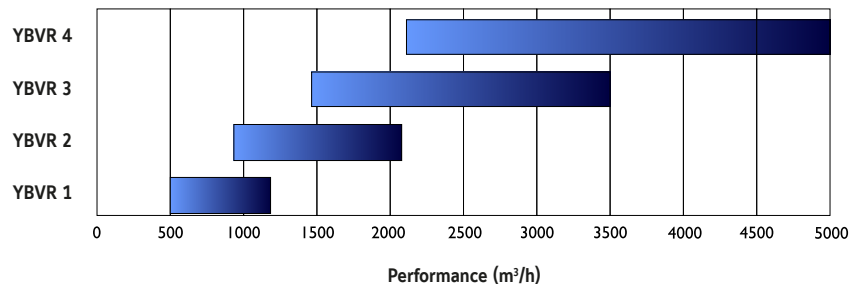


## System advantages

- Easy and simple installation (plug&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 Packaged 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.



Unit size	Weight [kg]	Dimensions [mm]			Flexible connections, dampers B x H	Airflow range [m <sup>3</sup> /h]	
		Width B	Height H	Length L		min	max
1	180	750	900	1 400	300 x 200	500	1 200
2	270	900	1 100	1 700	400 x 200	900	2 100
3	360	1 100	1 250	1 800	600 x 300	1 450	3 500
4	440	1 200	1 400	2 050	800 x 400	2 100	5 000

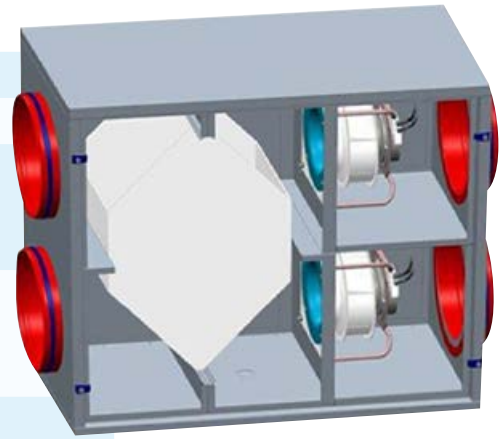


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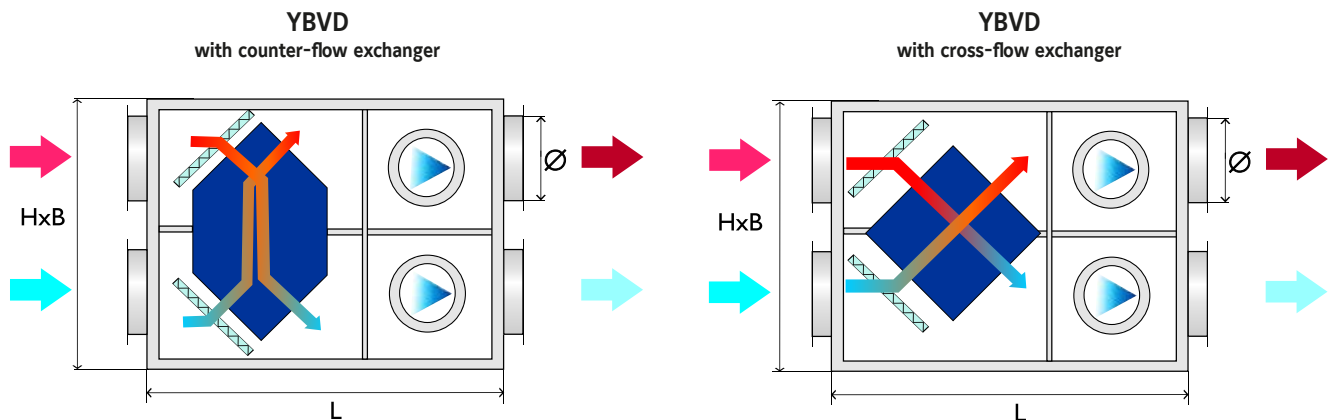


### YBVD Air Handling Unit characteristics

Available sizes	2
Airflow range (m³/h)	800 ~ 1 200
Application	<ul style="list-style-type: none"> <li>• offices</li> <li>• kindergatrens</li> <li>• houses, shops</li> <li>• public utility buildings, etc</li> </ul>
Basic options	<ul style="list-style-type: none"> <li>• G4 class filter</li> <li>• heat recovery - counter-flow/cross-flow heat exchanger</li> <li>• 2 EC fans modules</li> <li>• SMART EQUIPMENT™ automation module</li> </ul>
Additional options	<ul style="list-style-type: none"> <li>• cooling section</li> <li>• automation module designed to cooperate with a larger BMS system</li> </ul>
Heat recovery	<ul style="list-style-type: none"> <li>• counter-flow heat exchanger</li> <li>• cross-flow heat exchanger</li> </ul>
Installation type	<ul style="list-style-type: none"> <li>• indoors</li> </ul>
Other features	<ul style="list-style-type: none"> <li>• self-supporting housing structure</li> <li>• plug&amp;play inistallation type</li> <li>• low noise level</li> </ul>



Unit size	Weight [kg]	Width B	Dimensions [mm]			Flexible connections, dampers Ø mm	Airflow range [m³/h]	Max efficiency [%]
			Height H	Length L				
Counter-flow exchanger								
1	150	560	1 009	1 459	350	800	90	
2	180	760	1 009	1 459	350	1 200	90	
Cross-flow exchanger								
1	130	560	1 009	1 213	350	800	82	
2	170	860	1 009	1 213	350	1 200	82	



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# YTA Adiabatic Air Handling Unit

YTA series units utilise free cooling with adiabatic cooling to ensure high system energy savings.



The YTA series units are the ideal solution to cool air in systems where environmental sustainability and energy savings are priorities, such as large, best-of-breed data centers, ensuring a performance similar to direct **FREE COOLING** without however contaminating air-conditioned premises, with air contains pollutants, dust, and humidity.

The units are designed to be installed outdoors, typically on the roof, and consist of two treatment sections, one for inside air and another for outside air, physically separated and with two filtering, ventilating and completely independent sections.

## Features

- EUROVENT certified Plate Heat Exchanger
- OXYVAP® evaporative panel
- White RAL 9010 metal structure
- Panels with 50-mm thermal and acoustic insulation
- G4-class efficiency air filters with dirty filter alert
- Electronic EC FANS
- Electric panel complete with control and safety devices
- Control microprocessor with graphic display
- Unit shutdown system for the presence of fire
- RS485 Modbus® RTU slave card
- RJ45 ethernet card

## Indirect free cooling with adiabatic cooling

The indirect **FREE COOLING** system with adiabatic cooling includes both the technology of air-to-air heat recovery and that of adiabatic cooling, in which some water is evaporated to cool down outside air.

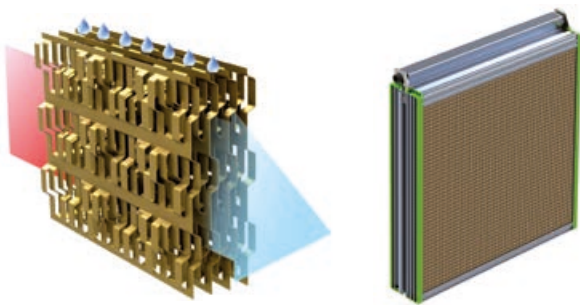
Being able to exploit the **FREE COOLING** system even at temperatures of 30°C/35%Rh, these units achieve very high energy efficiency, offering energy savings of up to 80% compared to a comparative to a mechanical cooling system.

## An innovative evaporative panel

In order to maximise the system efficiency, an innovative evaporative panel is used that allows **saturation efficiency greater than 90% using more than 60% less water.**

Thanks to the **OXYVAP®** system, formed by special **formed and treated aluminium fins**, it is possible to:

- **Use drinkable water.** No expensive water demineralisation systems are required.
- **Cut down on water consumption.** Over 60% water reduction with respect to conventional evaporative panels and spraying systems.
- **Eliminate the risk of mould, algae and pathogenic organism formation.** The surface treatment of aluminium fins and the absence of a collection and water circulation tank eliminates the risk of pathogenic organism formation.



## Available accessories

### Direct expansion:

- Direct expansion, supplementary post cooling circuit with DC inverter compressors
- Power supply line for remote condenser
- Power supply line with speed regulator for remote condenser
- Condensing regulation with 0-10V signal for remote condenser with EC fans
- "LT Kit" for operation with low temperature outside air with remote condenser
- Oversize liquid receiver
- Check valves on the supply and liquid pipes
- Water-cooled condenser
- Water-cooled condenser with a condensing temperature adjustment valve
- "HT Kit" for operation at high condensing temperatures

### Chilled water:

- Chilled water, supplementary post cooling circuit with adjustment two-way valve
- Three-way control valves
- Inlet and outlet water temperature sensors
- "Power valve" kit

### Mechanical and structural:

- Condensate drain and adiabatic panel discharge pump
- Outside air flow motorised dampers
- Inside air flow motorised dampers
- Motorised damper for environment overpressure management
- M5 efficiency class air filters

### Electrical:

- Alternative voltages available: 460V/3ph/60Hz - 380V/3ph/60Hz - 230V/3ph/60Hz
- Electrical supply line without neutral
- Automatic transfer switch (ATS), "Basic" version
- Automatic transfer switch (ATS), "Advanced" version

### Regulation:

- Constant air flow control
- Constant pressure control
- Local network set up and connection cable
- User terminal for remote installation
- Flooding detection system



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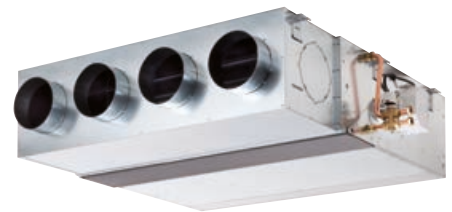
# YORK® Fan Coil units

Driven by innovative trends and modern technology, the YORK® Fan Coil Units have been designed around a platform of models, versions and accessories, which have been independently tested and certified by Eurovent. The YORK® Fan Coil range meets today's demanding requirements of performance, size, acoustics, low energy, ease of installation and maintenance.



## An extensive offering

- One of the **most versatile** ranges of fan coils on the market today. Wall and ceiling mounted units, exposed or concealed with centrifugal fan, are included, and with cooling capacities ranging from 0.6 kW to 9.7 kW.
- Dramatic **electrical consumption reduction** of up to 40% comparative to previous models. This is achieved thanks to the supply of all YORK® Fan Coil Units equipped with centrifugal fans and electric motors, and with 6 speed motors as standard to offer greater flexibility in the selection of products.
- **Energy saving brushless motor** technology option available. Its combination with a dedicated frequency inverter and unit controller to regulate the fan speed enables higher efficiencies, even at low rotational speeds, lower unit noise, constant speed characteristics and an increase in motor lifetime expectancy. In comparison to the traditional units equipped with asynchronous three-speed-motors, units with brushless motors can obtain a considerable energy saving, by reducing the power consumption by up to 70%.
- A full range of **factory fitted Johnson Controls valve and pre-configured control options** is offered. This in addition to a patented 'wireless' control option - offering greater flexibility in the installation of units, with the highest precision in monitoring and maintaining the desired comfort conditions.
- Many of our ranges are available configured for use with 60Hz voltage, and specially designed cooling coils for **District Cooling applications**.
- **High pressure 'Blower' units** are also available. They can offer up to 29.4 kW of cooling at External Static Pressures of up to 250Pa, and are complemented with a full range of options and accessories covering items such as electrical heating battery, air inlet/outlet diffusers and condensate pumps.



## Iconography



Infrared or  
Wired control



Wired  
control



Dry mode



Timer



Auto  
Restart



Sleep  
mode



Auto  
Sweep



Ducted  
Installation



4 Way  
Air Flow



Air Filter

# YFCN Fan Coil Unit centrifugal fan

2 & 4 pipe system

A complete range from 0.7 kW to 7.4 kW



YFCN is a range of Fan Coil Units that continues the YORK® tradition based on high reliability and low noise levels. It is the result of great commitment in terms of energy and resources to offer a more modern product from every angle, while still delivering the convenience of easy access to the filters in all models.

Moreover each version has the same internal structure, identical in both horizontal and vertical models, in order to standardise production and guarantee a greater flexibility in distribution and installation.



Selection software

## Wired controls



**JWC-3V**  
Remote three speeds controller

**JWC-T**  
JWC-3V + Electronic thermostat and Summer/Winter switch

**JWC-AU**  
Automatic JWC-T



**JTM-B**  
Digital Automatic Remote controller

**TMO 503 SV2**  
Digital Automatic Remote controller to be mounted in the standard light wall box



## Infrared control

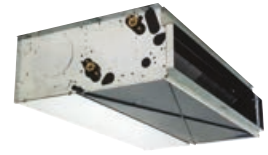


**TUC03+ Terminal unit controller**  
BacNET and N2 Metasys network compatible



## 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 & 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



# YFCN Fan Coil Unit centrifugal fan

0.7 to 7.4 kW



## Technical features

Model		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	
Water flow in cooling [l/h]	(1) max	212	311	442	537	703	824	960	1 113	1 307	
	med	175	246	325	392	559	664	798	986	1 125	
	min	115	174	284	315	377	487	612	693	839	
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 2 pipes [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	
Water flow in heating 2 pipes [l/h] *	(2) max	212	311	442	537	703	824	960	1 113	1 307	
	med	175	246	325	392	559	664	798	986	1 125	
	min	115	174	284	315	377	487	612	693	839	
Pressure drop in heating 2 pipes [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	
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)]	(3) 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									
Power input [W]	max	33	40	49	57	61	88	103	130	176	
Absorbed current [A]	max	0.16	0.18	0.23	0.26	0.27	0.39	0.47	0.58	0.78	
Dimensions **	Height	mm	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

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

(2) Room temperature 20°C - Water temperature 45/40 °C.

(3) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m3 room and a reverberation time of 0.5 sec.

\* Water flow values as Cooling, accordingly to the EUROVENT standards and UNI ENV 1397.

\*\* Dimensions refer to the units with casing.

Data shown is for 4 row cooling version, 2 pipe system.

For performance of 3 row cooling version and/or 4 pipe system unit please contact your local Johnson Controls sales office.



Manufacturer reserves the rights to change specifications without prior notice.

# ECM Technology



## Running costs. Energy consumption. Life cycle.

These are 3 issues that are becoming more and more important in the choice of Fan Coil Units. With these criteria in mind, Johnson Controls offers the ECM range of FCU.

ECM technology comprises a **brushless motor** combined to a **dedicated electronic device** (inverter). In comparison to conventional units equipped with asynchronous three-speed motors, the fancoil and cassette units with brushless motors can obtain a considerable energy saving, by **reducing power consumption up to 70%**.

Air flow rate can be varied in continuous by means of a 0-10 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.

Brushless motor develop much less heat than the traditional brushed motors and they have much lower mechanical resistance than the standard asynchronous maintenance. The absence of brushes eliminates also the main source of electromagnetic noise.

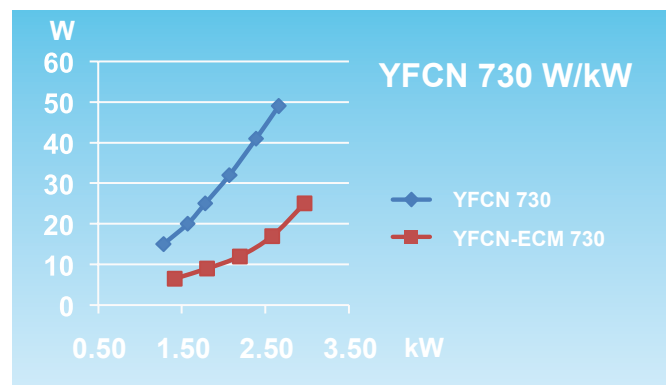
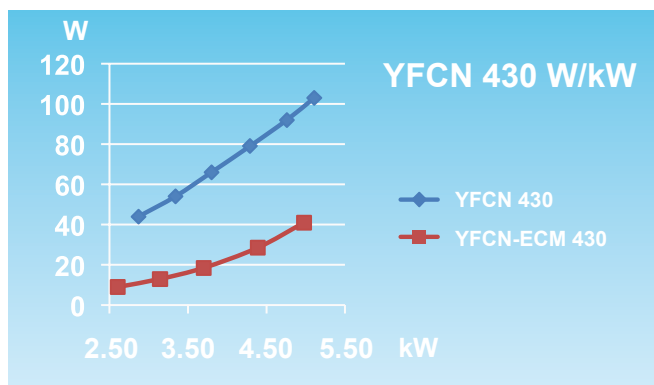
### Features

- 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).
- Available for fan coil and cassette units.

### 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 according 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.

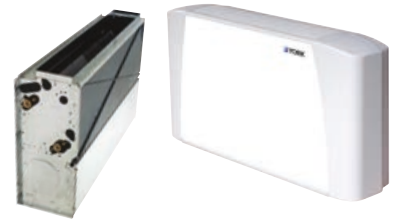
### Power consumption: YFCN versus YFCN-ECM (W/kW)





# YFCN-ECM Fan Coil Unit Inverter with centrifugal fan

0.7 to 7.1 kW



## Technical features

Model		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
Water flow in cooling [l/h]	(1)	max	277	323	511	549	686	781	857	918	1 094	1 228
		med	205	229	377	392	506	550	636	660	836	903
		min	127	134	244	248	339	354	449	451	597	621
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 2 pipes [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
Water flow in heating 2 pipes [l/h] *	(2)	max	277	323	511	549	686	781	857	918	1 094	1 228
		med	205	229	377	392	506	550	636	660	836	903
		min	127	134	244	248	339	354	449	451	597	621
Pressure drop in heating 2 pipes [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
Heating capacity 4 pipes [kW]	(3)	max	1.43	-	2.41	-	3.22	-	4.06	-	5.24	-
		med	1.08	-	1.85	-	2.45	-	3.12	-	4.05	-
		min	0.71	-	1.29	-	1.76	-	2.33	-	2.99	-
Water flow in heating 4 pipes [l/h]	(3)	max	140	-	236	-	317	-	398	-	514	-
		med	106	-	181	-	241	-	306	-	397	-
		min	70	-	126	-	172	-	228	-	292	-
Pressure drop in heating 4 pipes [kPa]	(3)	max	3.5	-	11.0	-	3.6	-	6.3	-	9.9	-
		med	2.1	-	6.9	-	2.2	-	4.0	-	6.3	-
		min	1.0	-	3.6	-	1.2	-	2.4	-	3.7	-
Air flow [m <sup>3</sup> /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
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	30	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	21	24	24	28	28	35	35
Power supply [V-ph-Hz]		230 / 1 / 50 + E										
Power input [W]	max	21	21	25	25	32	32	41	41	99	99	
Absorbed current [A]	max	0.18	0.18	0.22	0.22	0.28	0.28	0.34	0.34	0.81	0.81	
Dimensions **	Height	mm	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	
	Depth	mm	225	225	225	225	225	225	225	225	255	

(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 m<sup>3</sup> room and a reverberation time of 0.5 sec.

\* Water flow values as Cooling, accordingly to the EUROVENT standards and UNI ENV 1397 \*\* 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 + Standard control devices		
	VC/VCB mod. - Vertical with casing	HC mod. - Horizontal with casing	CD mod. - Without casing
<b>Controls for style VC (supplied with separate packaging)</b>			
Three speed control BL (1)	9060130	-	-
Three speed control + electronic thermostat and S/W switch TMV-S (2)	9060140	-	-
Three speed control + electronic thermostat and centralized S/W - TLC (2)	9060133	-	-
Automatic speed control with electronic thermostat and S/W switch ATL (2)	9066139	-	-
<b>Controls for style HC/CD (supplied with separate packaging)</b>			
Remote three speed control JWC-3V (1) (5)	-	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) (4)	-	9066631K	9066631K
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with JPF-AU and JP-AU only) (2) (4)	-	9066632K	9066632K
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display JTM-B (to be used with JPF-AU and JP-AU only) (2) (4)	-	9066331E	9066331E
Automatic speed control with electronic thermostat to be mounted in the light wall box WM-503 (to be used with UP-503 only)	-	9066676E	9066676E
Electromechanical thermostat T2T (5) (6)	-	9060174	9060174
Power unit JPF-AU for JWC-AU and JTM-B remote controls, fitted on the unit	9066641	9066641	9066641
Power unit JP-AU for JWC-AU and JTM-B remote controls, not fitted on the unit	9066640	9066640	9066640
Power unit UP-503 for WM-503 remote control only, not fitted on the unit	9066677	9066677	9066677
<b>Controls accessories for all versions (supplied with separate packaging)</b>			
Low temperature cut-out for controls TLC	3021091	3021091	3021091
Low temperature cut-out for controls TMV-S, JWC-3V and JWC-T	9053048	9053048	9053048
Low temperature cut-out for controls ATL, JWC-TQR, WM-503 and JP-AU power unit	3021090	3021090	9053049
T2 sensor to be used as Change-over for controls ATL and JP-AU power unit	9025310	9025310	9025310
Change-over 15-25 for control TLC and JWC-TQR	9053049	9053049	9053049
Receiving speed selector for centralized control (slave) style VC RECV	9060136	9060136	9060136
Receiving speed selector for centralized control (slave) style HC/CD SEL-CR	9066311	9066311	9066311
Terminal board adaptor kit KIT	9060103	-	-
<b>Controls for style VC + additional electric resistance (supplied with separate packaging)</b>			
Three speed control with electronic thermostat and S/W switch TMV-R-IAQ	9063006	-	-
Automatic speed control with electronic thermostat and S/W switch JWC-AU (2)	-	9066632K	
<b>Controls for style HC/CD + additional electric resistance (supplied with separate packaging)</b>			
Remote three speed control + electronic thermostat and centralized/manual S/W switch JWC-TQR (3)	-	9066631K	9066631K
Automatic speed control with electronic thermostat and centralized S/W - JWC-AU (3)	-	9066632K	9066632K
Automatic remote control with electronic thermostat, S/W switch and liquid crystal display JTM-B (2)	-	9066331E	9066331E

### WARNING

(1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out. (3) Low temperature cut-out included. (4) Can be used with Change Over. (5) Not suitable with -E electric heater. (6) Not to be used with low temperature cut-out.

# Options / Accessories

## Compatibility table / Codes

Model	YFCN AC motor + MB 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
<b>Controls and accessories for all versions</b>	
Mounted power unit MB-M	9066332
Not mounted power unit MB-S	9066333
Wall control JTM-B	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
<b>Management system for a network of fan coils with MB electronic board</b>	
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

### With T-MB wall control

One control for each unit  
(Maximum length of the connection cable = 20 m)



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

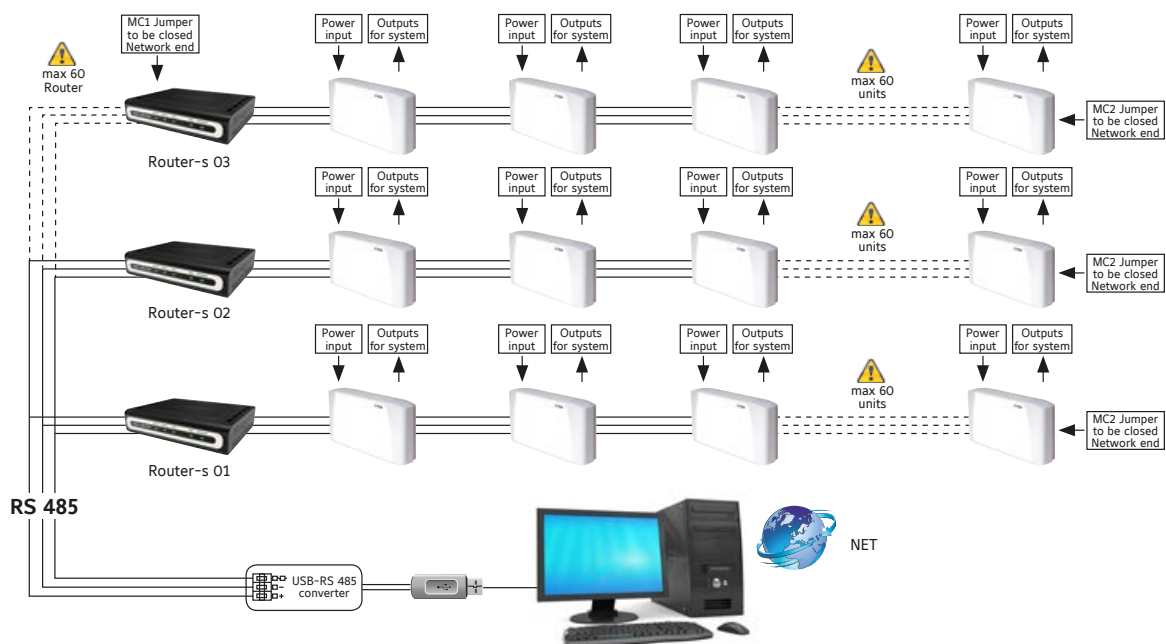


# Options / Accessories

## Compatibility table / Codes

Model	YFCN ECM motor + Standard control devices		
Versions	VC/VCB mod. - Vertical with casing	HC mod. - Horizontal with casing	CD mod. - Without casing
<b>Controls accessories for all versions (supplied with separate packaging)</b>			
Low temperature cut out NTC for control TMV-T-ECM, WM-S-ECM and JP-AU power unit		3021090	
T2 sensor to be used as Change-over for JP-AU power unit		9025310	
Change over CH 15-25 for control TMV-T-ECM		9053049	
Model	YFCN ECM motor + MB control devices		
Versions	VC/VCB mod. - Vertical with casing	HC mod. - Horizontal with casing	CD mod. - Without casing
<b>Controls for style VC (supplied with separate packaging)</b>			
Continuous fan speed control with electronic thermostat and S/W switch TMV-T-ECM	9060141	-	-
<b>Controls for style HC/CD (supplied with separate packaging)</b>			
JWC-AU Automatic speed control with electronic thermostat and centralized S/W switch (1) (2)	-	9066632K	9066632K
JTM-B 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	-	9066644	9066644
JPF-AU power unit for JWC-AU and JTM-AU remote controls, fitted on the unit	9066641	9066641	9066641
JP-AU power unit for JWC-AU and JTM-AU remote controls, not fitted on the unit	9066640	9066640	9066640
<b>Accessories of controls for VC, HC-VCB and CD models (supplied with separate packaging)</b>			
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 JTM-B	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
<b>Management system for a network of fan coils with MB electronic board</b>			
Hardware / software supervisory system Net	9079118	9079118	9079118
Router-S for NET (default) or for BMS systems no provided by YORK	3021290	3021290	3021290
Relay output board SIOS	3021292	3021292	3021292

(1) Can be used with valves and/or low temperature cut-out. (2) Can be used with Change Over.



# Options / Accessories

## Compatibility table / Codes

Model	YFCN General accessories								
	130/140	230/240	330/340	430/440	530/540	630/640	730/740	830/840	930/940
<b>Valves all versions</b>									
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					-	
Kit 2 way valve primary battery mounted			-					9060477	
Kit 2 way valve primary and/or additional battery not mounted			9060478					-	
Kit 2 way valve primary battery not mounted			-					9060479	
2 way DN 10 balance valve for main coil + kit fitted on the unit		9066660					-		
2 way DN 15 balance valve for main coil + kit fitted on the unit		-			9066661				-
2 way DN 20 balance valve for main coil + kit fitted on the unit				-					9066662
2 way DN 10 balance valve for additional coil + kit fitted on the unit			9066663					-	
2 way DN 15 balance valve for additional coil + kit fitted on the unit			-						9066664
2 way DN 10 balance valve for main coil + kit not fitted on the unit		9066650					-		
2 way DN 15 balance valve for main coil + kit not fitted on the unit		-			9066651				-
2 way DN 20 balance valve for main coil + kit not fitted on the unit				-					9066652
2 way DN 10 balance valve for additional coil + kit not fitted on the unit			9066653					-	
2 way DN 15 balance valve for additional coil + kit not fitted on the unit			-						9066654
<b>Valves CD versions only</b>									
	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 not fitted - additional battery					9060480				
<b>Electric heater VC/VCB/CH version</b>									
	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 (650 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	
<b>Electric heater CD version</b>									
	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	

# Options / Accessories

## Compatibility table / Codes

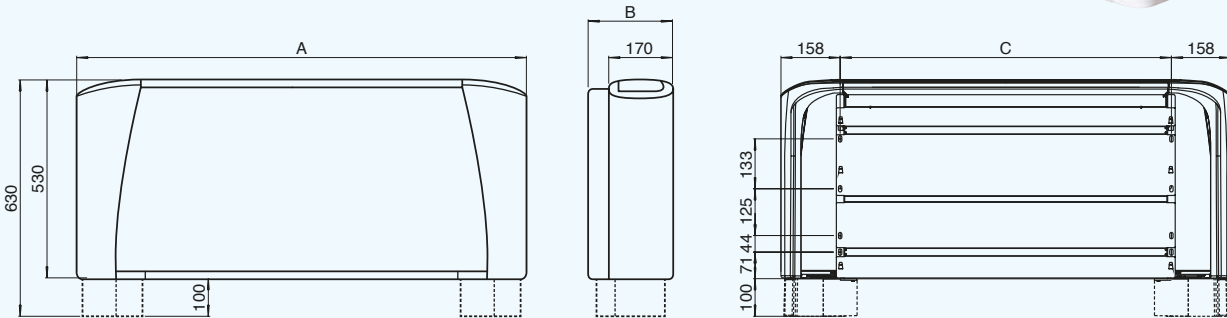
Model	YFCN General accessories								
Sizes	130/140	230/240	330/340	430/440	530/540	630/640	730/740	830/840	930/940
<b>Accessories for all versions</b>	<b>130/140</b>	<b>230/240</b>	<b>330/340</b>	<b>430/440</b>	<b>530/540</b>	<b>630/640</b>	<b>730/740</b>	<b>830/840</b>	<b>930/940</b>
Pair feet	9060150							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 HD fitted on the unit auxiliary condensate collection tray to be ordered separately (horizontal installation)					9066295				
Condensate pump for CD not fitted on the unit auxiliary condensate collection tray included (horizontal installation)					9066180				
Condensate drain pipe					6060420				
Damper	9066531	9066532	9066533		9066535		9066537	9066538	
Kit breeze	-	9076452	9076453		9076455		-		
Recessed box	-	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	9060229	9060230	9060231		9060232		9060233		
Adaptor for terminal board VC for remote control					9060103				
<b>Accessories only for concealed version CD</b>	<b>130/140</b>	<b>230/240</b>	<b>330/340</b>	<b>430/440</b>	<b>530/540</b>	<b>630/640</b>	<b>730/740</b>	<b>830/840</b>	<b>930/940</b>
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		

# Dimensions

## YFCN / YFCN-ECM 130 to 940 (with casing)



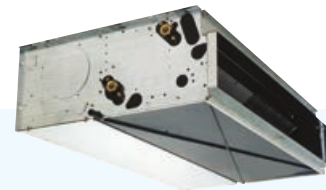
VC, VCB and HC models



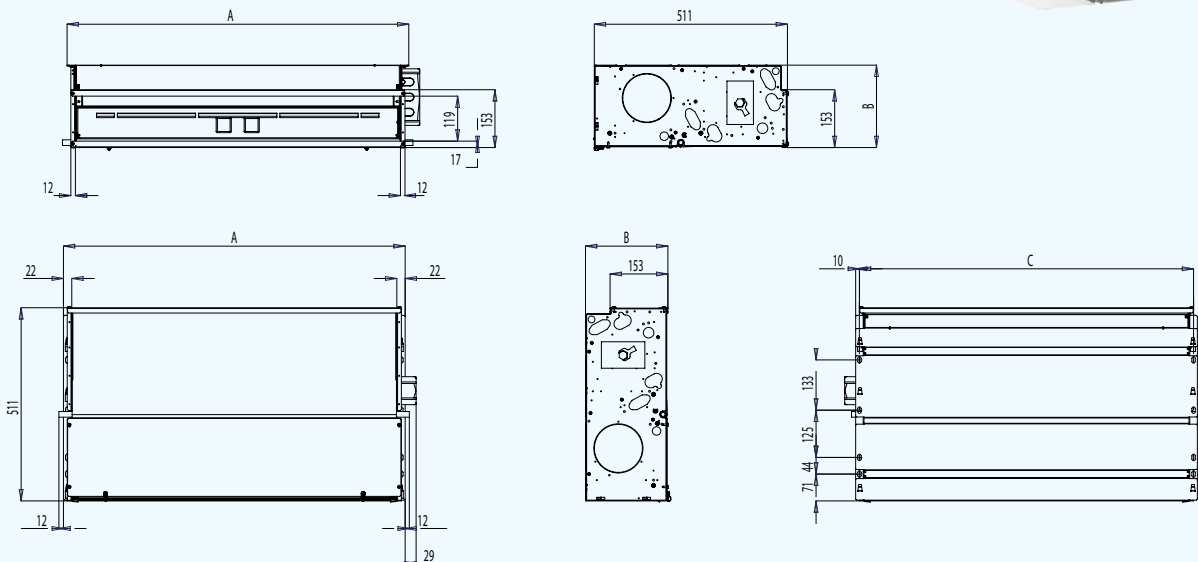
All dimensions in mm. Drawings not a scale.

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 & LOW BODY Fan Coil Units

2 & 4 pipe system

A complete range from 0.6 kW up to 9.7 kW



**TUC03+ Terminal unit controller**  
BacNET and N2 Metasys network compatible



**CSL00 (Built in)  
CSR00 (Wall mounted)**  
Fan speed selector



**CEL00 (Built in)  
CER00 (Wall mounted)**  
Thermostat with manual fan speed and automatic change over



**CEL20 (Built in)  
CER20 (Wall mounted)**  
Thermostat with auto. fan speed and automatic change over

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

**CEL30 (Built in)  
CER30 (Wall mounted)**  
Thermostat with auto. fan speed and automatic change over for modulating valve

LASER fan coil units are simple and elegant, discreet in their design. High standards of quality and reliability, combined with a wide range of accessories ensure a total solution for all comfort cooling and heating requirements.

LOW BODY units are part of the LASER Fan Coils Units family. The reduced height cabinet makes them the ideal solution for new or replacement applications where dimensional limitations apply.

## Features

- 6 speed fan
- Cabinet factory fitted
- Valve factory fitted
- Electrical heater factory fitted
- Thermal or modulating valve
- Service valve
- Option front air intake (LASER)
- Optional plenum (LASER)
- ECM inverter option available
- Option for district cooling coil



Selection software



# LASER & LOW BODY Fan Coil Units

0.6 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	273	368	568	602	764	872	1106	1247	1674
		med	163	225	323	459	514	633	755	989	1147	1505
		min	131	184	270	378	423	506	660	795	946	1094
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	447	595	717	826	1039	1135	1352	1813
		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	372	423	530	542	688
		med	71	97	159	206	242	316	372	477	514	639
		min	61	82	130	177	205	257	330	391	433	501
Pressure drop in heating 4 pipes [kPa]	(3)	max	1.3	3.4	6.7	14.7	7.1	10.3	11.7	33.0	31.7	46.5
		med	1.1	2.6	5.8	10.5	5.7	7.7	9.5	23.0	28.9	40.6
		min	0.9	1.8	5.2	9.4	4.0	5.4	7.7	16.3	21.4	24.7
Air flow [m <sup>3</sup> /h]		max	243	321	436	581	712	871	1081	1254	1481	2068
		med	191	249	358	456	592	699	929	1116	1352	1725
		min	144	194	289	338	474	538	739	798	999	1070
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	38	40	44	43	45	44	50	50	53	57
		med	32	35	39	37	40	38	47	46	50	53
		min	26	28	32	30	33	30	40	38	43	42
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	0.23	0.23	0.267	0.29	0.33	0.38	0.52	0.65	0.65	1.06	
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: 76/55°C.

(4) Sound pressure level in a 100 m<sup>3</sup> 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 & LOW BODY Fan Coil Units

0.6 to 9.7 kW



## Technical features

Model		LOW BODY: YLVR, YLIVR					
Sizes		110	112	114	216	218	
Total cooling capacity [kW]	(1)	max	0.98	1.16	1.74	2.53	3.06
		med	0.82	0.97	1.54	2.14	2.66
		min	0.62	0.78	1.28	1.69	2.16
Sensible cooling capacity [kW]	(1)	max	0.86	1.07	1.49	2.15	2.58
		med	0.73	0.88	1.30	1.76	2.20
		min	0.53	0.68	1.09	1.41	1.77
Water flow in cooling [l/h]	(1)	max	168	199	299	434	525
		med	141	166	264	367	456
		min	106	134	220	290	371
Pressure drop in cooling [kPa]	(1)	max	2.1	3.0	6.9	5.8	8.9
		med	1.6	2.2	5.7	4.3	7.9
		min	1.0	1.5	4.1	2.8	4.8
Heating capacity 2 pipes [kW]	(2)	max	0.74	1.14	1.69	3.33	3.07
		med	1.04	0.97	1.51	2.29	2.97
		min	0.81	1.13	1.69	2.15	1.89
Water flow in heating 2 pipes [l/h]	(2)	max	128	199	293	630	576
		med	181	169	263	428	555
		min	141	197	293	400	334
Pressure drop in heating 2 pipes [kPa]	(2)	max	1.4	3.5	7.8	12.1	11.5
		med	2.5	2.7	6.5	6.2	10.8
		min	1.7	3.5	7.8	5.5	4.5
Heating capacity 4 pipes [kW]	(3)	max	2.44	2.67	3.61	5.22	6.23
		med	2.05	2.24	3.08	4.37	5.34
		min	1.5	1.83	2.56	3.52	4.34
Water flow in heating 4 pipes [l/h]	(3)	max	246	215	301	454	530
		med	195	182	265	384	459
		min	138	153	220	306	371
Pressure drop in heating 4 pipes [kPa]	(3)	max	3.1	2.6	5.8	5.2	7.6
		med	2.0	1.9	4.4	3.9	5.8
		min	1.2	1.5	3.2	2.6	4.0
Air flow [m <sup>3</sup> /h]		max	253	317	432	614	737
		med	187	252	351	488	606
		min	136	186	278	371	470
Sound power level [dB(A)]		max	51	51	54	55	58
		med	44	45	49	49	53
		min	37	40	43	42	47
Sound pressure level [dB(A)]	(4)	max	41	41	45	45	49
		med	35	36	40	40	44
		min	28	31	34	33	37
Power supply [V-ph-Hz]		230 / 1 / 50 + E					
Power input [W]	max	46	51	57	67	77	
Absorbed current [A]	max	0.22	0.23	0.25	0.29	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: 76/55°C.

(4) Sound pressure level in a 100 m<sup>3</sup> 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



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# Options / Accessories

## Compatibility table / Codes

Model	Sizes	LASER										LOW BODY				
		110	112	114	216	218	220	222	224	226	328	110	112	114	216	218
<b>With Cabinet</b>																
YLV-YLH	2/3/4 rows	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
YLV-YLH/AF Front air intake	2/3/4 rows	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
YLVR	2/3 rows											•	•	•	•	•
<b>Without Cabinet</b>																
YLIV-YLIH	2/3/4 rows	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
YLIV-YLIH/AF Front air intake	2/3/4 rows	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
YLIVR	2/3 rows											•	•	•	•	•
<b>Options (Factory fitted)</b>																
<b>Coil and heaters</b>																
1 row heating	BA1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Kit electrical heater (with relay and safety switch)	KREL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
<b>Built in thermostat</b>																
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															
<b>Parallel connection</b>																
For ON/OFF valve one/FCU	CBL20															
For modulating valve one/FCU	CBL30															
<b>3 way valve factory fitted</b>																
For 2 pipe systems ON/OFF	J3A2 (2p)															
For 4 pipe systems ON/OFF	J3A2 (4p)															
<b>3 way modulating valve factory fitted</b>																
For 2 pipe systems Modulating	J3AM (2p)															
For 4 pipe systems Modulating	J3AM (4p)															
<b>Shut off valves factory fitted</b>																
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															
<b>Accessories (Supplied loose)</b>																
<b>Remote controllers and thermostat (wall mounted)</b>																
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															
<b>Feet and panel (1)</b>																
Set of painted feet	CP1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Set of painted feet + frontal socle	ZL1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Vertical painted back panel	PPV1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Horizontal painted back panel	PPH1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
<b>Plenums and air intake (1)</b>																
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 & Weights

## YLV & YLH

- ▶ V= vertical
- ▶ H= horizontal

## YLV-AF & YLH-AF

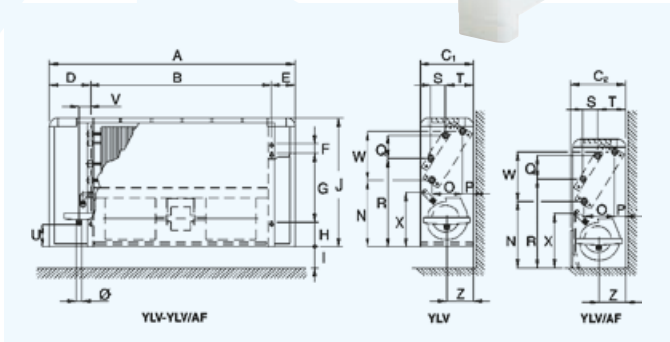
- ▶ AF= front air intake
- ▶ V= vertical
- ▶ H= horizontal

## YLV-R

- ▶ R= low body
- ▶ V= vertical

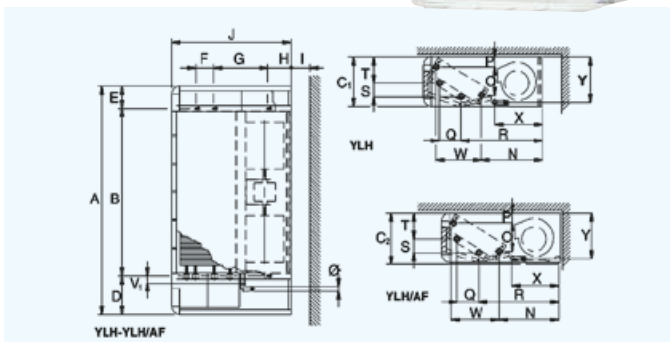
## LASER: YLV - YLV/AF

VERTICAL

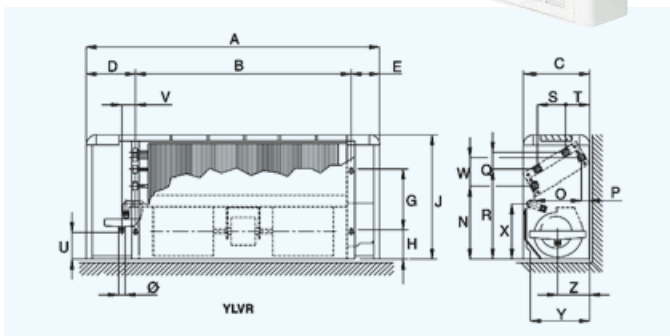


## LASER: YLH - YLH/AF

HORIZONTAL



## LOW BODY: YLVR



Dim	110	112	114	216	218	220	222	224	226	328
A	648	773	898	1023	1148	1273	1273	1523	1523	1773
B	374	499	624	749	874	999	999	1249	1249	1499
C1	224	224	224	224	224	254	254	254	254	254
C2	233	233	233	233	233	263	263	263	263	263
D	174	174	174	174	174	174	174	174	174	174
E	100	100	100	100	100	100	100	100	100	100
F	40	40	40	40	40	40	40	40	40	40
G	280	280	280	280	280	356	356	356	356	356
H	101	101	101	101	101	101	101	101	101	101
I	85	85	85	85	85	85	85	85	85	85
J	538	538	538	538	538	614	614	614	614	614
N	266	266	266	266	266	299	299	299	299	299
O	113	113	113	113	113	138	138	138	138	138
P	48	48	48	48	48	53	53	53	53	53
Q	87	87	87	87	87	87	87	87	87	87
R	355	355	355	355	355	409	409	409	409	409
S	50	50	50	50	50	50	50	50	50	50
T	117	117	117	117	117	135	135	135	135	135
U	90	90	90	90	90	116	116	116	116	116
V	47	47	47	47	47	47	47	47	47	47
V1	28	28	28	28	28	28	28	28	28	28
W	195	195	195	195	195	238	238	238	238	238
X	219	219	219	219	219	252	252	252	252	252
Y	205	205	205	205	205	235	235	235	235	235
Z	109	109	109	109	109	122	122	122	122	122
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)

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

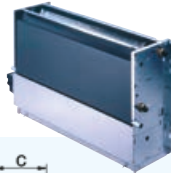
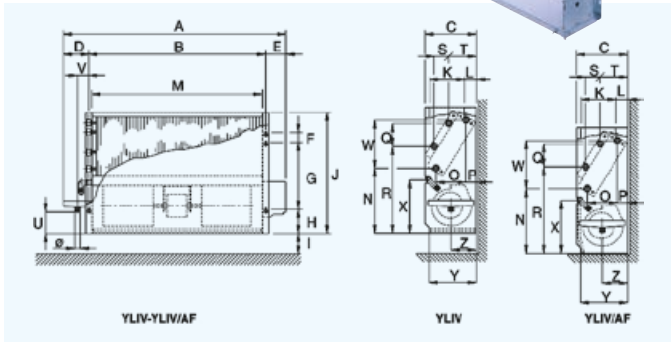
(All dimensions in mm)

# Dimensions & Weights

- |  |  |  |
|--|--|--|
| <b>YLIV &amp; YLIH</b><br>▸ V= vertical<br>▸ H= horizontal<br>▸ l= without cabinet | <b>YLIV-AF &amp; YLIH-AF</b><br>▸ AF= front air intake<br>▸ V= vertical<br>▸ H= horizontal<br>▸ l= without cabinet | <b>YLIVR</b><br>▸ R= low body<br>▸ V= vertical<br>▸ l= without cabinet |
|--|--|--|

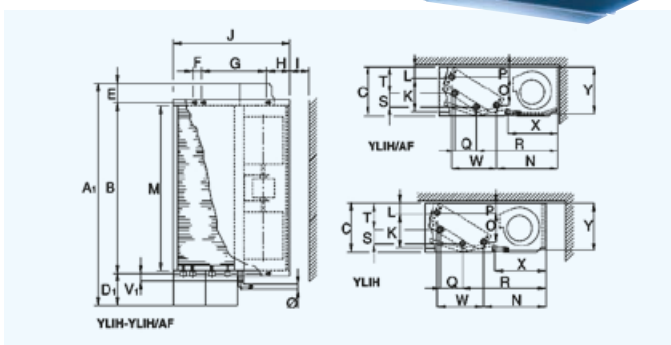
## LASER: YLIV - YLIV/AF

VERTICAL

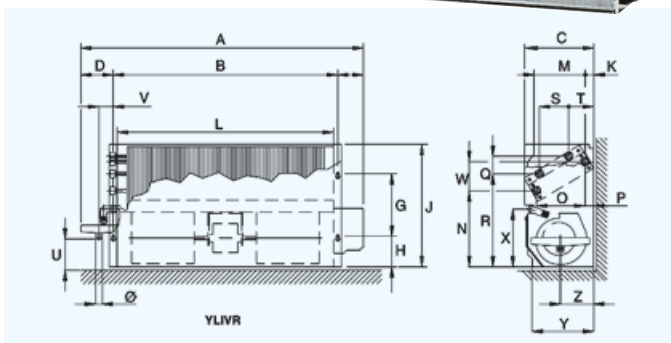


## LASER: YLIH - YLIH/AF

HORIZONTAL



## LOW BODY: YLIVR



Dim	110	112	114	216	218	220	222	224	226	328
A	555	680	805	930	1055	1180	1180	1430	1430	1680
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)

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 & LOW BODY Fan Coil Units

## Compatibility tables



**CSL00 (Built in)**  
**CSR00 (Wall mounted)**  
Fan speed selector



**CEL00 (Built in)**  
**CER00 (Wall mounted)**  
Thermostat with manual fan speed and automatic change over



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

**CEL20 (Built in)**  
**CER20 (Wall mounted)**

Thermostat with auto. fan speed and automatic change over

**CEL30 (Built in)**  
**CER30 (Wall mounted)**  
Thermostat with auto. fan speed and automatic change over for modulating valve

### Features CEL/CER

- Dead band for change over 5°C or 2°C (factory set 2°C)
- Manual fan speeds or automatic (models 20 and 30)
- Thermostated fan control or continuous fan running
- Option water sensor WS for change over on coil (for 2 pipes)
- Led indicated status summer, winter or dead band
- Temperature setting for 7 to 30°C (comfort 20–25°C)
- Plastic pins for limiting temperature range
- Input for window contact
- Input for Economy/ occupancy mode
- Output for remote alarm
- Filter alarm 600 or 1200 running hours (factory set 1200 hours)
- With electrical heater post ventilation
- With Air sensor in the air intake destratification function (CEL only)

## Compatibility table Thermostats / Valves / Heaters / Parallel connection / Water sensor / Minimum temperature thermostat

Factory fitted thermostat (built in)	Valves for 2 pipes		Valves for 4 pipes		Heaters KREL	Parallel connection		Water sensor WS	Min. Temp. Thermostat TM
	J3A2 (2p)	J3AM (2p)	J3A2 (4p)	J3AM (4p)		ON/OFF CBL20	Modulating CBL30		
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		•		•			•	•	•
<b>Remote controllers and thermostats (wall mounted)</b>									
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 & LOW BODY Fan Coil Units

## Compatibility tables



### Compatibility Options / Accessories / Models

		STANDARD								LOW BODY	
		LASER				CONCEALED				YLVR	YLIVR
Code	Designation	YLV	YLH	YLV-AF	YLH-AF	YLIV	YLIH	YLIV-AF	YLIH-AF	YLVR	YLIVR
<b>Coils and heaters**</b>											
BA1**	Additional 1 row heating	•	•	•	•	•	•	•	•	•	•
KREL**	Kit electrical heater with safety thermostat and relay	•	•	•	•	•	•	•	•		
<b>Factory fitted thermostat (built in)</b>											
CSL00	Fan speed selector (built in)	•		•		•		•		•	•
CML00	Thermostat with manual fan speed and S/W change over	•		•		•		•		•	•
CEL00	Thermostat with manual fan speed, dead band, automatic change over	Compatible with electrical heaters								•	•
CEL20	Thermostat with automatic fan speed, dead band, automatic change over	Compatible with electrical heaters								•	•
CEL30	Thermostat with automatic fan speed, dead band, automatic change over for modulating valves	•		•		•		•		•	•
CBL20	Parallel connection for ON/OFF valve	•	•	•	•	•	•	•	•	•	•
CBL30	Parallel connection for modulating valve	•	•	•	•	•	•	•	•	•	•
<b>Remote controllers and thermostats (wall mounted)</b>											
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	•	•	•	•	•	•	•	•	•	•
<b>Valves / Condensate pump / Water sensor / Minimum temperature thermostat (Factory fitted)</b>											
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	•	•	•	•	•	•	•	•	•	•
<b>Feet and panels</b>											
CP1	Set of painted feet	•				•					
ZL1	Set of feet + frontal socle	•									
PPV1	Vertical painted back panel	•		•						•	
PPH1	Horizontal painted back panel		•		•						
<b>External air intake</b>											
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

0.6 to 9.2 kW



## 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	1.47	1.98	3.17
		med ...v	1.43	1.81	2.53	3.86	4.42	5.64	6.94	1.07	1.39	2.40
		min ...v	0.74	0.93	1.51	2.72	3.05	4.07	4.89	0.57	0.68	1.68
Sensible cooling capacity [kW]	(1)	max	1.65	2.12	3.14	3.79	4.32	6.09	7.51	1.36	1.75	2.24
		med	1.16	1.48	2.01	2.78	3.16	4.42	5.50	0.97	1.19	1.72
		min	0.54	0.78	1.21	1.92	2.11	3.13	3.74	0.49	0.57	1.26
Water flow in cooling [l/h]	(1)	max	341	440	655	869	999	1285	1579	252	340	543
		med	246	311	435	664	760	970	1194	184	238	374
		min	127	160	260	468	525	700	841	98	117	288
Pressure drop in cooling [kPa]	(1)	max	9.6	6.5	14.6	16.9	36.2	16.8	31.3	5.3	8.7	8.4
		med	5.4	3.4	8.5	10.6	22.0	10.0	18.5	3.5	4.6	4.3
		min	1.7	1.1	3.9	5.6	11.1	5.5	9.7	1.8	1.3	2.7
Heating capacity 2 pipes [kW]	(2)	max	2.05	3.04	4.40	5.76	6.53	8.43	10.4	1.71	2.42	3.63
		med	1.47	2.18	3.05	4.40	4.84	6.22	7.67	1.36	1.73	2.74
		min	0.78	1.15	1.87	3.11	3.37	4.50	5.38	0.75	0.91	1.95
Water flow in heating 2 pipes [l/h]	(2)	max	394	523	757	991	1123	1450	1789	302	381	632
		med	282	375	525	757	832	1070	1319	222	265	477
		min	150	198	322	535	580	774	925	123	135	340
Pressure drop in heating 2 pipes [kPa]	(2)	max	10.8	7.3	17.3	21.8	40.0	17.2	32.2	1.87	2.42	3.63
		med	6.0	3.9	8.6	13.0	23.5	9.8	18.0	1.36	1.73	2.74
		min	2.0	1.4	4.2	6.6	11.5	5.3	9.0	0.75	0.91	1.95
Heating capacity 4 pipes [kW]	(3)	max	1.84	2.39	3.20	5.00	5.55	6.46	7.90	3.33	4.36	6.53
		med	1.37	1.76	2.40	4.12	4.35	5.74	6.30	2.45	3.09	4.91
		min	0.87	1.09	1.77	3.22	3.29	4.09	4.94	1.35	1.64	3.51
Water flow in heating 4 pipes [l/h]	(3)	max	158	206	275	430	477	614	679	270	345	572
		med	118	151	206	354	374	494	542	201	238	430
		min	75	94	152	277	283	389	425	111	123	308
Pressure drop in heating 4 pipes [kPa]	(3)	max	4.7	9.3	15.6	16.8	21.5	36.0	46.2	5.1	7.4	8.2
		med	2.8	5.4	11.0	11.5	14.0	24.2	30.7	3.5	3.8	4.8
		min	1.2	2.4	5.6	7.1	7.7	15.4	19.5	2.0	1.1	2.6
Air flow [m <sup>3</sup> /h]		max	456	575	793	1083	1306	1566	2040	386	494	681
		med	298	375	488	755	902	1079	1351	255	321	467
		min	137	173	287	503	569	715	875	116	142	203
Sound power level [dB(A)]		max	55	59	60	57	62	63	69	57	60	58
		med	44	48	47	48	51	53	59	46	50	49
		min	29	29	33	37	39	43	48	30	34	38
Sound pressure level [dB(A)]	(4)	max	46	50	51	48	53	54	60	47	50	49
		med	35	39	38	39	42	44	50	36	40	37
		min	21	21	24	28	30	34	39	20	24	28
Power supply [V-ph-Hz]		230 / 1 / 50 + E										
Power input [W]	max	31	47	42	46	76	89	168	34	46	35	
	Height mm	623	623	623	699	699	699	699	395	395	395	
Dimensions	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<sup>3</sup> room, at 1.5 m distance and reverberating 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

## Compatibility tables

### Compatibility Options / Accessories / Models

		STANDARD								LOW BODY-ECM	
		LASER-ECM				CONCEALED-ECM				YLVLR	YLIVR
Code	Designation	YLV	YLH	YLV-AF	YLH-AF	YLIV	YLIH	YLIV-AF	YLIH-AF		
<b>Coils and heaters**</b>											
BA1**	Additional 1 row heating	•	•	•	•	•	•	•	•	•	•
KREL**	Kit electrical heater with safety thermostat and relay	•	•	•	•	•	•	•	•		
<b>Factory fitted thermostat (built in)</b>											
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	•		•		•		•		•	•
<b>Remote controllers and thermostats (wall mounted)</b>											
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	•	•	•	•	•	•	•	•	•	•
<b>Valves / Condensate pump / Water sensor / Minimum temperature thermostat (Factory fitted)</b>											
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									
<b>Feet and panels</b>											
CP1	Set of painted feet	•				•					
ZL1	Set of feet + frontal socle	•									
PPV1	Vertical painted back panel	•		•						•	
PPH1	Horizontal painted back panel		•		•						
<b>External air intake</b>											
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.

# YEFB Hydro Blower

2 & 4 pipe system

A complete range from 4.3 kW up to 28.9 kW



**CSR00 (Wall mounted)**  
Fan speed selector



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



**CER00 (Wall mounted)**  
Thermostat with manual fan speed and automatic change over

**CER20 (Wall mounted)**  
Thermostat with auto. fan speed and automatic change over

**CER30 (Wall mounted)**  
Thermostat with auto. fan speed and automatic change over for modulating valve



**TUC03+ Terminal unit controller**  
BacNET and N2 Metasys network compatible



YEFB Blower units are available in 6 sizes for horizontal concealed installations: thanks to their high ESP fans that can handle up to 250Pa, they are the ideal solution for air conditioning large spaces.



Selection software

## Features

- 6 unit sizes for horizontal mounting
- Handles high external static pressure up to 250Pa
- Choice of 2 or 4 pipe systems
- Twin centrifugal fans
- Horizontal air return
- Air distribution plenum
- Electric heater option
- Optional paint finish
- F5 grade filter option
- 5 Row cooling coil option on sizes 060, 070

# YEFB Hydro Blower

4.3 to 28.9 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	28.99
		med	5.90	8.23	10.35	12.6	21.59	26.64
		min	4.30	7.11	8.91	11.36	17.15	24.28
Sensible cooling capacity [kW]	(1)	max	4.99	7.91	9.94	11.80	18.89	23.75
		med	4.14	6.7	8.61	10.60	16.84	21.50
		min	2.98	5.68	7.17	9.44	12.93	19.14
Water flow in cooling [l/h]	(1)	max	1195	1632	2024	2360	4099	4974
		med	1015	1416	1780	2167	3714	4571
		min	740	1223	1533	1954	2950	4167
Pressure drop in cooling [kPa]	(1)	max	17.4	31.5	30.6	40.4	28.0	39.2
		med	12.2	24.1	23.3	33.8	23.2	33.1
		min	6.5	18.4	17.9	28.3	15.1	28.2
Heating capacity 2 pipes [kW]	(2)	max	7.08	11.40	14.32	17.4	28.08	35.01
		med	6.20	9.62	12.19	15.53	24.95	32.16
		min	4.55	8.20	12.5	13.85	18.9	28.84
Water flow in heating 2 pipes [l/h]	(2)	max	7.08	11.40	14.32	17.40	28.08	5555
		med	6.2	9.62	12.19	15.53	24.95	4926
		min	4.55	8.2	10.39	13.85	18.90	4330
Pressure drop in heating 2 pipes [kPa]	(2)	max	13.3	34.0	36.1	51.0	30.2	47.2
		med	10.3	25.7	26.9	41.3	23.5	40.3
		min	4.8	19.2	20.0	33.4	14.6	32.8
Heating capacity 2 pipes [kW]	(3)	max	13.03	12.57	16.32	24.46	30.79	62.60
		med	11.02	16.11	21.14	28.63	43.10	57.51
		min	8.07	13.76	18.10	25.50	31.71	51.62
Water flow in heating 2 pipes [l/h]	(3)	max	973	1382	1761	2165	3699	4999
		med	1151	1076	1326	1864	2815	4576
		min	704	1178	1470	1943	2899	4150
Pressure drop in heating 2 pipes [kPa]	(3)	max	14.9	12.7	11.2	25.4	11.7	36.9
		med	10.3	20.2	22.4	34.2	19.3	31.4
		min	5.2	15.0	13.6	27.4	12.3	25.7
Air flow [m <sup>3</sup> /h]		max	1145	1910	2680	3250	4120	5493
		med	920	1520	2130	2870	3610	4926
		min	620	1205	1655	2470	2580	4330
Sound power level [dB(A)]		max	64.0	65.0	69.0	72.0	77.0	79.0
		med	58.0	61.0	63.0	68.0	74.0	76.9
		min	48.0	57.0	57.0	65.0	65.1	74.4
Sound pressure level [dB(A)]	(4)	max	53.0	54.0	58.0	61.0	66.0	67.0
		med	47.0	50.0	52.0	57.0	63.0	65.0
		min	37.0	46.0	46.0	54.0	54.0	63.0
Power supply [V-ph-Hz]		230 / 1 / 50						
Power input [W]	max	171	352	451	588	1007	1 767	
Absorbed current [A]	max	0.74	1.62	2.05	2.83	4.47	8.08	
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: 50°C  
 (3) Room temperature 20°C - Water inlet temperature: 70/60°C  
 (4) Sound pressure level in a 100 m<sup>3</sup> room, at 1 m distance and reverberating time of 0.3 s.  
 4 pipe system not available with 4R heating coil



Manufacturer reserves the rights to change specifications without prior notice.

# YEFB Hydro Blower

## Compatibility tables



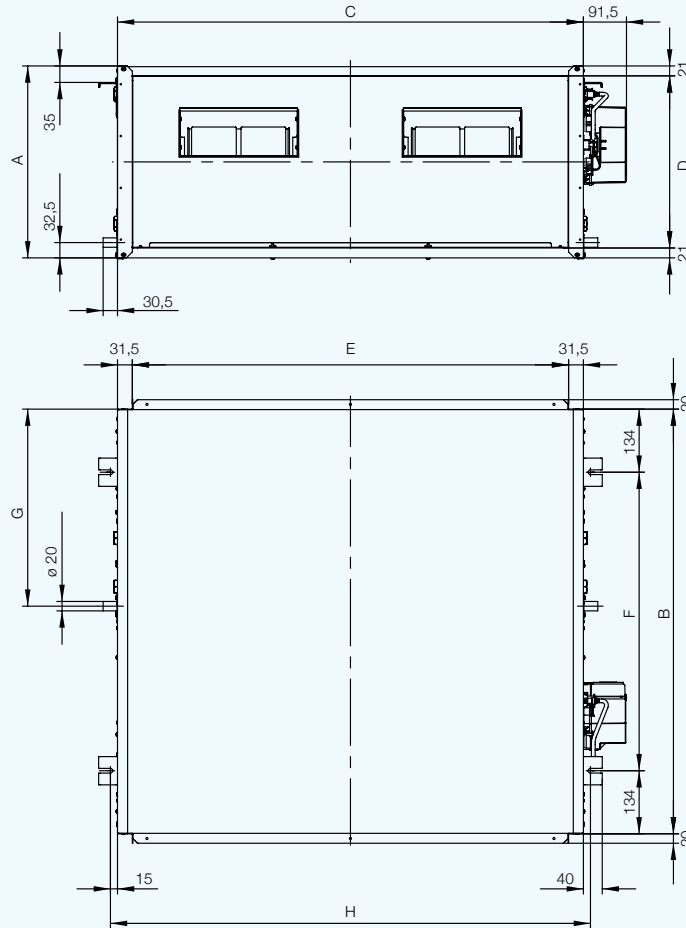
### Compatibility Options / Accessories / Models

Code	Designation	YEFB					
		020	030	040	050	060	070
<b>Coils and heaters**</b>							
BA2**	Additional 2 row heating	•	•	•	•	•	•
BA3**	Additional 3 row heating	•	•	•	•	•	•
KREL**	Kit electrical heater with safety thermostat and relay	•	•	•	•	•	•
<b>Factory fitted electric box</b>							
CBL10	Transformer 230/24V	•	•	•	•	•	•
CBL20	Parallel connection for ON/OFF valve	•	•	•	•	•	•
CBL30	Parallel connection for modulating valve	•	•	•	•	•	•
<b>Remote controllers and thermostats (wall mounted)</b>							
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	•	•	•	•	•	•
OPT10+OC716	Omnibus control for YEFB units + Remote Analogue Plus	•	•	•	•	•	•
OPT10+OC216	Omnibus control for YEFB units + Remote Display console	•	•	•	•	•	•
<b>Valves (Supplied loose) / Condensate pump / Water sensor (Factory fitted)</b>							
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					•	•
DT (2p)	Shut-off valves for 2-pipe systems supplied loose in addition to J3B2 and J3BM valves (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					
<b>External air intake</b>							
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

\*\* Maximum of rows is indicated in the documentation, the maximum number of rows includes the heating row or electrical heater.

# Dimensions & Weights



Model YEFB		020-4	030-4	040-4	050-4	060-4	070-4
A	min	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	min	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	min	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
		<b>(2-3-4 rows)</b>	<b>(2-3-4 rows)</b>	<b>(2-3-4 rows)</b>	<b>(2-3-4 rows)</b>	<b>(2-3-4-5 rows)</b>	<b>(2-3-4-5 rows)</b>
Weight of the coil	kg	1.2 - 2.0 - 2.6	1.2 - 2.0 - 2.6	1.9 - 2.9 - 3.7	1.9 - 2.9 - 3.7	3.4 - 4.6 - 6.3 - 9.0	3.4 - 4.6 - 6.3 - 9.0
Water connection		G1/2" F	G1/2" F	G1/2" F	G1/2" F	G1" M	G1" M
		<b>(2-3-4 rows)</b>	<b>(2-3-4 rows)</b>	<b>(2-3-4 rows)</b>	<b>(2-3-4 rows)</b>	<b>(2-3-4-5 rows)</b>	<b>(2-3-4-5 rows)</b>
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

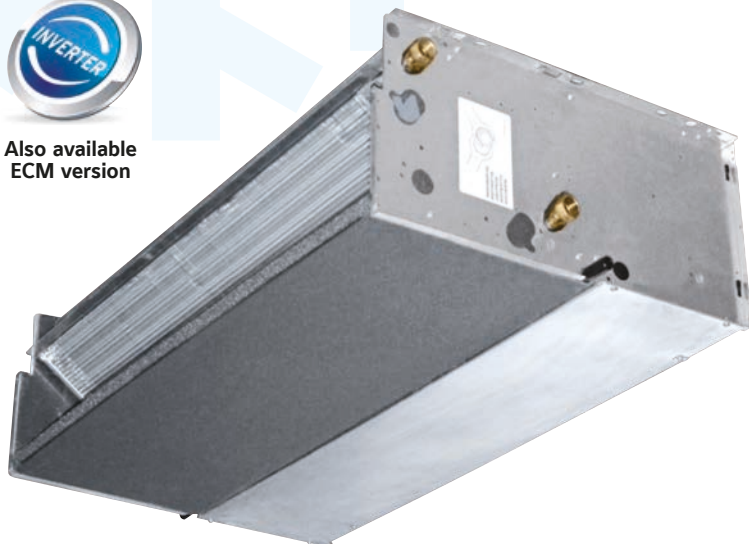
# YHP-O High Static Pressure Blower

YHP-O 130-430 · 2 & 4 pipe system

A complete range from 3 kW to 12 kW



Also available  
ECM version



## Wired controls



**JWC-3V**  
Remote three speeds controller

**JWC-T**  
JWC-3V + Electronic thermostat and Summer/Winter switch

**JWC-AU**  
Automatic JWC-T



**JTM-B**  
Digital Automatic Remote controller

**TMO 503 SV2**  
Digital Automatic Remote controller to be mounted in the standard light wall box



## Infrared control



**TUC03+ Terminal unit controller**  
BacNET and N2 Metasys network compatible



The YHP-O blower units includes 4 airflow range (from 595 up to 2200 m<sup>3</sup>/h), each built-in 3 or 4 row coils and with the possibility to add an additional 1 or 2 row coil for 4 pipe system.

A complete range, perfect to satisfy all air conditioning needs in working environments such as offices, shops, restaurants and hotel rooms, for duct installations with available static pressure up to 80 Pa.

## Features

- 12 models
- From 3020 to 12500 w 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

# YHP-O High Static Pressure Blower

3 to 12 kW



## Technical features 2 pipe system

Model		YHP-O 130	YHP-O 140	YHP-O 230	YHP-O 240	YHP-O 330	YHP-O 340	YHP-O 430	YHP-O 440
Cooling capacity *	kW	2.94	3.42	4.87	5.69	6.50	7.22	10.33	11.80
Sensible cooling capacity *	kW	2.27	2.58	3.91	4.29	5.30	5.61	8.35	9.15
Heating capacity *	kW	5.28	5.95	8.76	9.97	12.04	13.13	18.91	20.40
Nominal water flow	l/s	0.15	0.18	0.26	0.30	0.34	0.38	0.55	0.62
Power supply	V.ph.Hz	230.150							
Nominal airflow	m3/h	595	595	1040	1040	1415	1415	2220	2220
Fan	W	76	76	140	140	174	174	256	256
Available static pressure	Pa	80	80	80	80	80	80	80	80
Water connections diameter	Inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Pressure drop in cooling	kPa	28.7	19.0	27.7	51.2	27.8	21.2	25.1	35.9
Pressure drop in heating	kPa	17.6	12.0	16.9	31.3	19.8	13.3	16.0	25.2
Sound pressure level **	dB(A)	50	50	50	50	55	55	57	57
Dimensions	Height	mm	218	218	248	248	248	248	248
	Width	mm	689	689	904	904	1119	1119	1570
	Depth	mm	511	511	511	511	511	511	511
Weight	kg	18	18	22	22	33	33	45	45

## Technical features 4 pipe system

Model		YHP-O 130+1	YHP-O 230+1	YHP-O 330+1	YHP-O 430+1
Cooling capacity *	kW	2.94	4.87	6.50	10.33
Sensible cooling capacity *	kW	2.27	3.91	5.30	8.35
Heating capacity *	kW	3.04	4.76	6.16	9.63
Nominal water flow additional coil	l/s	0.07	0.11	0.15	0.23
Power supply	V.ph.Hz	230.150			
Nominal airflow	m3/h	595	1040	1415	2220
Fan	W	76	140	174	256
Available static pressure	Pa	80	80	80	80
Water connections diameter	Inch	1/2"	1/2"	1/2"	1/2"
Pressure drop in cooling	kPa	28.7	27.7	27.8	25.1
Pressure drop in heating	kPa	15.8	9.4	12.7	37.9
Sound pressure level **	dB(A)	50	50	55	57
Dimensions	Height	mm	248	248	248
	Width	mm	689	904	1119
	Depth	mm	511	511	511
Weight	kg	23	27	41	56

Referred data at maximum speed fan and 0 Pa available static pressure.

\* Cooling capacity: Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C.

Heating capacity: Room temperature 20°C - Water inlet temperature: 70/60°C (4 pipes), 60/50°C (2 pipes).

\*\* Sound pressure level in a 100 m³ room, at 1 m distance and riverberating time of 0.5 s



Manufacturer reserves the rights to change specifications without prior notice.

# YHK Hydro Cassette

2 & 4 pipe system

A complete range from 1.3 kW to 11.1 kW



Coloured versions available as an option

YHK Hydro Cassette units are simple and elegant, discreet in their design. High standards of quality and reliability, combined with a wide range of accessories ensure a total solution for all comfort cooling and heating requirements.



Selection software

## Wired controls



### JWC-3V

Remote three speeds controller

### JWC-T

JWC-3V + Electronic thermostat and Summer/Winter switch

### JWC-AU

Automatic JWC-T



### JTM-B

Digital Automatic Remote controller

### TMO 503 SV2

Digital Automatic Remote controller to be mounted in the standard light wall box



## Infrared control



### TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



## Features

- Cooling duty from 1.3 to 11.1 kW
- 2 & 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



# YHK Hydro Cassette

1.3 to 11.1 kW



## Technical features

Model -2 pipes		YHK 20-2	YHK 25-2	YHK 40-2	YHK 50-2	YHK 65-2	YHK 95-2	YHK 110-2	
Total cooling capacity 2 Pipes [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 2 Pipes [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 2 Pipes [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 2 Pipes [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 2 pipes [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 2 pipes [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 2 pipes [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 2 pipes [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 2 pipes [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 2 pipes [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

Model -4 pipes		YHK 20-4	YHK 25-4	YHK 40-4	YHK 50-4	YHK 65-4	YHK 95-4	YHK 110-4	
Total cooling capacity 4 Pipes [kW]	(1)	max	2.27	2.66	3.27	3.72	6.26	7.59	8.72
		med	1.93	2.33	2.61	2.96	4.98	5.60	6.84
		min	1.49	1.83	1.83	2.33	4.11	4.48	4.48
Sensible cooling capacity 4 Pipes [kW]	(1)	max	1.84	1.94	2.49	2.88	4.61	5.71	6.67
		med	1.52	1.68	1.94	2.23	3.60	4.09	5.09
		min	1.13	1.32	1.32	1.72	2.93	3.21	3.21
Water flow in cooling 4 pipes [l/h]	(1)	max	401	464	574	655	1 090	1 326	1 529
		med	337	406	456	519	865	974	1 192
		min	260	318	318	406	712	777	777
Pressure drop in cooling 4 pipes [kPa]	(1)	max	13.5	8.8	13.4	17	18.9	26.9	34.7
		med	10	6.9	8.8	11.2	12.5	15.4	22.1
		min	6	4.6	4.6	7.2	8.8	10.3	10.3
Heating capacity 4 pipes [kW]	(3)	max	2.66	3.04	3.86	4.19	8.02	9.66	11.16
		med	2.23	2.66	3.04	3.33	6.33	7.15	8.80
		min	1.72	2.13	2.13	2.61	5.21	5.69	5.69
Water flow in heating 4 pipes [l/h]	(3)	max	261	298	378	426	783	946	1 092
		med	219	260	298	341	618	697	858
		min	169	209	209	267	508	555	555
Pressure drop in heating 4 pipes [kPa]	(3)	max	11.4	8.7	13.3	15.0	17.2	24.0	31.2
		med	8.3	6.8	8.7	9.9	11.2	14.0	20.3
		min	5.2	4.6	4.6	6.4	7.9	9.3	9.3
Air flow [m3/h]		max	610	520	710	880	1140	1500	1 820
		med	420	420	500	610	820	970	1 280
		min	310	310	320	430	630	710	710
Sound power level [dB(A)]		max	49	45	53	59	48	53	58
		med	40	40	45	49	40	40	48
		min	33	33	33	41	33	34	34
Sound pressure level [dB(A)]	(4)	max	40	36	44	50	39	44	49
		med	31	31	36	40	31	31	39
		min	24	24	24	32	24	25	25
Power supply [V-ph-Hz]		230V/1ph/50Hz							
Power input [W]	max	57	44	68	90	77	120	170	
Absorbed current [A]	max	0.27	0.20	0.32	0.45	0.36	0.53	0.74	
Water content (2 pipes) [l]		0.8	1.4	2.1	2.1	3.0	4.0	4.0	
Dimensions	Height	mm	275	275	275	275	303	303	303
	Width	mm	575	575	575	575	820	820	820
	Depth	mm	575	575	575	575	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: 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



Manufacturer reserves the rights to change specifications without prior notice.

# YHK-ECM Inverter Hydro Cassette

2 & 4 pipe system

A complete range from 1.8 kW to 10.8 kW



Coloured versions available as an option

YHK ECM water cassette is the result of significant technical and design research focused on providing an avant-garde product in terms of performance, low noise and control flexibility. YHK ECM series uses an innovative brushless electric motor controlled by an inverter card that varies the air flow continuously by means of a 0-10 V signal. The extreme efficiency, also at a low speed, makes it possible to greatly reduce electrical consumption (more than 75% less in comparison to a traditional motor) with absorption values, under normal operating conditions, that are no greater than 10 Watt in the entire range.



## Wired control



### JTM-B

Wall control with display that allows controlling one or more units in Master/Slave mode. The control is equipped with internal sensor to detect the room temperature, which can be defined as a priority compared to the return air sensor on the fan coil.



## Infrared control



### TUC03+ Terminal unit controller

BacNET and N2 Metasys network compatible



## Features

- Cooling duty from 1.8 to 10.8 kW
- YHK: models with infrared control (standard)
- YHK-MP: models with wired control (accessory)
- 2 (-2) & 4 (-4 or -6) pipes systems
- 2 sizes: 600 x 600 & 800 x 800
- 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



Selection software

# YHK-ECM Inverter Hydro Cassette

1.8 to 10.8 kW



## Technical features

Model -2 pipes		YHK-ECM 25-2	YHK-ECM 40-2	YHK-ECM 50-2	YHK-ECM 65-2	YHK-ECM 95-2	
Total cooling capacity 2 Pipes [kW]	(1)	max 10v	2.73	4.30	4.96	6.30	10.69
		med 5v	2.16	3.04	3.85	5.13	7.69
		min 1v	1.84	2.24	2.55	4.20	5.28
Sensible cooling capacity 2 Pipes [kW]	(1)	max	2.07	3.15	3.68	4.69	7.83
		med	1.60	2.16	2.79	3.75	5.50
		min	1.35	1.57	1.80	3.02	3.68
Water flow in cooling 2 Pipes [l/h]	(1)	max	473	744	864	1 089	1 848
		med	373	524	666	885	1 328
		min	317	385	441	723	909
Pressure drop in cooling 2 Pipes [kPa]	(1)	max	10.1	15.1	19.7	22.7	33.0
		med	6.6	9.4	12.4	15.6	18.5
		min	4.9	4.6	5.9	10.9	9.4
Heating capacity 2 pipes [kW]	(2)	max	2.87	4.36	5.15	6.70	10.56
		med	2.22	2.98	3.85	5.30	7.34
		min	1.85	2.12	2.46	4.27	4.90
Pressure drop in heating 2 pipes [kPa]	(2)	max	9.4	13.2	17.8	21.6	28.1
		med	5.9	6.6	10.6	14.2	14.6
		min	4.3	3.6	4.7	9.6	7.0

Model -4 pipes		YHK-ECM 25-4	YHK-ECM 40-6	YHK-ECM 50-6	YHK-ECM 65-4	YHK-ECM 95-6	
Total cooling capacity 4 Pipes [kW]	(1)	max	2.75	3.90	4.47	6.48	9.76
		med	2.17	2.81	3.51	5.29	7.14
		min	1.85	2.09	2.37	4.29	4.97
Sensible cooling capacity 4 Pipes [kW]	(1)	max	2.06	2.92	3.40	4.80	7.29
		med	1.59	2.03	2.60	3.82	5.17
		min	1.34	1.49	1.70	3.07	3.51
Water flow in cooling 4 pipes [l/h]	(1)	max	476	676	779	1 120	1 697
		med	375	483	608	908	1 233
		min	318	359	409	740	856
Pressure drop in cooling 4 pipes [kPa]	(1)	max	9.5	10.3	13.1	19.8	30.1
		med	6.2	5.6	8.4	13.6	17.0
		min	4.6	3.3	4.1	9.4	8.8
Heating capacity 4 pipes [kW]	(3)	max	3.18	2.91	3.29	8.24	8.33
		med	2.51	2.20	2.66	6.65	6.27
		min	2.13	1.73	1.92	5.41	4.58
Water flow in heating 4 pipes [l/h]	(3)	max	311	288	326	805	818
		med	245	217	263	649	616
		min	209	170	189	528	449
Pressure drop in heating 4 pipes [kPa]	(3)	max	9.4	6.7	8.4	18.1	14.3
		med	6.1	4.1	5.7	12.3	8.6
		min	4.6	2.6	3.2	8.5	4.9
Air flow [m3/h]		max	535	710	880	1 165	1 770
		med	380	445	610	870	1 130
		min	310	310	360	630	710
Sound power level [dB(A)]		max	47	54	60	48	57
		med	39	43	50	39	47
		min	33	33	37	33	34
Sound pressure level [dB(A)]	(4)	max	38	45	51	39	48
		med	30	34	41	30	38
		min	24	24	28	24	25
Power supply [V-ph-Hz]		230V/1ph/50hZ					
Power input [W]	max	16	31	62	33	108	
Water content (2 pipes) [l]		1.4	2.1	2.1	3.0	4.0	
Absorbed current [A]	max	0.15	0.27	0.52	0.28	0.92	
Dimensions	Height	mm	275	275	275	303	303
	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

(4) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m3 room and a reverberation time of 0.5 sec.

\* Water flow values as Cooling, accordingly to the EUROVENT standards and UNI ENV 1397



Condensate pump integrated in all sizes



Metal parts insulated to avoid condensation



2 or 3 way valves fitted or supplied loose in all sizes



Outer casing as an option to integrate the water cassette into any environment



Manufacturer reserves the rights to change specifications without prior notice.

## Compatibility table / Codes

Model with AC motor (without air diffuser)		YHKY 20	YHKY 25	YHKY 40	YHKY 50	YHKY 65	YHKY 95	YHKY 110
Cassette YHKY	2 pipe system	0079100K	0079000K	0079001K	0079002K	0079003K	0079004K	0079005K
	4 pipe system	0079110K	0079010K	0079011K	0079012K	0079013K	0079014K	0079015K
Cassette YHKY-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 YHKY-E - with electric resistance	2 pipe system	-	0079060K	0079061K	0079062K	0079063K	0079064K	0079065K
Cassette YHKY-MP-E - with electric resistance	2 pipe system	-	0079191K	0079192K	0079193K	0079194K	0079195K	0079196K
Cassette YHKY-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)		-	YHKY 25	YHKY 40	YHKY 50	YHKY 65	YHKY 95	-
Cassette YHKY-ECM - basic model	2 pipe system	-	0079801K	0079802K	0079803K	0079804K	0079805K	-
	4 pipe system	-	0079811K	0079812K	0079813K	0079814K	0079815K	-
Cassette YHKY-MP- ECM (IR remote control and sensor NOT included)	2 pipe system	-	0079911K	0079912K	0079913K	0079914K	0079915K	-
	4 pipe system	-	0079921K	0079922K	0079923K	0079924K	0079925K	-
Cassette YHKY-ECM-E - with electric resistance	2 pipe system	-	0079841K	0079842K	0079843K	0079844K	0079845K	-
Cassette YHKY-ECM-MP-E - with electric resistance	2 pipe system	-	0079901K	0079902K	0079903K	0079904K	0079905K	-
Mandatory accessories (units cannot work without them)								
Air diffuser - intake grid, frame and louvres in RAL 9003 white colour			AKPA 600			AKPA 800		
Accessories (factory fitted)								
Valves (220V On/Off)								
3 way valve + mounting kit for 2 pipe models (factory fitted)			9079510			9079511		
3 way valve + mounting kit for 4 pipe models (factory fitted)			9079512			9079513		
2 way valve + mounting kit for 2 pipe models (factory fitted)			9079515			9079516		
2 way valve + mounting kit for 4 pipe models (factory fitted)			9079517			9079518		
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		
3 way valve + mounting kit for 4 pipe models (not fitted)			9079502			9079503		
2 way valve + mounting kit for 2 pipe models (not fitted)			9079505			9079506		
2 way valve + mounting kit for 4 pipe models (not fitted)			9079507			9079508		
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			9079156		
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		
MD-600 Metal Grid			-			9079420		
MD-800 Metal Grid			-			9079417		
CONTROLS for YHKY (AC versions)								
Remote three speed control JWC-3V (1) (4)			9066642			9066642		
Remote three speed control + electronic thermostat and manual S/W switch JWC-T (2)			9066630K			9066630K		
Remote three speed control + electronic thermostat and centralized/manual S/W switch JWC-TQR (2) (3)			9066632K			9066632K		
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with JPF-AU and JP-AU only) (2) (3)			90666331E			90666331E		
Automatic speed control with electronic thermostat to be mounted in the light wall box WM-503 (to be used with UP-503 only)			9066676			9066676		
Electromechanical thermostat T2T (4) (5)			9060174			9060174		
Power unit JPF-AU for JWC-AU and JTM-B remote controls, fitted on the unit			-			9066641		
Power unit JP-AU for JWC-AU and JTM-B remote controls, not fitted on the unit			-			9066640		
Power unit UP-503 for WM-503 remote control only, not fitted on the unit			-			9066677		
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 JP-AU power unit			-			3021090		
T2 sensor to be used as Change-over for JP-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.



# YFCC Coanda Hydro Cassette

2 & 4 pipe system

A complete range from 0.9 kW to 4.0 kW



Thanks to its unique diffuser, YFCC cassette units generate an airflow with a "coanda" effect. The unit is suitable for installation in a suspended ceiling. Air intake is from the bottom while the air is supplied parallel to the ceiling.

The resulting "coanda" effect creates excellent draft free distribution of the air inside the room. Units can be supplied with 1 coil (2 pipe system) with optional electric heating element, or with 2 coils (4 pipe system) with one or two rows.



Coanda effect



## Wired controls

### JWC-3V

Remote three speeds controller

### JWC-T

JWC-3V + Electronic thermostat and Summer/Winter switch

### JWC-AU

Automatic JWC-T



### JTM-B

Digital Automatic Remote controller

### TMO 503 SV2

Digital Automatic Remote controller to be mounted in the standard light wall box



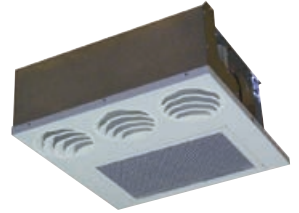
## Infrared control

## Features

- Coanda effect units, allowing easier and cheaper installation
- Cooling duty from 0.9 to 4.0 kW
- 2 & 4 pipes systems in all range
- 3 sizes: 600 x 600, 600 x 1000 & 600 x 1200
- 2/3 way valves fitted or supplied loose in all range
- Left and right hand (optional) water connections
- 6 fan speeds (3 pre-wired)
- Air throw till 7.6m (cooling) and 9.5m (heating)



Selection software



# YFCC Coanda Hydro Cassette

0.9 to 4.0 kW



## Technical features

Model -2 pipes		YFCC 130	YFCC 140	YFCC 230	YFCC 240	YFCC 330	YFCC 340	
Total cooling capacity 2 Pipes [kW]	(1)	max	1.45	1.69	2.33	2.53	3.28	3.95
		med	1.04	1.17	1.59	1.69	2.80	3.50
		min	0.86	0.95	1.35	1.42	1.94	2.46
Sensible cooling capacity 2 Pipes [kW]	(1)	max	1.13	1.26	1.73	1.84	2.45	2.91
		med	0.79	0.86	1.16	1.21	2.07	2.57
		min	0.64	0.69	0.98	1.02	1.41	1.78
Pressure drop in cooling 2 Pipes [kPa]	(1)	max	6.1	12.9	7.6	12.1	16.2	15.5
		med	3.3	6.7	3.9	6.0	12.1	12.6
		min	2.4	4.7	2.9	4.4	6.4	6.7
Heating capacity 2 pipes [kW]	(2)	max	1.62	1.74	2.38	2.60	3.34	3.97
		med	1.12	1.18	1.59	1.69	2.80	3.40
		min	0.91	0.95	1.33	1.41	1.91	2.40
Pressure drop in heating 2 pipes [kPa]	(2)	max	5.9	10.8	6.4	10.4	13.5	12.7
		med	3.0	5.4	3.1	4.9	9.9	10.2
		min	2.1	3.7	2.3	3.5	5.1	5.3
Air flow [m3/h]		max	280	280	380	380	540	620
		med	180	180	240	240	440	540
		min	140	140	200	200	290	360
Sound power level [dB(A)]		max	52	52	48	48	52	55
		med	41	41	36	36	46	52
		min	35	35	33	33	35	41
Sound pressure level [dB(A)]	(4)	max	43	43	39	39	43	46
		med	32	32	27	27	37	43
		min	26	26	24	24	26	32
Power supply [V-ph-Hz]		230V/1ph/50Hz						
Power input [W]	max	66	66	71	71	84	84	
Absorbed current [A]	max	0.30	0.30	0.32	0.32	0.38	0.38	
Dimensions	Height	mm	309	309	309	309	309	
	Width	mm	592	592	592	592	592	
	Depth	mm	592	592	970	970	1 192	1 192

Model -4 pipes		YFCC 130+1	YFCC 230+1	YFCC 330+1
Total cooling capacity 4 Pipes [kW]	(1)	max	1.45	3.28
		med	1.04	2.80
		min	0.86	1.94
Sensible cooling capacity 4 Pipes [kW]	(1)	max	1.13	2.45
		med	0.79	2.07
		min	0.64	1.41
Pressure drop in cooling 4 pipes [kPa]	(1)	max	6.1	16.2
		med	3.3	12.1
		min	2.4	6.4
Heating capacity 4 pipes [kW]	(3)	max	1.28	2.89
		med	0.95	2.52
		min	0.81	1.86
Pressure drop in heating 4 pipes [kPa]	(3)	max	2.9	3.5
		med	1.7	2.7
		min	1.3	1.6
Air flow [m3/h]		max	280	540
		med	180	440
		min	140	290
Sound power level [dB(A)]		max	52	52
		med	41	46
		min	35	35
Sound pressure level [dB(A)]	(4)	max	43	43
		med	32	37
		min	26	26
Power supply [V-ph-Hz]		230V/1ph/50Hz		
Power input [W]	max	66	71	84
Absorbed current [A]	max	0.30	0.32	0.38
Dimensions	Height	mm	309	309
	Width	mm	592	592
	Depth	mm	592	970

(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



Manufacturer reserves the rights to change specifications without prior notice.

# YFCC-ECM Coanda Hydro Cassette

2 & 4 pipe system

A complete range from 0.8 kW to 4.0 kW



## Wired controls

### JWC-AU

Automatic remote controller



### T-MB

Wall control with display that allows controlling one or more units in Master/Slave mode. The control is equipped with internal sensor to detect the room temperature, which can be defined as a priority compared to the return air sensor on the fan coil.



### WM-S-ECM

Continuous fan speed control with electronic thermostat and s/w switch



## Infrared control



Thanks to its unique diffuser, YFCC cassette units generate an airflow with a "coanda" effect. The unit is suitable for installation in a suspended ceiling. Air intake is from the bottom while the air is supplied parallel to the ceiling.

The resulting "coanda" effect creates excellent draft free distribution of the air inside the room. Units can be supplied with 1 coil (2 pipe system) with optional electric heating element, or with 2 coils (4 pipe system) with one or two rows.



Coanda effect

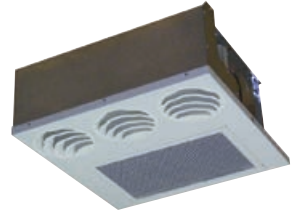
## Features

- Coanda effect units, allowing easier and cheaper installation
- Cooling duty from 0.8 to 4.0 kW
- 2 & 4 pipes systems in all range
- 3 sizes: 600 x 600, 600 x 1000 & 600 x 1200
- 2/3 way valves fitted or supplied loose in all range
- Left and right hand (optional) water connections
- 6 fan speeds (3 pre-wired)
- Air throw till 7.6m (cooling) and 9.5m (heating)
- ECM variable speed motor



Selection software





# YFCC-ECM Coanda Hydro Cassette

0.8 to 4.0 kW



## Technical features

Model -2 pipes		YFCC-ECM 130	YFCC-ECM 140	YFCC-ECM 230	YFCC-ECM 240	YFCC-ECM 330	YFCC-ECM 340	
Total cooling capacity 2 Pipes [kW]	(1)	max 10v	1.53	1.78	3.12	3.46	3.71	3.98
		med 5v	1.17	1.33	2.29	2.49	2.76	2.92
		min 1v	0.81	0.90	1.45	1.54	1.86	1.94
Sensible cooling capacity 2 Pipes [kW]	(1)	max	1.21	1.35	2.37	2.56	2.79	2.94
		med	0.90	0.98	1.71	1.82	2.04	2.13
		min	0.61	0.66	1.06	1.11	1.36	1.40
Pressure drop in cooling 2 Pipes [kPa]	(1)	max	6.5	13.9	12.6	20.8	19.8	15.5
		med	4	8.1	7.3	11.6	11.7	8.9
		min	2.1	4.1	3.2	5	5.8	4.3
Heating capacity 2 pipes [kW]	(2)	max	1.70	1.85	3.21	3.62	3.77	3.97
		med	1.26	1.34	2.32	2.53	2.74	2.85
		min	0.85	0.89	1.43	1.52	1.82	1.87
Pressure drop in heating 2 pipes [kPa]	(2)	max	6.4	11.8	10.9	18.5	16.8	12.7
		med	3.7	6.7	6.1	9.9	9.6	7.1
		min	1.9	3.3	2.6	4.0	4.6	3.4
Air flow [m3/h]		max	295	295	540	540	620	620
		med	205	205	370	370	430	430
		min	130	130	215	215	275	275
Sound power level [dB(A)]		max	55	55	56	56	58	58
		med	46	46	46	46	48	48
		min	35	35	34	34	36	36
Sound pressure level [dB(A)]	(4)	max	46	46	47	47	49	49
		med	37	37	37	37	39	39
		min	26	26	25	25	27	27
Power supply [V-ph-Hz]		230V/1ph/50Hz						
Power input [W]	max	29	29	37	37	42	42	
Absorbed current [A]	max	0.24	0.24	0.29	0.29	0.35	0.35	
Dimensions	Height	mm	309	309	309	309	309	
	Width	mm	592	592	592	592	592	
	Depth	mm	592	592	970	970	1 192	1 192

Model -4 pipes		YFCC-ECM 130+1	YFCC-ECM 230+1	YFCC-ECM 330+1	
Total cooling capacity 4 Pipes [kW]	(1)	max 10v	1.53	3.12	3.71
		med 5v	1.17	2.29	2.76
		min 1v	0.81	1.45	1.86
Sensible cooling capacity 4 Pipes [kW]	(1)	max	1.21	2.37	2.79
		med	0.90	1.71	2.04
		min	0.61	1.06	1.36
Pressure drop in cooling 4 pipes [kPa]	(1)	max	6.5	12.6	19.8
		med	4	7.3	11.7
		min	2.1	3.2	5.8
Heating capacity 4 pipes [kW]	(3)	max	1.33	2.64	3.19
		med	1.04	2.02	2.48
		min	0.76	1.38	1.79
Pressure drop in heating 4 pipes [kPa]	(3)	max	3.1	2.5	4.1
		med	2.0	1.6	2.7
		min	1.2	0.8	1.5
Air flow [m3/h]		max	295	540	620
		med	205	370	430
		min	130	215	275
Sound power level [dB(A)]		max	55	56	58
		med	46	46	48
		min	35	34	36
Sound pressure level [dB(A)]	(4)	max	46	47	49
		med	37	37	39
		min	26	25	27
Power supply [V-ph-Hz]		230V/1ph/50Hz			
Power input [W]	max	29	37	42	
Absorbed current [A]	max	0.24	0.29	0.35	
Dimensions	Height	mm	309	309	
	Width	mm	592	592	
	Depth	mm	592	970	1 192

(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



Manufacturer reserves the rights to change specifications without prior notice.

# Options & Accessories YFCC / YFCC-ECM

## Compatibility table / Codes

Model with AC motor	YFCC 130	YFCC 140	YFCC 230	YFCC 240	YFCC 330	YFCC 340
Cassette YFCC	2 pipe system	0064001K	0064011K	0064002K	0064012K	0064003K
	4 pipe system (+1)	0064021K	0064031K	0064022K	0064032K	0064023K
	4 pipe system (+2)	0064041K	-	0064042K	-	0064043K
Model with ECM motor						
Cassette YFCC-ECM	2 pipe system	0064201K	0064211K	0064202K	0064212K	0064203K
	4 pipe system (+1)	0064221K	0064231K	0064222K	0064232K	0064223K
	4 pipe system (+2)	0064241K	-	0064242K	-	0064243K
Options (Factory fitted)						
Right hand connection	Contact Johnson Controls					
Valves (220V On/Off) (factory fitted)						
Kit 3 way valve size 1-5 mounted MBVM-JC 1-5 V.220 (YFCC size 1-2)		9066561				-
Kit 3 way valve size 6-9 mounted MBVM-JC 6-9 V.220 (YFCC size 3)		-				9060471
Kit 3 way valve additional battery size 1-9 mounted ABVM-JC 1-7 V.220 (YFCC 4 pipes all sizes)				9060472		
Kit 2 way valve size 1-5 and additional battery mounted V2M-JC 1-5 V.220 (YFCC size 1-2)		9060476				-
Kit 2 way valve size 6-9 primary battery mounted V2M-JC 6-9 V.220 (YFCC size 3)		-				9060477
Kit 2 way valve all sizes 4 pipes to be used for the additional battery not mounted V2L-JC 1-5 V.220				9060476		
Simplified kit for 3 way valve for CD version fitted (sizes 1-5) VSDM-JC G1-5 V.220 (YFCC size 1-2)		9066571				-
Simplified kit for 3 way valve for CD version fitted (sizes 6-9) VSDM-JC G6-9 V.220 (YFCC size 3)		-				9060484
Simplified kit for 3 way valve for CD version fitted - additional battery (all sizes) VSAM-JC G1-9 V.220 (YFCC all sizes)				9060483		
3 way double valve kit for 4 tube installation and single coil + kit fitted on the unit (YFCC all sizes)				9066572W		
2 way DN 10 balance for main coil + kit fitted on the unit (YFCC size 1)	9066660				-	
2 way DN 15 balance for main coil + kit fitted on the unit (YFCC sizes 2-3)	-				9066661	
2 way DN 10 balance for additional coil + kit fitted on the unit (all sizes)				9066663		
Accessories (supplied loose)						
Valves 220V On/Off (supplied loose)						
Kit 3 way valve size 1-5 not mounted MBVL-JC 1-5 V.220 (YFCC size 1-2)		9066560				-
Kit 3 way valve size 6-9 not mounted MBVL-JC 6-9 V.220 (YFCC size 3)		-				9060474
Kit 3 way valve additional battery size 1-9 not mounted ABVL-JC 1-7 V.220 (YFCC all sizes)				9060475		
Kit 2 way valve size 1-5 and additional battery not mounted V2L-JC 1-5 V.220 (YFCC size 1-2)		9060478				-
Kit 2 way valve size 6-9 primary battery not mounted V2L-JC 4-7 V.220 (YFCC size 3)		-				9060479
Kit 2 way valve size 1-5 and to be used for the additional battery not mounted V2L-JC 1-5 V.220				9060478		
Simplified kit for 3 way valve for CD version not fitted (sizes 1-5) VSDS-JC G1-5 V.220 (YFCC size 1-2)		9066570				-
Simplified kit for 3 way valve for CD version not fitted (sizes 6-9) VSDS-JC G6-9 V.220 (YFCC size 3)		-				9060481
Simplified kit for 3 way valve for CD version not fitted - additional battery (all sizes) VSAS-JC G1-9 V.220 (YFCC all sizes)				9060480		
3 way double valve kit for 4 tube installation and single coil + kit not fitted on the unit (YFCC all sizes)				9066562W		
2 way DN 10 balance for main coil + kit not fitted (YFCC size 1)	9066650				-	
2 way DN 15 balance for main coil + kit not fitted (YFCC sizes 2-3)	-				9066651	
2 way DN 10 balance for additional coil + kit not fitted (all sizes)				9066653		
Other type of valves	Contact Johnson Controls					
Accessories						
Electrical heater and relays fitted on the unit - 350 W - size 1 - BEL-CCN 1/4 (note 1)	9064051			-		-
Electrical heater and relays fitted on the unit - 550 W - size 1 - BEL-CCN 1/6 (note 1)	9064031			-		-
Electrical heater and relays fitted on the unit - 700 W - size 2 - BEL-CCN 2/7 (note 1)	-			9064052		-
Electrical heater and relays fitted on the unit - 1150 W - size 1 - BEL-CCN 2/12 (note 1)	-			9064032		-
Electrical heater and relays fitted on the unit - 900 W - size 3 - BEL-CCN 3/9 (note 1)	-			-		9064053
Electrical heater and relays fitted on the unit - 1400 W - size 1 - BEL-CCN 3/14 (note 1)	-			-		9064033
Horizontal auxiliary condensate tray HC ACTH-SX (for units with LEFT hydraulic connections)				6060402		
Horizontal auxiliary condensate tray HC ACTH-DX (for units with RIGHT hydraulic connections)				6060403		
Condensate drain pipe SCR				6060420		
Drain condensate pump not fitted PCC-S				9064010		
Drain condensate pump fitted PCC-M				9064011		
Fresh air spigot 100dia - FCR 100				6064191		
Fresh air spigot 120dia - FCR 120				6064192		

## Compatibility table / Codes

CONTROLS for YFCC (AC versions)	YFCC 130	YFCC 140	YFCC 230	YFCC 240	YFCC 330	YFCC 340
Remote three speed control JWC-3V (1) (4)				9066642		
Remote three speed control + electronic thermostat and manual S/W switch JWC-T (2)				9066330K		
Remote three speed control + electronic thermostat and centralized/manual S/W switch JWC-TQR (2) (3)				9066632K		
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with JPF-AU and JP-AU only) (2) (3)				9066331E		
Automatic speed control with electronic thermostat to be mounted in the light wall box WM-503				9066676		
Electromechanical thermostat T2T (4) (5)				9060174		
Power unit JPF-AU for JWC-AU and JTM-B remote controls, fitted on the unit				9066641		
Power unit JP-AU for JWC-AU and JTM-B remote controls, not fitted on the unit				9066640		
Power unit UP-503 for WM-503 remote control only, not fitted on the unit				9066677		
<b>Control accessories for all versions (supplied with separate packaging)</b>						
Low temperature cut-out for control JWC-T				9053048		
Low temperature cut-out for controls JWC-TQR, WM-503 and JP-AU power unit				3021090		
T2 sensor to be used as Change-over for JP-AU power unit				9025310		
Change-over 15-25 for control JWC-TQR				9053049		
Receiver SEL2M				9079109		
<b>CONTROLS for YFCC (AC versions) + MB</b>						
Mounted power unit MB-M				9066332		
Not mounted power unit MB-S				9066333		
IR remote control and not mounted IR receiver RS-RT03				9066337		
Not mounted IR receiver RS				9066338		
IR remote control RT03				3021203		
Wall control JTM-B				9066331E		
Multifunction control PSM-DI				3021293		
T2 sensor (to be used as change over or min.temp. sensor) T2				9025310		
<b>CONTROLS for YFCC-ECM</b>						
Automatic speed control with electronic thermostat and S/W switch - JWC-AU (to be used with JPF-AU and JP-AU only) (2) (3)				9066632K		
Automatic remote control with electronic thermostat, S/W switch and liquid crystall display JTM-B (to be used with JPF-AU and JP-AU only) (2) (3)				9066331E		
WM-S-ECM Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display				9066644		
Power unit JPF-AU for JWC-AU and JTM-B remote controls, fitted on the unit				9066641		
Power unit JP-AU for JWC-AU and JTM-B remote controls, not fitted on the unit				9066640		
<b>CONTROLS for YFCC-ECM + MB</b>						
Mounted power unit MB-M				9066332		
Not mounted power unit MB-S				9066333		
IR remote control and not mounted IR receiver RS-RT03				9066337		
Not mounted IR receiver RS				9066338		
IR remote control RT03				3021203		
Wall control JTM-B				9066331E		
Multifunction control PSM-DI				3021293		
T2 sensor (to be used as change over or min.temp. sensor) T2				9025310		
<b>Management system for a network of fan coils with MB electronic board (std. Motor and EC motor)</b>						
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		

**WARNING**

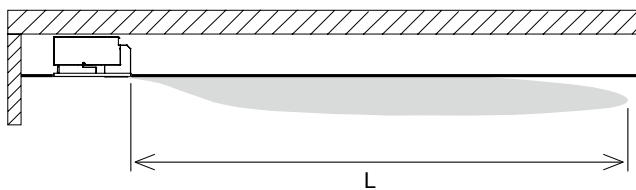
(1) Not to be used with valves. (2) Can be used with valves and/or low temperature cut-out.

(3) Can be used with Change Over. (4) Not suitable with -E electric heater. (5) Not to be used with low temperature cut-out.

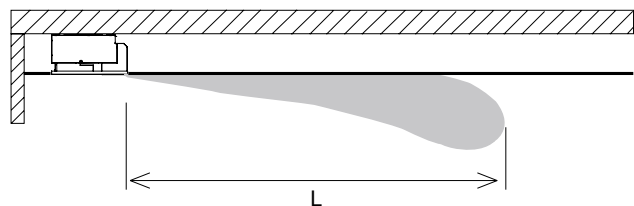
Note 1. Electric heaters must be factory supplied only - in ECM range the above controls can control the electric heater only if there is no hot water supply to the exchanger.

## Air Throw

### C1 - Heating



### C2 - Cooling



Model	YFCC 1						YFCC 2						YFCC 3						
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	
Air throw L (m)	C1	3.8	4.5	5.8	6.3	6.8	7.2	4	5	6.1	7	8	9	4.5	5.2	6.3	7.5	8.8	9.5
	C2	3	3.6	4.6	5	5.4	5.7	3.2	4	4.8	5.6	6.4	7.2	3.6	4.1	5	6	7	7.6

# YHVP & YHVP-ECM Hydro High Wall

2 pipe system  
A range from 1.17 to 3.81 kW



**JWC-T. Wired Control**  
Remote three speeds controller, electronic thermostat and Summer/Winter switch

**JWC-AU. Wired Control**  
Automatic JWC-T



**Electronic Infrared Control**



**TUC03+ Terminal unit controller**  
BacNET and N2 Metasys network compatible



## 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



**2 Way Valve ON/OFF**  
with thermoelectric actuator.  
Suitable for the connection with  $\varnothing$  12 mm pipes

## 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 & YHVP-ECM Hydro High Wall

1.17 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.

\* Water flow values as Cooling, accordingly to the EUROVENT standards and UNI ENV 1397

## 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.

\* Water flow values as Cooling, accordingly to the EUROVENT standards and UNI ENV 1397



Manufacturer reserves the rights to change specifications without prior notice.

## Codes high wall fan coil units YHVP

<b>Unit without IR control without valve</b>	<b>YHVP 1</b>	<b>YHVP 2</b>	<b>YHVP 3</b>	<b>YHVP 4</b>
Unit codes	0025001K	0025002K	0025003K	0025004K
<b>Unit without IR control with 2 way valve</b>	<b>YHVP-2V 1</b>	<b>YHVP-2V 2</b>	<b>YHVP-2V 3</b>	<b>YHVP-2V 4</b>
Unit codes	0025101K	0025102K	0025103K	0025104K
<b>Unit without IR control with 3 way valve</b>	<b>YHVP-3V 1</b>	<b>YHVP-3V 2</b>	<b>YHVP-3V 3</b>	<b>YHVP-3V 4</b>
Unit codes	0025201K	0025202K	0025203K	0025204K
<b>Unit with IR control without valve</b>	<b>YHVP-T 1</b>	<b>YHVP-T 2</b>	<b>YHVP-T 3</b>	<b>YHVP-T 4</b>
Unit codes	0025021K	0025022K	0025023K	0025024K
<b>Unit with IR control with 2 way valve</b>	<b>YHVP-T-2V 1</b>	<b>YHVP-T-2V 2</b>	<b>YHVP-T-2V 3</b>	<b>YHVP-T-2V 4</b>
Unit codes	0025121K	0025122K	0025123K	0025124K
<b>Unit with IR control with 3 way valve</b>	<b>YHVP-T-3V 1</b>	<b>YHVP-T-3V 2</b>	<b>YHVP-T-3V 3</b>	<b>YHVP-T-3V 4</b>
Unit codes	0025221K	0025222K	0025223K	0025224K
<b>Unit with MB board without valve</b>	<b>YHVP-MB 1</b>	<b>YHVP-MB 2</b>	<b>YHVP-MB 3</b>	<b>YHVP-MB 4</b>
Unit codes	0025011K	0025012K	0025013K	0025014K
<b>Unit with MB board with 2 way valve</b>	<b>YHVP-MB-2V 1</b>	<b>YHVP-MB-2V 2</b>	<b>YHVP-MB-2V 3</b>	<b>YHVP-MB-2V 4</b>
Unit codes	0025111K	0025112K	0025113K	0025114K
<b>Unit with MB board with 3 way valve</b>	<b>YHVP-MB-3V 1</b>	<b>YHVP-MB-3V 2</b>	<b>YHVP-MB-3V 3</b>	<b>YHVP-MB-3V 4</b>
Unit codes	0025211K	0025212K	0025213K	0025214K
<b>Unit without IR control without valve with electrical coil</b>	<b>YHVP-E 1</b>	<b>YHVP-E 2</b>	<b>YHVP-E 3</b>	<b>YHVP-E 4</b>
Unit codes	0025031K	0025032K	0025033K	0025034K
<b>Unit without IR control with 2 way valve with electrical coil</b>	<b>YHVP-E-2V 1</b>	<b>YHVP-E-2V 2</b>	<b>YHVP-E-2V 3</b>	<b>YHVP-E-2V 4</b>
Unit codes	0025131K	0025132K	0025133K	0025134K
<b>Unit without IR control with 3 way valve with electrical coil</b>	<b>YHVP-E-3V 1</b>	<b>YHVP-E-3V 2</b>	<b>YHVP-E-3V 3</b>	<b>YHVP-E-3V 4</b>
Unit codes	0025231K	0025232K	0025233K	0025234K
<b>Unit with IR control without valve with electrical coil</b>	<b>YHVP-T-E 1</b>	<b>YHVP-T-E 2</b>	<b>YHVP-T-E 3</b>	<b>YHVP-T-E 4</b>
Unit codes	0025041K	0025042K	0025043K	0025044K
<b>Unit with IR control with 2 way valve with electrical coil</b>	<b>YHVP-T-E-2V 1</b>	<b>YHVP-T-E-2V 2</b>	<b>YHVP-T-E-2V 3</b>	<b>YHVP-T-E-2V 4</b>
Unit codes	0025141K	0025142K	0025143K	0025144K
<b>Unit with IR control with 3 way valve with electrical coil</b>	<b>YHVP-T-E-3V 1</b>	<b>YHVP-T-E-3V 2</b>	<b>YHVP-T-E-3V 3</b>	<b>YHVP-T-E-3V 4</b>
Unit codes	0025241K	0025242K	0025243K	0025244K
<b>Unit with MB board without valve with electrical coil</b>	<b>YHVP-MB-E 1</b>	<b>YHVP-MB-E 2</b>	<b>YHVP-MB-E 3</b>	<b>YHVP-MB-E 4</b>
Unit codes	0025051K	0025052K	0025053K	0025054K
<b>Unit with MB board with 2 way valve with electrical coil</b>	<b>YHVP-MB-E-2V 1</b>	<b>YHVP-MB-E-2V 2</b>	<b>YHVP-MB-E-2V 3</b>	<b>YHVP-MB-E-2V 4</b>
Unit codes	0025151K	0025152K	0025153K	0025154K
<b>Unit with MB board with 3 way valve with electrical coil</b>	<b>YHVP-MB-E-3V 1</b>	<b>YHVP-MB-E-3V 2</b>	<b>YHVP-MB-E-3V 3</b>	<b>YHVP-MB-E-3V 4</b>
Unit codes	0025251K	0025252K	0025253K	0025254K

## Controls

JWM-3V Wall control	9066642
JWC-T Wall control	9066630K
JWC-TQR Wall control	9066631K
T2T Wall control	9060174
JTM-B 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, JWC-TQR and TMO-503-SV2.	9025302
<b>Electronic control accessories</b>	
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
<b>Management system for a network of fan coils with MB electronic board</b>	
Hardware / software supervisory system Net	9079118
Router-S for NET (default) or for BMS systems no provided by YORK	3021290
Relay output board SIOS	3021292

## Codes high wall fan coil units YHVP-ECM

Unit without IR control without valve	YHVP-ECM 1	YHVP-ECM 2	YHVP-ECM 3	YHVP-ECM 4
Unit codes	0025501K	0025502K	0025503K	0025504K
Unit without IR control with 2 way valve	YHVP-ECM-2V 1	YHVP-ECM-2V 2	YHVP-ECM-2V 3	YHVP-ECM-2V 4
Unit codes	0025601K	0025602K	0025603K	0025604K
Unit without IR control with 3 way valve	YHVP-ECM-3V 1	YHVP-ECM-3V 2	YHVP-ECM-3V 3	YHVP-ECM-3V 4
Unit codes	0025701K	0025702K	0025703K	0025704K
Unit with IR control without valve	YHVP-ECM-T 1	YHVP-ECM-T 2	YHVP-ECM-T 3	YHVP-ECM-T 4
Unit codes	0025521K	0025522K	0025523K	0025524K
Unit with IR control with 2 way valve	YHVP-ECM-T-2V 1	YHVP-ECM-T-2V 2	YHVP-ECM-T-2V 3	YHVP-ECM-T-2V 4
Unit codes	0025621K	0025622K	0025623K	0025624K
Unit with IR control with 3 way valve	YHVP-ECM-T-3V 1	YHVP-ECM-T-3V 2	YHVP-ECM-T-3V 3	YHVP-ECM-T-3V 4
Unit codes	0025721K	0025722K	0025723K	0025724K
Unit with MB board without valve	YHVP-ECM-MB 1	YHVP-ECM-MB 2	YHVP-ECM-MB 3	YHVP-ECM-MB 4
Unit codes	0025511K	0025512K	0025513K	0025514K
Unit with MB board with 2 way valve	YHVP-ECM-MB-2V 1	YHVP-ECM-MB-2V 2	YHVP-ECM-MB-2V 3	YHVP-ECM-MB-2V 4
Unit codes	0025611K	0025612K	0025613K	0025614K
Unit with MB board with 3 way valve	YHVP-ECM-MB-3V 1	YHVP-ECM-MB-3V 2	YHVP-ECM-MB-3V 3	YHVP-ECM-MB-3V 4
Unit codes	0025711K	0025712K	0025713K	0025714K
Unit without IR control without valve with electrical coil	YHVP-ECM-E 1	YHVP-ECM-E 2	YHVP-ECM-E 3	YHVP-ECM-E 4
Unit codes	0025531K	0025532K	0025533K	0025534K
Unit without IR control with 2 way valve with electrical coil	YHVP-ECM-E-2V 1	YHVP-ECM-E-2V 2	YHVP-ECM-E-2V 3	YHVP-ECM-E-2V 4
Unit codes	0025631K	0025632K	0025633K	0025634K
Unit without IR control with 3 way valve with electrical coil	YHVP-ECM-E-3V 1	YHVP-ECM-E-3V 2	YHVP-ECM-E-3V 3	YHVP-ECM-E-3V 4
Unit codes	0025731K	0025732K	0025733K	0025734K
Unit with IR control without valve with electrical coil	YHVP-ECM-T-E 1	YHVP-ECM-T-E 2	YHVP-ECM-T-E 3	YHVP-ECM-T-E 4
Unit codes	0025541K	0025542K	0025543K	0025544K
Unit with IR control with 2 way valve with electrical coil	YHVP-ECM-T-E-2V 1	YHVP-ECM-T-E-2V 2	YHVP-ECM-T-E-2V 3	YHVP-ECM-T-E-2V 4
Unit codes	0025641K	0025642K	0025643K	0025644K
Unit with IR control with 3 way valve with electrical coil	YHVP-ECM-T-E-3V 1	YHVP-ECM-T-E-3V 2	YHVP-ECM-T-E-3V 3	YHVP-ECM-T-E-3V 4
Unit codes	0025741K	0025742K	0025743K	0025744K
Unit with MB board without valve with electrical coil	YHVP-ECM-MB-E 1	YHVP-ECM-MB-E 2	YHVP-ECM-MB-E 3	YHVP-ECM-MB-E 4
Unit codes	0025551K	0025552K	0025553K	0025554K
Unit with MB board with 2 way valve with electrical coil	YHVP-ECM-MB-E-2V 1	YHVP-ECM-MB-E-2V 2	YHVP-ECM-MB-E-2V 3	YHVP-ECM-MB-E-2V 4
Unit codes	0025651K	0025652K	0025653K	0025654K
Unit with MB board with 3 way valve with electrical coil	YHVP-ECM-MB-E-3V 1	YHVP-ECM-MB-E-3V 2	YHVP-ECM-MB-E-3V 3	YHVP-ECM-MB-E-3V 4
Unit codes	0025751K	0025752K	0025753K	0025754K

## Controls

WM-S-ECM continuous fan speed control with S/W switch and liquid crystal display	9066644
JTM-B 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
<b>Electronic control accessories</b>	
T2 Sensor (to be used as change-over or low temperature cut-out - for MB only)	9025310
<b>Management system for a network of fan coils with MB electronic board</b>	
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

# YEPR Heat Recovery Units

A complete range from 300 up to 2,600 m<sup>3</sup>/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 m<sup>3</sup>/h. The units are available both in the version for installation on ceilings and floors.

## Construction features

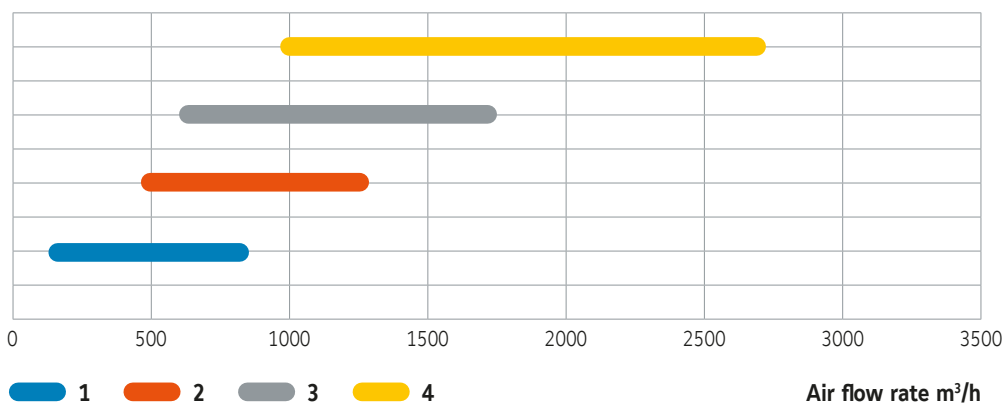
The **YEPR** are supplied in 2 versions:

- 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 SFP<sub>int</sub> 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	m³/h	720	1150	1700	2600
	m³/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	m³/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

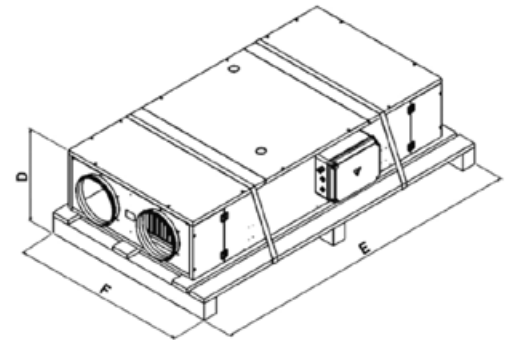
1) Air conditions: EAT = 5°C and t<sub>i</sub> = 25°C, no condensate

2) Air conditions: EAT = -10°C and t<sub>i</sub> = 20°C, RH<sub>i</sub> 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: t<sub>i</sub> = 20°C - RH<sub>i</sub> = 50%

Model	EAT: 10°C				EAT: 5°C			EAT: 0°C			EAT: -5°C			EAT: -10°C		
	Q <sub>v</sub> m³/h	P <sub>h</sub> kW	ε <sub>t</sub> %	m <sub>w</sub> kg/h	P <sub>h</sub> kW	ε <sub>t</sub> %	m <sub>w</sub> kg/h	P <sub>h</sub> kW	ε <sub>t</sub> %	m <sub>w</sub> kg/h	P <sub>h</sub> kW	ε <sub>t</sub> %	m <sub>w</sub> kg/h	P <sub>h</sub> kW	ε <sub>t</sub> %	m <sub>w</sub> kg/h
YEPR 1	100	0.30	90.4	0.00	0.46	90.5	0.15	0.60	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
YEPR 2	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
	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
YEPR 3	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
	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
YEPR 4	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
	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
YEPR 4	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<sub>i</sub> = Internal air temperature  
 RH<sub>i</sub> = Internal relative humidity  
 EAT = External air temperature  
 Q<sub>v</sub> = Intake air flow rate  
 Q<sub>r</sub> = Return air flow rate  
 P<sub>h</sub> = Thermal recovery on the intake flow

ε<sub>t</sub> = Recovery efficiency with balanced flow rates  
 m<sub>w</sub> = Condensate production  
 b = Unbalance percentage  
 ε<sub>t</sub>\* = Recovery efficiency with unbalanced flow rates  
 F<sub>r</sub> = Correction coefficient according to EAT variation  
 F<sub>Q</sub> = Correction coefficient according to Q<sub>v</sub> variation

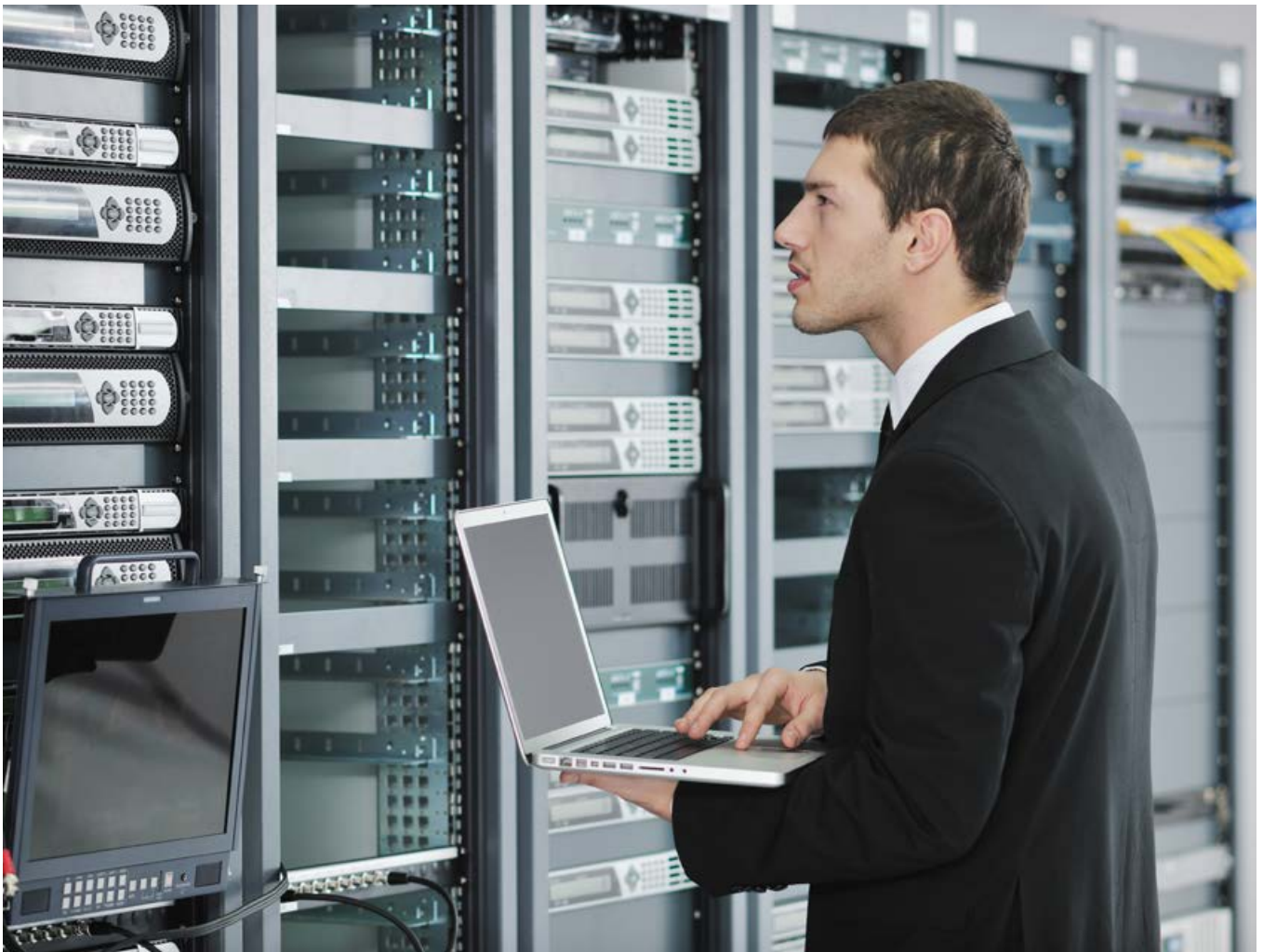
$$\epsilon_t = \frac{2980 P_h}{Q_v (t_i - TAE)}$$

$$b = Q_r / Q_v$$

$$\epsilon_t^* = \epsilon_t b F_r F_Q$$

# 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 7.8 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<sub>2</sub> 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 R-410A refrigerant, respectful to the ozone layer.

## Features and performance

### Brushless DC compressors with inverter technology

- Adapting cooling capacity to the real requirements of the plant is one of the principal conditions of guaranteeing the flexibility required by the most advanced systems. By incorporating **BRUSHLESS DC INVERTER** technology into the compressors it is possible to maximize the performance of the motor, especially at partial loads, the control of which is integrated in the microprocessor.
- The cooling coils of the downflow units (**YC-UP**), both in chilled water and direct expansion versions, have aluminium fins with a hydrophilic treatment that alleviates the risk of condensation and the coil face being covered with water, which would compromise the thermal performance and therefore the air conditioning capacity.
- The use of the environmentally friendly refrigerant HFC R410A does not contribute to the depletion of the ozone layer.
- Thanks to its larger surface area, the filter on the coil allows lower face velocity, which results in lower pressure drop.
- The lower energy consumption of these air conditioners, at the same efficiency, results in a much reduced TEWI (Total Equivalent Warming Impact). The application of EC plug fans reduces both energy consumption and noise levels.

### Microprocessor regulation

The Standard digital microprocessor

- allows management of all typical air-conditioning functions: cooling, heating, humidification, dehumidification and filtering
- ensures a regular and optimised operation as to both performance and consumption, providing as well alarm management and self-diagnosis.

### Cooling circuit

The air conditioners with direct expansion coil have a frigorific circuit equipped with: scroll compressor with all necessary protective devices, high pressure (manual reset) and low pressure (automatic reset) switches, dehydrating filter with refrigerant sight glass.

**YC-OPA, YC-UPA** models for pairing with remote condensers, are already equipped with a pressurisation nitrogen charge. The refrigerant charge, and the oil top-up (if required), shall be made by the installer on site.

**YC-OPA** and **YC-UPA** air conditioners in self-contained packaged format with built-in water-cooled condensers (accessory), are supplied with full refrigerant and oil charge.

### Local network management or remote control

**YORK® YC-P Series** air conditioners are capable of standalone operation, local private network with multiple units (up to 12) or fully integrated with Metasys® Building Management System from Johnson Controls.

The **YORK® YC-P Series** are equipped with an innovative local network monitoring (LAN) system that simplifies management, simplifies maintenance, and optimizes operational safety.

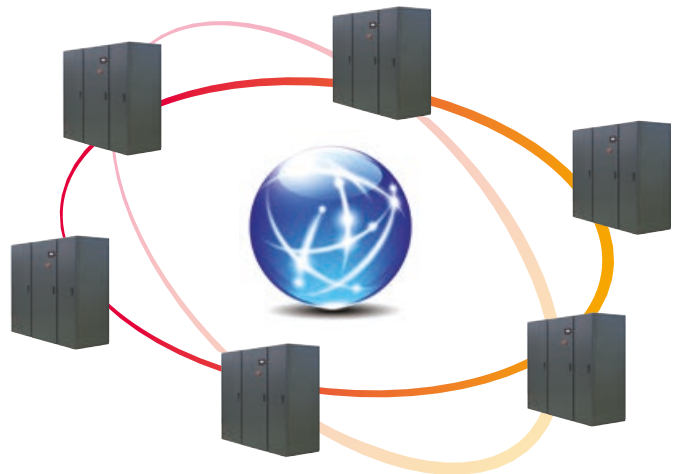
The innovative smart net system allows to revolutionize the local network concept. In fact, taking advantage of the modulation capabilities of the components, this system allows you to actively share the workload between all units in the local network.

Thanks to the breakdown of the workload, it is possible to increase the efficiency of the system by partially requesting the main components such as fans, compressors, electric batteries and humidifiers.

This partitioning translates directly into energy savings of up to 60% compared to redundant networks. In fact, instead of having active units that work 100% of their performance while one (or more) machines are stationary, the smart net system allows the entire unit group to have 50 or 60% of their maximum workload.

In remote applications, the machines can be controlled from remote positions interfacing with common Building Management Protocols such as BacNET, LON and Modbus, either via GSM Modem or TCP/IP Internet Protocol.

For total integration with Johnson Control Metasys® Building Management Systems (BMS) the units are equipped with an RS485 card working with BacNET MS/TP protocol.



## Electronic expansion valve

Electronic expansion valves are one of the most recent pieces of equipment that enable us to improve the energy efficiency at partial loads of direct expansion machines. These valves are installed at the inlet of the evaporator, substituting the traditional thermostatic expansion ones: this allows more precise control of the quantity of refrigerant entering the evaporator, and guarantees good capacity regulation, typically between 100% and 50%. Electronic expansion valves also allows control of the amount of overheated gas at the outlet of the evaporator, thus allowing a significant reduction of the condensation pressure during winter or night-time operation whilst maintaining the evaporation pressure unchanged. Adoption of the electronic expansion valve (optional) guarantees a significant increase of the EER values.

## One or two completely independent compressors

Models with "1" as the last digit of the unit model number have a single circuit and a single compressor. Those with "2" as the last digit on the other hand have two completely independent refrigerant circuits and two compressors.

The circuits are fitted with all the safety and regulation devices necessary for efficient and reliable operation.

The evaporator coil can be single or double circuit depending on the number of compressors.

## Hydraulic circuit

Air conditioners with chilled water coil, **YC-OPU** and **YC-UPU**, include a finned coil and a three-way motorised valve for water flow regulation. The hydraulic circuit is provided with copper tubes. The coils are optimised for both water with a temperature of 7/12 and for higher ones such as 15/20.

## Modulating regulation of the cooling capacity

If a very precise regulation and high response speed are required, a modulating valve is installed as standard. This valve is recommended in case of functionment with a lot of fresh air.

## Control Panel

All the units are equipped with a complete control panel with main isolator switch. Magnetothermic switches, contactors, and all necessary protection is provided, as required by legal codes and standards.

The control panel of the units equipped with compressors ("A" as third letter of the identification code) has as standard a phase sequencer, which prevents the compressor from getting damaged when counter running. Also, the control panel has 4 configurable input and output for remote signalling, as well as two terminals for starting up and stopping the unit from remote position.

The condenser fan speed controller (accessory) is installed in the unit and controlled with a 0-10V signal from the microprocessor. All the control parameter are managed by the microprocessor.

The controller is valid for all the AC 230V motors.

EC fans control and power lines available as alternatives.



Modulating controller display and keypad

## Large surface filters

The units are equipped with self-extinguishing media class G4 filters. The filters are installed inclined before the cooling coil in order to offer a larger surface and allow lower air crossing speeds, with lower energy consumption.

M5 or F7 filters ON COILS available as accessories.

## Design suitable to civil environments

**YORK® YC-P Series** air conditioners have a pleasant and functional design, suitable for installation in civil environments. Their structure consists of aluminium profiles and closing panels hinged on them. Both panels and profiles are epossidic painting RAL 7024.

Two versions are available for up flow units (**YC-OP**): front grille & top air discharge (standard), or blind front panel, suction from the bottom and top discharge (optional).

## Fan section

### New generation of electronic fans

The ever-growing necessity to save energy has made the use of high-performance EC Plug Fans indispensable in reducing plant costs. The fans installed in **YC-P** close control air conditioners are fitted with **BRUSHLESS EC** (Electronically Commutated) **MOTORS** and a composite-material impeller to maximize performance.

Important advantages obtained as a result include:

- Power drawn by the fans is reduced by over 25% compared to fans using traditional AC technology.
- Power drawn by the fans is reduced by about 15% compared to the previous generation of EC fans.
- Noise levels are reduced by over 5 dB(A) at partial loads.
- Risk to the plant is reduced as the mechanical parts are subjected to less use.

Thanks to integration with the microprocessor, the EC fans can be controlled to:

- Reduce rotation speed and therefore air quantity as the cooling capacity requirement decreases, thus making possible a 50% energy saving, operating at partial loads, compared to a constant velocity system.
- Maintain constant air quantity controlled in real time by differential pressure sensors, optimal control if F7 filters are installed.
- Maintain constant air pressure in the raised floor or in the compartmented areas in order to optimize air distribution avoiding hot spots and guarantee maximum modularity of the plant 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.

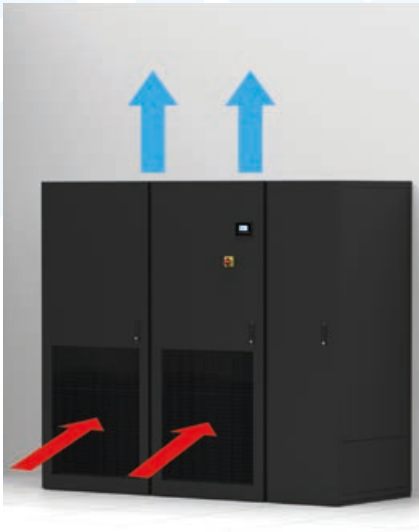


Suction with upper air intake and front air outlet with distribution plenum with adjustable grilles.



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).



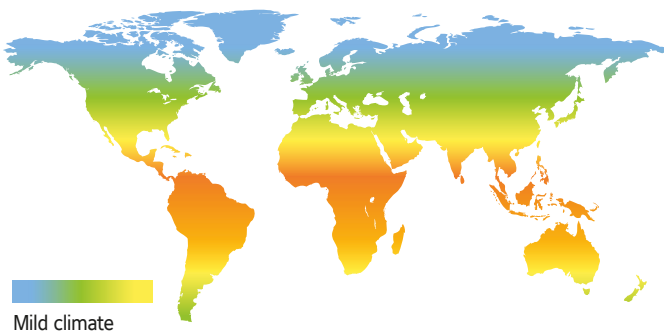
## Focus on Free Cooling

### 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
Percentage (2)	64%	51%	58%	64%	63%

	Bucharest	Budapest	Copenhagen	Dublin	Helsinki
Nbr. hours (1)	5,503	5,279	5,861	7,161	5,796
Percentage (2)	63%	60%	67%	82%	71%

	Istanbul	London	Madrid	Milan	Moscow
Nbr. hours (1)	4,779	5,575	4,643	5,281	6,046
Percentage (2)	55%	64%	53%	60%	71%

	Oslo	Paris	Prague	Reykjavik	Vienna
Nbr. hours (1)	6,202	5,187	5,619	7,743	5,651
Percentage (2)	73%	59%	64%	88%	65%

(1) Number of hours with temperatures lower than or equal to 18°C.

(2) Percentage calculated on a total of 8,760 hours per year.

### Indirect Free Cooling

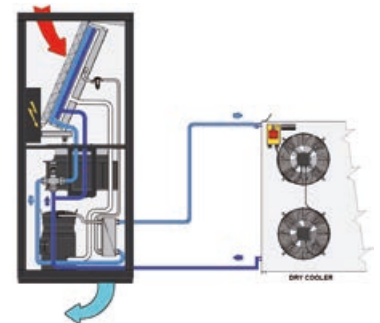
The **indirect FREE COOLING** system is characterised by a **hybrid unit**, consisting of a primary water circuit and a secondary direct expansion or chilled water circuit. The primary water circuit is connected to a dry cooler that uses outside air – a source of renewable energy – to cool water. The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

### Optimised operating procedures

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

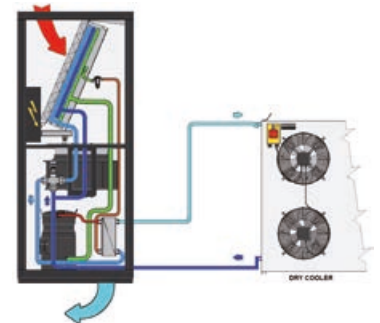
#### Total Free Cooling

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



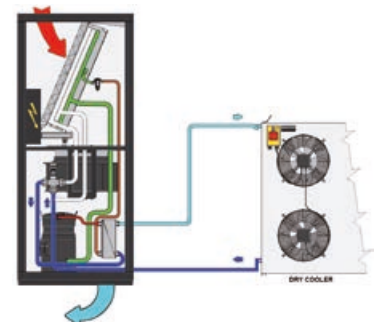
#### Partial Free Cooling

In addition to operating the **FREE COOLING** circuit, mechanical cooling can be triggered for the time strictly necessary to meet the demand for cooling.



#### No Free Cooling

Regulation is completely entrusted to mechanical cooling, excluding the **FREE COOLING** circuit.



### Self-adaptive set-point of the dry cooler

In order to maximise the efficiency of the **FREE COOLING** system, the unit can handle the regulation of the dry cooler coupled to it directly.

**Thanks to the self-adaptive set-point function, the fan speed can be regulated so that the water always has a temperature consistent with the outside air conditions.**

This leads to an **increase in the system efficiency**, allowing you to maximise the performance of both the **FREE COOLING** circuit and the direct expansion circuit, ensuring low condensing temperatures. In addition, the fans of the dry cooler will partially operate even with high temperatures, thereby increasing the energy savings of the system.

# Focus on Two Sources

## Dual circuit system

Some critical applications often require safety devices that prevent discontinuity of operation due to system failure. To allow for such an eventuality, YORK can offer **“Two Source” systems provided with two totally independent cooling sources.**

## High operational safety

In an air conditioning system, the main cooling source may be insufficient to guarantee suitable environmental conditions. This may be due to an overload of the system, maintenance, possible seasonal closures or any type of emergency that may arise.

A reduction in the machine cooling capacity can lead to great instability in the system, reducing the ability to control the system thermo-hygrometric conditions.

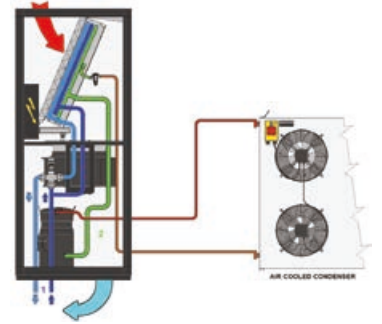
So as to avoid these problems, specific **TWO SOURCES (TS)** units have been developed providing a second source of cooling, complete with its own control valve and totally independent from the primary one.

## A safe, flexible system

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

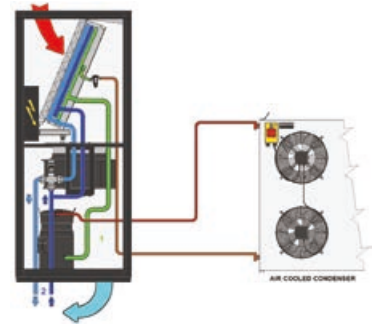
### Chilled water + direct expansion Two Sources

The chilled water primary source of the unit is connected to a building chiller or to District Cooling, whereas the secondary, emergency, and direct expansion one is connected to remote air or in-built water condensers.



### Direct expansion + chilled water Two Sources

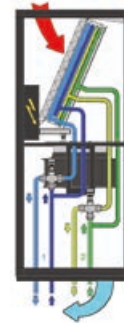
The direct expansion primary source of the unit is connected to remote air or in-built water condensers, whereas the secondary, emergency, and water one is connected to a dedicated chiller, to a groundwater/aqueduct water distribution network or to District Cooling.



### Chilled water + chilled water Two Sources

Both sources of the unit are chilled water coils. The primary one is normally connected to a building chiller or to District Cooling.

The emergency source can be connected to a dedicated chiller or a groundwater/aqueduct water distribution network.



## Fittings and accessories

Numerous accessories and options are available for the **"P" Series** air conditioners to personalise the installation depending on the requirements of the plant and its design. Divided by function, they include:

### Free cooling or two sources

- Additional Free cooling circuit.
- Additional Two sources circuit.

### Alarms

- Water alarm (supplied loose).
- Out-of-range air discharge temperature alarm (standard).
- Smoke/fire alarm terminals (standard).

### Water cooled condensers and pressostatic valves

- Welded stainless steel water cooled plate condenser.
- 2 way modulating valve (only if the water condenser is selected).

### Sound proofing devices

- Sound damped duct for air suction or discharge (h=550 mm). Allows a reduction of approx 4 dB(A) of the SPL of the unit.

### Panels and base

- Blind front panel (OP) and open base for bottom air intake.
- Front panel with grille in the lower part (UP) and closed base.

### Plenum

- Plenum (h=550 mm) for air discharge or intake with adjustable grille.

### Direct expansion unit cooling capacity regulation

- Electronic expansion valve (standard).
- INVERTER compressor available.

### Heating, reheating and humidification

- Single-step or double-step low thermal inertia electrical heating/reheating coil.
- Immersed-electrode modulating humidifier and dehumidification control.
- Humidity sensor for the single control of dehumidification.
- Humidity sensor and control signal for external humidification control not supplied by Johnson Controls.

### Boards and sensors

- RS 485 communication board.

### Dampers

- Gravity-operated overpressure dampers on the air outlet (OP series).
- Motorised overpressure dampers on the air intake (UP series).

### Under bases

- Adjustable under base (OP only).
- Adjustable under base with air deflector (UP only).

### Fans and filters

- Electronic EC fans with incorporated inverter for constant rotation speed regulation (standard).
- Electronic EC fans with incorporated inverter for the regulation of air flow in relation to the required cooling capacity (standard).
- Electronic EC fans with incorporated inverter for the regulation of constant pressure in the raised floor.
- M5 or F7 on the COIL.
- Monophase condenser-fan rotation speed variator

# Performance at JOHNSON CONTROLS test conditions\*

## Technical Characteristics

YC-OPA: direct expansion air conditioners with air cooled or water condensers and up-flow air supply														
Models		71	141	211	251	301	302	361	461	422	512	662	852	932
<b>Performances</b>														
Total cooling capacity	kW	7.8	14.9	21.3	26.8	33.6	30.9	37.8	48.1	43.7	54.2	67.3	90.1	93.3
Sensible cooling capacity	kW	7.6	13.4	21.3	25.6	31.7	30.6	37.8	47.9	43.7	52.8	64.8	77	85
Airflow	m <sup>3</sup> /h	3.69	3.37	3.15	3.18	3.08	3.2	3.3	3.43	3.27	3.25	3.13	3.33	3.53
EER		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	62	62	60	60	65	65	65	64	62	63	60
<b>Dimensions &amp; weight</b>														
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
<b>Performances</b>														
Total cooling capacity	kW	7.8	14.9	21.3	26.8	33.6	30.9	37.8	48.1	43.7	54.2	67.3	90.1	93.3
Sensible cooling capacity	kW	7.6	13.4	21.3	25.6	31.7	30.6	37.8	47.9	43.7	52.8	64.8	77	85
Airflow	m <sup>3</sup> /h	3.69	3.37	3.15	3.18	3.08	3.2	3.3	3.43	3.27	3.25	3.13	3.33	3.53
EER		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	62	62	60	60	65	65	65	64	62	63	60
<b>Dimensions &amp; weight</b>														
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
<b>Performances</b>									
Total cooling capacity	kW	10.2	18	32.4	43.6	66.8	80.2	121.9	160.3
Sensible cooling capacity	kW	9	15	30	38	62	72	110	144
Airflow	m <sup>3</sup> /h	34.42	28.52	22.83	21.48	23.95	24.29	23.62	24.29
EER		2.200	3.200	7.400	8.200	15.400	17.000	26.000	34.000
Sound pressure level	dB(A)	51	57	63	59	66	61	63	64
<b>Dimensions &amp; weight</b>									
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
<b>Performances</b>									
Total cooling capacity	kW	10.2	18	32.4	43.6	66.8	80.2	121.9	160.3
Sensible cooling capacity	kW	9.2	15.4	29.8	38.1	62.1	72	109.7	144
Airflow	m <sup>3</sup> /h	34.42	28.52	22.83	21.48	23.95	24.29	23.62	24.29
EER		2.200	3.200	7.400	8.200	15.400	17.000	26.000	34.000
Sound pressure level	dB(A)	51	57	63	59	66	61	63	64
<b>Dimensions &amp; weight</b>									
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 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 perimeteral installation inside the Data Centre: the height of the raised floor must be minimum 550 mm.



Version for perimeteral 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	49.2	62.2	103.5
Sensible cooling capacity (1)	kW	48.1	54.7	103.5
EER (2)		3.87	3.25	4.06
Airflow	m <sup>3</sup> /h	9.500	10.000	19.000
Sound pressure level (3)	dB(A)	57	58	59
Lenght	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	124.4	170.2
Sensible cooling capacity (1)	kW	43.3	85.1	124.4	170.2
EER (2)		31.12	32.48	34.65	39.13
Airflow	m <sup>3</sup> /h	9.500	19.000	28.500	38.000
Sound pressure level (3)	dB(A)	57	59	61	60
Lenght	mm	1.320	2.220	3.120	4.020
Depth	mm	921	921	921	921
Height	mm	1.990	1.990	1.990	1.990
Net weight	kg	610	750	930	1.250

(1) Performance refers to: R410a refrigerant; condensing temperature 45°C; incoming air 32°C-30%Rh; water 15/20°C; external static pressure 30 Pa.

The declared performance does not take into account the heat generated by fans, which must be added to the system thermal load.

(2) EER (Energy Efficiency Ratio) = total cooling capacity / compressors power consumption + fans power consumption (air cooled condensers excluded).

(3) Sound levels at a 2 m distance, in a free field, as per UNI EN ISO 3744:2010.



Manufacturer reserves the rights to change specifications without prior notice.

# YORK® YC-R Series Close Control Air Conditioners

A complete range from 23.9 kW up to 34.4 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	23.9	31.5
Sensible cooling capacity (1)	kW	23.9	27.2
EER (2)		3.79	3.33
Airflow	m <sup>3</sup> /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	23.9	34.4
Sensible cooling capacity (1)	kW	23.9	34.4
EER (2)		25	27
Airflow	m <sup>3</sup> /h	6.000	9.000
Sound pressure level (3)	dB(A)	52	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.



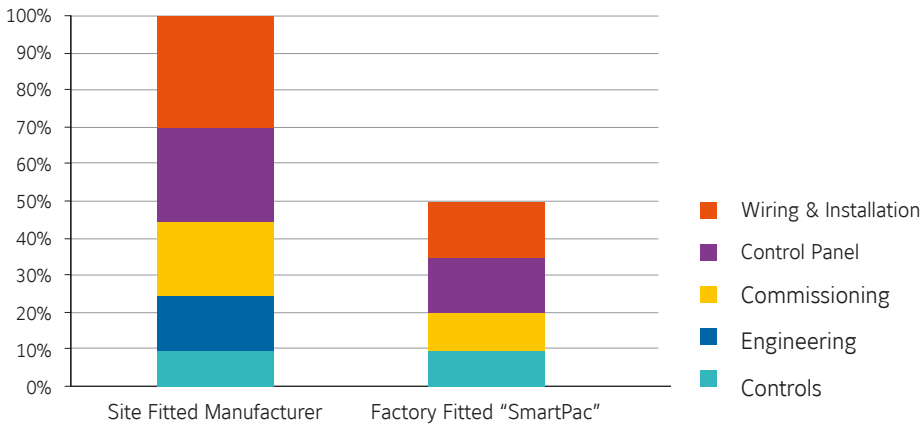
Manufacturer reserves the rights to change specifications without prior notice.

# SmartPac

As the need for ever more connected buildings and controls grows, and the Internet of Things approaches, SmartPac from Johnson Controls offers factory packaged control solutions that reduce cost, enhance quality and optimise site 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 & PLAY EXPERIENCE



## SmartPac and 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.



## SmartPac and YORK® Fan Coil units

YORK® Fan Coil Units are available with factory packaged 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.

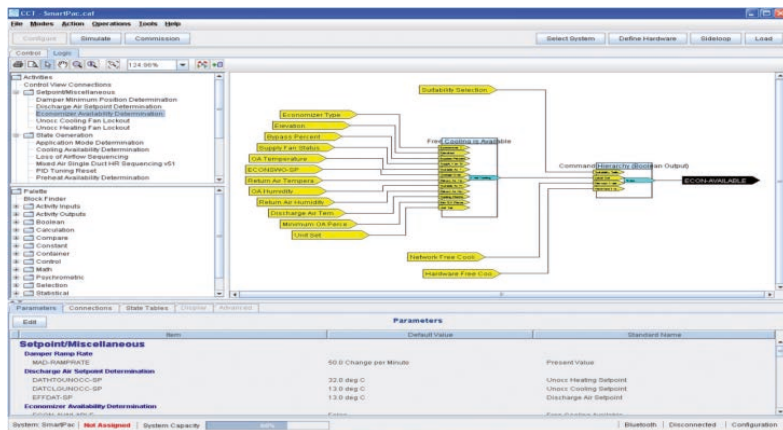


## SmartPac and YORK® Rooftop & Close Control units

Factory packaged 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.

## SmartPac and YORK® Standard Control panel

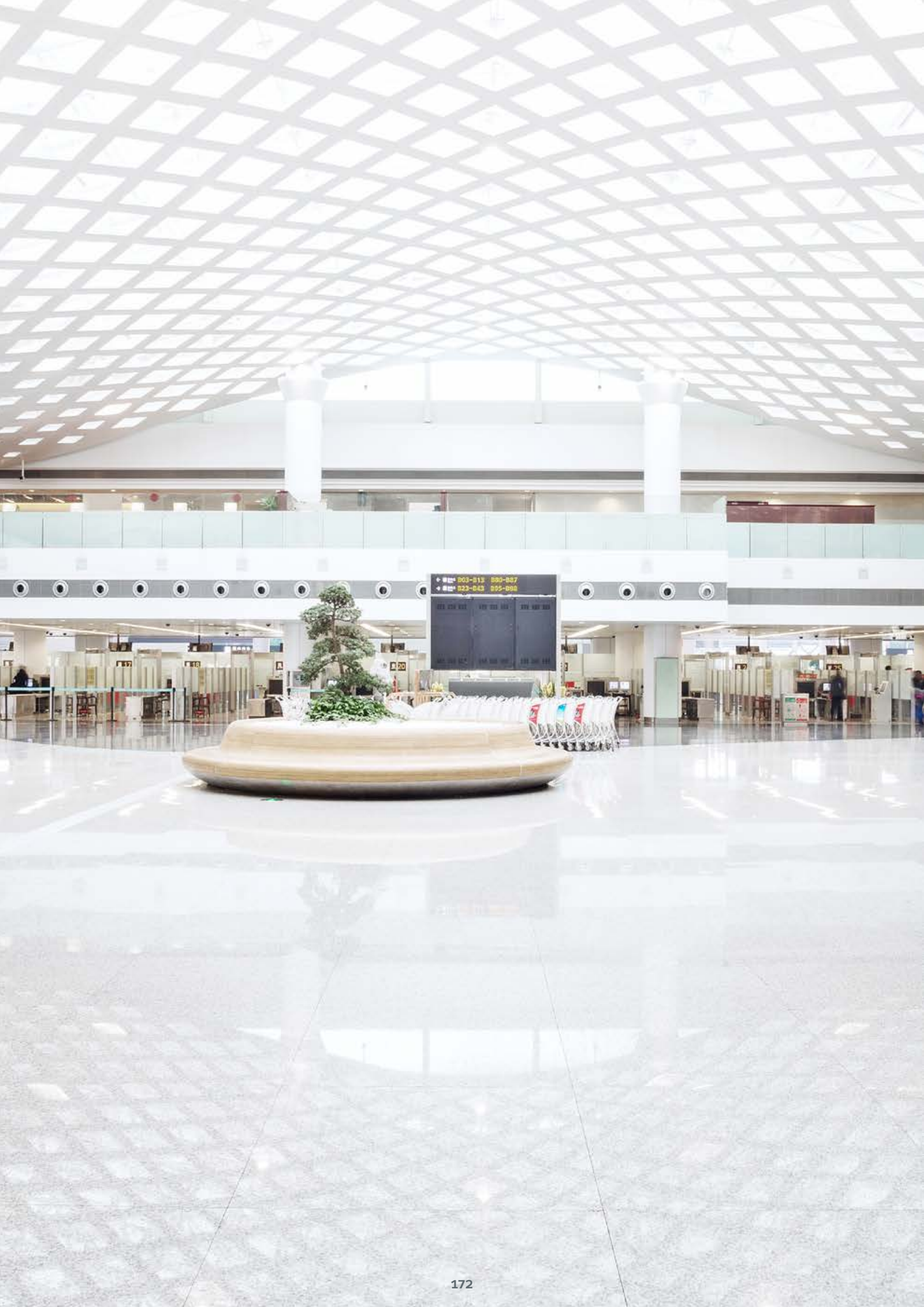
Furthermore, Variable Speed Drives give **extra efficiency communicating** with the Johnson controller using industry standard protocols and providing for seamless communications with existing BAS control systems.



## Advanced Control Made Easy

Comfort, productivity and up to half of the energy used in your building – these are all factors affected by how your chiller operates and how it interacts with other components in your HVAC&R system. To help maximize efficiency and keep you in control, some of our YORK Airside equipment is available with integrated SMART EQUIPMENT™. This technology allows the equipment to connect seamlessly to building controls like our world-class Verasys™ system, where smart-enabled equipment can self-identify and interoperate. Verasys™ provides a truly plug-and-play experience, with no programming or commissioning tools required. Remote access over a secure internet connection and alarm notifications via email or text are possible through

Verasys™. The user-friendly graphical interface provides easy access to critical equipment and facility information to help minimize the risk of unplanned downtime and costly repairs. Verasys™ also provides enhanced energy efficiency control, allowing a facility owner to potentially move from an average Class D efficiency classification to a Class A efficiency classification according to the EN 15232 standard. The key to this efficiency is demand control, where Verasys™ routes the energy requirements of a room or space to the heating and cooling equipment – matching the demand-side and the supply-side to provide greater overall energy efficiency.



# Rooftop Equipment

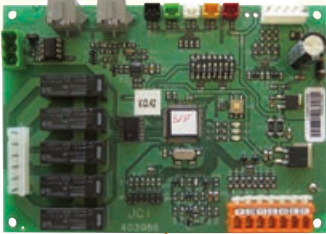
ROOFTOP

LARGE ROOFTOP

SPLIT ROOFTOP SYSTEM

# Control System

## YKN2open



The YKN2open is a controller regulating all components and accessories. It will pro actively manage cool and heat stages to maintain a stable room temperature maximizing the efficiency.

Additionally, the benefits are:

- Redundancy on cool and heat stages (if one step is locked out, the PCB starts another one automatically).
- Random start between units to minimise electrical tariff.
- All stages will start in sequence to reduce peak inrush.
- Reduces nuisance calls by using 3 times "you are out" on all safeties before a hard lockout occurs.
- Automatic restart after power failure. Compressors run time priority.
- Alarm output relay and led diagnostic code. No parameters to check before starting.
- Lockout and incident level of protection. Last 10 lockouts stored in a non-volatile memory.
- 4 heating stages on hot water heating.
- **BMS connection (N2 Open protocol).**



## Yktool N2open

The Yktool is the perfect tool to use on a regular basis for commissioning and service on site. For commissioning, it will override the thermostat and start the cooling or heating stages. Being a plug and play device, you will have direct access to all sensors and status of each components and accessories installed (lockout & incidents, temperatures, defrost test...).

Code: S613786031



### Thermostat DPC-1

- Day (normal), night (economy) and unoccupied (stand by).
- Lockout code on screen gives direct diagnostics.
- ON/OFF or programmable from dip switch setting.
- Day or night programmable state avoids wide internal temperature variation.
- 3 preset and 3 programmable profiles.
- Temperature override.
- Select the control sensor you want to use (integrated in the thermostat, return air in duct or room sensor).
- Turbo, normal or economy logic from dip switch setting.
- From -3°C to +3°C sensor offset.
- Average temperature with room or duct sensors.

### Thermostats with integrated sensors

Thermostat models		DPC-1	DPC-1R
	Code	S603786044	S603786045
Rooftop	All models	0	0
Rooftop Split	VIRSAAC & VIRSAH	X	0
Main features			
Strategy		Turbo, normal or economy	
Auto restart after power failure		•	•
Number of cool stages		2	1 2
Number of heat stages		2	1 2
Auxiliary Heat		•	•
Automatic Heat/Cool change over		•	•
Continuous or auto indoor fan		•	•
Manual setback (Day/Night key)		Day, night and unoccupied	
Override possibility		•	•
Compressor anti short cycle		•	•
°C Range cooling / heating		10 to 32°C / 9 to 32°C	
Programmable, 7-day		•	•
Lockout codes		•	•
Outdoor air temperature		•	with YKN2Open
Sensor selection		•	•

X : Delivered as standard with the unit.  
 O : Optional. • : Function available.



RS-1

### Room sensor

Indoor remote probe to provide close control of the ambient temperature at a location away from the DPC-1 and DPC-1R thermostats.

Code: S603786042



AS-1

### Ambiance sensor

Digital remote probe to provide close control of the ambient temperature at a location away from DPC-1 and DPC-1R thermostats. Up to 4 remote probes can be connected to make an average of the room conditioned.

Code: S603786049



DS-1

### Duct sensor

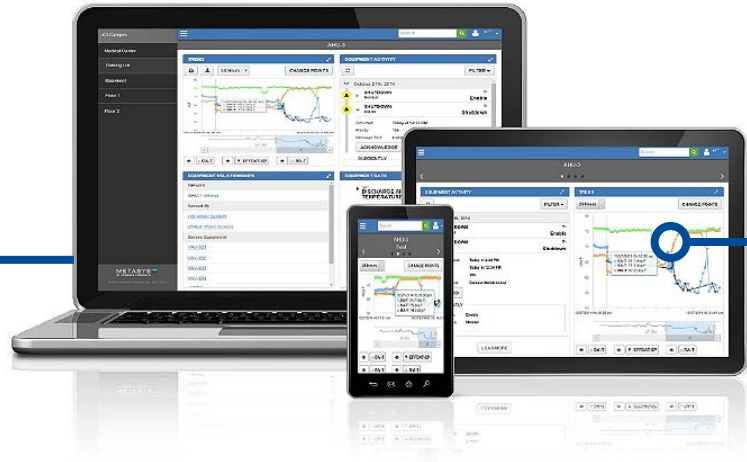
Remote probe to provide close control of the return air temperature in the duct, at a location away from DPC-1 and DPC-1R thermostats. The use of this probe is recommended when an indoor remote probe cannot be installed in the area where temperature is to be controlled.

Code: S603786047

# BMS Connection



IP Network



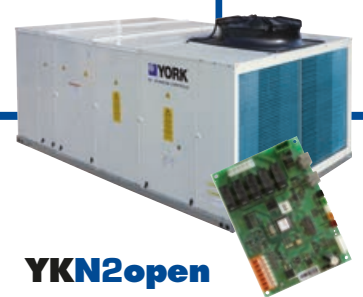
DPC-1



DPC-1



YKN2open



YKN2open



Light control,  
Power station...

AHU



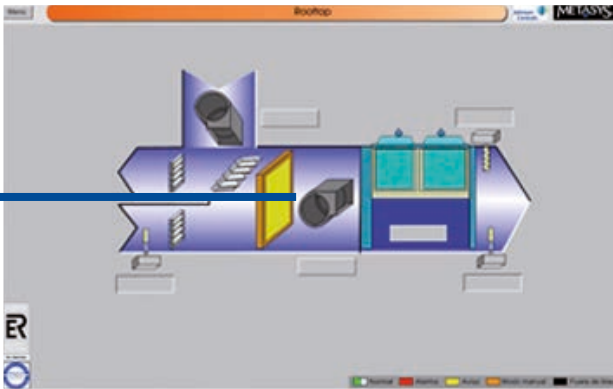
VRF



CHILLER

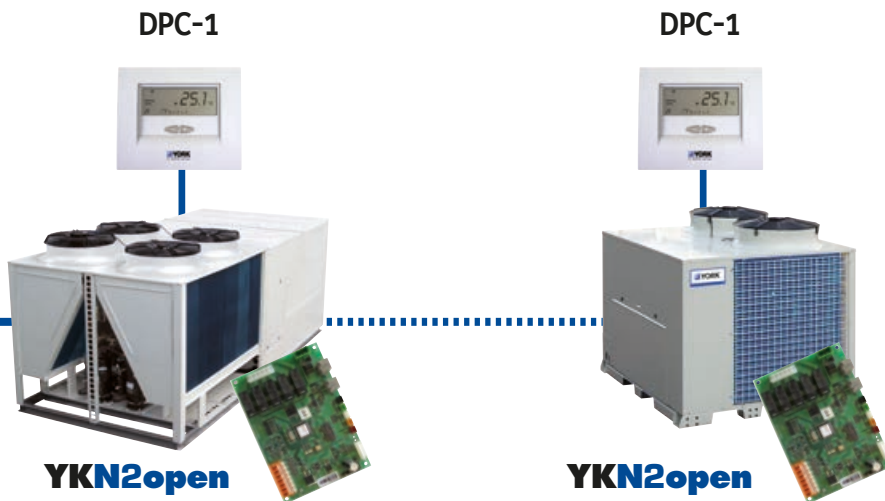






Sample screen

- BMS communication through new board YKN2Open delivered as standard (N2Open protocol)
- Possibility to fully control the unit and monitor more than 160 variables per unit.
- Can be integrated with other systems like lighting, fire&security or other HVAC equipment.
- Fully tailored solutions available (ask JCI sales office)



ACCESS CONTROL

FIRE



TVCC



Fire & Security

FAN COILS



HVAC application

# ACTIVA Rooftop

ARC-ARG-ARH-ARD

A complete range from 17 kW up to 40 kW

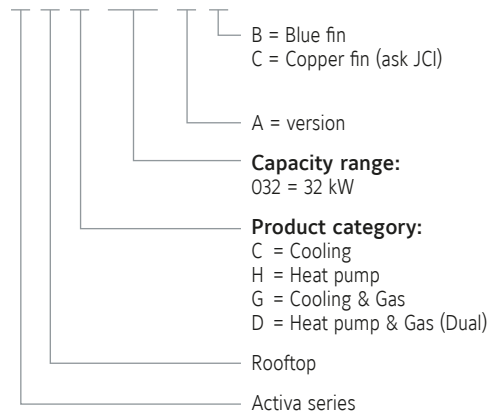


**YKN2open**

## Features

- High efficiency EER and COP
- 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

## A R C 032 A B Nomenclature





# ACTIVA Rooftop

## ARC-ARG-ARH-ARD 017 to 040 AB/BB

### Technical features

<b>Cooling only models</b>		<b>ARC 017 AB</b>	<b>ARC 022 AB</b>	<b>ARC 032 AB</b>	<b>ARC 040 AB</b>	
Net cooling capacities	kW	18.2	22.2	31	39.9	
Power input	kW	5.5	7.4	9.9	14.2	
SEER		3.82	3.85	4.06	3.28	
η <sub>s,c</sub>		149.6	151.1	159.4	128.1	
Working range (full load / partial load)	°C	7°C ~ 46°C / -10°C ~ 52°C				
<b>Heat pump models</b>		<b>ARH 017 BB</b>	<b>ARH 022 BB</b>	<b>ARH 032 AB</b>	<b>-</b>	
Net cooling capacities	kW	18.2	24	31	-	
Power input in cooling	kW	5.5	7.4	9.9	-	
Heating capacities (1)	kW	17.2	23.5	30.9	-	
Power input in heating	kW	4.5	5.7	9.8	-	
SCOP		2.96	2.96	2.96	-	
η <sub>s,h</sub>		115.2	115.2	115.3	-	
Working range (full load / partial load)	°C	-10°C ~ 46°C / -10°C ~ 52°C				
<b>Cooling only + Gas heating models</b>		<b>ARG 017 AB</b>	<b>ARG 022 AB</b>	<b>ARG 032 AB</b>	<b>ARG 040 AB</b>	
Net cooling capacities	kW	18.2	22.2	31	39.9	
Cooling power input	kW	5.5	7.4	9.9	14.2	
Standard Heating capacities (1) NET	kW	23	23	41	41	
Natural gas 2ND-H, G20	m³/h	2.5	2.5	4.5	4.5	
Working range (full load / partial load)	°C	-15°C ~ 46°C / -15°C ~ 52°C				
<b>Heat pump + Gas heating models</b>		<b>ARD 017 BB</b>	<b>ARD 022 BB</b>	<b>ARD 032 AB</b>	<b>-</b>	
Net cooling capacities	kW	18.2	24	31	-	
Power input in cooling	kW	5.5	7.4	9.9	-	
Heating capacities (1)	kW	17.2	23.5	30.9	-	
Power input in heating	kW	4.5	5.7	9.8	-	
Standard Heating capacities (1) NET	kW	23	23	41	-	
Natural gas 2ND-H, G20	m³/h	2.5	2.5	4.5	-	
Working range (full load / partial load)	°C	-15°C ~ 46°C / -15°C ~ 52°C				
<b>Common characteristics</b>						
Power supply	400V/3 + N/ 50Hz					
Main switch	A	20	25	40	50	
Main cable	Nbr. x mm²	5 x 4	5 x 6	5 x 10	5 x 16	
Cable to thermostat	Nbr. x mm²	10 x 0.22				
Number of circuits / Compressor type	1 / 1 x Scroll			1 (Tandem) / 2 x Scroll		
Evaporator fan at nominal airflow	Airflow	m³/h	3400	4300	5700	7400
	ASP	Pa	600	600	600	600
Nett dimensions	Height	mm	1 420	1 420	1 420	1 420
	Length	mm	1 866	1 866	2 135	2 135
	Depth	mm	1 540	1 540	1 850	1 850
Nett weight	ARC / ARG	kg	420 / 462	440 / 482	581 / 642	585 / 646
Nett weight	ARH / ARD	kg	425 / 467	445 / 487	587 / 648	-

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

(1) Add indoor fan motor consumption to know total heating capacity.

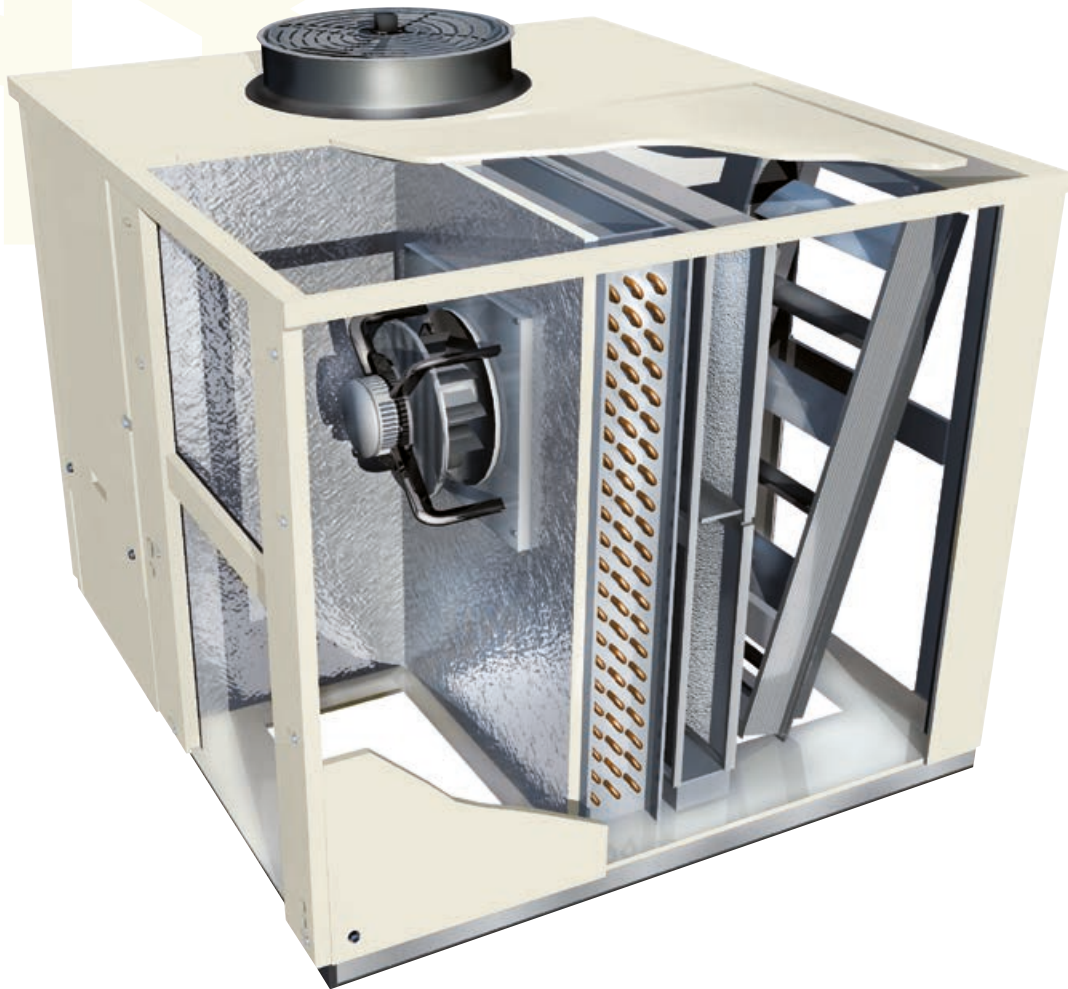
### Codes

<b>Cooling only models</b>	<b>ARC 017 AB</b>	<b>ARC 022 AB</b>	<b>ARC 032 AB</b>	<b>ARC 040 AB</b>
	S661752110	S661752120	S661752130	S661752150
<b>Heat pump models</b>	<b>ARH 017 BB</b>	<b>ARH 022 BB</b>	<b>ARH 032 AB</b>	<b>-</b>
	S661752513	S661752127	S661752133	-
<b>Cooling only + Gas heating models</b>	<b>ARG 017 AB</b>	<b>ARG 022 AB</b>	<b>ARG 032 AB</b>	<b>ARG 040 AB</b>
	S661752111	S661752121	S661752131	S661752151
<b>Heat pump + Gas heating models</b>	<b>ARD 017 BB</b>	<b>ARD 022 BB</b>	<b>ARD 032 AB</b>	<b>-</b>
	S661752118	S661752128	S661752132	-
<b>Thermostat</b>				
to be ordered separately	DPC-1			



Manufacturer reserves the rights to change specifications without prior notice.

# Activa rooftop details & features



## **High Efficiency**

High efficiency compressor and fans managed by a 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 & options

	Code	Cooling only				Heat pump			Cooling + gas heating				Heat pump + gas heating		
		017	022	032	040	017	022	032	017	022	032	040	017	022	032
Thermostat DPC-1	S603786044	A	A	A	A	A	A	A	A	A	A	A	A	A	A
YNK2Open Gateway BACnet / IP - JCI Metasys N2	S606791244	A	A	A	A	A	A	A	A	A	A	A	A	A	A
YNK2Open Gateway Modbus TCP / IP - JCI Metasys N2	S606791245	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Dry bulb triple input economizer or motorized air damper with rain hood	S611752301	O	O			O	O		O	O			O	O	
	S611752311			O	O			O			O	O			O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Power Exhaust	S611752302	A	A			A	A		A	A			A	A	
	S611752312			A	A			A			A	A			A
Barometric relief damper and rain hood	S611752472	A	A			A	A		A	A			A	A	
	S611752473			A	A			A			A	A			A
Fresh air damper and rain hood (2)	S611752303	A	A			A	A		A	A			A	A	
	S611752313			A	A			A			A	A			A
Low ambient kit	S611752381	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Roofcurb adapter (3)	S611752886	A	A			A	A		A	A			A	A	
	S611752887			A	A			A			A	A			A
Fixed roof curb	S611752881	A	A			A	A		A	A			A	A	
	S611752882			A	A			A			A	A			A
Adjustable roof curb	S611752883	A	A			A	A		A	A			A	A	
	S611752884			A	A			A			A	A			A
Dirty filter switch	S613990085	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Smoke detector	S613995382	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Fire detection thermostat	S613903003	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Hot water coil	S611752351	O	O			O	O								
	S611752352			O	O			O							
Electric heaters	16 kW	S611752516	O	O			O	O							
	16 kW	S611752616			O	O			O						
	25 kW	S611752525	O	O			O	O							
	25 kW	S611752625			O	O			O						
	37 kW	S611752537			O	O			O						
Propane conversion Kit	S611752780								A	A	A	A	A	A	A
Filter kit F6	S611752401	O	O			O	O		O	O			O	O	
	S611752402			O	O			O			O	O			O
Filter kit F7	S611752411	O	O			O	O		O	O			O	O	
	S611752412			O	O			O			O	O			O
Grill condenser coil protection	S611752451	O	O			O	O		O	O			O	O	
	S611752452			O	O			O			O	O			O
Antivibration mounting kit	S611752461	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Energy recovery	S611752501	A	A			A	A		A	A			A	A	
	S611752511			A	A			A			A	A			A
Filter kit F6 for energy recovery	S611755506	O	O			O	O		O	O			O	O	
	S611755516			O	O			O			O	O			O
Filter kit F7 for energy recovery	S611752507	O	O			O	O		O	O			O	O	
	S611752517			O	O			O			O	O			O
Alarm relay board	S606791243	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Copper-copper coil	Contact us	O	O	O	O	O	O	O	O	O	O	O	O	O	O

O=Option (factory fitted). A=Accessory (supplied loose). O/A=If you want this item factory fitted, precise it in the order form.  
 (1) Energy recovery accessory includes: economizer, rain hood, indoor air quality sensor and G4 filters.  
 (2) Fresh air damper can not be installed if economizer or motorized damper is fitted.  
 (3) Transition roofcurbs to fit in D\_IC/D\_IG/B\_IG existing installations (090-150 kbtu/h).

# ACTIVA Rooftop

ARC-ARG-ARH-ARD

A complete range from 48 kW up to 84 kW

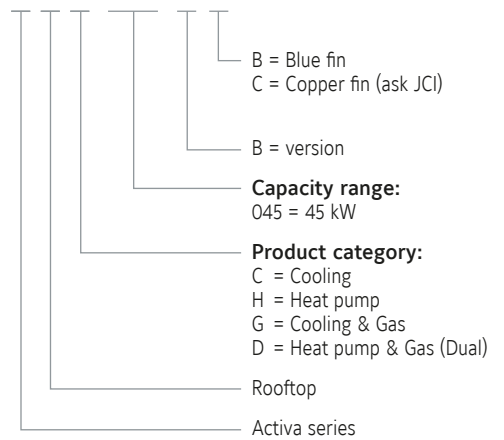


**YKN2open**

## Features

- High efficiency EER and COP
- Low noise level
- All configurations: Cooling only, Cooling + gas, Heating, Heating + Gas
- BMS communication as standard (N2Open protocol)
- Energy recovery (enthalpy wheel)
- EC Return fan
- External HP & LP access
- Filters G4, F6 & F7 available
- Tandem configuration (up to 52°C outdoor temperature)

## A R C 045 B B Nomenclature





# ACTIVA Rooftop

## ARC-ARG-ARH-ARD 045 to 090 BB

### Technical features (Preliminary Data for sizes 75 and 90)

Cooling only models		ARC 045 BB	ARC 060 BB	ARC 075 BB	ARC 090 BB	
Net cooling capacities	kW	48	62	72	84	
Power input	kW	16.0	23.0	30.0	36.0	
SEER		3.03	3.00	3.01	3.01	
η <sub>s,c</sub>		118.1	116.9	117.1	117.2	
Working range (full load / partial load) *	°C	7°C ~ 46°C / -10°C ~ 52°C				
Heat pump models		ARH 045 BB	ARH 060 BB	ARH 075 BB	ARH 090 BB	
Net cooling capacities	kW	48	62	72	84	
Power input in cooling	kW	17.0	20.0	28.0	36.0	
Heating capacities (1)	kW	45.2	58.0	71.7	86.5	
Power input in heating	kW	16.0	19.0	27.0	33.0	
SCOP		3.19	3.10	3.05	3.15	
η <sub>s,h</sub>		124.6	121.0	119.1	123.0	
Working range (full load / partial load) *	°C	-10°C ~ 46°C / -10°C ~ 52°C				
Cooling only + Gas heating models		ARG 045 BB	ARG 060 BB	ARG 075 BB	ARG 090 BB	
Net cooling capacities	kW	48	62	72	84	
Cooling power input	kW	16.0	23.0	30.0	36.0	
Standard Heating capacities (1)	kW	76.0	76.0	76.0	76.0	
Natural gas 2ND-H, G20	m³/h	8.60	8.60	8.60	8.60	
High Heating capacities (1)	kW	90.0	90.0	90.0	90.0	
Natural gas 2ND-H, G20	m³/h	9.80	9.80	9.80	9.80	
Working range (full load / partial load) **	°C	-15°C ~ 46°C / -15°C ~ 52°C				
Heat pump + Gas heating models		ARD 045 BB	ARD 060 BB	ARD 075 BB	ARD 090 BB	
Net cooling capacities	kW	48	62	72	84	
Cooling power input	kW	17.0	20.0	28.0	36.0	
Heating capacities (1)	kW	45.2	58.0	71.7	86.5	
Power input in heating	kW	16.0	19.0	27.0	33.0	
Standard Heating capacities (1)	kW	76.0	76.0	76.0	76.0	
Natural gas 2ND-H, G20	m³/h	8.60	8.60	8.60	8.60	
High Heating capacities (1)	kW	90.0	90.0	90.0	90.0	
Natural gas 2ND-H, G20	m³/h	9.80	9.80	9.80	9.80	
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	50	63	80	80	
Main cable	Nbr. x mm²	5 x 10	5 x 16	5 x 25	5 x 25	
Cable to thermostat	Nbr. x mm²	10 x 0.22				
Number of circuits / Compressor type		1 (tandem) / 2 x scroll				
Evaporator fan at nominal airflow	Airflow	m³/h	8 500	11 500	13 500	16 000
	Power input	kW	3	4	5.5	7.5
Nett dimensions	Height	mm	1 316	1 316	1 367	1 367
	Length	mm	3 180	3 180	3 495	3 495
	Depth	mm	2 337	2 337	2 337	2 337
Nett weight ARC / ARG	kg	900 / 1 010	945 / 1 055	1 118 / 1 228	1 142 / 1 252	
Nett weight ARH / ARD	kg	930 / 1 040	985 / 1 095	1 145 / 1 255	1 220 / 1 330	

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

\*\* With Premium kit (full load / partial load): -20°C ~ 50°C / -20°C ~ 52°C

### Codes

Cooling only models	ARC 045 BB	ARC 060 BB	ARC 075 BB	ARC 090 BB
	S661752149	S661752165	S661752175	S661752195
Heat pump models	ARH 045 BB	ARH 060 BB	ARH 075 BB	ARH 090 BB
	S661752147	S661752167	S661752177	S661752197
Cooling only + Gas heating models	ARG 045 BB	ARG 060 BB	ARG 075 BB	ARG 090 BB
	S661752146	S661752166	S661752176	S661752196
Heat pump + Gas heating models	ARD 045 BB	ARD 060 BB	ARD 075 BB	ARD 090 BB
	S661752148	S661752168	S661752178	S661752198
Thermostat				
to be ordered separately	DPC-1			



Manufacturer reserves the rights to change specifications without prior notice.

# Activa rooftop details & features



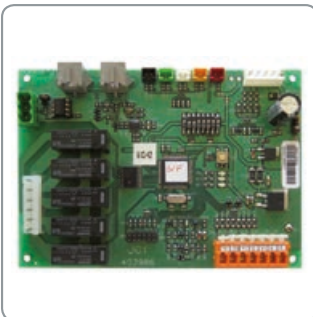
## Condenser fan

New condenser fans with high technology blades and outdoor bell that reduce the turbulences in the air and therefore increase the efficiency and improve the noise level performance.



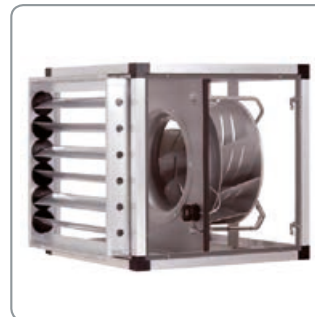
## Tandem scroll compressors

Tandem compressors configuration allows the unit to operate at partial load (only with one compressor) with higher efficiency and increases the working range up to +52°C ambient temperature.



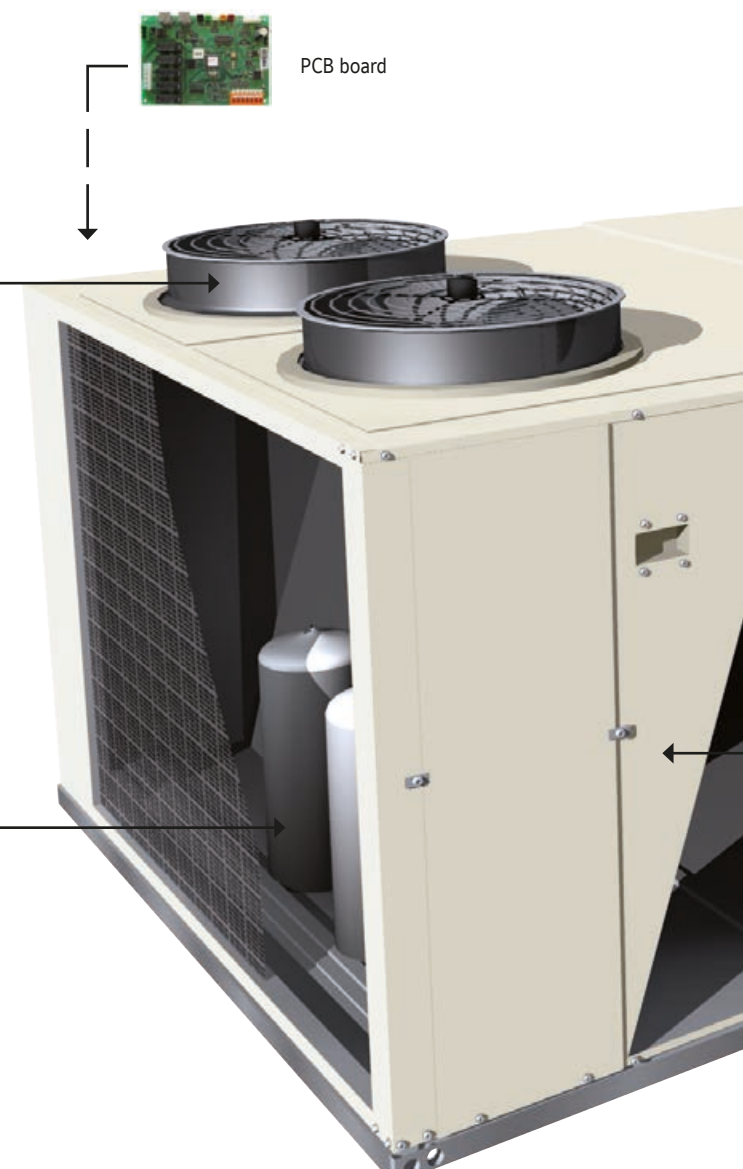
## PCB board

The YKN2Open board keeps same features and benefits as YKlon V3 and adds new logical to control the tandem circuit, the new options (heat recovery, return fan) and the possibility to communicate with BMS system as standard (only N2Open protocol).



## Return fan

Located in a special roof curb underneath the rooftop, it works simultaneously with the indoor fan in order to balance the amount of air supplied to and removed from the space. It is the best suited for systems with high return path static pressures. Also, incorporates EC technology and a differential pressure gauge to easy set up and maintain automatically the working point in the installation.

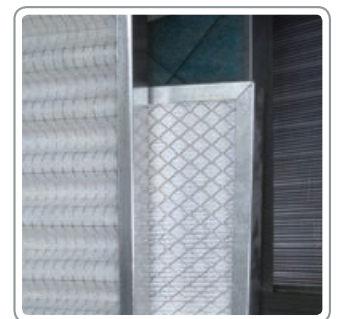
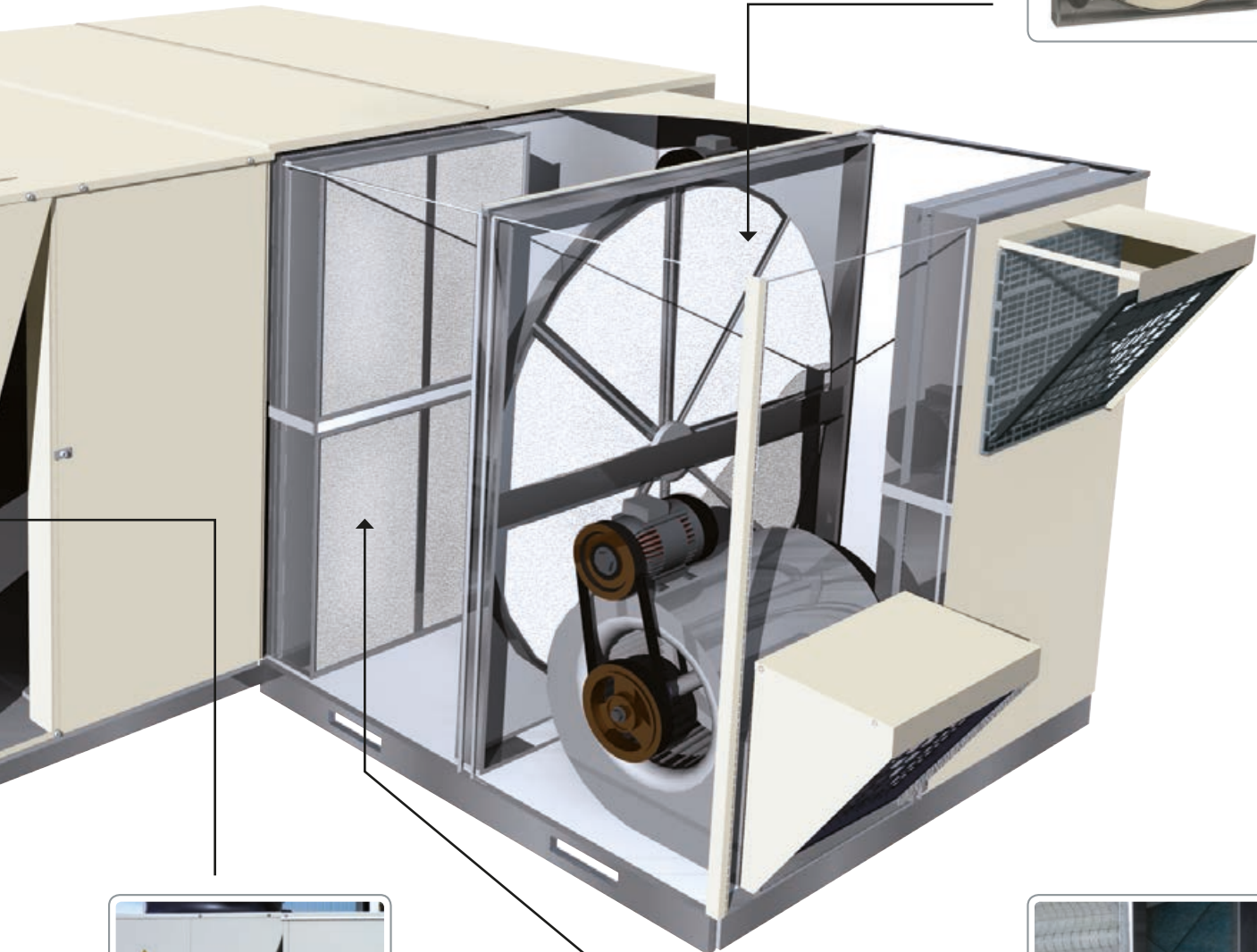


PCB board



### Energy recovery system

It is the preferred solution to solve two conflicting requirements: reduce running costs (increase efficiency) while maintaining the indoor air quality at high levels (through ventilation).  
 An enthalpy rotary wheel retains the energy from the exhaust air and transmits it to the fresh air stream that is being supplied in the conditioned space.  
 The material used is manufactured with the latest technology to increase the energy transmission in both sensible and latent heat.  
 The wheel is split into 6 portions that can be easily removed for cleaning.



### V-Coils

Made in blue fin (or in copper for harsh conditions under special request), increases the heat exchange surface for a given rooftop footprint. The floor pan is sloped for easy condensates drainage.

### Filter options

Washable air filters: G4 class filter (gravimetric efficiency above 90%) and M1 fire class, it comes with galvanized sheet metal frame that allows easy cleaning and replacement. Delivered as standard.

Filter kit F6: for Average Opacimetric efficiency (em)  $60\% \leq em \leq 80\%$   
 Filter kit F7: for Average Opacimetric efficiency (em)  $80\% \leq em \leq 90\%$

As per EN 779

# Accessories & options

## Accessories & options

	Code	Cooling only				Heat pump			
		45	60	75	90	45	60	75	90
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	S661752301	O	O			O	O		
	S661752311			O	O			O	O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	A	A	A	A	A	A	A	A
Power Exhaust	S661752302	A	A			A	A		
	S661752322			A	A			A	A
Barometric relief damper and rain hood	S613990472	A	A			A	A		
	S613990473			A	A			A	A
Fresh air damper and rain hood (2)	S661752303	A	A			A	A		
	S661752323			A	A			A	A
High pressure drive	4 kW	S611990401	O			O			
	5.5 kW	S611990601		O			O		
	7.5 kW (IE3)	S611990701			O			O	
	11 kW (IE3)	S611990903				O			O
Soft start indoor fan	5.5 kW	S606744690	O	O	O	O	O	O	O
	11.5 kW	S606744691			O	O		O	O
Premium Kit (LAK included) *	S613118302	O				O			
	S613118303		O	O	O		O	O	O
Side duct flanges	S613991482	A	A			A	A		
	S613991483			A	A			A	A
Fixed roof curb	S613991884	A	A			A	A		
	S613991885			A	A			A	A
Adjustable roof curb	S613992081	A	A			A	A		
	S613992082			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	S611083351	O	O	O	O	O	O	O	O
	12 kW	S611761584	O	O	O	O	O	O	O
Electric heaters	25 kW	S611762284	O	O	O	O	O	O	O
	37 kW	S611763385	O	O	O	O	O	O	O
	50 kW	S611764485	O	O	O	O	O	O	O
	Propane conversion Kit	S611801780	A	A	A	A	A	A	A
High heat gas conversion kit	S611803080	O	O	O	O	O	O	O	
Filter kit F6	S611300401	O	O			O	O		
	S611300701			O				O	
	S611300901				O				O
Filter kit F7	S611300402	O	O			O	O		
	S611300702			O				O	
	S611300902				O				O
Grill condenser coil protection	S661752304	O				O			
	S661752324		O				O		
	S661752314			O	O			O	O
Antivibration mounting kit	S613990411	A	A	A	A	A	A	A	A
Return fan bottom duct	S613993042	A	A			A	A		
	S613993072			A	A			A	A
Energy recovery	Q6000 (1)	S611994511	A	A			A	A	
	Q3000 (1)	S611994512	A	A			A	A	
	Q9000 (1)	S611997511			A	A		A	A
	Q4500 (1)	S611997512			A	A		A	A
Filter kit F6 for energy recovery	S611994506	O	O			O	O		
	S611997506			O	O			O	O
Filter kit F7 for energy recovery	S611994507	O	O			O	O		
	S611997507			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.

(2) Fresh air damper can not be installed if economizer or motorized damper is fitted.

\* Features: increased efficiency by 0.15, extended max outdoor temperature up to +50°C at full load, Low ambient kit.



## Accessories & options

	Code	Cooling + gas heating				Heat pump + gas heating			
		45	60	75	90	45	60	75	90
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	S661752301	O	O			O	O		
	S661752311			O	O			O	O
Enthalpy probes	S613990081	O	O	O	O	O	O	O	O
Indoor air quality sensor	S606819964	A	A	A	A	A	A	A	A
Power Exhaust	S661752302	A	A			A	A		
	S661752322			A	A			A	A
Barometric relief damper and rain hood	S613990472	A	A			A	A		
	S613990473			A	A			A	A
Fresh air damper and rain hood (2)	S661752303	A	A			A	A		
	S661752323			A	A			A	A
High pressure drive	4 kW S611990401	O				O			
	5.5 kW S611990601		O				O		
	7.5 kW (IE3) S611990701			O				O	
	11 kW (IE3) S611990903				O				O
Soft start indoor fan	5.5 kW S606744690	O	O	O		O	O	O	
	11.5 kW S606744691			O	O			O	O
Premium Kit (LAK included) *	S613118302	O				O			
	S613118303		O	O	O		O	O	O
Side duct flanges	S613991482	A	A			A	A		
	S613991483			A	A			A	A
Fixed roof curb	S613991884	A	A			A	A		
	S613991885			A	A			A	A
Adjustable roof curb	S613992081	A	A			A	A		
	S613992082			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	S611083351								
	12 kW S611761584								
	25 kW S611762284								
	37 kW S611763385								
	50 kW S611764485								
Propane conversion Kit	S611801780	A	A	A	A	A	A	A	A
High heat gas conversion kit	S611803080	O	O	O	O	O	O	O	O
Filter kit F6	S611300401	O	O			O	O		
	S611300701			O				O	
	S611300901				O				O
Filter kit F7	S611300402	O	O			O	O		
	S611300702			O				O	
	S611300902				O				O
Grill condenser coil protection	S661752304	O				O			
	S661752324		O				O		
	S661752314			O	O			O	O
Antivibration mounting kit	S613990411	A	A	A	A	A	A	A	A
Return fan bottom duct	S613993042	A	A			A	A		
	S613993072			A	A			A	A
Energy recovery	Q6000 (1) S611994511	A	A			A	A		
	Q3000 (1) S611994512	A	A			A	A		
	Q9000 (1) S611997511			A	A			A	A
	Q4500 (1) S611997512			A	A			A	A
Filter kit F6 for energy recovery	S611994506	O	O			O	O		
	S611997506			O	O			O	O
Filter kit F7 for energy recovery	S611994507	O	O			O	O		
	S611997507			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.  
 (2) Fresh air damper can not be installed if economizer or motorized damper is fitted  
 \* Features: increased efficiency by 0.15, extended max outdoor temperature up to +50°C at full load, Low ambient kit.

# Large ACTIVA Rooftop

ARC-ARH 100 to 175 AB

A complete range from 108 kW up to 169 kW

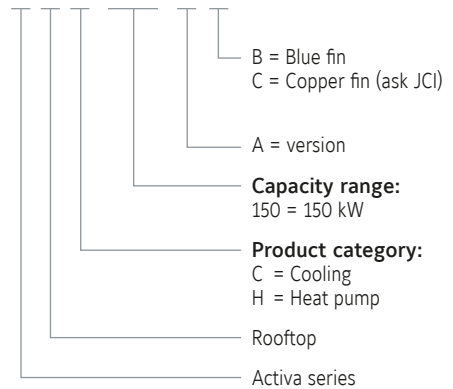


**YKN2open**

## Features

- High efficiency EER and COP
- 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)

## A R C 150 A B Nomenclature





# Large ACTIVA Rooftop

## ARC-ARH 100 to 175 AB

### Technical features

Cooling only models		ARC 100 AB	ARC 125 AB	ARC 150 AB	ARC 175 AB	
Net cooling capacities	kW	108.1	121.8	149.3	169.0	
Power input	kW	34	41	59	64	
SEER		4.95	4.58	3.72	3.29	
η <sub>s,c</sub>		195.0	180.1	145.7	128.8	
Working range (full load / partial load) *	°C	7°C ~ 46°C / -10°C ~ 52°C				
Heat pump models		ARH 100 AB	ARH 125 AB	ARH 150 AB	ARH 175 AB	
Net cooling capacities	kW	108.1	121.8	149.3	169.0	
Power input in cooling	kW	34	41	59	64	
Heating capacities (1)	kW	104.6	118.4	147.0	167.0	
Power input in heating	kW	33	37	53	61	
SCOP		3.58	3.44	3.44	3.44	
η <sub>s,h</sub>		140.2	134.5	134.6	134.5	
Working range (full load / partial load) *	°C	-10°C ~ 46°C / -10°C ~ 52°C				
Common characteristics						
Power supply	400V / 3 / 50Hz					
Main switch	A	100	125	160	200	
Main cable	Nbr. x mm <sup>2</sup>	3 x 35	3 x 50	3 x 50	3 x 70	
Cable to thermostat	Nbr. x mm <sup>2</sup>	10 x 0,22				
Number of circuits / Compressor type	2 (tandem) / 4 x scroll					
Evaporator fan at nominal airflow	Airflow	m <sup>3</sup> /h	19 000	21 000	27 000	31 000
	Power input	kW	3.0	3.3	8.3	9.1
Nett dimensions	Height	mm	2 142		2 142	
	Length	mm	4 036		5 085	
	Depth	mm	2 250		2 250	
Nett weight ARC	kg	1 737	1 744	2 074	2 090	
Nett weight ARH	kg	1 765	1 772	2 135	2 150	

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

(1) Add indoor fan motor consumption to know total heating capacity.

\* With Premium kit (full load / partial load): -10°C ~ 50°C / -10°C ~ 52°C

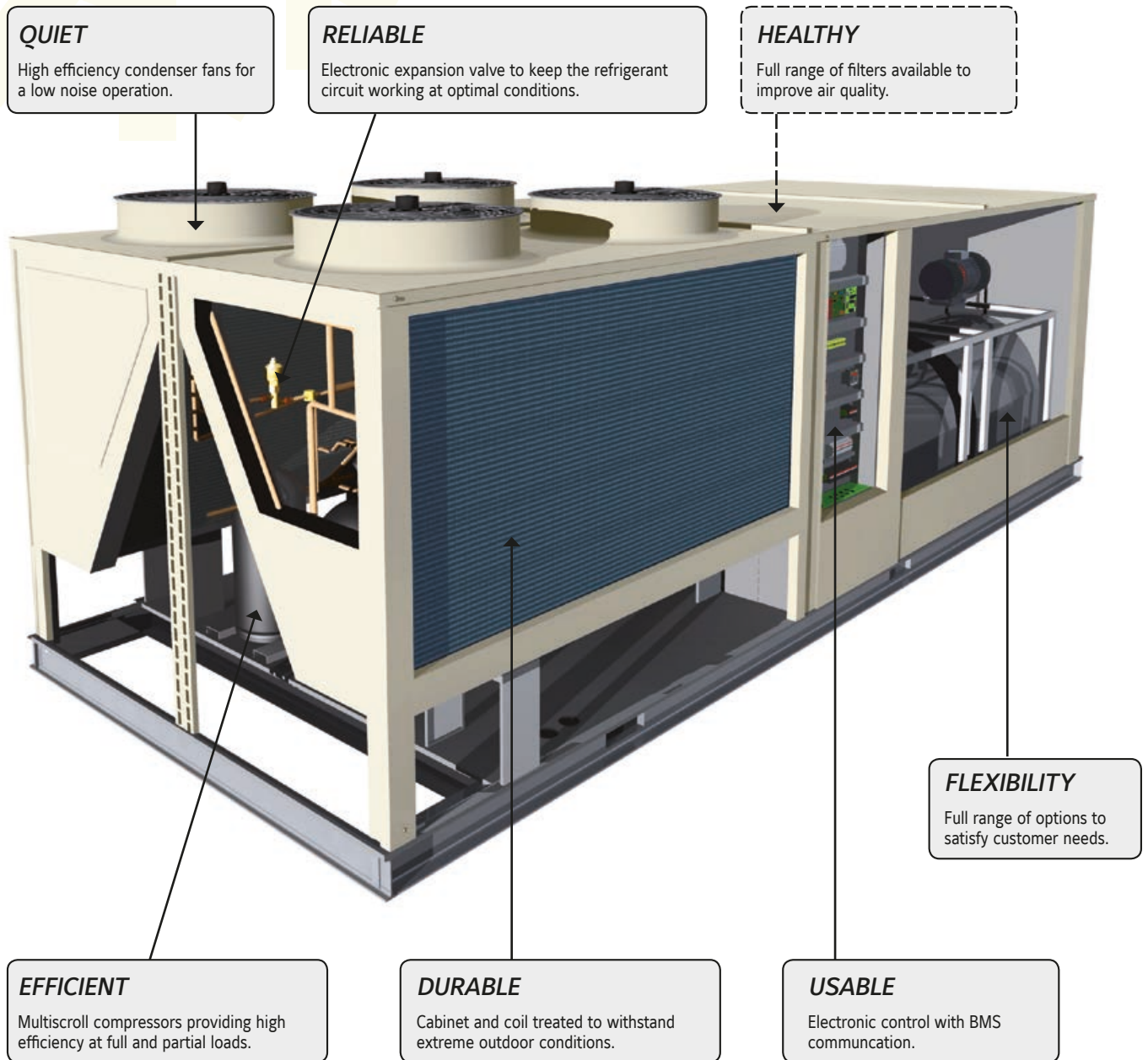
### Codes

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



Manufacturer reserves the rights to change specifications without prior notice.

# Large Activa rooftop details



# Accessories & 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
	11.5 kW	S606744691	O	O	O	O	O	O	O
Premium Kit (LAK included) *	S611751071	O	O	O	O	O	O	O	O
Fixed roof curb	S611751081	A	A			A	A		
	S611751581			A	A			A	A
Adjustable roof curb	S611751082	A	A			A	A		
	S611751582			A	A			A	A
Dirty filter switch	S613990085	O	O	O	O	O	O	O	O
Smoke detector	S613995382	O	O	O	O	O	O	O	O
Fire detection thermostat	S613903003	O	O	O	O	O	O	O	O
Hot water coil	S611751051	O	O			O	O		
	S611751551			O	O			O	O
Electric heaters	37 kW	S611751037	O	O	O	O	O	O	O
	50 kW	S611751050	O	O	O	O	O	O	O
	60 kW	S611751060	O	O	O	O	O	O	O
Filter kit F6	S611751046	O	O			O	O		
	S611751546			O	O			O	O
Filter kit F7	S611751047	O	O			O	O		
	S611751547			O	O			O	O
Grill condenser coil protection	S611751041	O	O			O	O		
	S611751541			O	O			O	O
Antivibration mounting kit 100/125	S613751011	O	O			O	O		
Antivibration mounting kit 150/175	S613751511			O	O			O	O
Alarm relay board	S606791243	O/A	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Copper-copper coil	Contact us	O	O	O	O	O	O	O	O

O=Option (factory fitted). A=Accessory (supplied loose). O/A=If you want this item factory fitted, precise it in the order form.

(1) = Energy recovery accessory includes: economizer, rain hood, indoor air quality sensor and G4 filters.

\* Features: increased efficiency by 0.15, extended max outdoor temperature up to +50°C at full load, Low ambient kit.

# Rooftop & Large Rooftop accessories & options



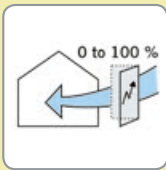
## Triple input economizer

This system utilizes 3 probes: Return Air, Outdoor Air and Supply Air. The Outdoor Air damper and the Return Air dampers are mechanically interconnected in order to provide the same airflow at the coil inlet, with a single damper motor. The PCB compares sensor values and modulates the dampers providing maximum efficiency of the economiser system (free cooling) and comfort (Supply Air > 12°C). Combined with the air quality sensor, your payback will be ensured within few months. The rain hood is painted to match the basic unit and aluminium mesh pre-filter prevents water penetration.



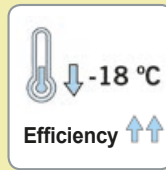
## Indoor air quality

This sensor measures concentrations of pollutant gases, such as tobacco smoke, human body odours, kitchen odours, carbon monoxide, etc... It automatically overrides the economizer when pollutant levels rise above preset limits. A shorting plug will set the algorithm to acceptable, good or very good air quality. This VOC sensor (Volatile Organic Compounds) sends an ON/OFF signal to the control PCB. The YKN2Open will then adjust the fresh air damper, optimising indoor air quality and minimising the energy consumption.



## Motorised outdoor air damper

Equipped with the same dampers as the economizer, the Return Air probe is not used. Outdoor air damper opens to pre-set position whenever the indoor fan is operating (selected from the thermostat, the indoor fan can be activated with the compressor or to operate continuously) and will drive fully closed when the indoor fan shuts down. The rain hood is painted to match the basic unit and aluminium mesh pre-filter prevents water penetration.



## Premium Kit - Low ambient control

All our rooftops are designed to work in cooling mode down to 7°C ambient temperatures. Although this working range suits most applications, the units can operate correctly down to -18°C with optional Premium Kit. The Premium Kit option consists on an EC condensing fan that will allow us to increase the airflow at reduced consumption. Also we have condensing and evaporating pressure control that will extend our operating limits. It's estimated an increased efficiency by +0.15% in EER and COP.



## Enthalpy sensors

To control the economizer in humid areas, or when indoor air humidity needs to remain dry, you should select enthalpy regulation. Enthalpy sensors will be used with the triple input economizer.



## High pressure drive

The high pressure drive will increase the supply fan performance for applications requiring greater air flow and/or static pressure. Please consult technical guide for more information.



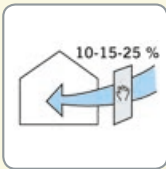
## Barometric relief damper

This accessory can be used to relieve internal air pressure on units equipped with triple input economiser or motorised air damper but no power exhaust. When the rooftop is working in free cooling or introducing fresh air, the damper opens to relieve over pressure from the return air section. This accessory is comprised of a rain hood, a protective grille and a fully assembled damper.



## Power Exhaust

Used to mechanically relieve internal air pressure from the Return Air section and ensure efficient fresh air introduction on units equipped with triple input economiser or motorised air damper. The power exhaust fan motor works when enough Outdoor Air is blowing into the room and if Outdoor Air temperature is acceptable ( $12^{\circ}\text{C} < t^{\circ} < 30^{\circ}\text{C}$ ).



## Fresh air damper and rain hood

The most cost effective method with a complete rain hood and a fixed damper that can be adjusted to provide approximately 10, 15 or 25% of fresh air.



## Smoke detector

The smoke detector is protecting the AHU but must not be used to ensure a full building protection against smoke danger. If smoke is detected the AHU is shutdown (lockout). A manual reset is necessary.



## Fire detection thermostat

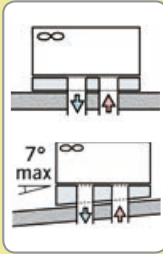
This fire detection thermostat is protecting the AHU but must not be used to ensure a full building protection against fire danger. The standard AHU is protected as standard with a Supply Air probe that shuts the unit down (lockout) when temperature exceeds 80°C. The electro-mechanical fire detection thermostat is used to fulfil specific local requirement. A manual reset is necessary.



## Dirty filter switch

Ensures that clean air is being supplied, advises when maintenance is required to prevent excessive depression and ensures water integrity of the AHU. These are the main advantages of filter dirty switch. Connected with the DPC-1 thermostat, the filter icon will appear on the thermostat screen when a filter change is required.

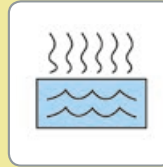




### Fixed and adjustable roof curbs

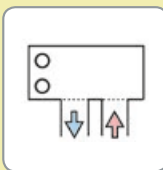
Ideal for down-flow applications, it is a great help for installation allowing duct connections, electrical connection and weatherproofing between the roofcurb and the roof of the building. Shipped in kit form, it also gives sufficient height for condensate trap operation.

The adjustable roof curbs have the same benefits as the fixed roof curb, it allows the rooftop to be levelled on a roof with up to 7° slope (4%).



### Hot water coil with control

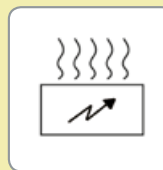
The hot water coil and his control are always fitted, wired and factory tested. Located in the supply air section, side or bottom duct connection is possible without any modification. Complete with an anti-frost thermostat, the PCB will activate the modulated valve (24V supply, 0 – 10V modulating signal) in order to get the best comfort. A jumper will allow using hot water coil as 1st heating stage.



### Side duct flanges

It's an optional (factory fitted) required when rooftops from sizes 45-175 need to work with horizontal air configuration. It's not required for models 17 to 40.

Composed of easy to install sheet metal panels to allow ductwork connections on the side of the AHU for horizontal return air and/or supply air.



### Electric heaters

Available on cooling only and Heat pump units, the electric heater is protected with two overheats per element.

When the overheat operates, there is a lock out of the faulty electric heater stage and the PCB starts automatically another heat stage.



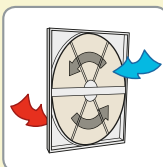
### Kit conversion propane

This kit comprises replacement burner, pilot injectors and all necessary instructions for converting the natural gas burner to propane gas. The nominal pressure of the propane gas should be 37 mbar.



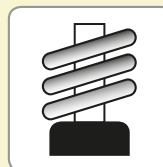
### High heat gas

This kit comprises replacement burner injectors and all necessary instructions to provide high heat capacity for gas rooftop.



### Energy recovery

Attached to the return air box of the rooftop, a rotary enthalpy wheel retrieves the energy of the exhausted air and transmits it to the fresh air intake. A special material used in the wheel allows that latent heat as well as sensible heat are transmitted.



### Antivibration mounting kit

It is composed by a set of stainless steel springs, to be assembled underneath the rooftop in a specific position. Their installation avoids the potential vibration transmission of the equipment to the building and reduces therefore the noise level (compressors have their own shock absorbers delivered as standard).



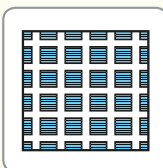
### Indoor fan soft start

Compact control unit with a motor with AC semiconductors, designed for soft starting and stopping of three-phase motors for centrifugal fans. The starting time, the stopping time and the initial torque are adjusted by mean of independent potentiometers.



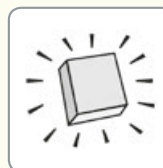
### Return fan

Used to overcome high return path pressure drops, works in series with the indoor fan to maintain the air pressure of the conditioned space within acceptable levels. (Only available in models ARx 45-90).



### Grill condenser protection

Metallic frame painted with oven-baked polymerized paint (800h salt spray resistance) to protect the fins of the coils from external damages.



### Air filters

G4, F6 and F7 filters are available to purify the air in the room. M1 fire class and manufactured in sheet metal frame, they are easy to install and clean.

# VITALITY Split Rooftop

VIRSAC / VIRSAH 20 to 90 AB

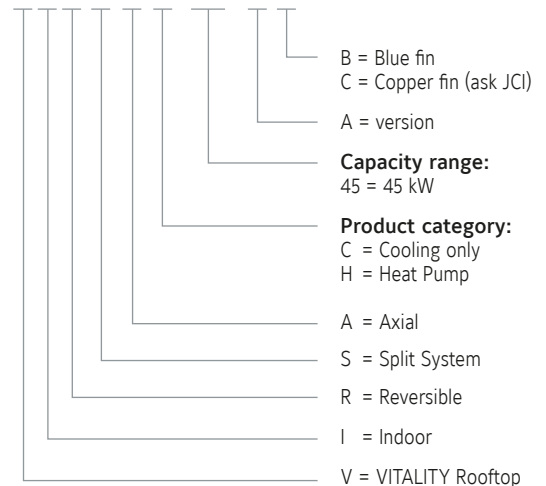
A complete range from 19.1 kW up to 86.1 kW



## Features

- Split rooftop for installation where space is at a premium
- Available with energy efficient axial fan on outdoor unit
- YKN2open board
- High technology fan blades increases efficiency and reduces noise level
- Service valves
- Economizer or motorized damper
- Return fan
- Indoor air quality
- Hot water coil and control
- Scroll compressor with crankcase heater
- Digital thermostat DPC-1 included

## VIRSAC 45 AB Nomenclature





# VITALITY Split Rooftop

VIRSAC / VIRSAH 20 to 90 AB

## Technical features

COMPLETE MODEL		VIRSAC20AB	VIRSAC25AB	VIRSAC30AB	VIRSAC45AB	VIRSAC60AB	VIRSAC75AB	VIRSAC90AB	
		VIRSAH20AB	VIRSAH25AB	VIRSAH30AB	VIRSAH45AB	VIRSAH60AB	VIRSAH75AB	VIRSAH90AB	
<b>INDOOR UNITS</b>									
<b>Cooling only and Heat pump</b>	<b>VIR</b>	<b>25AB</b>		<b>40AB</b>	<b>45AB</b>	<b>60AB</b>	<b>75AB</b>	<b>90AB</b>	
<b>OUTDOOR UNITS</b>									
<b>Cooling only models</b>	<b>VAC</b>	<b>20AB</b>	<b>25AB</b>	<b>30AB</b>	<b>45AB</b>	<b>60AB</b>	<b>75AB</b>	<b>90AB</b>	
Cooling capacities	kW	19.10	23.00	28.80	42.90	54.00	72.30	86.10	
Power input in cooling	kW	5.60	6.99	9.60	13.53	18.60	23.09	28.60	
SEER		3.49	3.30	3.01	3.32	3.10	3.21	3.25	
η <sub>s,c</sub>		136.7	129.0	117.5	129.6	121.2	125.4	126.9	
Refrigerant charge on site for 7 m piping length	kg	12	12	12.5	2 x 11	2 x 11.5	2 x 15.5	2 x 15	
<b>Heat pump models</b>	<b>VAH</b>	<b>20AB</b>	<b>25AB</b>	<b>30AB</b>	<b>45AB</b>	<b>60AB</b>	<b>75AB</b>	<b>90AB</b>	
Cooling capacities	kW	19.10	23.00	28.80	42.90	52.10	72.30	86.10	
Power input in cooling	kW	5.60	6.99	9.60	13.53	18.60	23.09	28.60	
Heating capacities	kW	21.20	25.20	31.90	44.80	59.40	81.00	93.10	
Power input in heating	kW	4.94	6.73	8.41	12.69	17.06	22.13	28.82	
SCOP		2.97	2.96	2.96	3.03	3.02	2.98	2.96	
η <sub>s,h</sub>		115.8	115.4	115.5	118.2	117.9	116.2	115.4	
Refrigerant charge on site for 7 m piping length	kg	12	12	12.5	2 x 11	2 x 11.5	2 x 15.5	2 x 15	
Power supply		400V/3 + N/ 50Hz							
Nominal / Starting current	A	8.5 / 74	11.8 / 95	15 / 118	2 x 12 / 95	2 x 15 / 118	2 x 19 / 140	2 x 25 / 198	
Main switch (1)	A	20	25	32	50	63	80	100	
Main cable to the outdoor unit (1)	Nbr x mm <sup>2</sup>	5 x 4	5 x 4	5 x 6	5 x 10	5 x 16	5 x 25	5 x 35	
Interconnecting cable (1)	Nbr x mm <sup>2</sup>	4 x 1.5	4 x 1.5	4 x 1.5	4 x 1.5	4 x 1.5	4 x 1.5	4 x 2.5	
Cable to standard thermostat (2)	Nbr x mm <sup>2</sup>	10 x 0.22							
Insulated refrigerant piping	Suction	1-1/8"	1-1/8"	1-1/8"	2 x 1-1/8"	2 x 1-1/8"	2 x 1-3/8"	2 x 1-3/8"	
	Liquid	1/2"	1/2"	5/8"	2 x 1/2"	2 x 5/8"	2 x 7/8"	2 x 7/8"	
Evaporator fan VIR at nominal airflow (3)	Airflow	m <sup>3</sup> /h	4 590	4 590	7 500	9 000	10 500	13 000	16 000
	Standard ESP	Pa	172		153	150	178	170	240
	ESP with HSD	Pa	267		242	203	277	289	399
	ESP with HSDM	Pa	267		242	203	277	289	399
Nett dimensions outdoor VAC / VAH	Height	mm	1 230	1 230	1 382	1 378 / 1 429	1 378 / 1 429	1 534	1 534
	Length	mm	882	882	882	1 627	1 627	1 627	1 627
	Depth	mm	1 354	1 354	1 354	1 453	1 453	2 099	2 099
Nett dimensions indoor VIR	Height	mm	592		665	764	764	838	838
	Length	mm	1360		1740	2240	2240	2653	2653
	Depth	mm	785		785	772	772	892	892
Nett weight	VAC / VAH	kg	227	228	250	470	483	610	610
	VIR	kg	128		173	223	223	310	312

(1) For information only. These should be checked for compliance with local regulations depending also on installation and conductor type.

(2) Shield type cable only. (3) ESP = External static pressure HSD = High speed drive HSDM = High speed drive and motor

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

**Please note indoor and outdoor units can no longer be purchased as individual items, they can only be supplied as a matching pair to comprise the Split Rooftop system.**

Vitality Split Rooftop systems comprise of following matched pairs:

CODES	PRODUCT	OLD PRODUCT	CODES	PRODUCT	OLD PRODUCT
S661522073	<b>VIRSAC20AB (Blue fin)</b>	VAC20AB + VIR 25 AB (Blue fin)	S662532073	<b>VIRSAH20AB (Blue fin)</b>	VAH20AB + VIR 25 AB (Blue fin)
S661522573	<b>VIRSAC25AB (Blue fin)</b>	VAC25AB + VIR 25 AB (Blue fin)	S662532573	<b>VIRSAH25AB (Blue fin)</b>	VAH25AB + VIR 25 AB (Blue fin)
S661523073	<b>VIRSAC30AB (Blue fin)</b>	VAC30AB + VIR 40 AB (Blue fin)	S662533073	<b>VIRSAH30AB (Blue fin)</b>	VAH30AB + VIR 40 AB (Blue fin)
S661524673	<b>VIRSAC45AB (Blue fin)</b>	VAC45AB + VIR 45 AB (Blue fin)	S662534673	<b>VIRSAH45AB (Blue fin)</b>	VAH45AB + VIR 45 AB (Blue fin)
S661526173	<b>VIRSAC60AB (Blue fin)</b>	VAC60AB + VIR 60 AB (Blue fin)	S662536173	<b>VIRSAH60AB (Blue fin)</b>	VAH60AB + VIR 60 AB (Blue fin)
S661527673	<b>VIRSAC75AB (Blue fin)</b>	VAC75AB + VIR 75 AB (Blue fin)	S662537673	<b>VIRSAH75AB (Blue fin)</b>	VAH75AB + VIR 75 AB (Blue fin)
S661529173	<b>VIRSAC90AB (Blue fin)</b>	VAC90AB + VIR 90 AB (Blue fin)	S662539173	<b>VIRSAH90AB (Blue fin)</b>	VAH90AB + VIR 90 AB (Blue fin)



Manufacturer reserves the rights to change specifications without prior notice.

# Accessories or options

## Compatibility table / Codes

VITALITY UNITS								
Cooling only models		VAC 20 AB	VAC 25 AB	VAC 30 AB	VAC 45 AB	VAC 60 AB	VAC 75 AB	VAC 90 AB
		S661522073	S661522573	S661523073	S661524673	S661526173	S661527673	S661529173
Heat pump models		VAH 20 AB	VAH 25 AB	VAH 30 AB	VAH 45 AB	VAH 60 AB	VAH 75 AB	VAH 90 AB
		S662532073	S662532573	S662533073	S662534673	S662536173	S662537673	S662539173
Thermostat								
Delivered with the unit		DPC-1						
YNK2Open Gateway BACnet / IP - JCI Metasys N2	S606791244	A	A	A	A	A	A	A
YNK2Open Gateway Modbus TCP / IP - JCI Metasys N2	S606791245	A	A	A	A	A	A	A
Accessories or options for outdoor units								
VAC/VAH models		20AB	25AB	30AB	45AB	60AB	75AB	90AB
Low Ambient Kit	S606819974	0	0	0				
	S606819975				0	0	0	0
Soft start compressor	S606744692	0	0	0				
	S606744693				0	0	0	0
Alarm relay board	S606791243	O/A	O/A	O/A	O/A	O/A	O/A	O/A
Copper-copper coil	Contact us	0	0	0	0	0	0	0
Accessories or options for indoor units								
VIR models		25A	40AB	45AB	60AB	75AB	90AB	
Electrical Heaters (inside the unit) (cable 20 m included)	10 kW (1 stage)	S611763704	O/A					
	15 kW (1 stage)	S611763714	O/A					
	10 kW (1 stage)	S611763724		O/A				
	20 kW (2 stages)	S611763734		O/A				
	15 kW (1 stage)	S611763744			O/A	O/A		
	30 kW (2 stages)	S611763754			O/A	O/A		
	30 kW (2 stages)	S611763764					O/A	O/A
	40 kW (2 stages)	S611763774					O/A	O/A
50 m connecting cable	1 stage	S611763780	A	A	A	A		
	2 stages	S611763781		A	A	A	A	
Economizer or Motorised damper (dry bulb sensors included) (cable 20 m included)	S613994250	A						
	S613994400		A					
	S613994450			A	A			
Indoor air quality	S613994750					A	A	
	S606819964	A	A	A	A	A	A	
	S611082513	O						
Hot water coil and control (cable 20 m included)	S611084010		O					
	S611084512			O	O			
	S611087510					O	O	
50 m communication cable (Economizer/HWC)	S611087520 *	A	A	A	A	A	A	
	S613995450			A	A			
Return fan	S613995750					A	A	
	S669482502	O						
Vertical discharge Kit	S669484002		O					
	S669486002			O	O			
	S669487502					O	O	
Indoor fan smooth start up to 5,5 kW	S606744690	O	O	O	O	O	O	
	S611991087	O						
	S611991089		O					
High speed drive	S611991091			O		O		
	S611991092				O			
	S611991095						O	
	S611991088	O						
High speed drive and motor	S611991090			O				
	S611991093				O			
	S611991094					O		
	S611991096						O	

O = Option (factory fitted) A = Accessory (supplied loose) O/A = If you want this item factory fitted, precise it in the order form

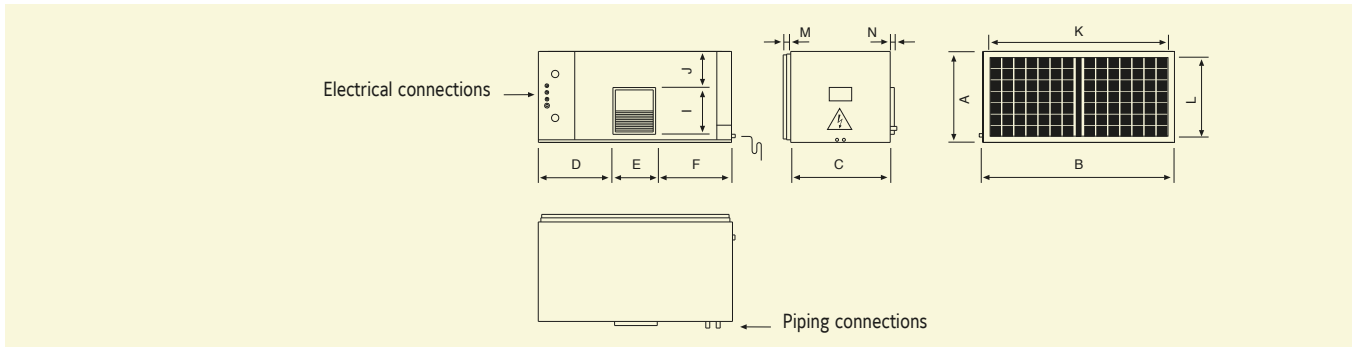
(1) Factory fitted, for horizontal airflow only.

\* If the unit is equipped with economizer and hot water coil, only 1 communication cable is necessary.

# Indoor units dimensions



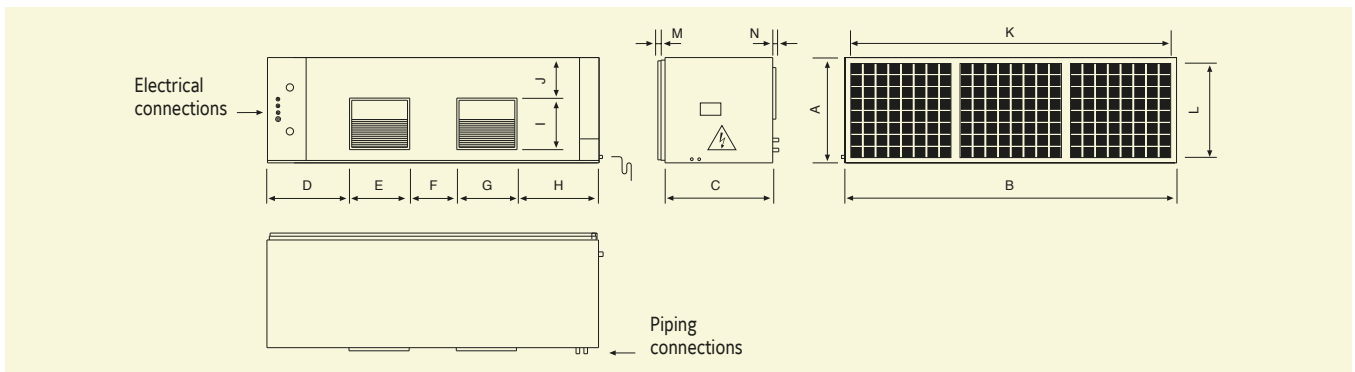
## VIR 25 AB



All dimensions in mm. Drawings not a scale.

Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N
<b>VIR 25 AB</b>	592	1360	785	480	403	480	-	-	347	40	1094	520	21	25

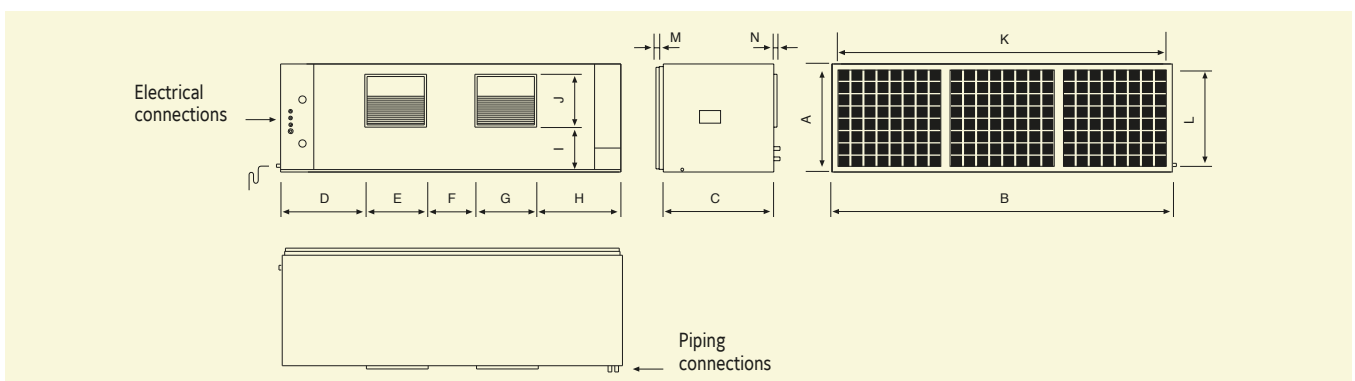
## VIR 40-45-60 AB



All dimensions in mm. Drawings not a scale.

Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N
<b>VIR 40 AB</b>	665	1740	785	442	316	229	316	442	347	79	1337	593	21	25
<b>VIR 45 AB</b>	764	2240	772	567	401	309	401	567	347	79	1920	692	21	25
<b>VIR 60 AB</b>	764	2240	772	567	401	309	401	567	347	79	1920	692	21	25

## VIR 75-90 AB

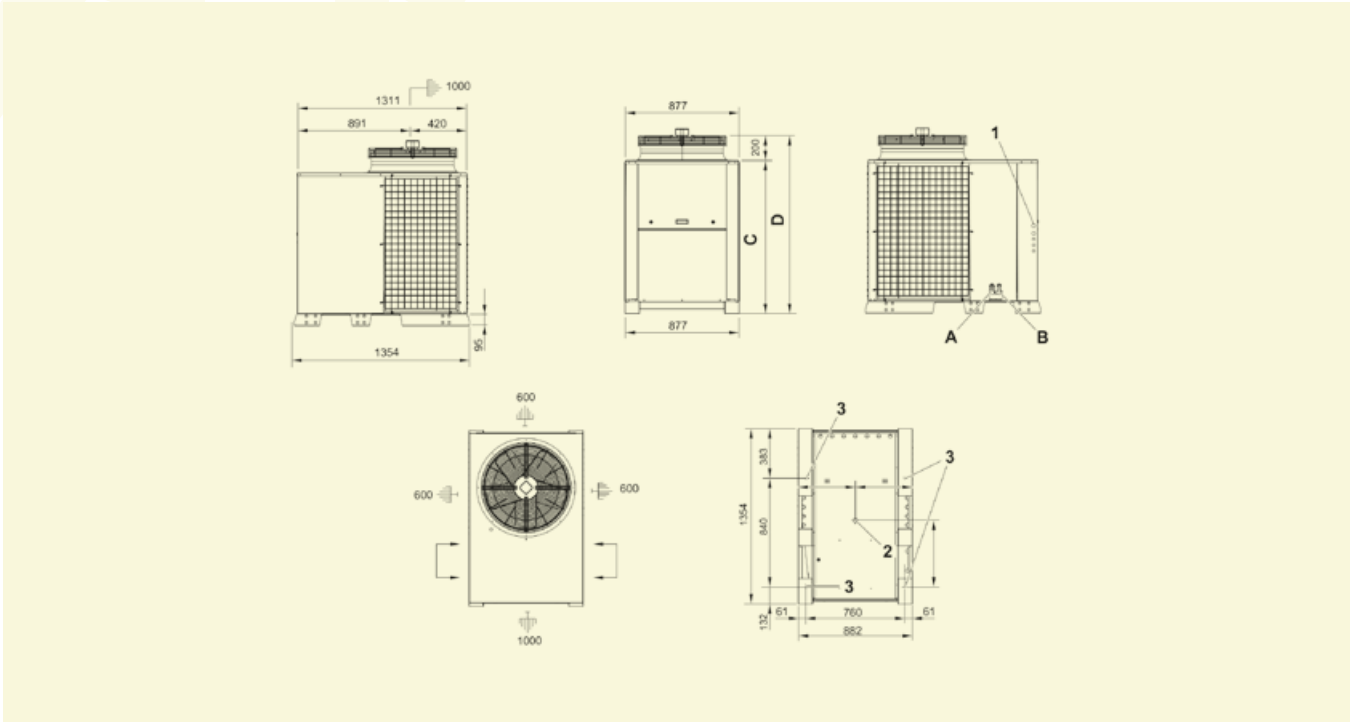


All dimensions in mm. Drawings not a scale.

Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N
<b>VIR 75 AB</b>	838	2653	892	663	478	376	478	663	409	79	2196	766	21	25
<b>VIR 90 AB</b>	838	2653	892	663	478	376	478	663	409	79	2196	766	21	25

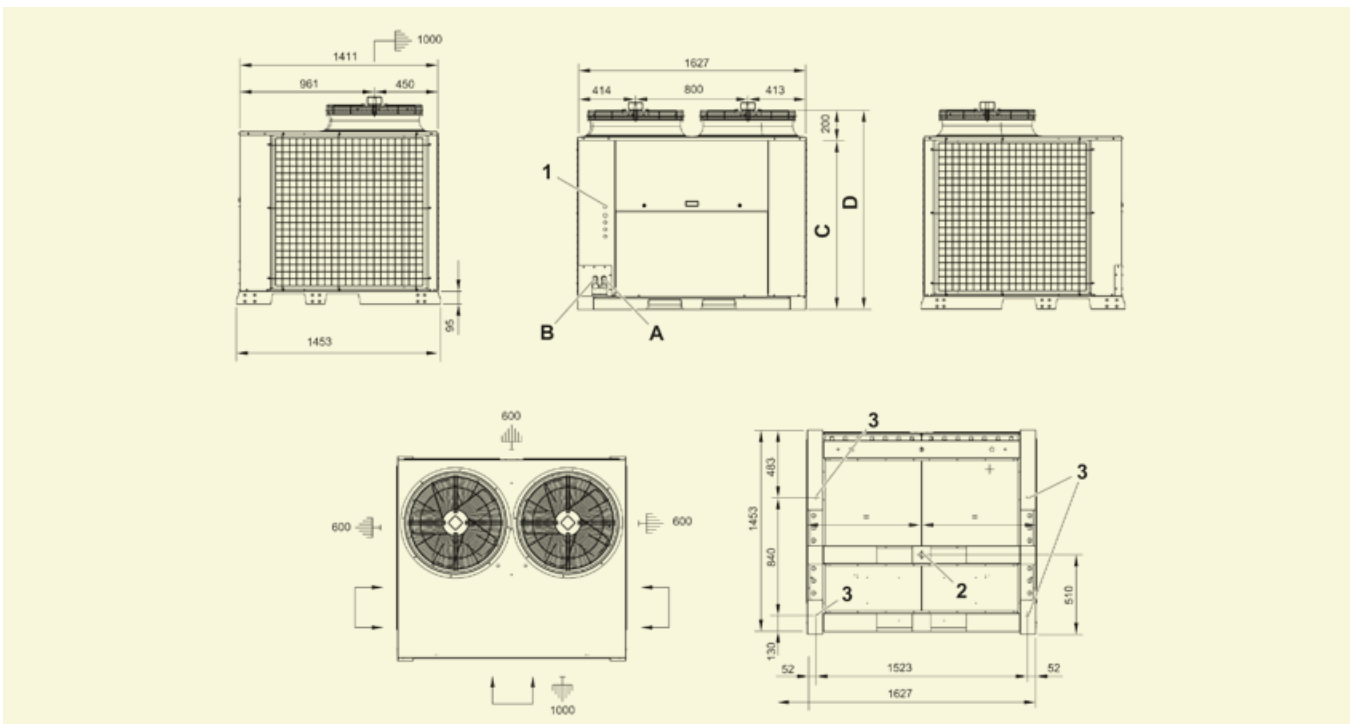
# Dimensions and space requirements for outdoor units

## VAC-VAH 20-25-30 AB



All dimensions in mm. Drawings not a scale.

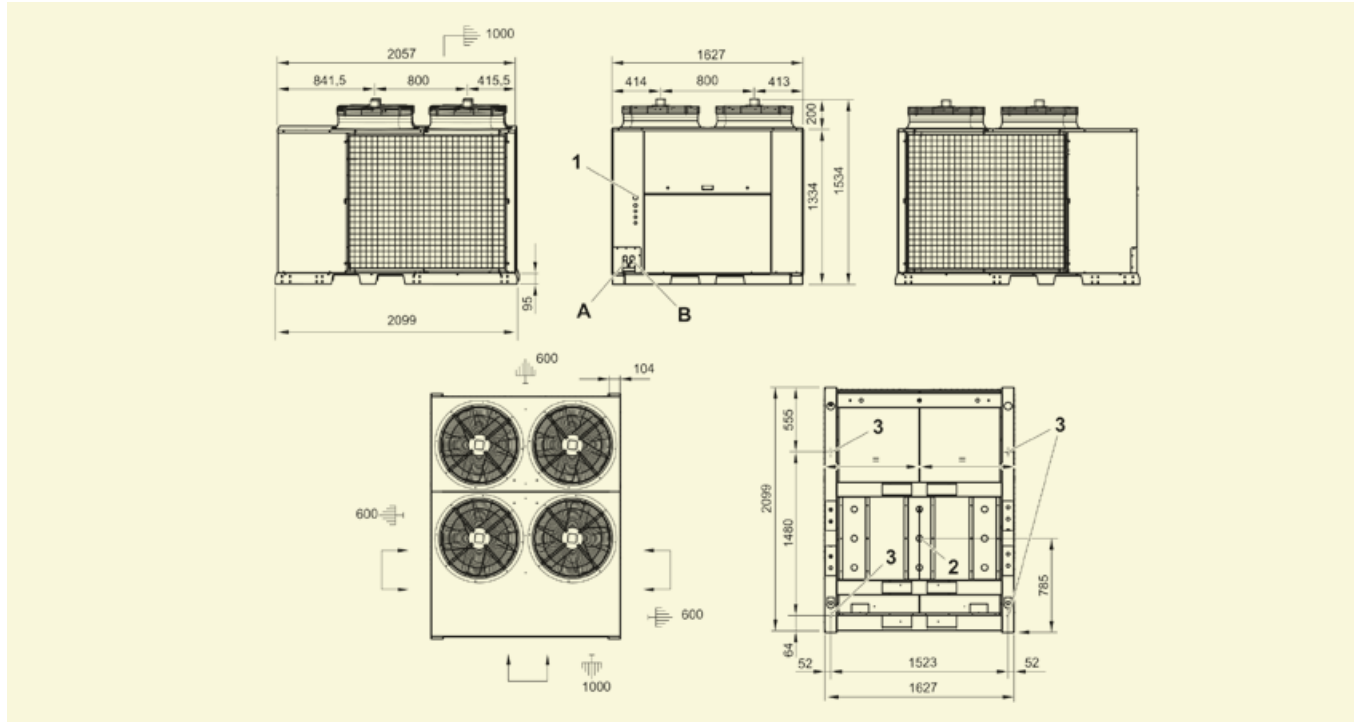
## VAC-VAH 45-60 AB



All dimensions in mm. Drawings not a scale.



VAC-VAH 75-90 AB



All dimensions in mm. Drawings not a scale.

VAC-VAH 20-25-30 AB

	A	B	C	D
Unit	Gas piping diameter	Liquid piping diameter	mm	mm
VAC 20 AB	1-1/8"	1/2"	1030	1230
VAH 20 AB	1-1/8"	1/2"	1030	1230
VAC 25 AB	1-1/8"	1/2"	1030	1230
VAH 25 AB	1-1/8"	1/2"	1030	1230
VAC 30 AB	1-1/8"	5/8"	1182	1382
VAH 30 AB	1-1/8"	5/8"	1182	1382

VAC-VAH 45-60 AB

	A	B	C	D
Unit	Gas piping diameter	Liquid piping diameter	mm	mm
VAC 45 AB	2 x 1-1/8"	2 x 1/2"	1178	1378
VAH 45 AB	2 x 1-1/8"	2 x 1/2"	1129	1429
VAC 60 AB	2 x 1-1/8"	2 x 5/8"	1178	1378
VAH 60 AB	2 x 1-1/8"	2 x 5/8"	1129	1429

VAC-VAH 75-90 AB

	A	B	C	D
Unit	Gas piping diameter	Liquid piping diameter	mm	mm
VAC 75 AB	2 x 1-3/8"	2 x 7/8"	-	-
VAH 75 AB	2 x 1-3/8"	2 x 7/8"	-	-
VAC 90 AB	2 x 1-3/8"	2 x 7/8"	-	-
VAH 90 AB	2 x 1-3/8"	2 x 7/8"	-	-

# Selection Tool for Advanced Rooftops - S.T.A.R.

Johnson Controls continues the improvement of the selection software for Packaged and Commercial Split Systems called YORK® S.T.A.R – Selection Tool for Advanced Rooftop. By installing new releases, available through Virtual Branch portal, the selection tool is updated periodically with the aim to help and simplify the product selection and quotation process.



**EQUIPMENT DATA SHEET**

Product name: York split  
Customer: Software version: S.T.A.R. Rel.  
Model: 402.02.00 Location date: 10/10/2013

**Model: YPC 022 HE**

**ACCESSORIES:**  
 - Evaporator or condenser air cleaner with fan hood  
 - Hot water coil  
 - Energy recovery  
 - Frost heat coil

**COOLING PERFORMANCE**

Capacity	100% (kW)	Standard capacity	100% (kW)
Capacity	34.1 (96)	NET SEER	12.7 (369)
Capacity	2.70	Line Power Input	1.07 (309)
NET SEER	12.7 (369)	Refrigerant	40/70
Air temperature	27.2 (81)	Refrigerant	40/70
Air temperature	19.9 (57)	Refrigerant	40/70
Air temperature	27.7 (82)	Refrigerant	40/70
Outdoor air	13.0 (37)	Refrigerant	100/20

**APPLY FACTS**

Factor	1.0%	Factor	1.0%
Power input	0.21 (59)	Power input	0.21 (59)
Air flow rate	6.50 (187)	Available static pressure	23 Pa

**COMPRESSORS**

Model	1.0%	Model	1.0%
Power input	0.21 (59)	Power input	0.21 (59)
Air flow rate	6.50 (187)	Available static pressure	23 Pa

**ELECTRICAL DATA**

Model	100% (kW)	Standard capacity	100% (kW)
Capacity	402.02 (1120)	NET SEER	12.7 (369)
Capacity	30.3 (83)	Line Power Input	1.07 (309)
NET SEER	12.7 (369)	Refrigerant	40/70
Air temperature	27.2 (81)	Refrigerant	40/70
Air temperature	19.9 (57)	Refrigerant	40/70
Air temperature	27.7 (82)	Refrigerant	40/70
Outdoor air	13.0 (37)	Refrigerant	100/20

10/10/2013 YORK S.T.A.R. 1.0 Page 1 of 1

**EQUIPMENT DATA SHEET**

Product name: York split  
Customer: Software version: S.T.A.R. Rel.  
Model: 402.02.00 Location date: 10/10/2013

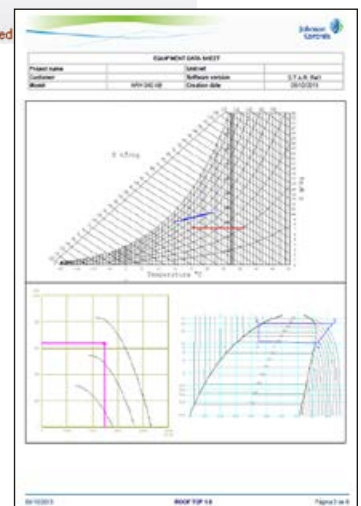
**ELECTRICAL DATA**

Model	100% (kW)	Standard capacity	100% (kW)
Capacity	402.02 (1120)	NET SEER	12.7 (369)
Capacity	30.3 (83)	Line Power Input	1.07 (309)
NET SEER	12.7 (369)	Refrigerant	40/70
Air temperature	27.2 (81)	Refrigerant	40/70
Air temperature	19.9 (57)	Refrigerant	40/70
Air temperature	27.7 (82)	Refrigerant	40/70
Outdoor air	13.0 (37)	Refrigerant	100/20

**CONDENSATION AND DEWPOINT**

Model	100% (kW)	Standard capacity	100% (kW)
Capacity	402.02 (1120)	NET SEER	12.7 (369)
Capacity	30.3 (83)	Line Power Input	1.07 (309)
NET SEER	12.7 (369)	Refrigerant	40/70
Air temperature	27.2 (81)	Refrigerant	40/70
Air temperature	19.9 (57)	Refrigerant	40/70
Air temperature	27.7 (82)	Refrigerant	40/70
Outdoor air	13.0 (37)	Refrigerant	100/20

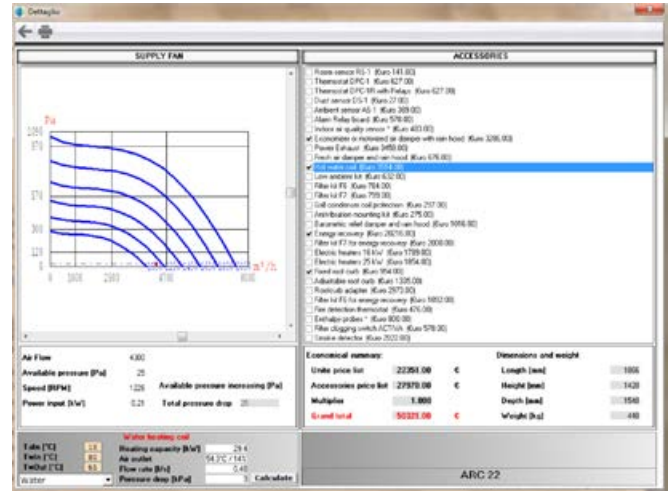
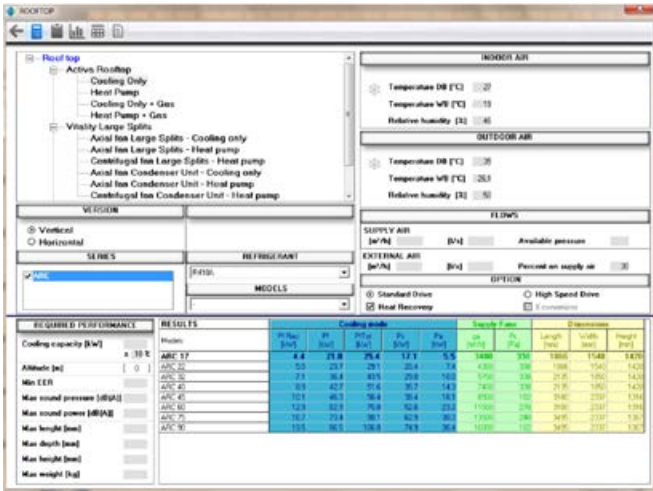
10/10/2013 YORK S.T.A.R. 1.0 Page 1 of 1





Using S.T.A.R you will be able to select:

- The ACTIVA Rooftop range units
- Roomtop units (RTC/RTH)
- Vitality Large Split units (including condenser units only)



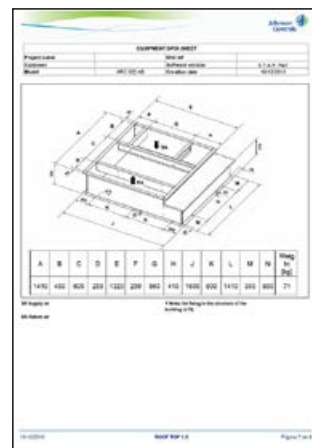
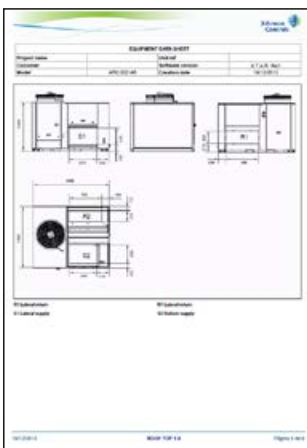
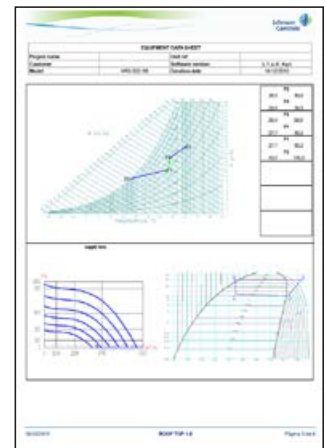
In addition, the selection of some key options are possible.

For instance: **economizer, enthalpy wheel, high pressure drive, hot water coil** for the ACTIVA Rooftops 17-40 and 45-90.

The tool allows **extracting reports easily in different formats** (editable and non editable).

S.T.A.R. is currently available in English, Spanish, Polish and Italian. The tool can be translated to other languages if required.

\* Call your JCI Sales Representative and request access now.





# Comprehensive Solutions

INDUSTRIAL REFRIGERATION

VERASYS™ CONFIGURABLE BUILDING  
CONTROLS SYSTEM FOR SMARTER BUILDINGS

METASYS® BUILDING AUTOMATION AND  
CONTROL SYSTEMS

# Industrial refrigeration



Johnson Controls Industrial Refrigeration designs, manufactures, tests, installs and commissions highly efficient and environmentally sustainable refrigeration solutions for the demanding conditions encountered in industrial environments.

## SABROE HeatPAC HPO/HPC heat pumps

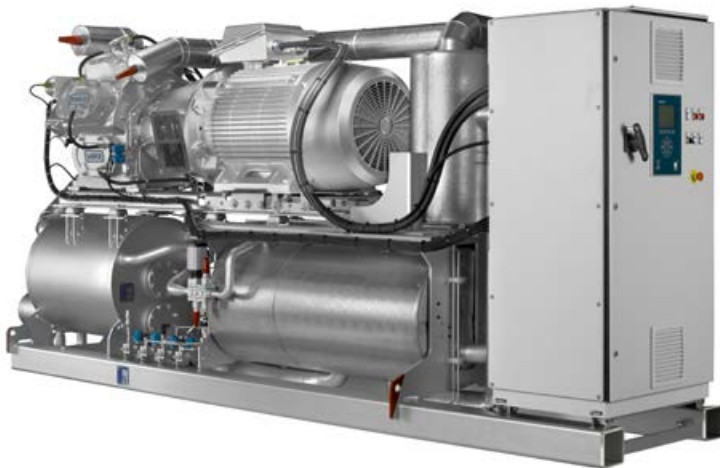


Ammonia-based heat pumps using a reciprocating compressor, with a 300–2000 kW capacity range

SABROE HeatPAC units are extremely compact heat pumps based on ultra-reliable SABROE HPO/HPC high-pressure reciprocating compressors, using ammonia as refrigerant. They are usually most cost-effective when fitted with a variable-speed drive (VSD) that makes it easy to deal with changing conditions and different operating requirements.

These highly customisable integrated units are based on a unique vibration-resistant design, featuring a unique flooded evaporating system. They provide exceptional heat pump capacity from the smallest possible footprint, and with only a very small refrigerant charge.

SABROE HeatPAC heat pumps are the ideal solution for effectively exploiting low-temperature waste heat, and turning it into hot water (up to 75 °C), using only a minimum of electrical energy. These units are designed to provide a cost-effective way to tackle needs for cooling and heating at the same time, providing an extremely high coefficient of performance (COP).



### Main benefits

- High reliability – proven components
- Fast installation – quick start-up
- High efficiency – high saving potential.

### Options

- Cascade evaporator
- Variable-speed drive (VSD)
- Soft-starter or Y/D starter
- De-superheater
- Subcooler
- Control panel mounted separately
- Customer-witnessed factory acceptance tests (FAT).

### HeatPAC packaged ammonia heat pumps

Type	Heating capacity kW	Cooling capacity kW	Line Power consumption kW	CO <sub>2</sub> line heat	R717 charge kg	Dry weight kg	Dimensions			Sound level dB(A)
							L mm	W mm	H mm	
HeatPAC 24-W	310	263	50	6,1	29	2020	2800	1000	2000	75
HeatPAC 26-W	465	395	76	6,1	38	2230	2850	1000	2000	76
HeatPAC 28-W	620	527	101	6,1	48	2420	2900	1000	2000	77
HeatPAC 104-W	731	618	120	6,1	55	2630	3050	1000	2000	81
HeatPAC 106-W	1081	911	180	6	74	3300	3750	1000	2000	82
HeatPAC 108-W	1441	1216	239	6	87	3950	4050	1000	2000	83
HeatPAC 112-W	2075	1735	345	6	110	5270	5050	1000	2100	85

Condenser water inlet +60 °C, outlet +70 °C / Evaporator water inlet +39 °C, outlet +34 °C

W = Heat pump unit water/water

All data and nominal capacities kW at 1800 rpm. All HeatPACs: 60 Hz or VSD operation possible.

Sound pressure levels in free field, over reflecting plane and one metre distance from the unit.

Manufacturer reserves the rights to change specifications without prior notice.



# SABROE HeatPAC HPX heat pumps



Single-stage high-pressure ammonia-based heat pumps, using a reciprocating compressor, with a 300–1300 kW capacity range

SABROE HeatPAC™ HPX heat pumps are compact units with an integrated single-stage configuration that features less than half the space and weight requirements of any other heat pump designs usually needed to achieve 90 °C hot water outputs.

These energy-efficient units feature a breakthrough HPX hybrid compressor design that allows differential pressures as high as 40 bar and discharge pressures as high as 60 bar, combined with space-saving evaporator technology from the ChillPAC™ packaged ammonia chiller.

HeatPAC HPX heat pumps make it easy to produce hot water at temperatures up to 90 °C, using any suitable source of low-temperature heat, with only tiny energy inputs needed.

They provide a low-cost supply of hot water at temperatures ideal for sterilisation and pasteurisation – as well as many other hygiene-sensitive functions and processes.



## Options

- Cascade evaporator
- Subcooler
- Control panel mounted separately
- Customer-witnessed factory acceptance tests (FAT).

## HeatPAC HPX ammonia heat pumps

Type	Heating capacity kW	Cooling capacity kW	E-motor	COP line heat	R717 charge kg	Dry weight kg	Dimensions			Sound level dB(A)
							L mm	W mm	H mm	
HeatPAC 704-W	338.7	266.7	91	4.2	19	3500	3500	1000	2100	83
HeatPAC 706-W	508.1	400.2	136	4.2	29	4200	3700	1000	2100	85
HeatPAC 708-W	677.5	533.6	200	4.2	35	5000	4100	1000	2100	86
HeatPAC 712-W	1016	800.6	303	4.2	55	6250	4700	1000	2100	87
HeatPAC 716-W	1355	1067	345	4.2	75	7000	6000	1000	2100	88

Condenser water inlet +70°C, outlet +90°C. Evaporator water inlet +39°C, outlet +34°C.

Capacities are nominal at 1800 rpm.

W = Heat pump unit water/water.

VSD drive is standard.

Sound pressure levels in free field, over reflecting plane and one meter distance from the unit.

Manufacturer reserves the rights to change specifications without prior notice.



# SABROE DualPAC heat pumps



## Two-stage ammonia-based heat pumps with capacities of up to 2500 kW

SABROE DualPAC heat pumps combine ChillPAC, HeatPAC and HeatPAC HPX units into one single heat pump, using an ingenious modular system that makes it possible to achieve high temperature lifts, with the advantages of compact design and attractive operating economics.

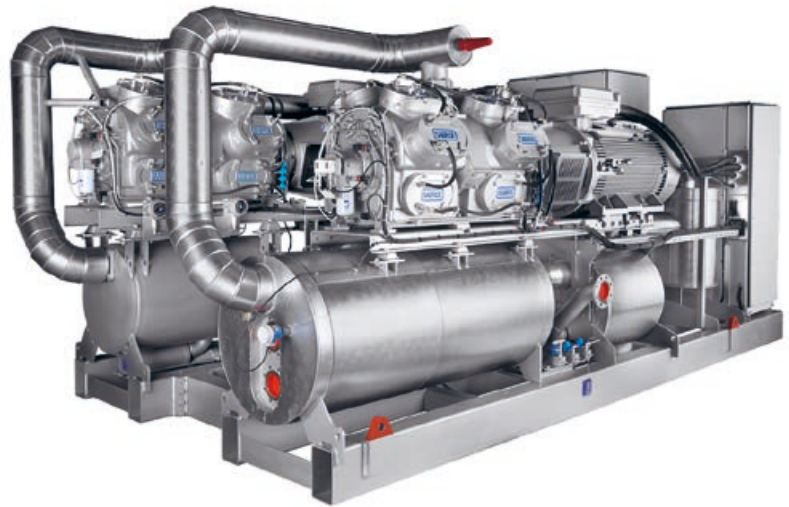
The DualPAC is a two-stage high-temperature heat pump configuration that uses ammonia as refrigerant, and is designed with the sole aim of best possible performance and versatile operating conditions along with the same practical benefits – including small refrigerant charges and limited footprint – as any other SABROE heat pump. This unique setup ensures maximum flexibility in both configuration and capabilities, because all standard ChillPAC and HeatPAC models can be used.

The setup is possible due to a purpose-designed open inter-stage cooler that operates with a minimal refrigerant charge.

The DualPAC benefits from all of the advantages of the ChillPAC and HeatPAC product ranges, based on patented SABROE evaporator and condenser designs along with the most extensive range of reciprocating compressors available anywhere in the world, and featuring configurations with HPO/HPC or HPX compressors as the high stage and SMC compressors on the low stage.

Within the extensive portfolio of SABROE heat pumps, these dual versions are ideal wherever there is a need for big temperature lifts along with good performance in order to make the installation financially advantageous.

The DualPAC configuration is optimised for use in district heating and ground-source cooling, so that thermal energy can be put to the most cost-effective use. The water circuit on the hot side consists of a series of heat exchangers built into one single vessel that extracts the heat from de-superheating, condensing and subcooling processes. In many cases even de-superheating at the low stage is profitable, and serves to increase performance still further.



### Advantages

Stepless, skip-free capacity control ensures that output always matches requirements

Consistently high performance at both full and part load

Unique two-stage solution featuring patented technology

Space-saving footprint, with fewer moving parts and very low vibration

Supports Condition Based Service (CBS) schedules

### Benefits

Lowest possible operating costs and maximum return on investment

Maximum part-load efficiency and low life cycle costs

Makes it possible to deal with multiple sets of running conditions

Exceptional reliability and low maintenance costs

Optimised service/maintenance intervals, with a minimum of unscheduled downtime

DualPAC heat pumps (Condenser water: inlet +50°C, outlet +70°C / Evaporator water: inlet +30°C, outlet +20°C)

Type	Heating capacity kW	Cooling capacity kW	Power consumption kW (shaft)	COP heat (shaft)	R717 charge kg	Dry weight kg (approx.)	Dimensions in mm (approx.)			Sound level dB(A)
							L	W	H	
DualPAC 24-W	387	312	75	5.1	35	4020	2900	3000	2000	82
DualPAC 26-W	581	455	115	5.0	40	4460	2900	3000	2000	83
DualPAC 28-W	775	619	155	4.9	45	4840	2900	3000	2000	84
DualPAC 104-W	935	745	189	4.9	65	5500	4500	3000	2000	84
DualPAC 106-W	1388	1109	282	4.9	70	6700	5000	3000	2000	85
DualPAC 108-W	1850	1471	379	4.8	95	7890	6000	3000	2200	86
DualPAC 112-W	2777	2190	584	4.7	115	10450	7500	3000	2200	86
DualPAC 704-W	435	348	86	5.0	40	6500	3500	3000	2100	86
DualPAC 706-W	652	520	132	4.9	45	7900	3700	3000	2100	86
DualPAC 708-W	870	690	180	4.8	55	10000	4100	3000	2100	87
DualPAC 712-W	1305	1025	280	4.6	75	13500	5000	3000	2100	88
DualPAC 716-W	1740	1365	375	3.6	115	16500	6000	3000	2100	89

DualPAC heat pumps (Condenser water: inlet +70°C, outlet +90°C / Evaporator water: inlet +15°C, outlet +5°C)

Type	Heating capacity kW	Cooling capacity kW	Power consumption kW (shaft)	COP heat (shaft)	R717 charge kg	Dry weight kg	Dimensions in mm (approx.)			Sound level dB(A)
							L	W	H	
DualPAC 704-W	444	308	140	3.1	40	6500	3500	3000	2100	86
DualPAC 706-W	666	460	212	3.3	45	7900	3700	3000	2100	86
DualPAC 708-W	888	610	287	3.0	55	10000	4100	3000	2100	87
DualPAC 712-W	1332	907	441	3.0	75	13500	5000	3000	2100	88
DualPAC 716-W	1775	1205	595	2.9	115	16500	6000	3000	2100	89

Please contact your SABROE representative for availability.

Manufacturer reserves the rights to change specifications without prior notice.



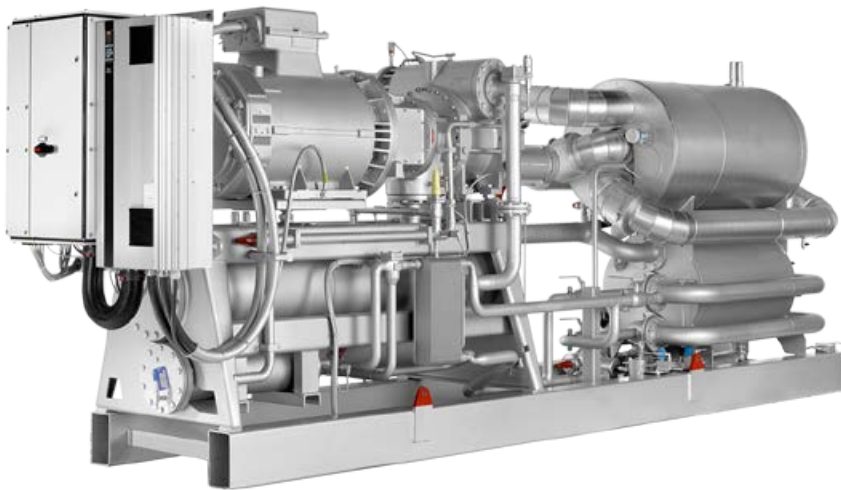
# SABROE ComPAC chillers



## Packaged ammonia chillers based on screw compressors, with a 200–2200 kW capacity range

SABROE ComPAC ammonia chillers based on plate-and-shell heat exchangers and the comprehensive SABROE screw compressor programme (SAB 120–151 to SAB 193–233 and SABflex) are distinctive for their compactness. Frequency converter and panel solutions are supplied as standard.

ComPAC chillers with capacities below 1400 kW use the ultra-compact and extremely low-charge SABROE-patented plate-and-shell heat exchangers. Chillers with capacities above 1400 kW use condensers and evaporators of premium quality, integrated into a unique vibration-resistant design.



### Range

There are 13 different standard models in this range of ComPAC chillers – both high- and low-temperature versions.

A comprehensive range of equipment options are available to ensure the best possible performance and application versatility.

### Options

- Variable-speed drive (VSD)
- Soft-starter or Y/D starter
- Sound enclosure for outdoors mounting
- External condenser
- Control panel mounted separately
- Economiser option for low-temperature brine
- Customer-witnessed factory acceptance tests (FAT)
- Heater package for low-temperature operation
- Shunt solution for high-temperature difference.

### Advantages

Factory-assembled, pre-tested packaged units based on renowned SABROE screw compressors

Compact design with a very small footprint compared with bespoke chiller designs

Indirect cooling and uncomplicated flooded evaporating system, using natural ammonia (R717) only

Exceptional COP and outstanding part-load performance

Small refrigerant charge, smaller than conventional chiller charges due to the special condenser/evaporator design

### Benefits

Easy pre-commissioning makes installation and running-in both faster and cheaper. Factory acceptance tests (FAT) available (as an option)

Lower unit cost and lower installation costs

Major savings on both weight and space. Much less need for expensive separate machinery rooms

Greater safety and outstanding reliability

Greater cooling effect from a smaller refrigerant charge, and optimum load structure over the entire capacity range



## ComPAC water chillers (water: inlet +12°C, outlet +7°C)

Type	Cooling capacity kW	E-motor	R717 charge kg	Dry weight kg	Dimensions in mm			Sound level dB(A)	SEPR
					L	W	H		
ComPAC 120 S-A	190	55	21	3600	4600	1200	2300	85	6.99
ComPAC 120 M-A	316	78	26	3800	4700	1200	2300	86	7.4
ComPAC 120 L-A	401	97	29	4000	4800	1200	2300	87	7.62 *
ComPAC 120 E-A	539	142	36	5200	5000	1200	2300	89	7.81
ComPAC 151 S-A	615	142	38	5500	5000	1200	2300	91	8.53
ComPAC 151 M-A	737	172	44	5800	5100	1200	2300	92	8.4
ComPAC 151 L-A	932	217	51	5900	5300	1200	2300	92	8.59
ComPAC Flex-A	950	315	54	5700	5500	1200	2300	89	8.01
ComPAC 151 E-A	1116	279	59	6300	5600	1200	2300	93	8.5
ComPAC 193 S-A	1067	222	57	7100	5600	1500	2400	85	9.51
ComPAC 193 L-A	1447	327	159	7400	6100	1500	2400	85	10.3 *
ComPAC 233 S-A	1976	410	238	13000	7000	1500	2400	86	11.39
ComPAC 233 L-A	2305	536	297	15000	7100	1500	2400	86	9.34

Condenser: Water inlet 30 °C, outlet 35 °C.

All data and nominal capacities kW at 3600 rpm

Flex at 6000 rpm

ComPAC 120S at 1470 rpm

\* Unit used for letter of compliance for ECO-design

Sound pressure levels in free field, over reflecting plane and one metre distance from the unit.

SEPR = Seasonal Energy Performance Ratio

Available with high-pressure compressors as HeatPAC.

## ComPAC brine chillers (Ethylene glycol 30%: inlet -2°C, outlet -8°C)

Type	Cooling capacity kW	E-motor	R717 charge kg	Dry weight kg	Dimensions in mm			Sound level dB(A)	SEPR
					L	W	H		
ComPAC 120 S-A	109	45	21	3600	4500	1200	2300	85	4.03
ComPAC 120 M-A	177	78	26	3800	4600	1200	2300	86	4.38
ComPAC 120 L-A	224	93	29	4000	4700	1200	2300	87	4.45
ComPAC 120 E-A	297	114	36	5200	4900	1200	2300	89	4.51 *
ComPAC 151 S-A	344	140	38	5500	4900	1200	2300	91	4.69
ComPAC 151 M-A	410	175	44	5800	5000	1200	2300	92	4.68
ComPAC 151 L-A	517	217	51	5900	5200	1200	2300	92	4.73
ComPAC Flex-A	541	200	54	5700	5400	1200	2300	89	4.64
ComPAC 151 E-A	620	269	59	6300	5500	1200	2300	93	4.77
ComPAC 193 S-A	597	217	57	7100	5500	1500	2400	85	4.95
ComPAC 193 L-A	798	279	71	7400	6000	1500	2400	85	4.91
ComPAC 233 S-A	1053	410	75	13000	6900	1500	2400	86	5.29
ComPAC 233 L-A	1362	472	225	15000	7000	1500	2400	86	5.34

Condenser: Water inlet 30 °C, outlet 35 °C.

All data and nominal capacities kW at 3600 rpm

Flex at 6000 rpm

ComPAC 120S at 1470 rpm

\* Unit used for letter of compliance for ECO-design

Sound pressure levels in free field, over reflecting plane and one metre distance from the unit.

SEPR = Seasonal Energy Performance Ratio

Available with high-pressure compressors as HeatPAC.

# SABROE ChillPAC



## Extremely compact packaged ammonia chillers based on reciprocating compressors, with a 100–1400 kW capacity range

ChillPAC ammonia-based chillers feature an ultra-compact format so narrow that they can even pass through a normal doorway. This is achieved by having an extra-compact shell-and-plate evaporator/condenser, oil separator and control system all built in and fully integrated into a unique vibration-resistant design.

This means ChillPAC units provide exceptional refrigeration capacity – taking full advantage of the many different models of ultra-reliable Sabroe reciprocating compressors – while only taking up a minimum of space. This makes ChillPAC units ideal in installations where space is limited, and where there are restrictions on the refrigerant charge used.

ChillPAC chillers are most cost-effective when fitted with a variable-speed drive (VSD) that makes it easy to deal with changing circumstances and different operating requirements.



### Range

There are 20 different models in the standard ChillPAC range, with capacities ranging from 90 kW to 1398 kW.

### Main benefits

- Fast installation – quick start-up
- High reliability – 100% factory-tested
- Minimised life cycle costs
- High safety standards – small refrigerant charge.

### Options

- Variable-speed drive (VSD)
- Soft-starter or Y/D starter
- De-superheater
- Sub-cooler
- External condenser
- Control panel mounted separately
- S and L models: 1800 rpm at 60 Hz or VSD
- Customer-witnessed factory acceptance tests (FAT)
- Heater package for low-temperature heat pump operation
- Shunt solution for high-temperature difference.

### Advantages

Factory-assembled, pre-tested packaged units based on Sabroe reciprocating compressors world-renowned for their reliability

Exceptionally compact design and fully integrated configuration results in less than half the footprint of bespoke chiller designs

Indirect cooling and uncomplicated flooded evaporating system, using natural ammonia (R717) only

Exceptional COP and outstanding part-load performance

Refrigerant charge 50% smaller than with conventional chillers, because of special condenser/evaporator design

### Benefits

Easy pre-commissioning makes installation and running-in both faster and cheaper. Factory acceptance tests (FAT) available (as an option)

Major savings on both weight and space, resulting in lower installation costs. Much less need for expensive separate machinery rooms

Greater safety and outstanding reliability

Greater cooling effect from a smaller refrigerant charge, and optimum load structure over the entire capacity range

Higher output per unit kW/kg refrigerant, lower unit cost and lower installation costs.

ChillPAC water chillers (water: inlet +12°C, outlet +7°C)

Type	Cooling capacity kW	E-motor	R717 charge kg	Dry weight kg	Dimensions			Sound level dB(A)	SEPR
					L mm	W mm	H mm		
ChillPAC 24	117	29	10	2000	2900	1000	2000	72	11.59
ChillPAC 34	137	32	10	2000	2900	1000	2000	72	10.75
ChillPAC 26	176	39	14	2050	2900	1000	2000	72	10.5
ChillPAC 36	205	48	14	2100	2900	1000	2000	73	10.6
ChillPAC 28	233	48	15	2150	2900	1000	2000	73	10.61
ChillPAC 38	275	66	16	2900	2900	1000	2000	74	10.63
ChillPAC 104 S-A	273	66	15	2300	2900	1000	2000	80	9.33
ChillPAC 104 L-A	361	79	21	2410	2900	1000	2000	83	11.02
ChillPAC 104 E-A *	369	74	19	2652	2900	1000	2000	80	9.86
ChillPAC 106 S-A	406	91	20	2727	2900	1000	2000	83	9.67 **
ChillPAC 106 L-A	544	113	27	2950	2900	1000	2000	79	10.86
ChillPAC 106 E-A *	553	110	27	3225	3100	1000	2000	81	9.96
ChillPAC 108 S-A	573	113	28	3060	2900	1000	2000	84	10.64
ChillPAC 108 L-A	709	142	31	3526	3100	1000	2000	85	10.63
ChillPAC 108 E-A *	729	162	34	2880	3300	1000	2000	84	9.91
ChillPAC 112 S-A	851	177	40	4315	4000	1000	2200	86	10.39
ChillPAC 112 L-A	1055	200	46	4738	4500	1000	2200	86	10.45
ChillPAC 112 E-A *	1076	245	50	5196	4600	1000	2200	84	9.87
ChillPAC 116 S-A	1114	245	51	5044	4500	1000	2200	86	10.36
ChillPAC 116 L-A	1348	303	53	5556	4700	1000	2200	87	10.18
ChillPAC 116 E-A *	1350	290	53	5878	5000	1000	2200	85	9.3 **

ChillPAC brine chillers (ethylene glycol 30%: inlet -2°C, outlet -8°C)

Type	Cooling capacity kW	E-motor	R717 charge kg	Dry weight kg	Dimensions			Sound level dB(A)	SEPR
					L mm	W mm	H mm		
ChillPAC 24	61	22	10	2000	2900	1000	2000	73	5.44
ChillPAC 34	70	29	10	2000	2900	1000	2000	73	5.41
ChillPAC 26	87	30	10	2000	2900	1000	2000	73	5.37
ChillPAC 36	100	38	10	2050	2900	1000	2000	73	5.27
ChillPAC 28	114	46	11	2100	2900	1000	2000	74	5.24
ChillPAC 38	133	46	12	2250	2900	1000	2000	74	5.19
ChillPAC 104 S-C	140	54	13	2253	2900	1000	2000	78	5.21
ChillPAC 104 L-C	180	72	15	2378	2900	1000	2000	79	5.23
ChillPAC 104 E-C *	185	73	15	2586	2900	1000	2000	79	5.12
ChillPAC 106 S-C	208	72	16	2505	2900	1000	2000	80	5.2
ChillPAC 106 L-C	269	91	20	2701	2900	1000	2000	80	5.27
ChillPAC 106 E-C *	280	91	22	2866	2900	1000	2000	80	5.26
ChillPAC 108 S-C	280	91	22	2766	2900	1000	2000	82	5.36
ChillPAC 108 L-C	362	136	26	3091	3100	1000	2000	82	5.45 **
ChillPAC 108 E-C *	369	136	26	3523	3300	1000	2000	82	5.23
ChillPAC 112 S-C	419	136	32	3696	3800	1000	2200	83	5.38
ChillPAC 112 L-C	534	200	37	4290	4200	1000	2200	83	5.4
ChillPAC 112 E-C *	546	200	38	4733	4300	1000	2200	83	5.26
ChillPAC 116 S-C	547	200	38	4390	4200	1000	2200	83	5.38
ChillPAC 116 L-C	699	245	47	4898	4300	1000	2200	83	5.38
ChillPAC 116 E-C *	705	245	46	5322	4300	1000	2200	83	5.11

Condenser: water inlet 30 °C, outlet 35 °C.

The above data are only valid for the stated temperatures and operating conditions.

Capacities are nominal at 1800 rpm.

\* capacities are nominal at 1500 rpm.

\*\* Unit used for letter of compliance for ECO-design

Sound pressure levels in free field, over reflecting plane and one metre distance from the unit.



Manufacturer reserves the rights to change specifications without prior notice.



# SABROE SABlight

## SABlight air-cooled chillers



Compact air-cooled chillers for outdoor installation, based on a screw compressor, with a 174-430 kW capacity range. The SABlight air-cooled chiller is a particularly compact design that uses V-coil condensers to substantially reduce the overall footprint resulting in a height of 2.9 m and a width of only 1.3 m. SABlight units provide a cost-effective alternative to traditional air conditioning, chilled rooms and industrial/process refrigeration. They are designed for quiet running and outdoor operation. SABlight uses a small propane refrigerant charge, providing an attractive, economical and environmentally responsible alternative to air-cooled chillers that use HFCs as refrigerant.



### Standard equipment

- Control and monitoring system
- Variable-speed drive
- Hot-dip galvanised base frame
- Screw compressor
- Pre-charged with refrigerant.

### Compliance

All SABlight air-cooled chillers are fully compliant with PED (CE marked and PED approved). Approval in accordance with other classification societies is available on request.

### Options

- External communication via network and industrial-standard bus systems
- Evaporator heating elements for frost-proofing
- Epoxy coating of condenser surface
- Oil cooler
- Models operating with inlet temperatures below 0°C available on request
- Desuperheater
- Oil pump.

### Advantages

Compact design with small footprint

Quiet while running. Available in both low and ultra-low noise versions

Variable-speed drive fitted to both compressor and fans, providing very high coefficient of performance (COP), even under part-load conditions

Designed for maximum safety, with very small natural refrigerant charge (propane R290)

Easy to mount, install and connect up

Straightforward, uncomplicated construction

### Benefits

Easy to mount outdoors – no special machinery room required

Can be placed close to occupied buildings

Low power consumption, which means low operating costs

No expenditure on special safety precautions

Low installation costs and rapid commissioning

Low maintenance costs

### SABlight air-cooled chillers

Type	Cooling capacity kW	Power consumption kW	COP ESEER	R290 charge kg	Dry weight kg	Dimensions			Nominal load current A	Sound level dB(A)	SEPR
						L mm	W mm	H mm			
SABlight A140-1	166	54	4.42	24	2300	5260	1250	2835	100	55	5.08
SABlight A140-2	163	55	4.63	24	2300	5260	1250	2835	105	45	5.49
SABlight A200-1	210	71	4.51	24	2500	5260	1250	2835	135	55	5.26
SABlight A200-2	208	71	4.48	32	3000	6660	1250	2835	140	45	5.47
SABlight A260-1	277	92	4.57	32	3000	6660	1250	2835	170	55	5.20
SABlight A260-2	274	94	4.52	40	3300	8060	1250	2835	170	45	5.39
SABlight A340-1	324	101	4.70	40	3700	8060	1250	2835	190	55	5.22
SABlight A340-2	314	106	4.55	48	4200	9460	1250	2915	195	45	5.49
SABlight A400-1	406	133	4.31	48	4600	9460	1250	2915	245	55	5.03
SABlight A400-2	390	140	4.15	56	5000	10860	1250	2915	250	45	4.95

Capacities are nominal and based on water temperature 12/7°C / ambient temperature 35°C

Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 10 m.

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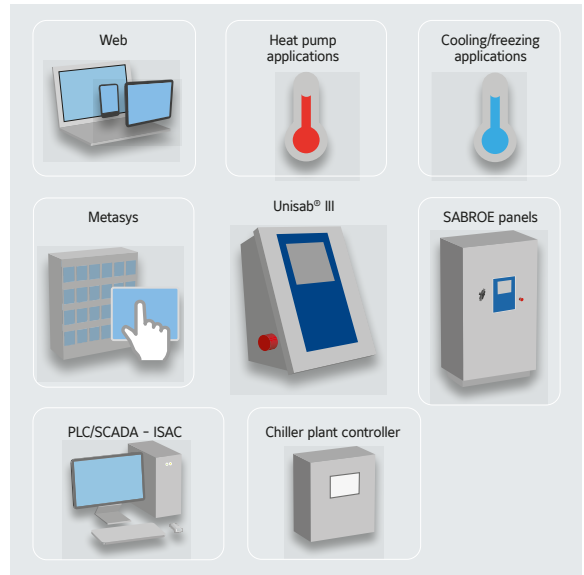


# SABROE Unisab III

Integrated systems controller for refrigeration compressors, chillers and heat pumps

Unisab III systems controllers are connectivity hubs that help make sure refrigeration installations have the best possible performance, maximum uptime and lowest possible operating costs.

These important control units are pre-equipped and pre-configured with the connectivity equipment and protocols necessary for monitoring and controlling a wide range of compressors, compressor packages, chillers and heat pumps – as well as using this data for fault-finding and analysis.



# SABROE Chiller Plant Controller (CPC)

Integrated solution for managing and monitoring the controls equipment in chiller plants



The SABROE chiller plant controller is a compact, easy-to-install control panel that contains a pre-programmed PLC system and touch panel for monitoring and controlling a wide range of external equipment that is not part of the chiller itself, but that serves the chilled water distribution system as well as other key equipment in the chiller plant.

# SABROE Intelligent Remote Information Services (iRIS)

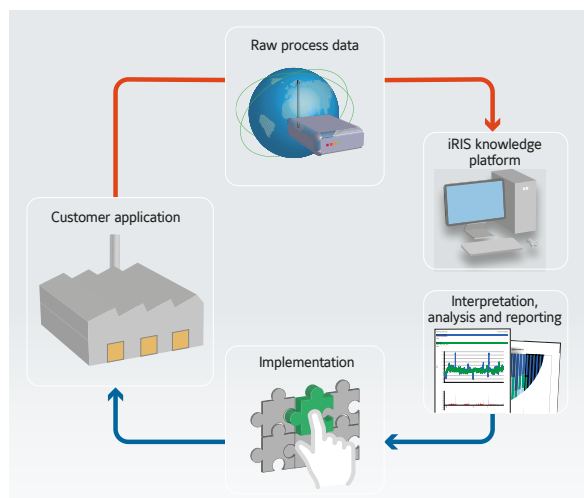
Intelligent reporting and documentation system for optimising plant performance

Intelligent Remote Information Services (iRIS) is a unique SABROE software platform (managed by Johnson Controls) that registers, captures and collates performance data from all types of industrial refrigeration and thermal transfer equipment.

The iRIS system processes data such as:

- Load distribution and power consumption
- Performance patterns and fluctuations over time
- Statistics for shutdowns and alarms to reveal any irregularities in operation
- Comparisons and benchmarking between the different plants in a company, and operations in different countries.

The iRIS system is part of a complete service concept, working on the basis of information collected and structured by the iRIS server to form different reports and services. These are available by subscription, tailored to the requirements of each individual installation.



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# Configurable building controls system for smarter buildings

For Light Commercial Building Controls

Enterprises have more options to reduce costs and increase control of HVAC, refrigeration and lighting equipment. Verasys™ is a new plug-and-play control system with less complexity and more capabilities. It streamlines installation, commissioning, and servicing, and provides access to critical data – when you need it and where you need it – to help facilities perform at peak levels.

Verasys provides a simple user experience with configurable controllers (without tools), creating the first plug-and-play experience integrating HVACR equipment and controls for a certified system that's compliant for energy efficient operations.

## Making buildings smarter by optimizing equipment.

The Verasys control system leverages smart equipment technology from any manufacturer. Verasys is a straightforward, easy way to control and optimize single-site and multi-site enterprises. All mechanical equipment seamlessly connect to it and self-identify without requiring any special programming tools. As a result, you can take advantage of a new level of insight into building operations, and provide facilities that better serve occupants.

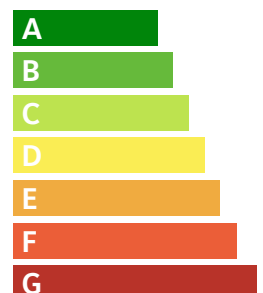


## Smart, integrated control. Simplified and supported.

Verasys gives users remote access over a secure internet connection. Plus, optional fault detection and diagnostics deliver alarm notifications immediately via email or text, and user-friendly graphics provide easy access to critical facility information to help minimize the risk of unplanned downtime and costly repairs. You can take advantage of predictive technologies solutions that deliver the quality and value your enterprise requires.

Enhanced energy efficient control for smaller commercial buildings allow for an even higher energy class according to the EN15232. The advantage is that a facility owner can move from an average class D to a class A. The key to this efficiency is demand control, where the consumer spaces/rooms send the energy demands signals/requirements to the heating/cooling equipment. Matching the demand side and the supply side guarantees an energy efficient system overall.

Whether it's one site, or one thousand, Verasys provides an advanced level of control flexibility, including scheduling, alarming, setpoints, custom trending, and more. It communicates using BACnet® MSTP, so Verasys is expandable to any BACnet® compliant system. And it works with third-party package equipment for greater application flexibility and to protect existing investments.



## Leveraging Smart Equipment from Johnson Controls.

Smart Equipment from Johnson Controls identifies embedded equipment that has advanced technology and smarts already embedded. Verasys takes full advantage of our Smart Equipment technology. It provides real-time performance data. No programming or commissioning tools. No engineering required. Just plug-and-play.

The primary benefit of Smart Equipment is that it already has controls embedded by the manufacturer. This means it can connect seamlessly to controls systems like Verasys. It uses on-board controls to support data analytics, including fault detection, to support proactive maintenance and minimize downtime. Plus, control products/devices that are capable of controlling equipment without a supervisory controller provide a user interface experience. This allows it to self-discover and/or communicate with other Smart Equipment. In short, Smart Equipment helps maximize control for greater efficiency, extended equipment life and reduced operating costs.

To see how you can take advantage of Smart Equipment, visit [www.getsmartequipment.com](http://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.

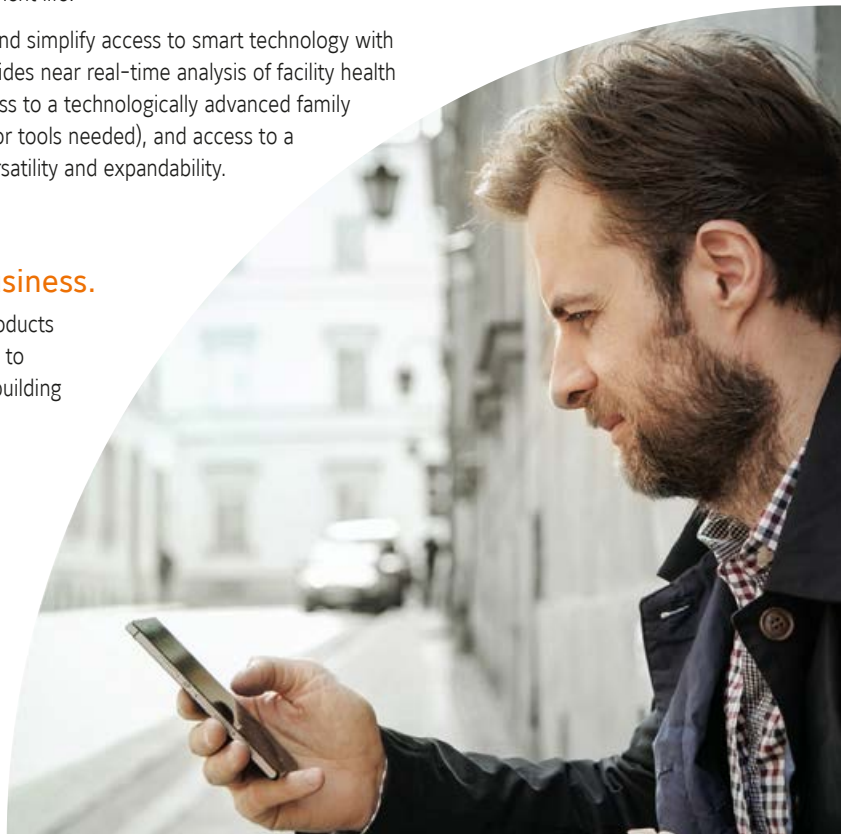
You also have the opportunity to save operating costs and simplify access to smart technology with Verasys, a complete buildings controls system that provides near real-time analysis of facility health and performance for optimal uptime. This includes access to a technologically advanced family of controllers 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.

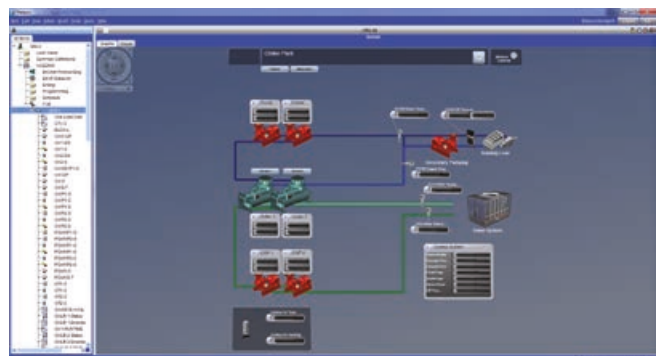
## Ease of use

- 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



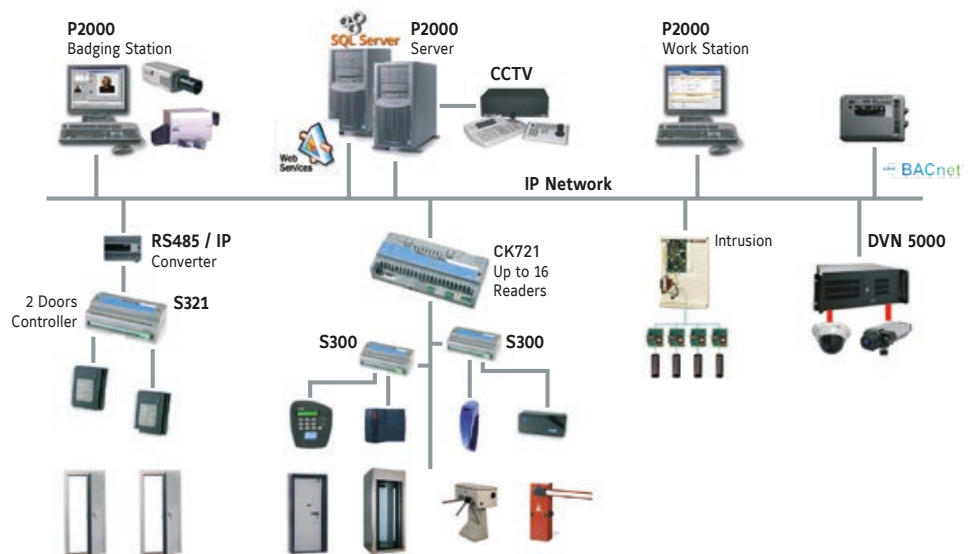
### Wireless Capabilities

- 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.



### 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.



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# Metasys® Energy Dashboard

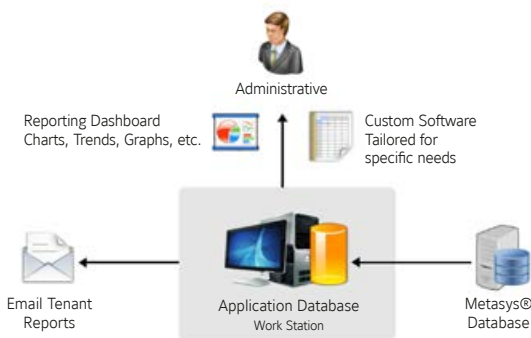
Metasys® Energy Dashboard is a software solution designed specifically for addressing the needs of energy management in all sort of facilities. It enables dynamic visualization and reporting through an intuitive, rich and easy-to-use interface.

Metasys® Energy Dashboard has been conceived using the combination of Johnson Controls global expertise in the fields of building automation, HVACR and energy management projects.

The solution is comprises four main modules allowing a customer to acquire only those that better fit its need. These are: Energy, Equipment, Tenant Billing and Tenant Portal.

## Key features include:

- Intuitive, flexible user interface – fully configurable layout
- Sensible reporting options that come as in-built templates – can start actionable analysis from day 0
- Contextualized, modular structure – catering to the specific needs of respective users
- Caters to energy analysis and reporting, equipment performance monitoring, tenant billing and after hour schedule override needs of the building occupants
- Multiple database sources / site can be integrated simultaneously
- Web based tool - requires no additional hardware, minimal additional software
- Multi-lingual support – English, Dutch, French, Italian, Japanese, Spanish, simplified Chinese

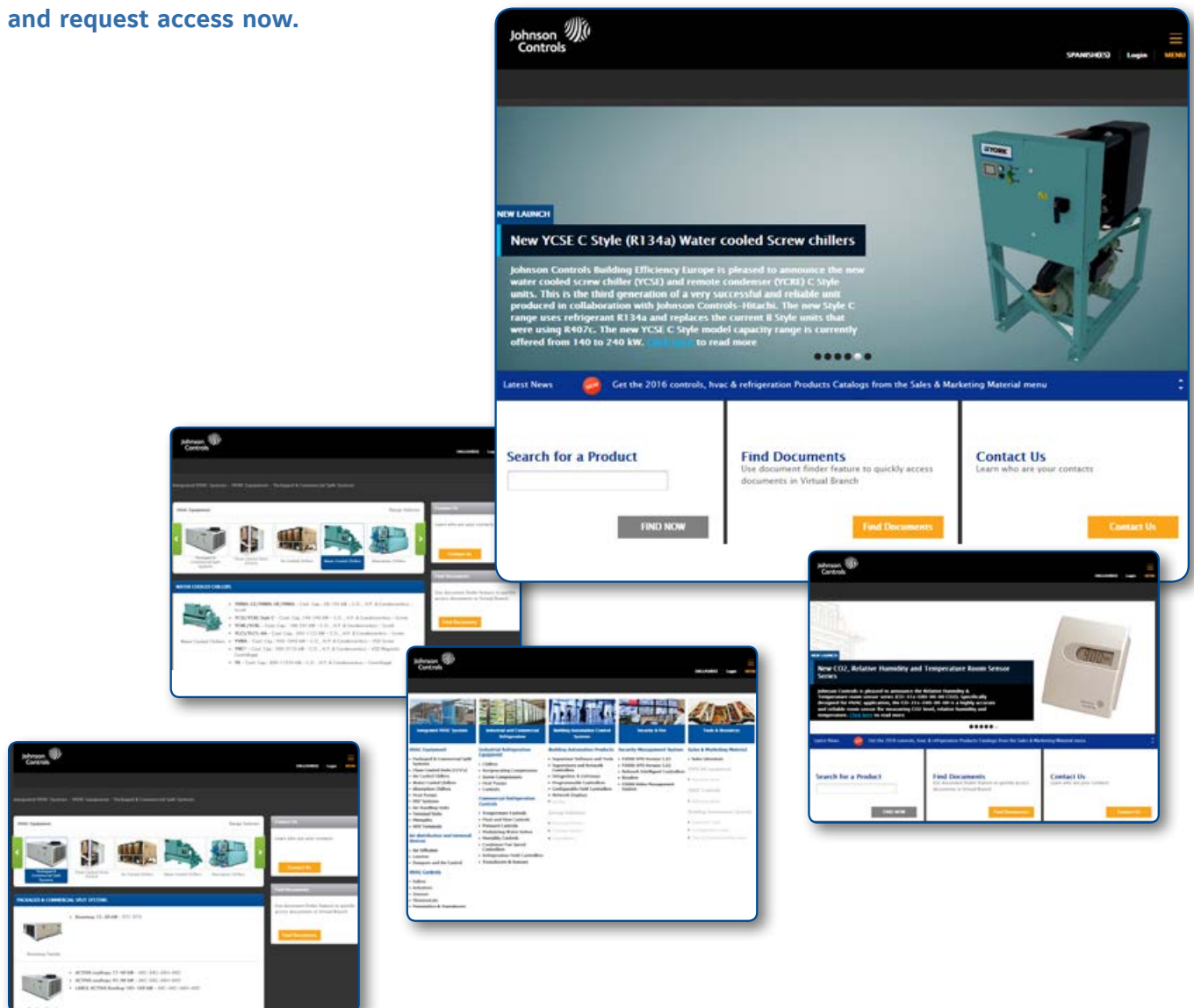


# Johnson Control's eCatalog

Johnson Control's 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.**





### About Johnson Controls

Johnson Controls delivers products, services and solutions that increase energy efficiency and lower operating costs in buildings for more than one million customers.

Operating from 500 branch offices in more than 150 countries, the company is a leading provider of equipment, controls and services for heating, ventilating, air-conditioning, refrigeration and security systems. Johnson Controls is involved in more than 500 renewable energy projects including solar, wind and geothermal technologies.

Its solutions have reduced carbon dioxide emissions by 13.6 million metric tons and generated savings of \$7.5 billion since 2000. Many of the world's largest companies rely on Johnson Controls to manage 1.5 billion square feet of their commercial real estate.

