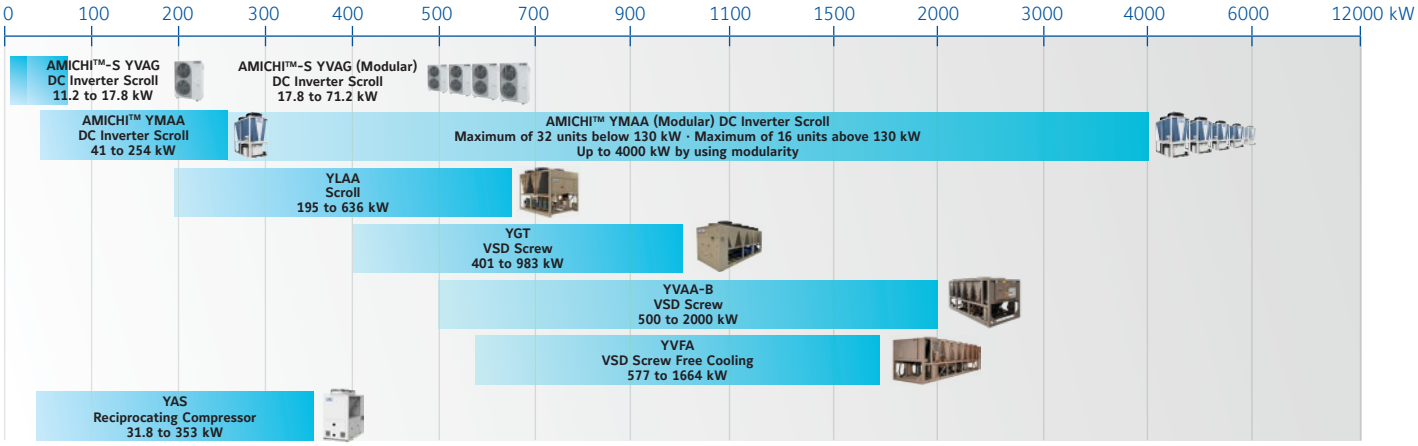
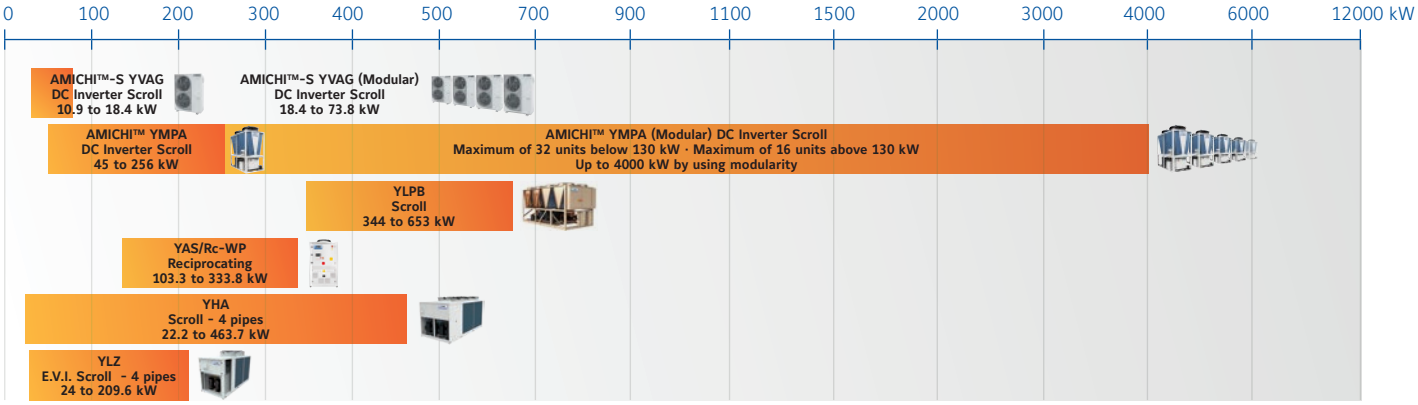
Air-Cooled Chillers and Heat Pumps

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

YORK Chillers Units



YORK Heat Pump Units



Three different compressor technologies for to meet the most challenging requirements

Scroll compressor
YVAG, YMPA, YLAA, YLPB, YHA, YLZ

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

Screw compressor
YGT, YVAA, YVFA

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

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

Reciprocating compressor
YAS, YAS-WP

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

Amichi-S Series
Air cooled Scroll DC Inverter reversible heat pump

YVAG 012 to 018
A complete range from 11.2 kW up to 17.8 kW

R410A

INVERTER

EUROVENT CERTIFIED PERFORMANCE

High Efficiency
Providing the lowest possible operating costs

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

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

Low Sound Optimized

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

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

Perfect Comfort in a Wide Operating Range
Wide operating envelope

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

Easy Installation and Operation
Modular concept

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

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

Exactly control at real time

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

Air cooled Scroll DC Inverter reversible heat pump

YVAG 012 to 018

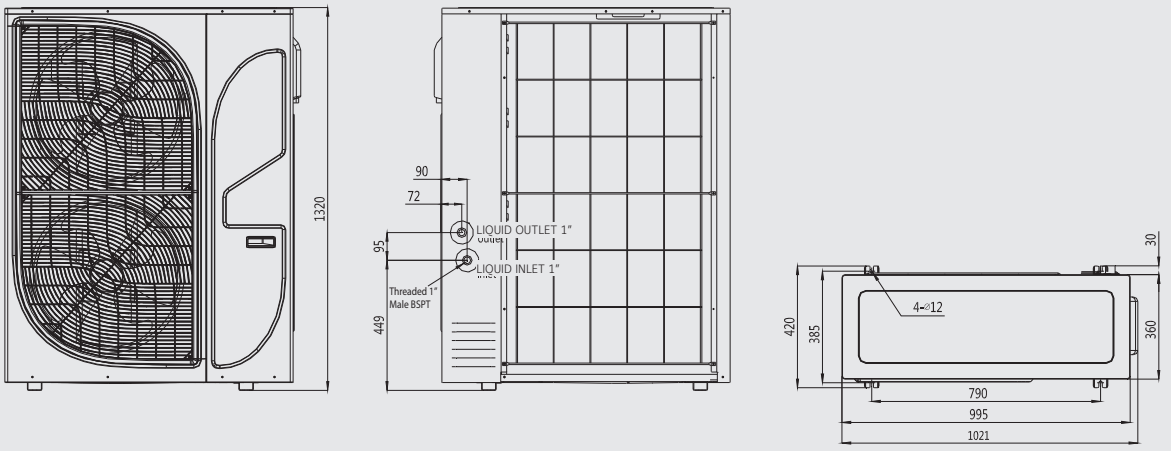
Technical features

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

Net values at Eurovent nominal conditions:
Cooling capacities in kW given for 12/7°C water leaving temperature Δt 5°C and 35°C ambient temperature.
Heating capacities in kW given for 40/45°C water leaving temperature and 7°C ambient temperature.
Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.

Dimensions and hydraulic connections

YVAG 012 to 018



All dimensions in mm. Drawings not in scale.

Manufacturer reserves the rights to change specifications without prior notice.

Amichi Series
Air cooled Scroll DC Inverter reversible heat pump

YMPA 045 to 260
A complete range from 40 kW up to 254 kW

R454B

R410A

INVERTER

SMART EQUIPMENT

EUROVENT CERTIFIED PERFORMANCE

WINNER

Heat Pump Product of the Year
WINNER **ACR AWARDS 2021**

Exceeding Efficiency Standards

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

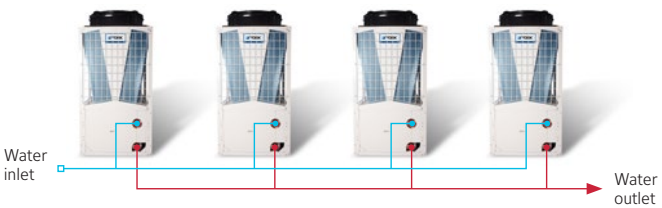
ECODESIGN REGULATIONS CATEGORY:	EFFICIENCY METRIC:	TOMORROW'S STANDARDS MET TODAY:
Comfort Heating	SCOP/ηsh	**Amichi Heat Pump:** Sept. 2017 Compliant (Tier 2)
Comfort Cooling	SEER/ηsc	**Amichi Chiller:** Jan. 2021 Compliant (Tier 2)
Process Cooling (Med. Temp.)	SEPR	**Amichi Chiller:** July 2018 Compliant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

Performance Without Compromise

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

Modular system - Greater design flexibility

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



Air cooled Scroll DC Inverter reversible heat pump

YMPA 045 to 260

YMPA 45 to 260 PJ - technical features for R454B unit

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

Net values at Eurovent nominal conditions:
Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.
Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature.
SEER and SCOP calculated according to EN14511 and EN14825.
ηs calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281).
Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.
All the values are for a standard YMPA with low noise (w/ LN) kits except the cooling capacity, heating capacity and sound power data show both with (w/) and without (w/o) LN kits.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Air cooled Scroll DC Inverter reversible heat pump

YMPA 045 to 260

YMPA 45 to 260 PE - technical features for R410A unit

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

Net values at Eurovent nominal conditions:
Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.
Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature.
SEER and SCOP calculated according to EN14511 and EN14825.
ηs calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281).
Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.
All the values are for a standard YMPA with low noise (w/ LN) kits except the cooling capacity, heating capacity and sound power data show both with (w/) and without (w/o) LN kits.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Manufacturer reserves the rights to change specifications without prior notice.

Advanced Control Made Easy

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

Perfect solution for rental application

- Ambient operating range in cooling mode from -18 to 48°C
- Outstanding minimum leaving fluid temperature, down to -12°C
- Power quick connector CEE17 for main power (400/3/50, 3P+G) and 220V compressor heater (in chiller panel)
- Water quick connector Camlock (EN14420-7)
- Gate valves for water inlet/outlet connections
- Condenser coil: Gold fin pre-coating and wire mesh around coil
- Chiller IP54 and control panel IP55
- Low Sound compressor enclosure
- Available ESP up to 200 kPa at standard conditions
- Rental Panel (by request)
- Connected Service Kit (by request)
- Perfect solution for Ice-Rink rental applications

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

Safety is our priority

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

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

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

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

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

Toxicity

Source: ASHRAE Standard 34 Safety Classification

Customized hermetic scroll compressors designed for A2L refrigerant

Optimized plate heat exchanger, suitable for R454B application

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

Leakage detective sensor equipped to detect any gas leakage

Amichi Series
Air cooled Scroll DC Inverter reversible heat pump

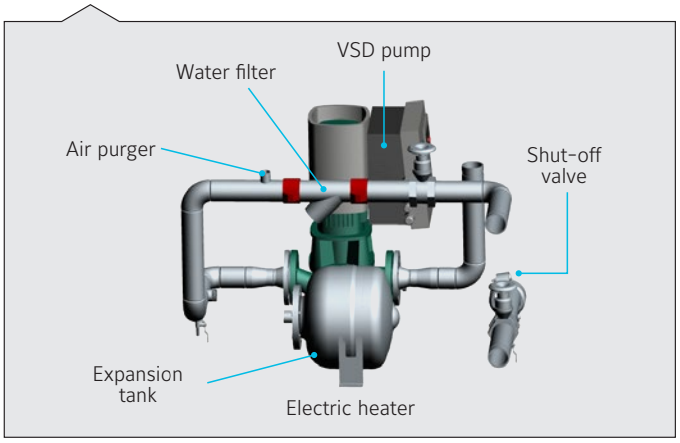
Main features

EC Fans

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

Hydronic Kit

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



Easy installation

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

High performance and flexibility

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

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

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

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

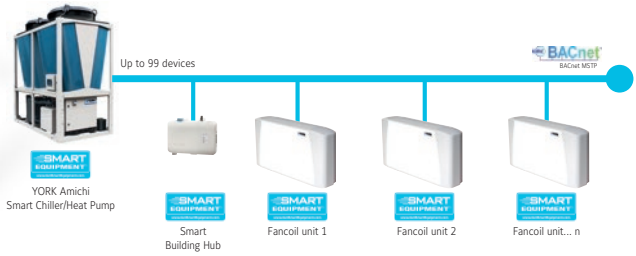
YMPA 230 and 260
230kW and 260kW
7-8 compressors
4 circuits

Amichi Series
Air cooled Scroll DC Inverter reversible heat pump

Main features

Always connected

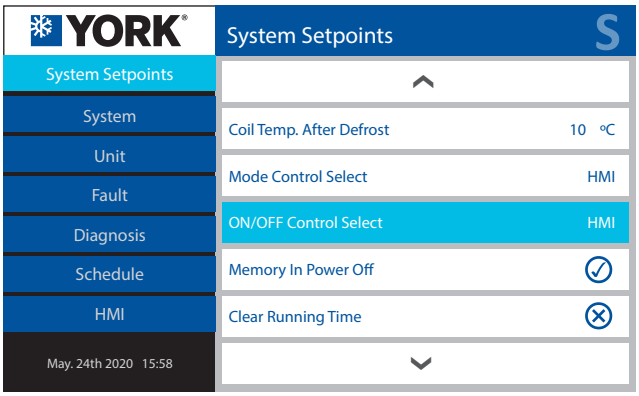
- BACnet and Modbus communication protocol as standard.



Easy to set up

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

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



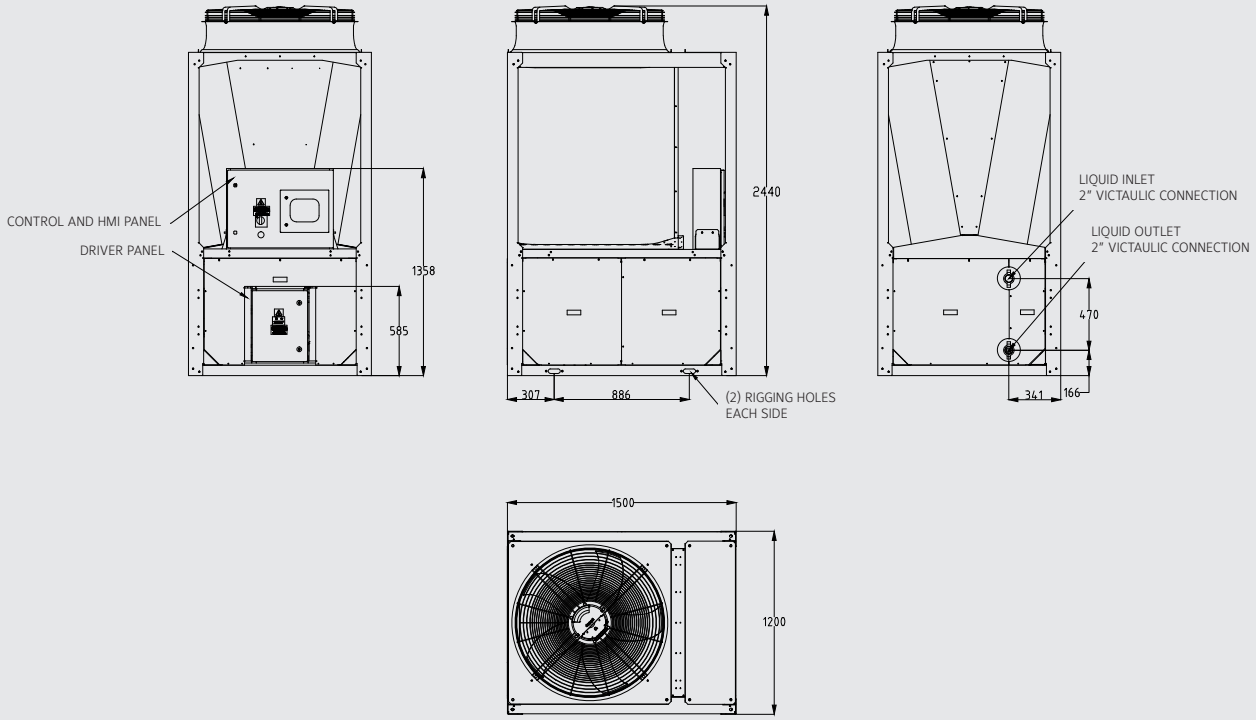
Maximum reliability

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

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

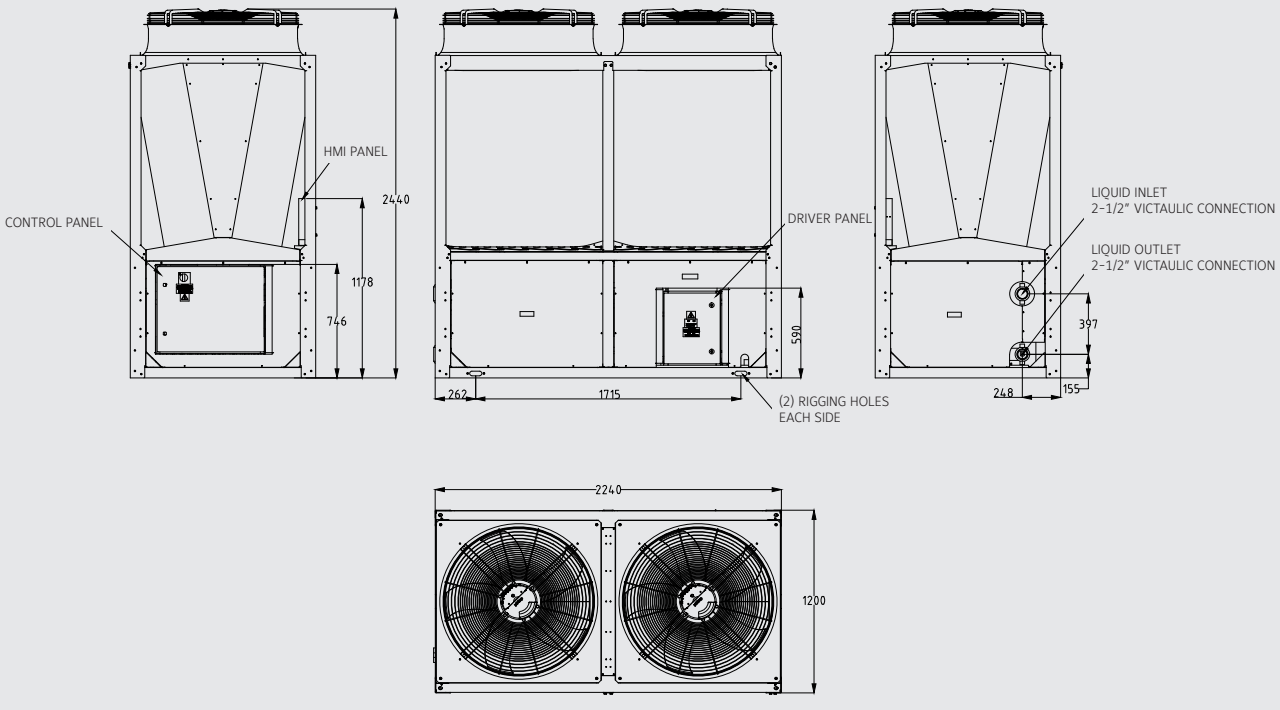
Dimensions and hydraulic connections

YMPA 045 and 065 Single unit



All dimensions in mm. Drawings not in scale.

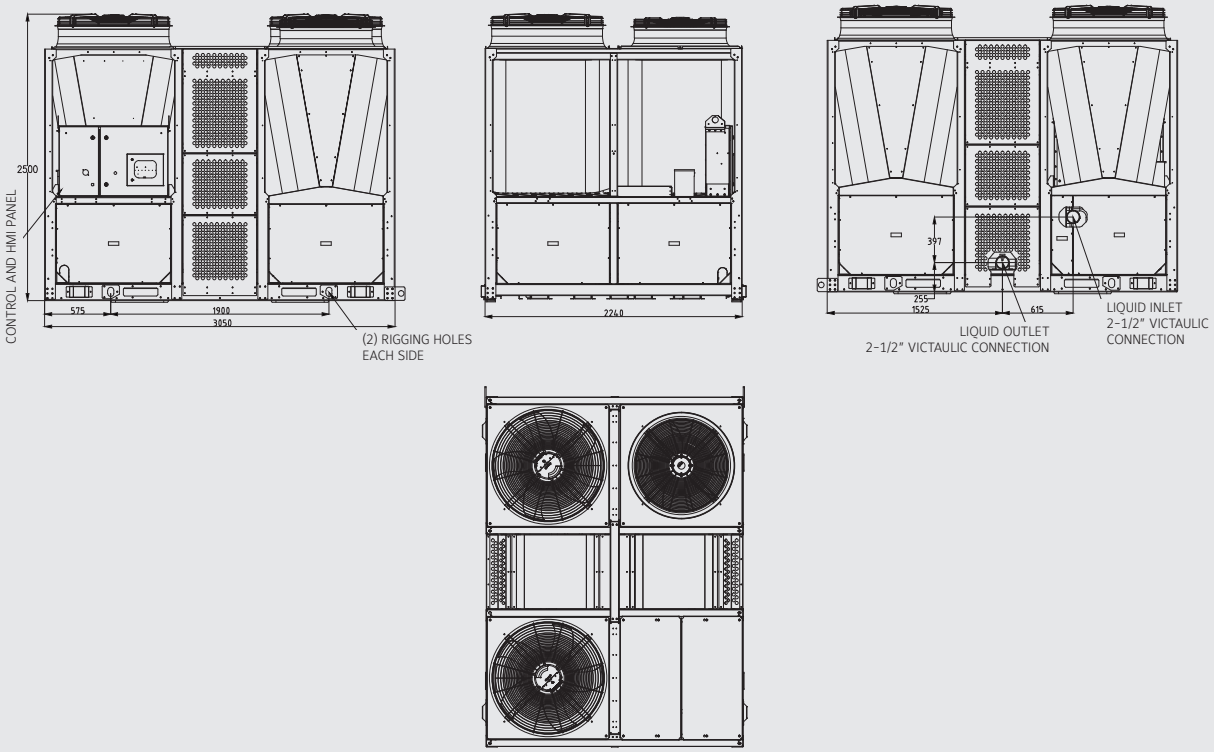
YMPA 080 to 130 Single unit



All dimensions in mm. Drawings not in scale.

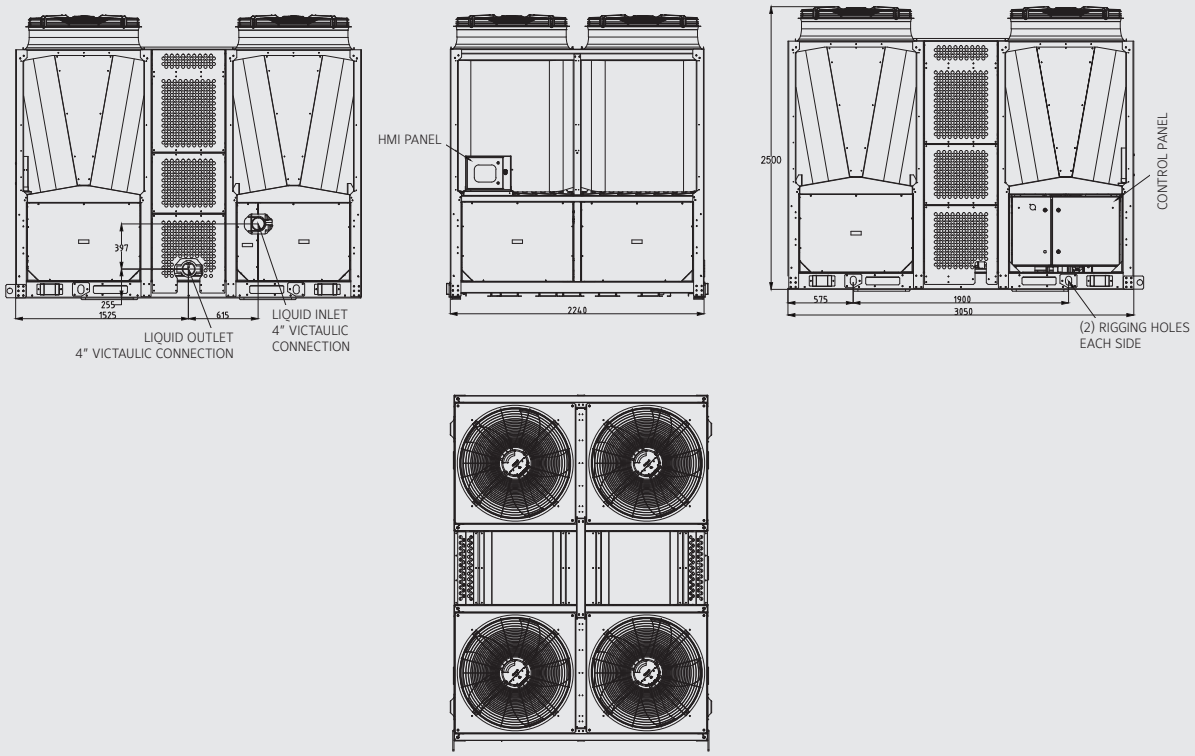
YMPA 045 to 260

YMPA 160 and 200 Single unit



All dimensions in mm. Drawings not in scale.

YMPA 230 and 260 Single unit



All dimensions in mm. Drawings not in scale.

YLPB
Heat pump scroll compressor

Cooling capacities from 336 kW to 628 kW
Heating capacities from 343 kW to 652 kW

R410A

SMART EQUIPMENT

EUROVENT CERTIFIED PERFORMANCE

Features

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

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

Sound
Designed for quiet operation at full and part load conditions.

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

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

Options/Accessories

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

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

Heat pump scroll compressor

YLPB 0345 to 0650

Nominal capacity

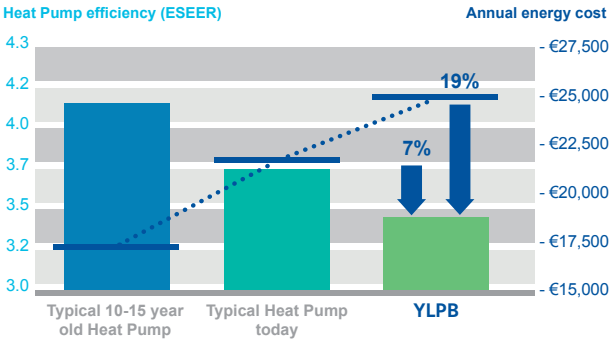
YLPB	0345	0430	0525	0575	0650
Cooling capacity (kW)	336	413	479	559	628
EER	2.98	2.93	2.88	2.94	2.98
SEER	4.36	4.55	4.47	4.53	4.51
ηs,c	171	179	176	178	177
Heating capacity (kW)	343	427	514	574	652
COP	3.06	3.07	3.03	2.99	3.01
SCOP	3.48	3.50	3.53	3.56	3.59
ηs, h	136	137	138	139	141
Sound Power Level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

Net values at Eurovent nominal conditions:
Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.
Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature.
SCOP calculated according to EN14511 and EN14825.
ηs calculated according to Ecodesign regulation for heating (813/2013).
Ecodesign figures are calculated following fixed water and variable outlet approach (FW/VO). For other Ecodesign calculations, please contact your JCI representative.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

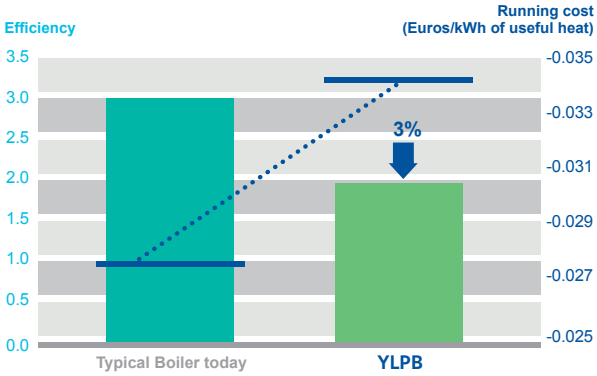
YLPB			0345	0430	0525	0575	0650
Dimensions	Length	mm	4721			5839	6958
	Width	mm	2242				
	Height	mm	2391				
Operating weight kg			3793	4043	4210	4747	5495

High Efficiency Cooling Mode



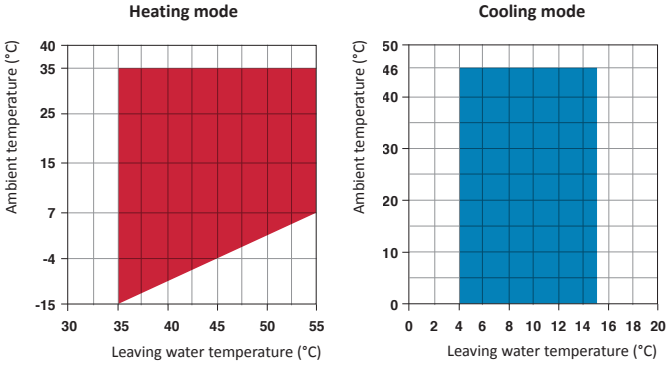
500 kW unit, 3000 operating hours, energy rate = 0.1 EUR / kWh

Additional Energy Savings in Heating Mode

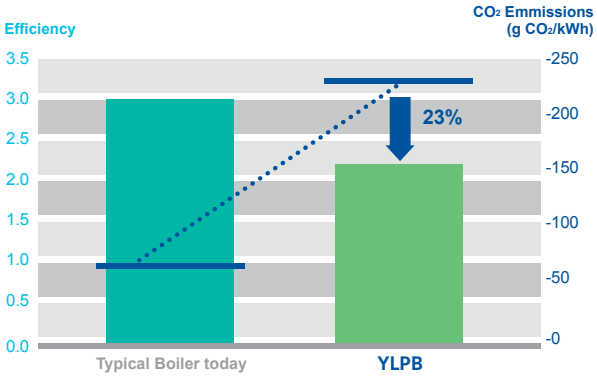


Energy Rate: Electricity 0.1 EUR / kWh; Gas 0.03 EUR / kWh

Operation limits



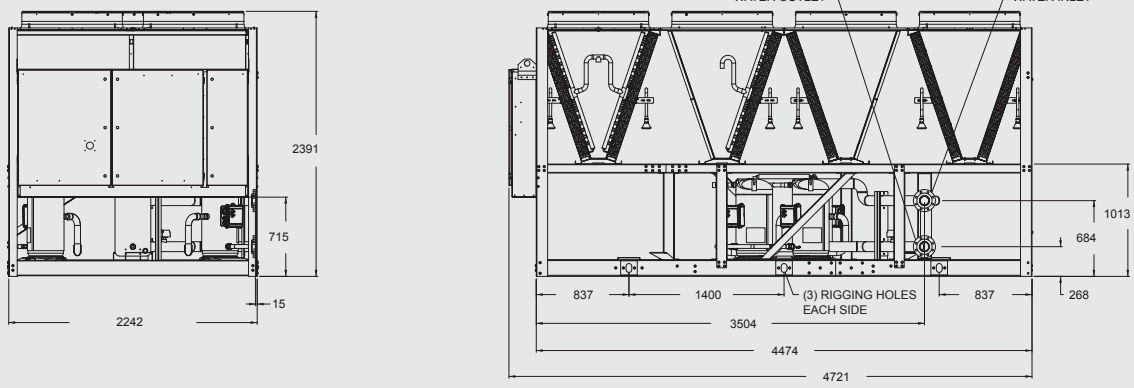
Carbon footprint in Heating Mode



Manufacturer reserves the rights to change specifications without prior notice.

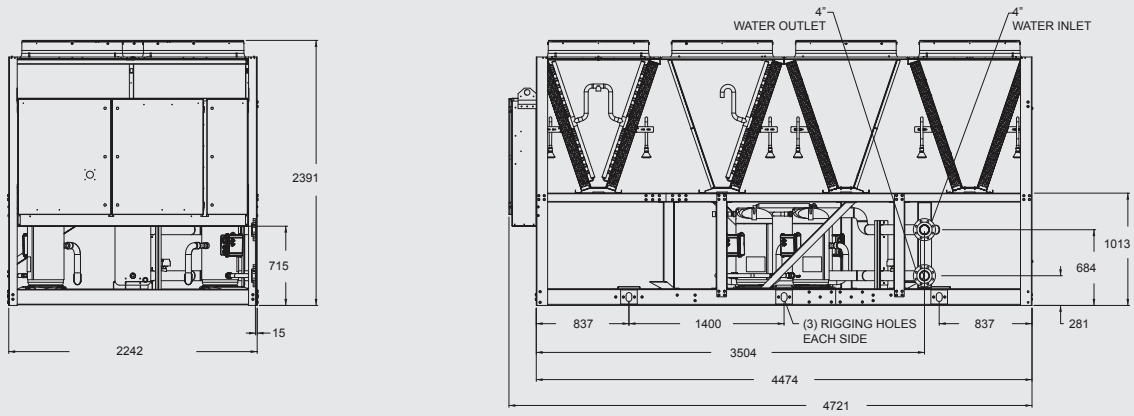
Dimensions and hydraulic connections

YLPB 0345 and 0430



All dimensions in mm. Drawings not in scale.

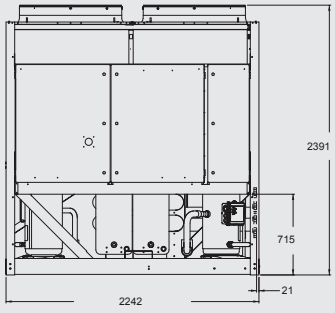
YLPB 0525

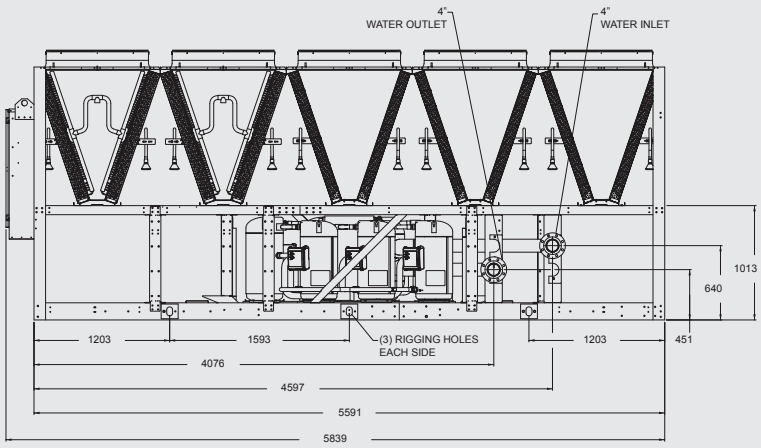


All dimensions in mm. Drawings not in scale.

YLPB 0345 to 0650

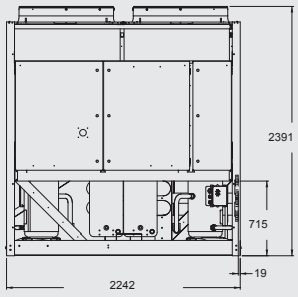
YLPB 0575

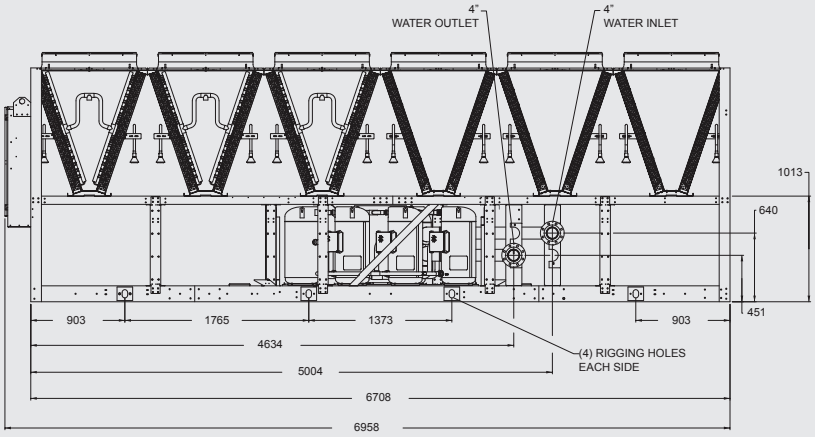




All dimensions in mm. Drawings not in scale.

YLPB 0650

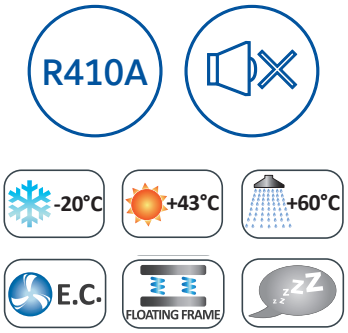




All dimensions in mm. Drawings not in scale.

YHA
High efficiency air to water heat pumps (4 pipes)

Cooling capacities from 18.1 kW to 368.5 kW
Heating capacities from 22.2 kW to 407 kW



Features

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

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

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

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

Available versions

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

High efficiency air to water heat pumps (4 pipes)

YHA 252 to 4504

Nominal capacity

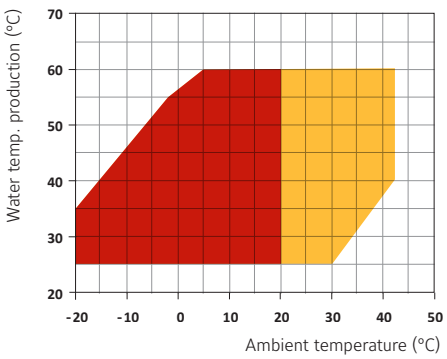
YHA HE/LS/RV - P4S version			252	302	412	452	502	602	702	802	902	1002	1202	1402
Heating capacity (EN14511) (1)		kW	22.2	29.6	37.3	47.1	50.8	61.2	67.3	74.9	93.2	104.9	114.9	137.1
Total input power (EN14511) (1)		kW	5.3	7.1	8.8	11.5	11.8	13.3	15.1	17.2	21.2	24.5	27.8	30.9
COP (EN14511) (1)			4.11	4.16	4.23	4.11	4.32	4.61	4.46	4.36	4.40	4.29	4.13	4.44
Energy Class (2)			A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++
SCOP (2)			3.83	3.86	3.85	3.85	3.92	4.13	4.04	3.97	3.87	3.85	3.83	3.85
ηs,h (2)			150.1	151.4	150.9	151.1	153.6	162	158.4	155.8	151.7	150.8	150.2	151
Cooling capacity (EN14511) (3)		kW	18.1	24.6	30.5	40.6	44.2	52.4	57.5	63.4	80.5	90.2	100.5	117.4
Total input power (EN14511) (3)		kW	6.9	9.5	11.0	14.5	16.1	18.3	21.3	23.9	26.6	31.2	35.1	38.6
EER (EN14511) (3)			2.62	2.59	2.78	2.81	2.74	2.87	2.70	2.65	3.03	2.89	2.86	3.04
TER (EN14511) (3)			9.05	9.43	9.56	9.54	10.41	10.48	10.42	10.43	9.84	9.63	9.46	9.91
Sound power (4)		dB (A)	73	74	74	75	76	76	77	78	82	83	85	86
Sound pressure (5)		dB (A)	41	42	42	43	44	44	45	46	50	51	53	54
Power supply		V/Ph/Hz	400/3/50											
Compressors / Circuits		n° / n°	2 / 1											
Fans		n°	2	2	2	2	2	2	2	2	2	2	2	3
Dimensions	Height	mm	1490	1490	1680	1680	1680	1840	1840	1840	1840	1840	1840	1820
	Length	mm	1915	1915	2115	2115	2115	2905	2905	2905	2905	2905	2905	3965
	Width	mm	875	875	875	875	875	1145	1145	1145	1145	1145	1145	1150
Weight		kg	560	560	670	690	720	1060	1060	1070	1120	1160	1240	1560

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

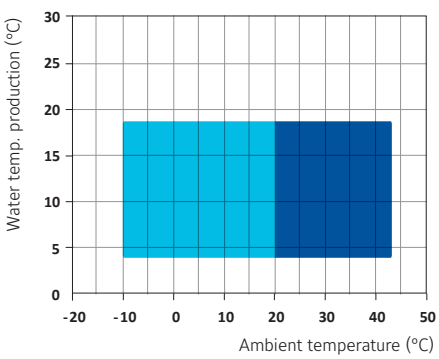
(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.
(2) Average conditions, low temperature, variable - Reg EU 811/2013
(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C.
(4) Sound power level in accordance with ISO 3744.
(5) Sound pressure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

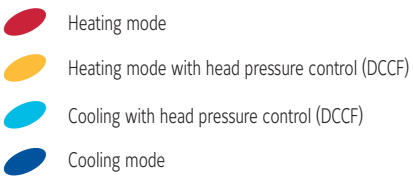
Operating limits

(HE version)



(RV version Only)

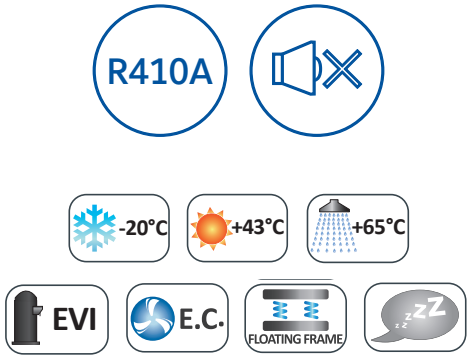




Manufacturer reserves the rights to change specifications without prior notice.

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

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



Features

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

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

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

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

Available versions

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

Optional

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

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

YLZ 252 to 2154

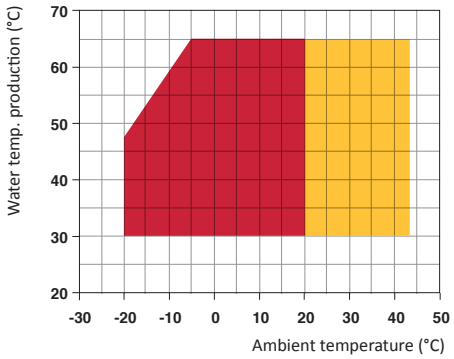
Nominal capacity

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

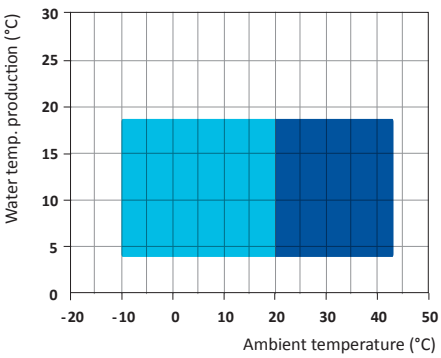
(1) Heating: Ambient temperature 7°C DB. 6°C WB. water temperature 30/35°C.
(2) Average conditions. variable - Reg EU 811/2013
(3) Cooling: ambient air temperature 35°C. evaporator water temperature in/out 12/7 °C.
(4) Sound power level in accordance with ISO 3744.
(5) Sound pressure level at 10 mt from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

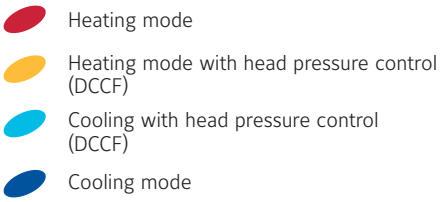
Operating limits

(HE versions)



(RV versions Only)





Manufacturer reserves the rights to change specifications without prior notice.

YLAA
Air Cooled Scroll Chiller with HFO (R454B)

Extended cooling capacities from 195 kW to 636 kW

Options/Accessories

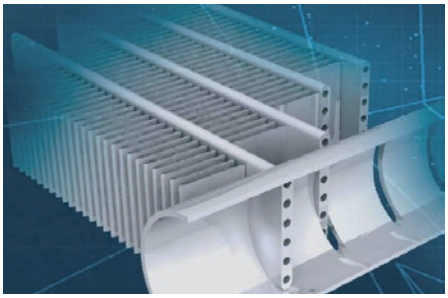
- Variable speed EC fans
- Hydrokits with fixed or variable speed pump (single or dual)
- Soft start
- Power factor correction capacitors
- Low ambient kit
- BMS interfacing options
- Dual pressure relief valves
- Victaulic coupling
- Flow switch
- Heat recovery option
- Enclosure options
- Sound attenuation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

Features

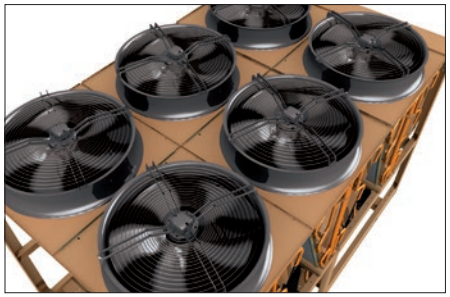
The **YORK YLAA TEMPO** air-cooled chiller is an environmental leader.

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.

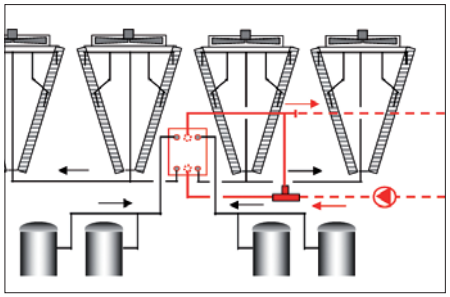


The TEMPO delivers energy efficiency levels that surpasses Ecodesign Tier 2 requirements. Aluminium microchannel condenser coil technology is one reason for this premium efficiencies.



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

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



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

Air-cooled scroll compressor chiller

YLAA 0195 to 0640

Nominal capacity

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

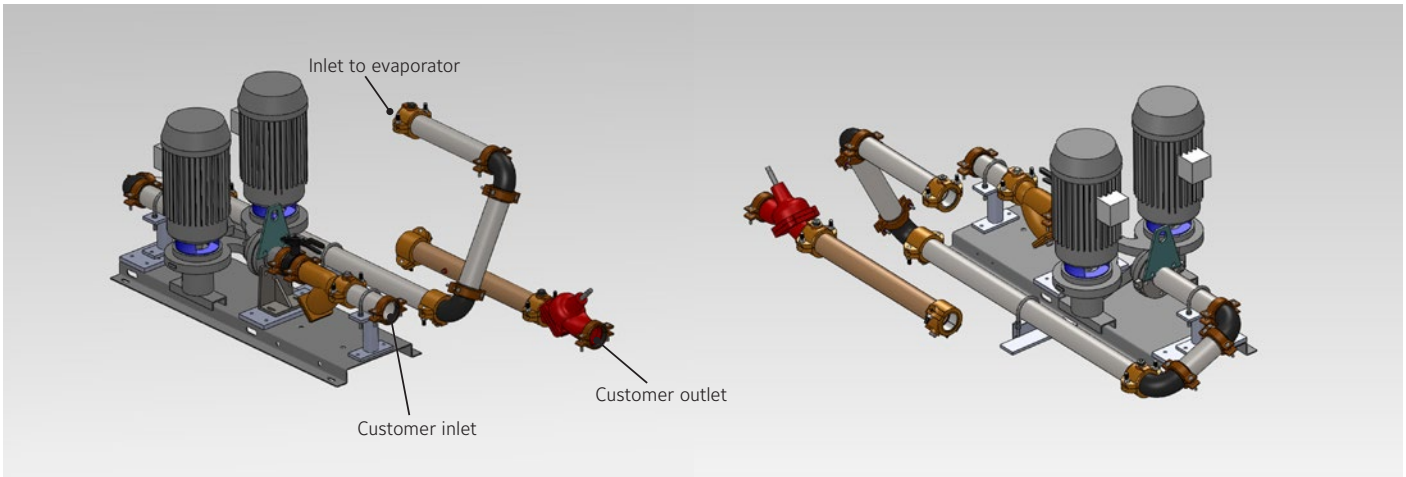
Net values at Eurovent nominal conditions:
Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.
Ecodesign figures are calculated following variable water and variable outlet approach (VW/VO). For other Ecodesign calculations, please contact your JCI representative.
(*) All models with R454B refrigerant using EC fans (except size 0195) and Compressor Sound Blankets.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

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

YLAA Pump Kit

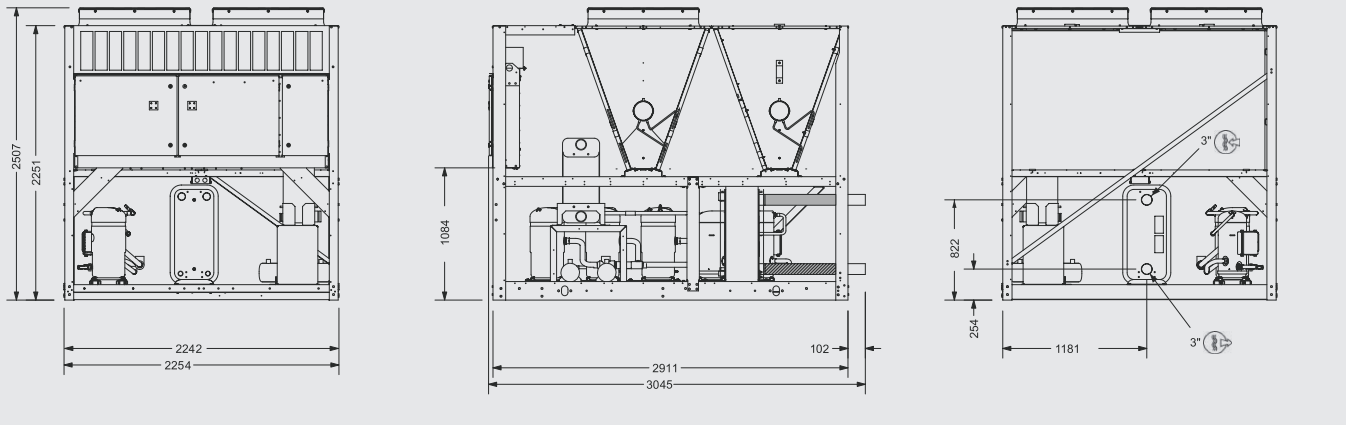
- Fixed or VSD water pump
- Single or Dual water pump
- Two option levels - basic and full featured - for maximum flexibility
- More impeller size options for better match to customer requirements
- New, smaller pump motors suitable for primary-secondary systems



Manufacturer reserves the rights to change specifications without prior notice.

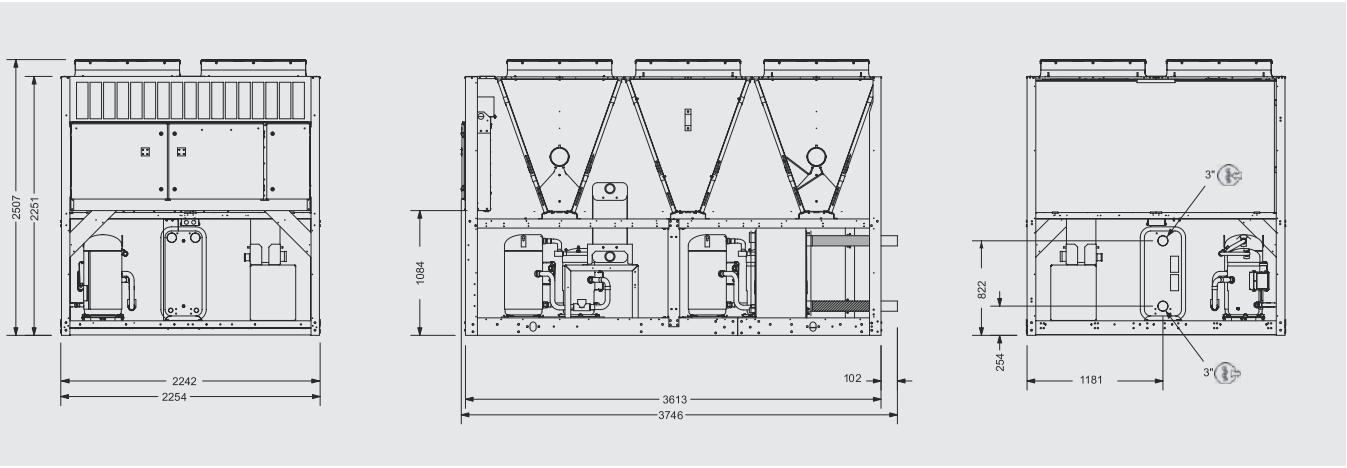
Dimensions and hydraulic connections

YLAA 0195, 0221 and 0262



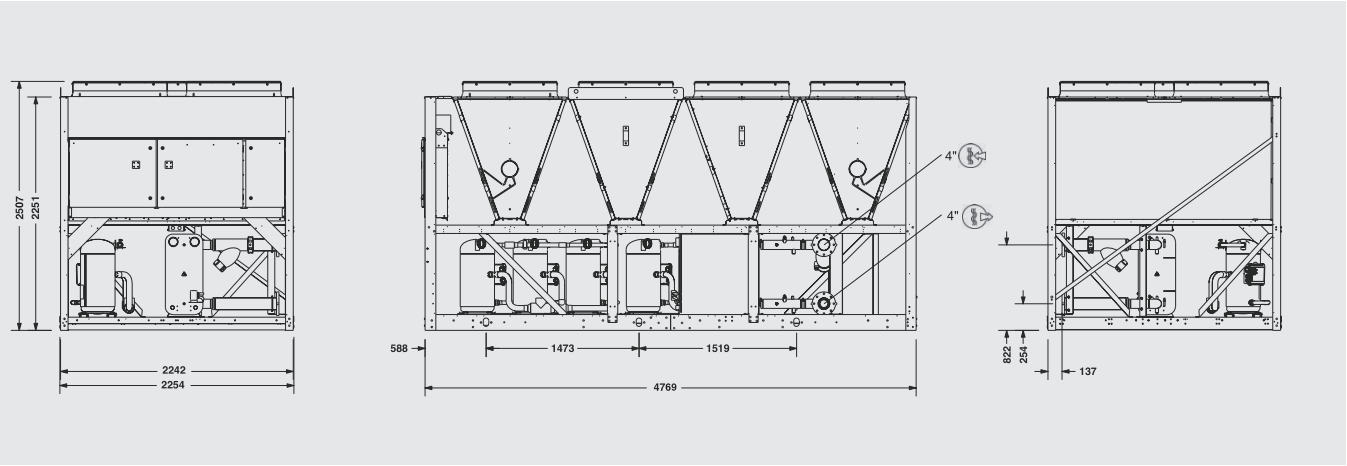
All dimensions in mm. Drawings not in scale.

YLAA 0301 and 0392



All dimensions in mm. Drawings not in scale.

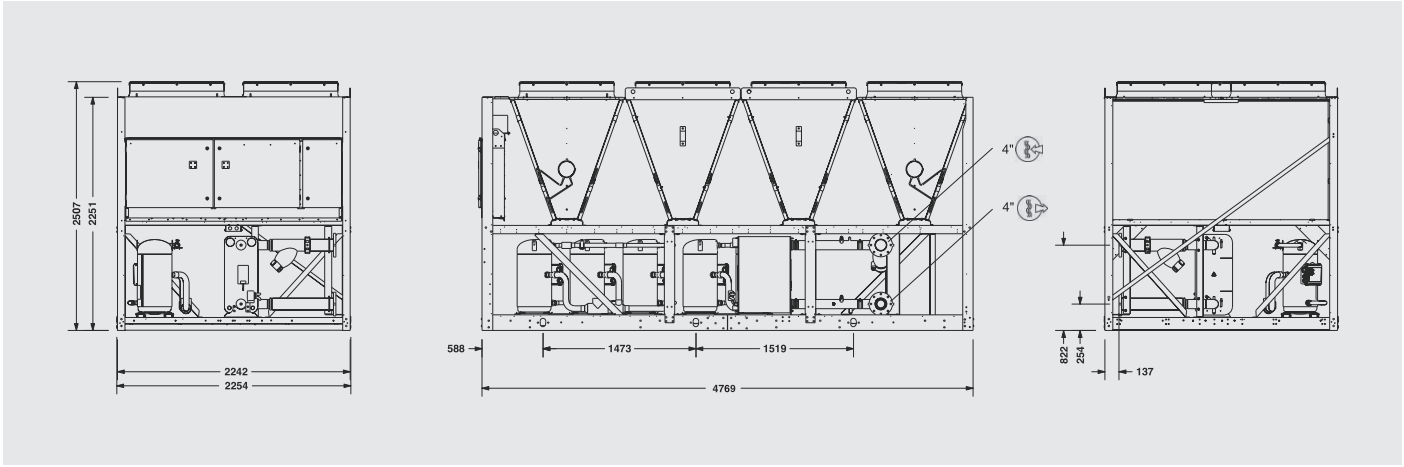
YLAA 0442



All dimensions in mm. Drawings not in scale.

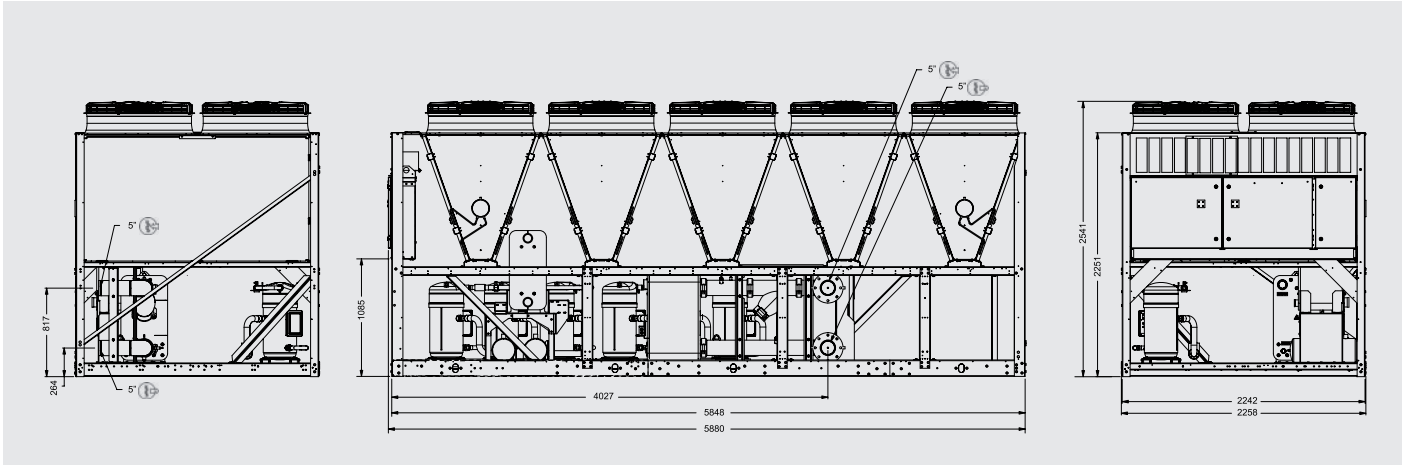
YLAA 0195 to 0640

YLAA 0457 and 0517



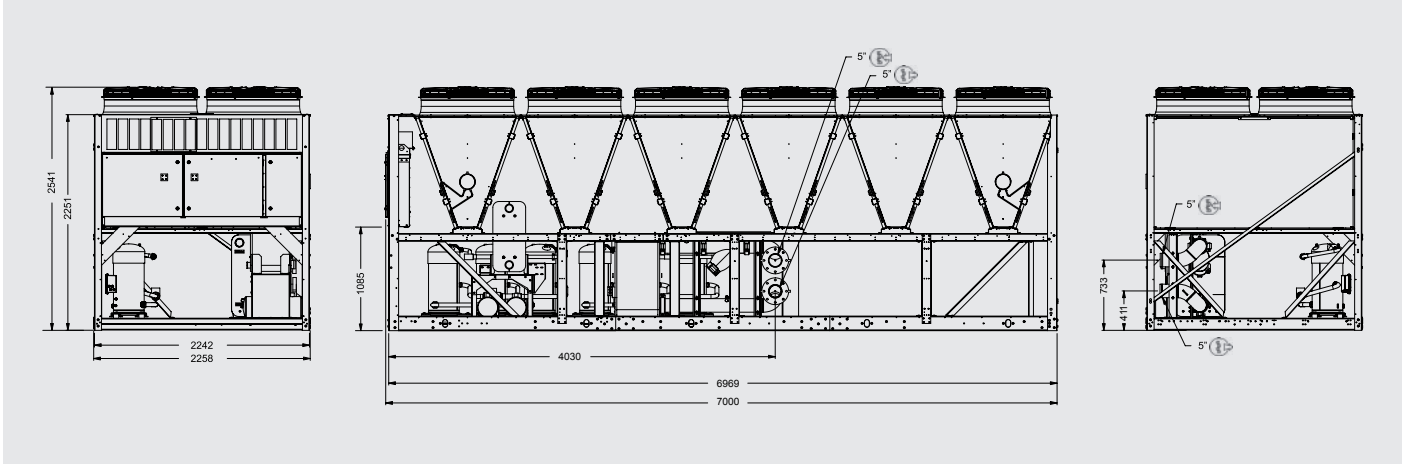
All dimensions in mm. Drawings not in scale.

YLAA 0580



All dimensions in mm. Drawings not in scale.

YLAA 0640



All dimensions in mm. Drawings not in scale.

YGT
Air-cooled VSD screw chiller with HFO

Cooling capacities from 401 kW to 983 kW

R1234ze

INVERTER

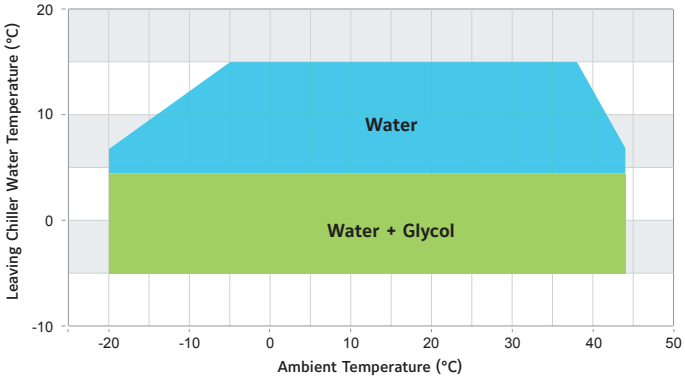
EUROVENT CERTIFIED PERFORMANCE

Features

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

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

Operating limits



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

Scope

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

Options

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

Air-cooled VSD screw chiller with HFO

YGT0400 to 1000

Performances

YGT HE - High Efficiency - Single VSD		0400 HE	0450 HE	0550 HE	0650 HE	0800 HE	0900 HE	1000 HE
Cooling capacity	kW	401.0	415.9	535.3	652.7	796.0	880.6	983.1
EER		3.16	3.17	3.13	3.08	3.08	3.16	3.13
SEER		4.80	4.84	4.70	4.75	4.80	4.90	4.89
ηs, c		189.0	190.6	185.0	187.0	189.0	193.0	192.6
Power input	kW	127.1	131.3	171.2	212.1	258.3	278.3	314.0
Absorbed current	A	214.8	234.0	290.0	356.1	437.0	477.5	546.0
Number of compressors / circuits		1 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Number of EC fans		8	10	10	12	14	18	18
Airflow	m³/h	156900	185060	200600	242000	286600	350200	363400
Water flow	m³/h	69.0	71.9	91.8	112.5	136.9	151.4	168.9
Pressure drop	kPa	34.3	36.8	26.6	28.7	27.8	32.2	26.5
Refrigerant charge	kg	80	90	100	120	140	170	175
Sound Power Level	dBA	94	96	97	97	98	99	99
Power supply		400V /3PH/ 50Hz						
Unit maximum operating current	A	422	490	630	774	835	998	1106
Unit peak current	A	614	881	775	977	1101	1347	1513

YGT XHE - Extra High Efficiency - Dual VSD		0450 XHE	0550 XHE	0650 XHE	0800 XHE	0900 XHE	1000 XHE
Cooling capacity	kW	415.9	535.3	652.7	796.0	880.6	983.1
EER		3.17	3.13	3.08	3.08	3.16	3.13
SEER		5.02	4.93	5.00	5.02	5.12	5.10
ηs, c		197.8	194.2	197.0	197.8	201.8	201.0
Power input	kW	131,3	171,2	212,1	258,3	278,3	314,0
Absorbed current	A	234,0	290,0	356,1	437,0	477,5	546,0
Number of compressors / circuits		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Number of EC fans		10	10	12	14	18	18
Airflow	m³/h	185060	200600	242000	286600	350200	363400
Water flow	m³/h	71,9	91,8	112,5	136,9	151,4	168,9
Pressure drop	kPa	36,8	26,6	28,7	27,8	32,2	26,5
Refrigerant charge	kg	90	100	120	140	170	175
Sound Power Level	dBA	96	97	97	98	99	99
Power supply		400V /3PH/ 50Hz					
Unit maximum operating current	A	490	630	774	835	998	1106
Unit peak current	A	601	776	965	1027	1226	1361

Data calculated at Eurovent conditions. This data is subject to change without prior notice.
Cooling capacities in kW given for 12/7°C water leaving temperature and 35°C ambient temperature.
Ecodesign figures are calculated following variable water and variable outlet approach (VW/VO). For other Ecodesign calculations, please contact your JCI representative.

Technical data

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

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

Manufacturer reserves the rights to change specifications without prior notice.

New generation YVAA Air-cooled VSD screw chiller

NEW

Cooling capacities from 500 kW to 2000 kW

R513A

INVERTER

SEER

R134a

Also available with R134a

EUROVENT CERTIFIED PERFORMANCE

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

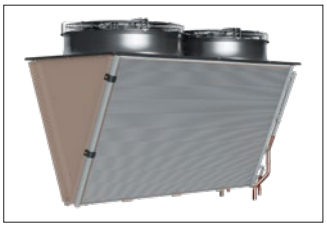
Features

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

Options/Accessories

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

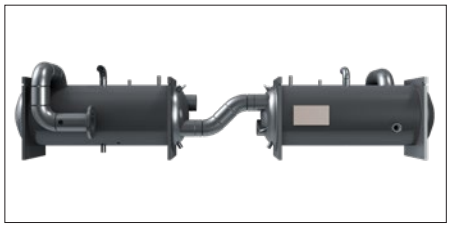
Heat exchanger performance



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

- New brazed plate heat exchanger economizer

Series flow evaporator



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

EC fan

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

Air-cooled VSD screw chiller

YVAAB 0571 to 1731

Application flexibility (*) example of selections

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

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

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

Net values at Eurovent nominal conditions for models using R513A: Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature.
SEER calculated according to EN14511 and EN14825.
Ecodesign figures are calculated following variable water and variable outlet approach (VW/VO). For other Ecodesign calculations, please contact your JCI representative.
(*) New generation YVAA is a tailor and tune chiller. Its performance will be factory-adjusted to match the exact site requirements based on the specific project operating conditions. The table above shows only a representative sample of performance points based on generic project operating conditions working with R513A refrigerant.
For tailored and tuned performance based on your specific project requirements, and for more information, please contact your Johnson Controls representative.
Please refer to the latest version of the software for specific projects.

Technical data

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

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

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

CE ISO 9001

Manufacturer reserves the rights to change specifications without prior notice.

Proven Technology

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

Microchannel condenser coil

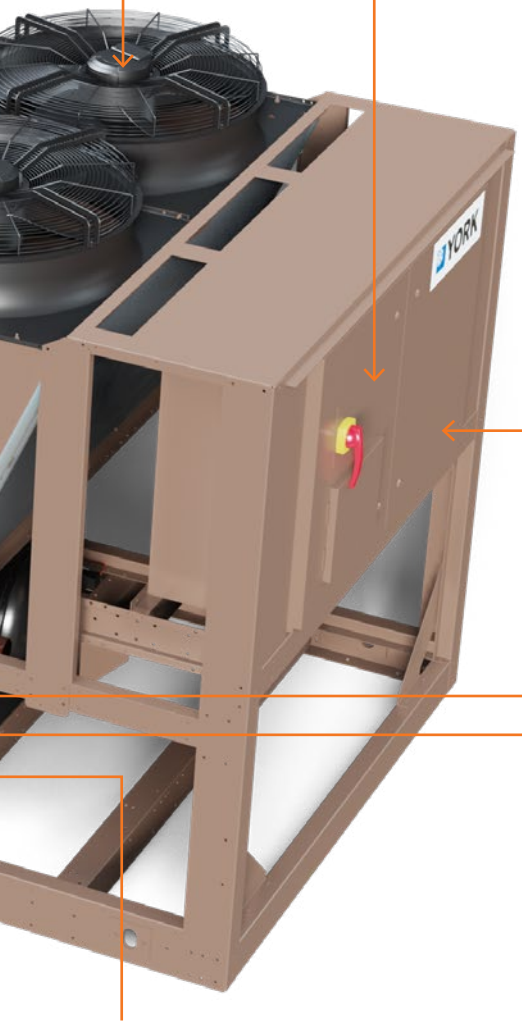
Carefully designed and tested for the unique conditions a building's HVAC system experiences, our next-generation microchannel heat exchangers use parallel flow aluminum alloy tubes that are easy to clean. Plus, our microchannel heat exchangers feature coating options that help increase reliability and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

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

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

EC and VSD Fans

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



Hybrid falling film series flow evaporator

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

Quick Start

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

Smarter controls

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

Variable-speed drive

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

Oil separator

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

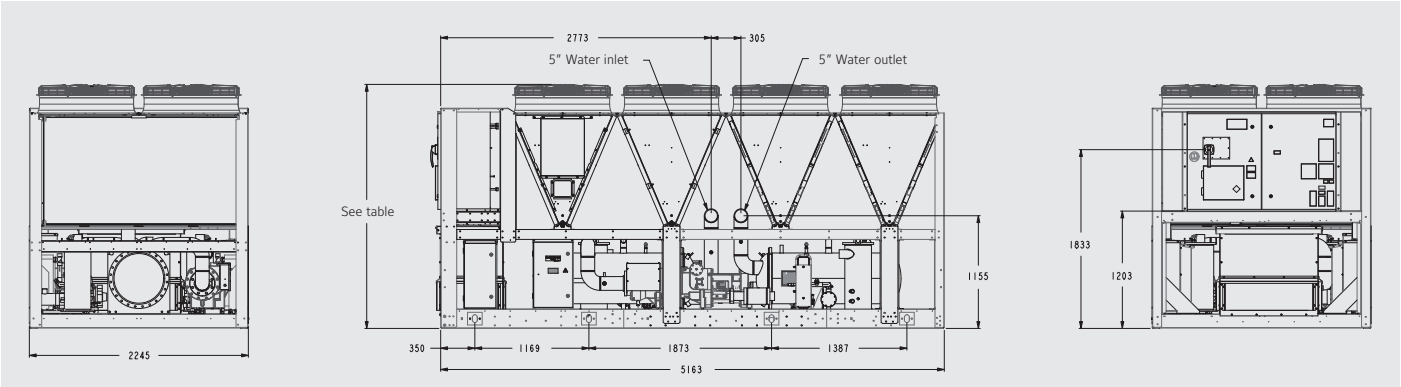
High-efficiency economizer

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

Dimensions and hydraulic connections

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

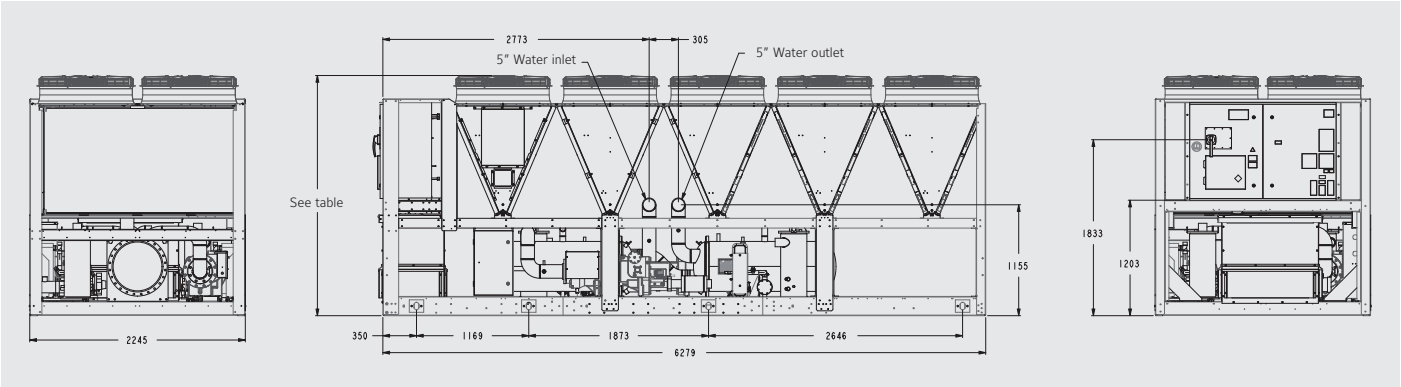
YVAA-B 0571 and 0701



Unit frame	EBM Fans	Standard fans
YVAA-B 0571 & 0701	2501	2358

All dimensions in mm. Drawings not in scale.

YVAA-B 0586, 0671 and 0741



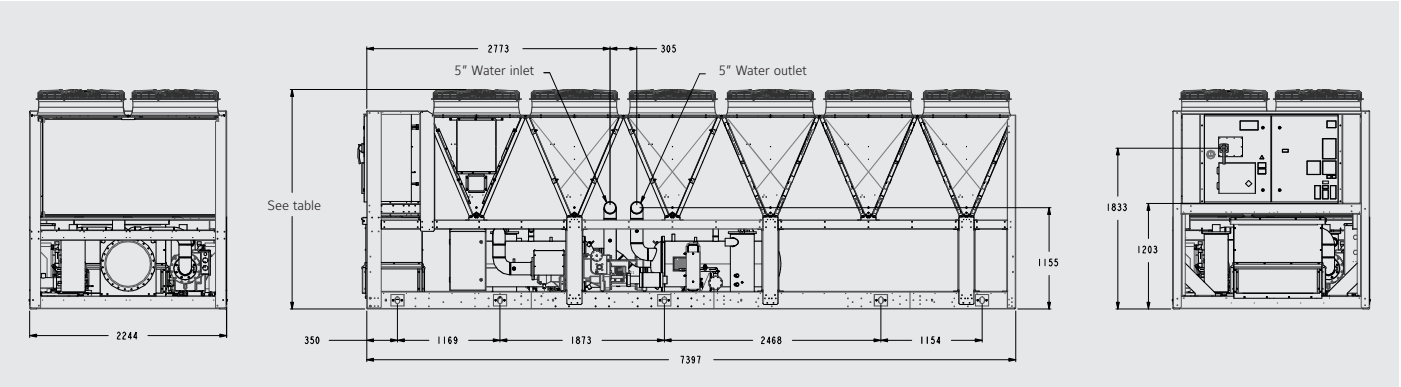
Unit frame	EBM Fans	Standard fans
YVAA-B 0586, 0671 & 0741	2501	2358

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

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

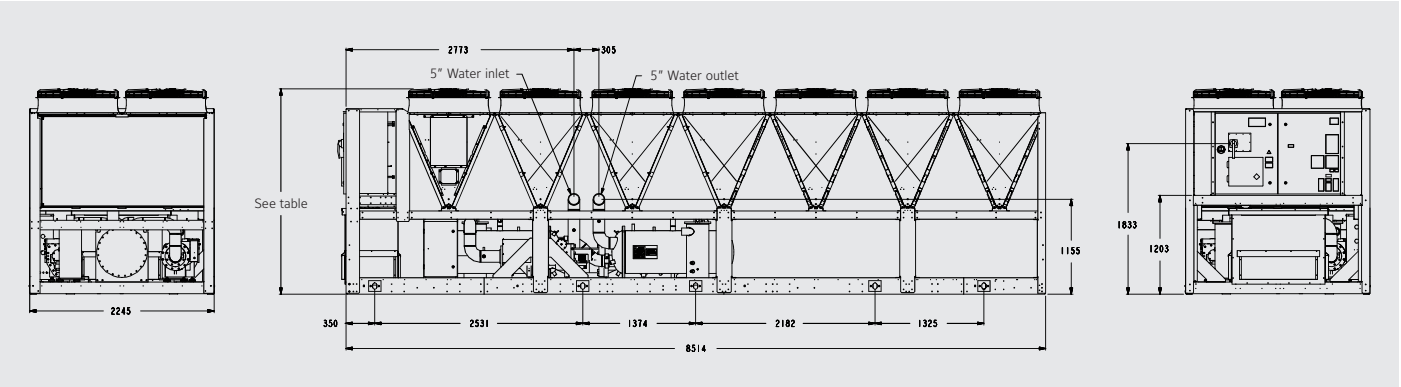
YVAA-B 599, 0616, 0686, 0699, 0754, 0782, 0824, 0894 and 0921



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

All dimensions in mm. Drawings not in scale.

YVAA-B 0756, 0796, 0919 and 0936



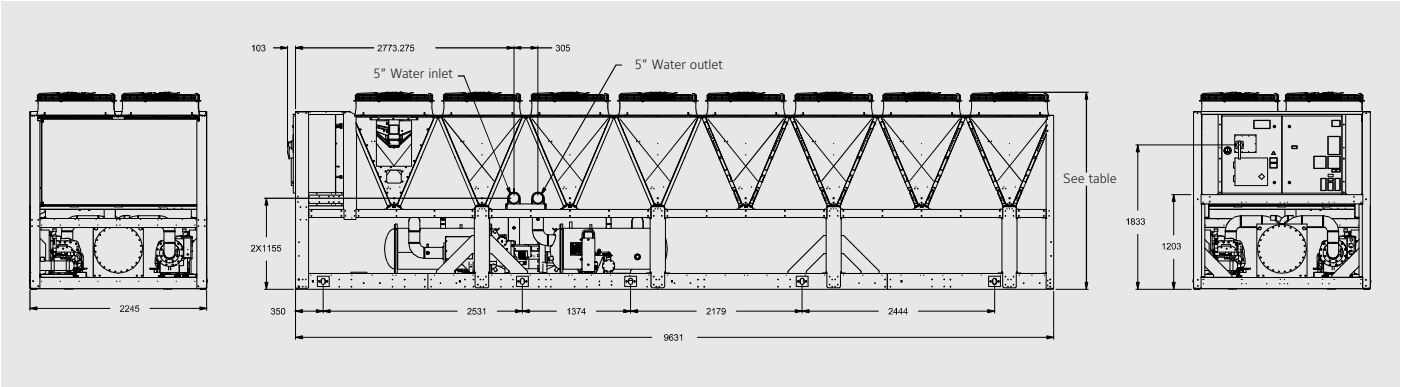
Unit frame	EBM Fans	Standard fans
YVAA-B 0756, 0796, 0919 & 0936	2501	2358

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

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

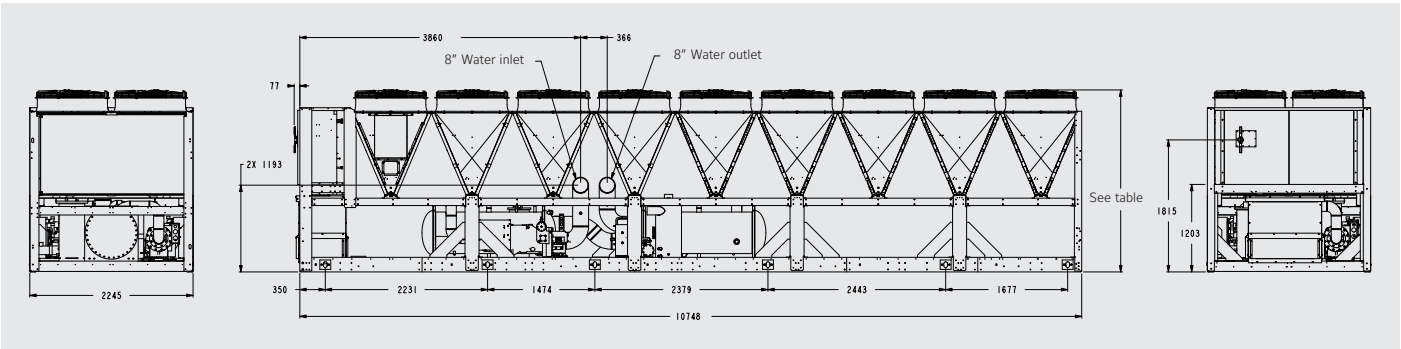
YVAA-B 0769, 0809, 0866, 0924, 0949, 1034 and 1134



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

All dimensions in mm. Drawings not in scale.

YVAA-B 1076 and 1161



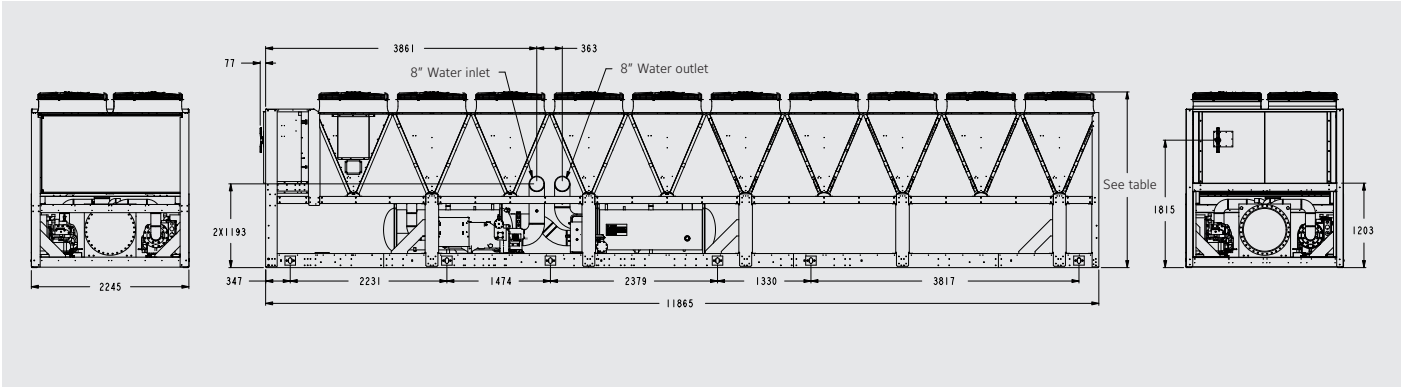
Unit frame	EBM Fans	Standard fans
YVAA-B 1076 & 1161	2501	2358

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

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

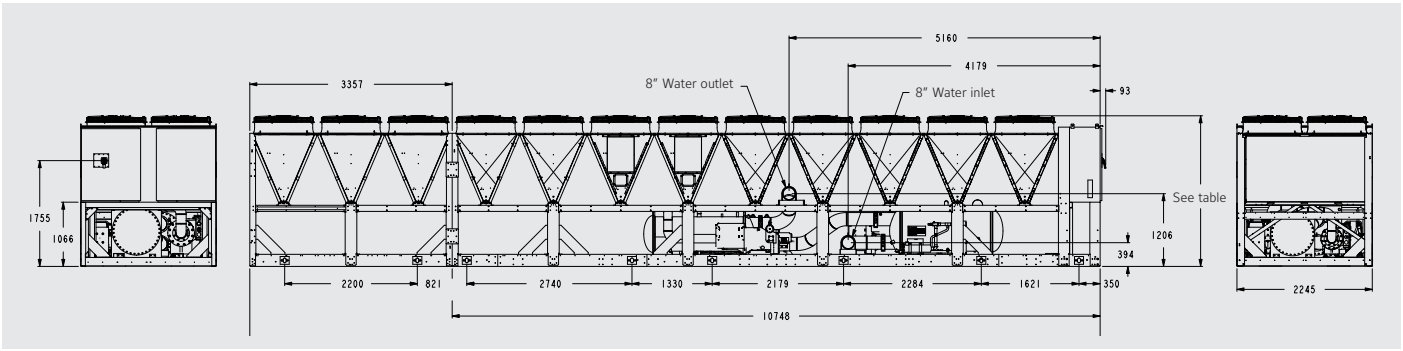
YVAA-B 1089, 1174, 1271, 1381, 1549 and 1731



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

All dimensions in mm. Drawings not in scale.

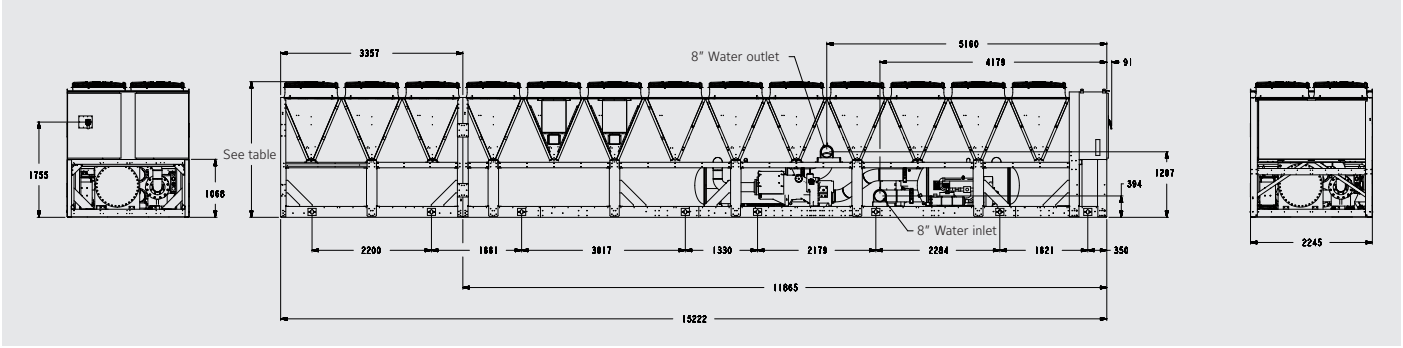
YVAA-B 1409 and 1606



Unit frame	EBM Fans	Standard fans
YVAA-B 1409 & 1606	2501	2358

All dimensions in mm. Drawings not in scale.

YVAA-B 1649

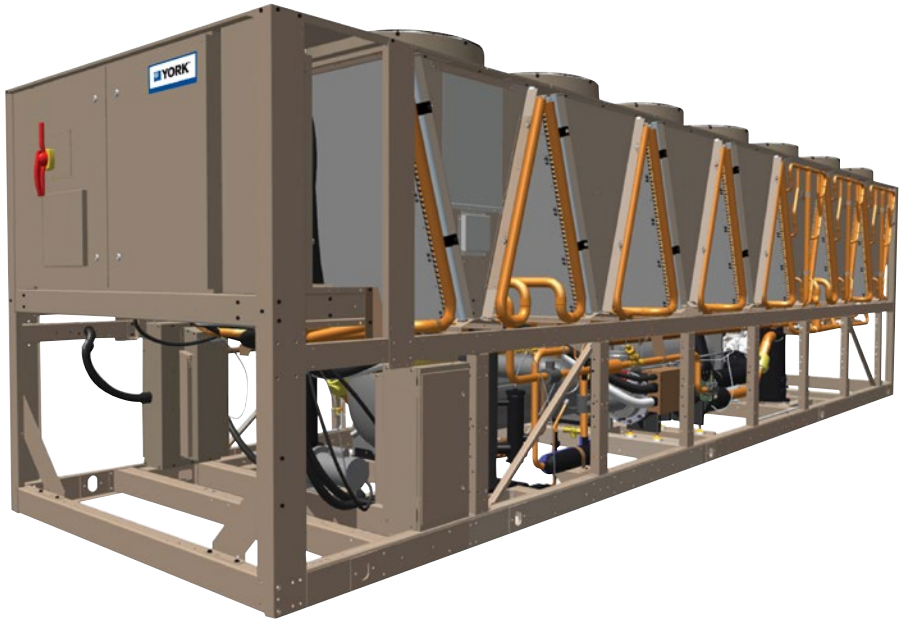


Unit frame	EBM Fans	Standard fans
YVAA-B 1649	2501	2358

All dimensions in mm. Drawings not in scale.

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

Cooling capacities from 577 kW to 1664 kW



R513A

INVERTER

SMART EQUIPMENT

AHRI CERTIFIED
Ask About Our Certified Products

Features

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

Options/Accessories

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

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

Open-loop configuration

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

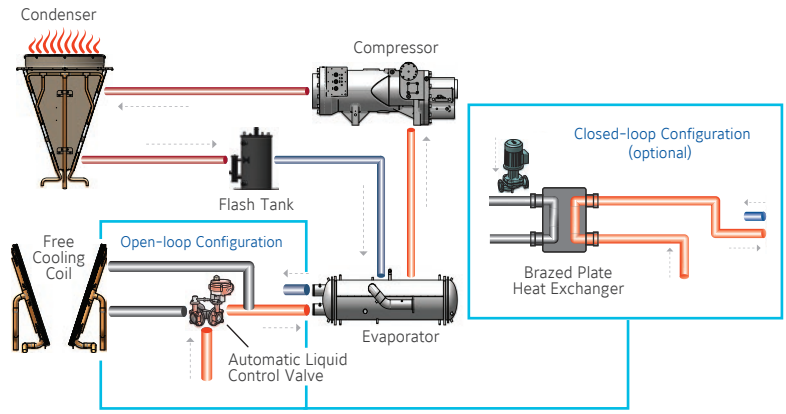
Closed-loop configuration

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

Air-cooled VSD screw chiller with integrated Free-cooling

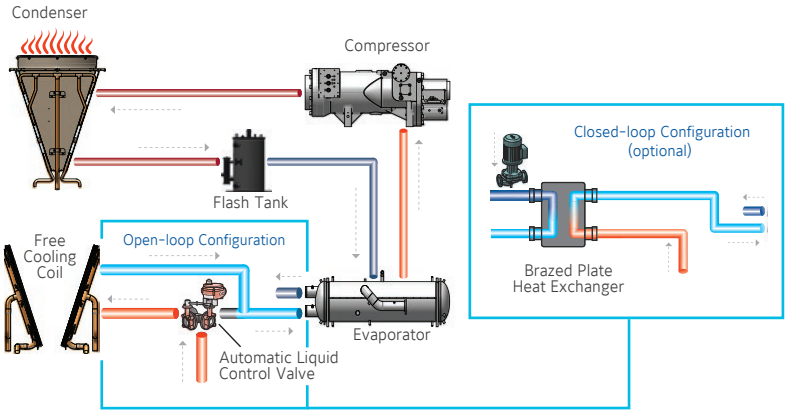
YVFA

Saving energy is simple in every situation



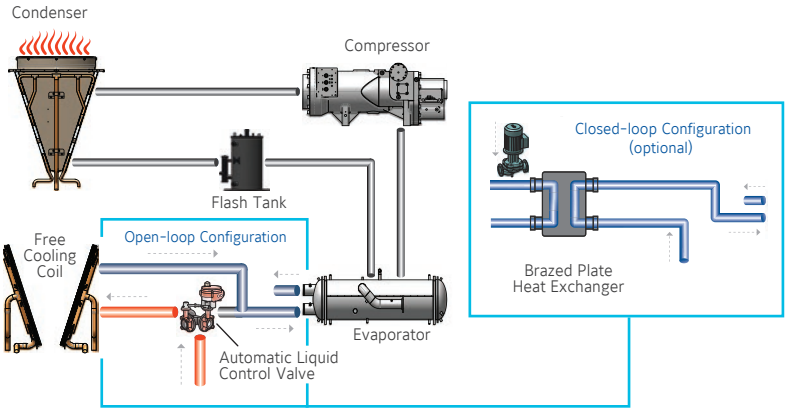
1 Mechanical Cooling Mode

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



2 Hybrid Cooling Mode

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



3 Free Cooling Mode

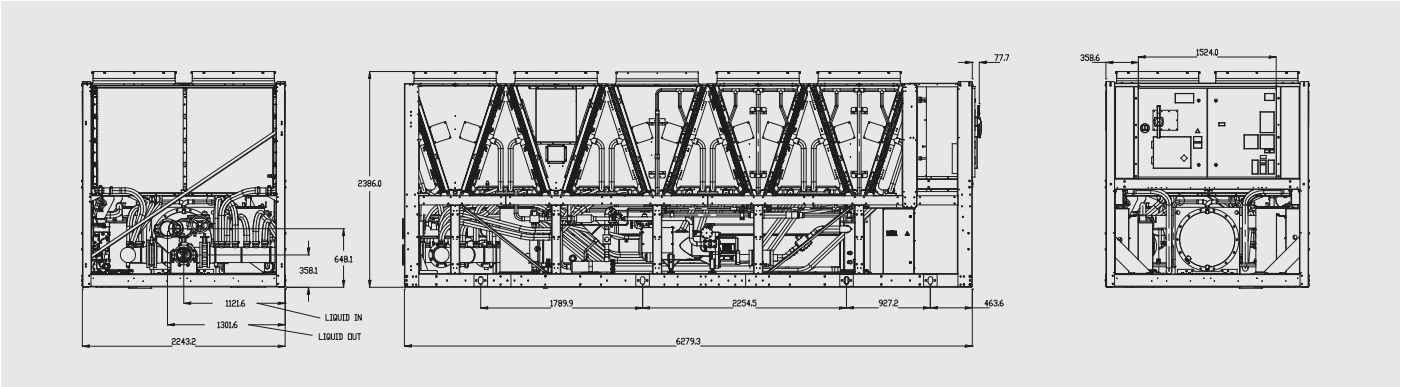
At lower ambient temperatures, full cooling load can be most efficiently delivered by the free-cooling coils. Compressors are shut off and the VSD fans are modulated to meet the cooling setpoint.

CE ISO 9001

Dimensions and hydraulic connections

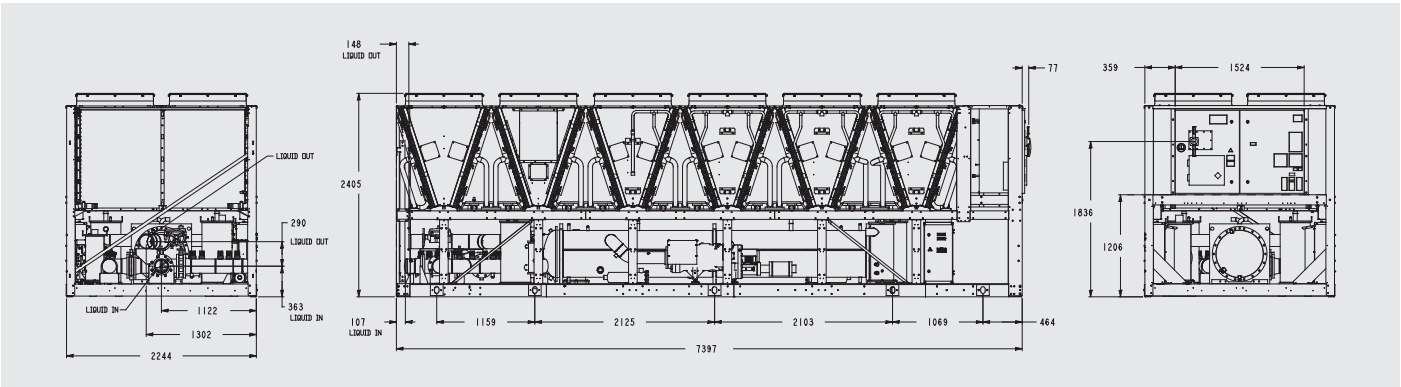
Open-loop (OL) configuration models

YVFA 0539 OL



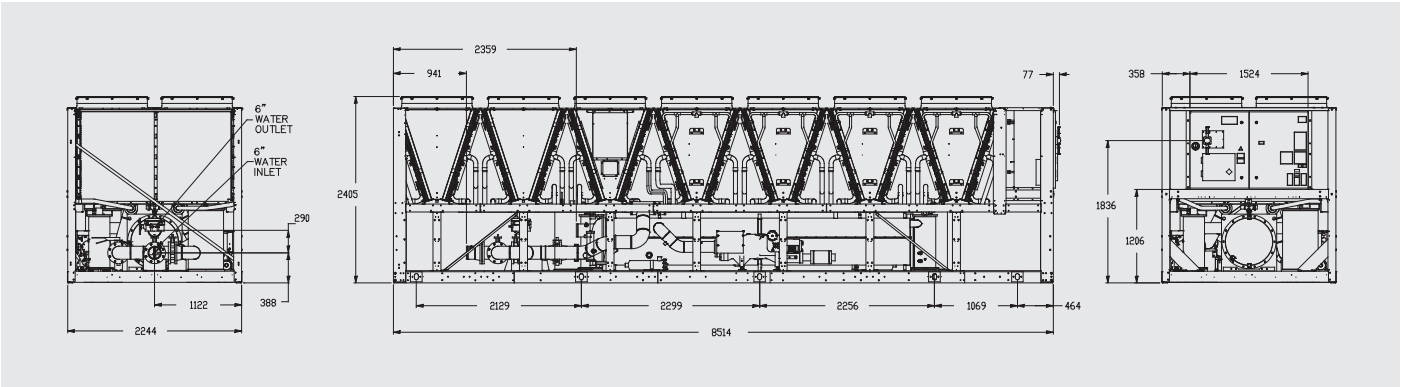
All dimensions in mm. Drawings not in scale.

YVFA 0709 OL



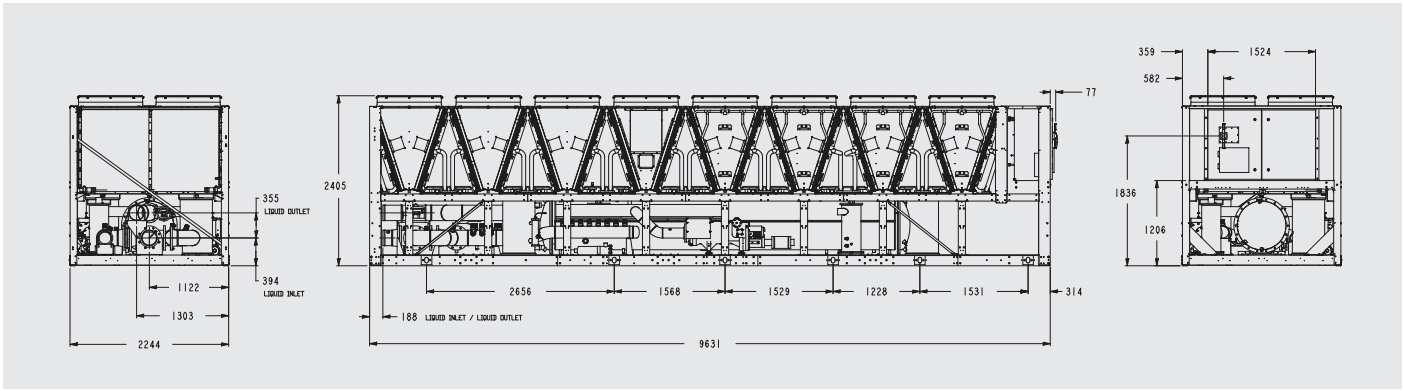
All dimensions in mm. Drawings not in scale.

YVFA 0889 OL



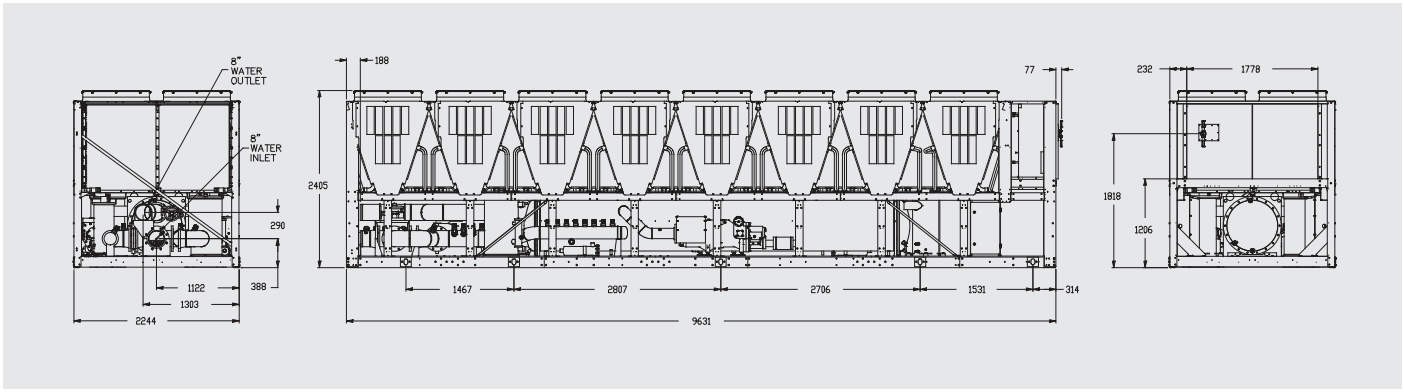
All dimensions in mm. Drawings not in scale.

YVFA 1009 OL



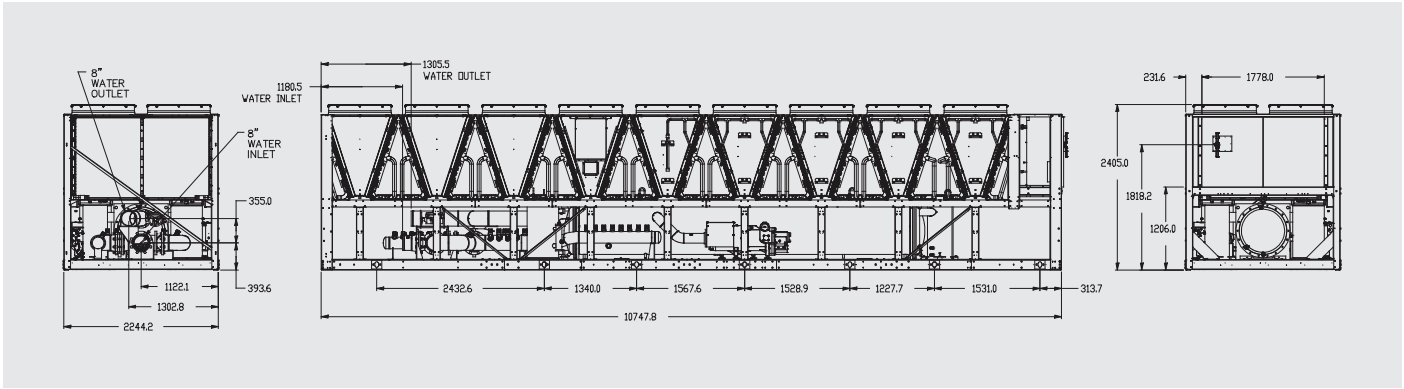
All dimensions in mm. Drawings not in scale.

YVFA 1069 OL



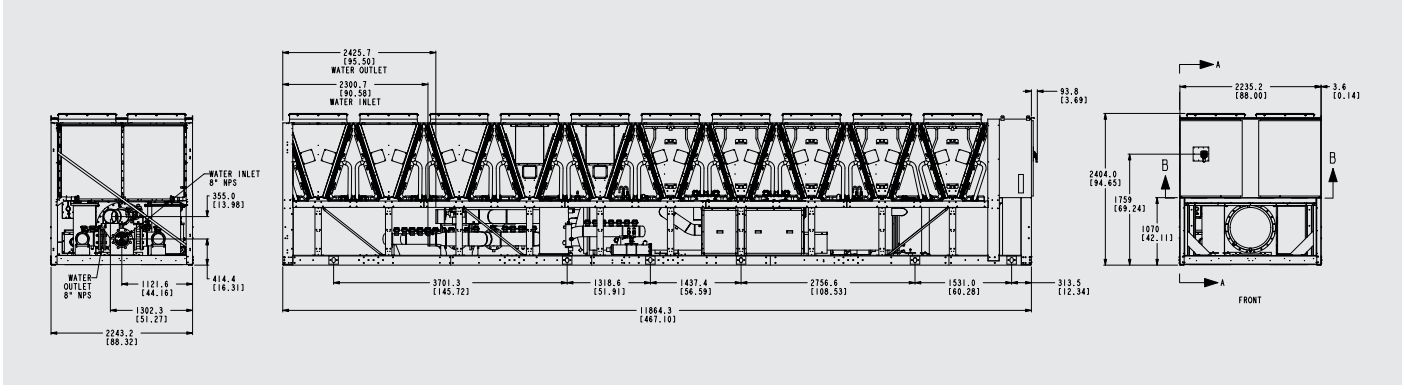
All dimensions in mm. Drawings not in scale.

YVFA 1239 OL



All dimensions in mm. Drawings not in scale.

YVFA 1419 and 1589 OL

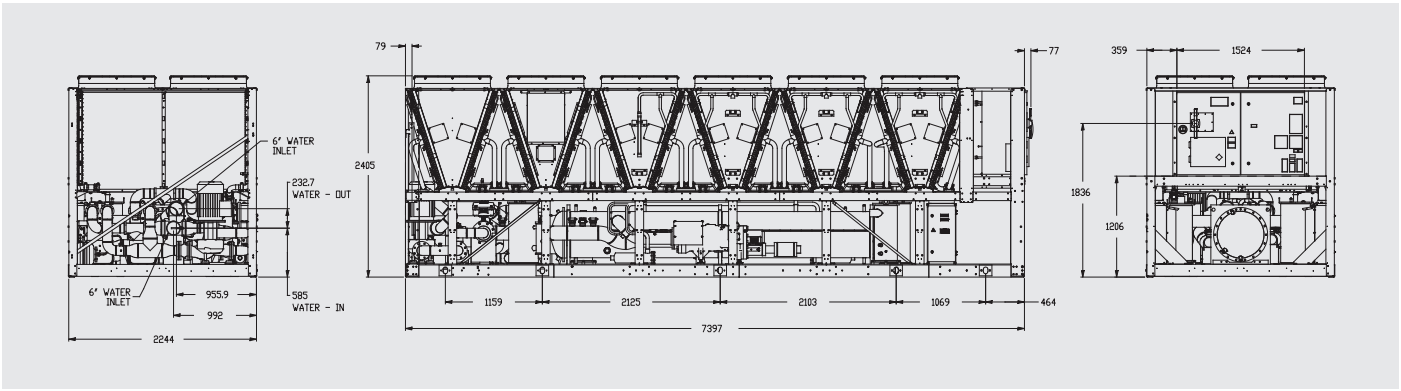


All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

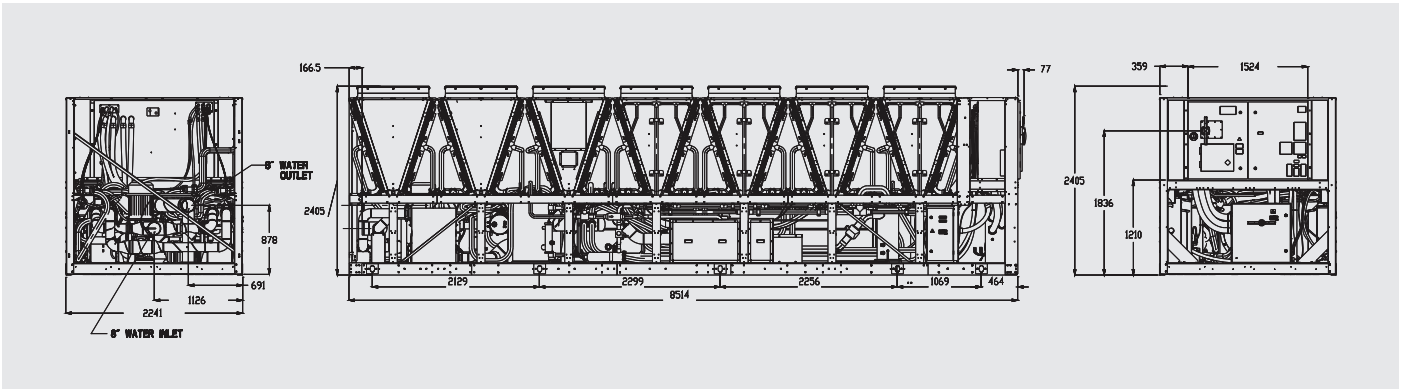
Closed-loop (CL) configuration models

YVFA 0709 CL



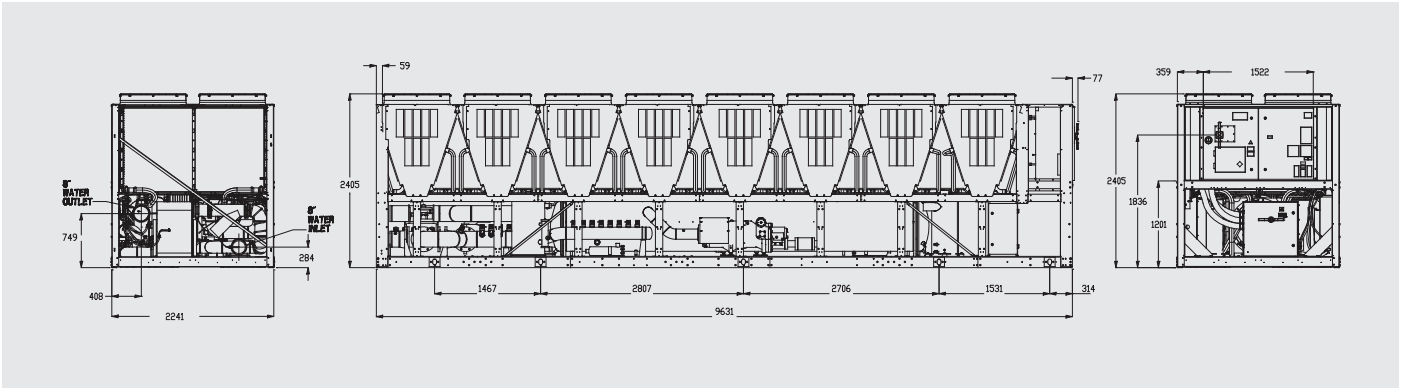
All dimensions in mm. Drawings not in scale.

YVFA 0889 CL



All dimensions in mm. Drawings not in scale.

YVFA 1069 CL

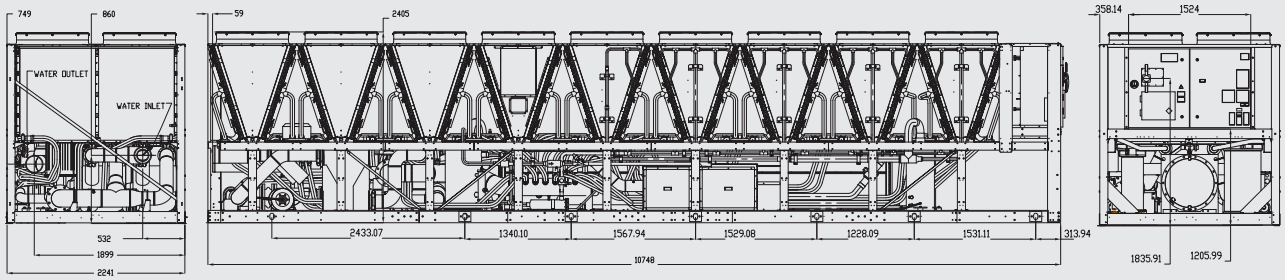


All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

Closed-loop (CL) configuration models

YVFA 1239 CL



All dimensions in mm. Drawings not in scale.

Application flexibility (*) example of selections

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

Cooling Capacity for Open-Loop configuration at: entering/leaving chilled fluid temperature 16°C/10°C (30% Ethylene Glycol), ambient temperature 35°C.
Sound Pressure according to Eurovent conditions.
(*) YVFA is a tailor and tune chiller. Its peformance will be factory-adjusted to match the exact site requirements based on the specific project operating conditions.
The table above shows only a representative sample of performance points based on generic project operating conditions working with R513a refrigerant.
For R134a information contact your JCI Representative.
For tailored and tuned performance based on your specific project requirements, and for more information, please contact your Johnson Controls representative.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

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

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

Research and innovations for sustainable efficiency

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

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

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

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

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


YORK

Ecodesign Directive ERP 2021

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

Low noise

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

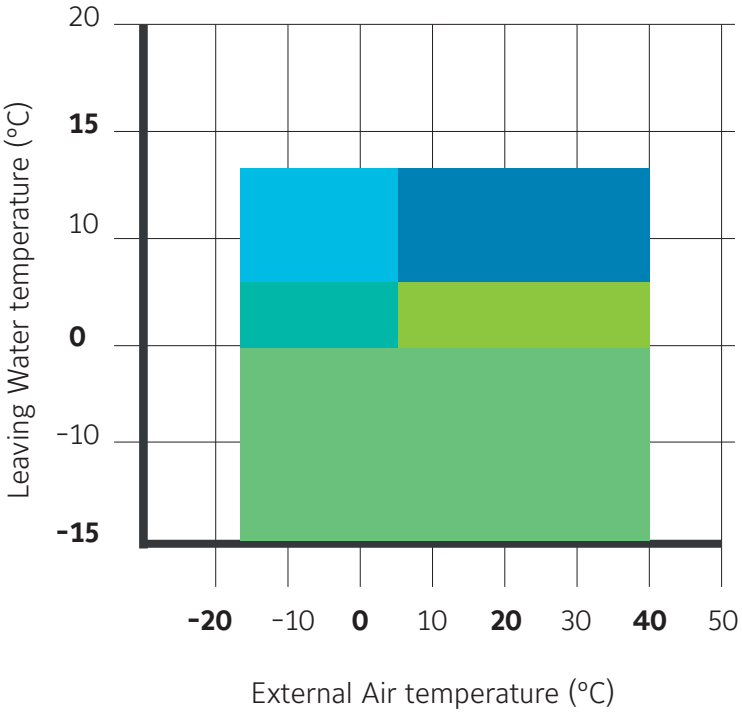
Energy saving

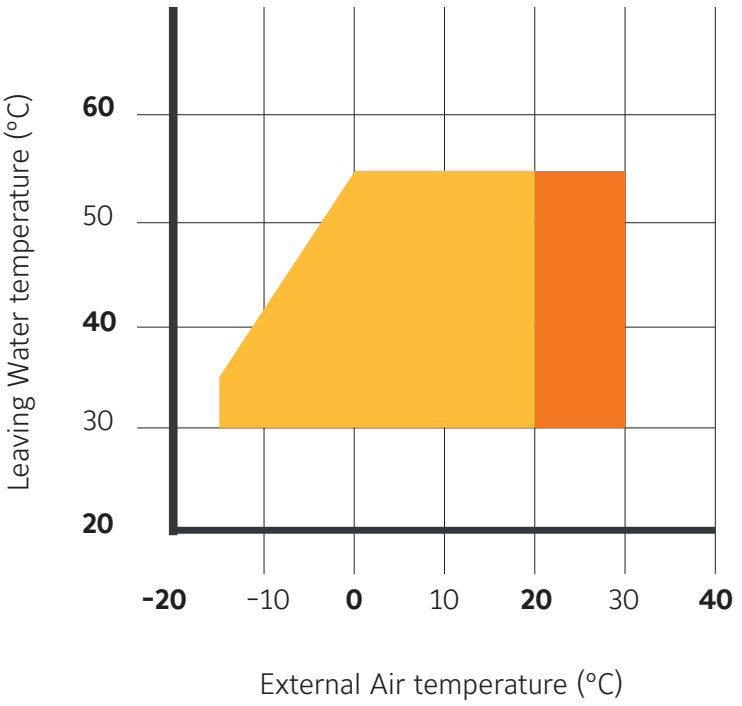
Reducing investments and operating costs, environmental compatibility and optimizing energy consumption are essential factors when selecting new devices. The efficient functioning of the propane chiller can save high operating costs.

Simple controls

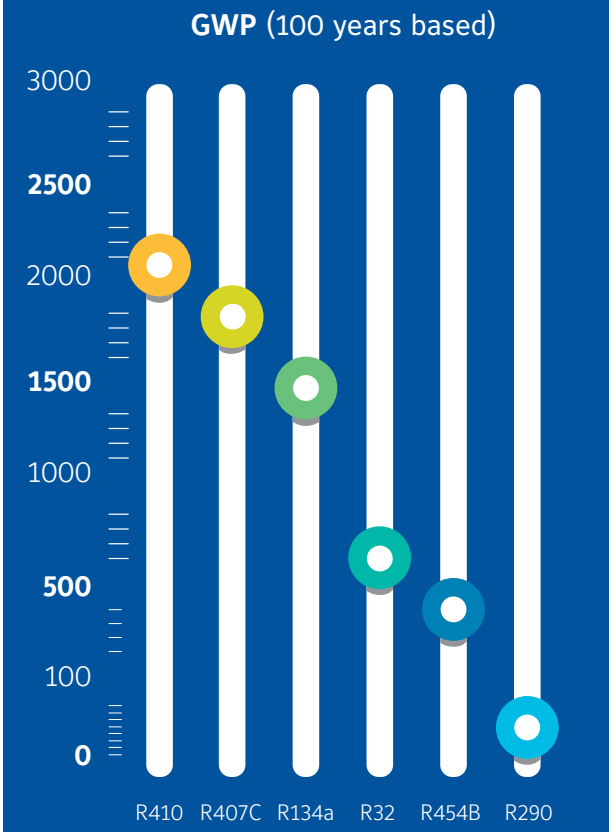
The microprocessor controls and manages time control, speed and safety. The overheating is regulated by means of PID control by the electronic expansion valve, whereby the operation of the system and consumption are optimized. The microprocessor detects irregularities through an automatic diagnosis and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

Application limits under different environmental conditions





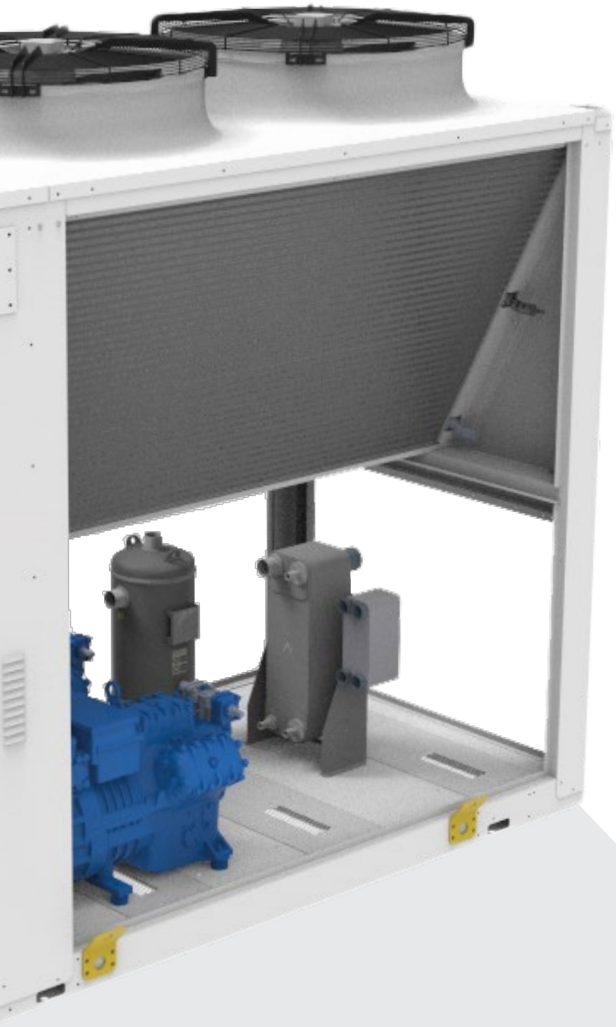
Note: Operating charts are for reference only. Actual operating maps are specific to each unit selection. Please contact your JCI representative.



- YAS/Rc-MC Standard version cooling mode
- Standard cooling with Glycol
- Standard unit with glycol and fan speed regulation
- Standard unit cooling with fan speed regulation
- VB version cooling mode
- Heat pump
- Heat pump with fan speed regulation

YAS/Rc-MC

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



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

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

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

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

Operation Limits (standard version):

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

The following versions are available:

YAS-MC: Standard version

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

Main components

Frame

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

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

Compressors

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

Evaporator

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

Coils

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

Fans

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

Cooling circuit

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

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

Electrical board

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

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

Standard equipment

YAS/Rc-MC VB
YAS/Rc-MC

Power and control housing separate from the compressor

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

Compressor

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

Leak sensor

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

Reduced vibrations in the refrigeration circuit

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

Microchannel coil

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

Extraction fan

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

Optional equipment

YAS/Rc-MC VB Kp
YAS/Rc-MC Kp

Electronic thermostatic valve

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

Hydronic Kit

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

Inverter compressors

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

Axitop fans

Axial diffuser to combined to condensing section provides a great efficiency and sound pressure improvement.
Thanks to his aerodynamic effect minimizes output losses increasing the air flow till 9% to the same electrical consumption or a consumption decrease till 27% to the same air flow; similarly the sound power reduction to the same air flow decrease till.

Inverter pump

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

YAS/Rc-MC

Technical data

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

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

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

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

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

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

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

YAS/Rc-MC VB

Technical data

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402	3702
Nominal cooling capacity	kW	31.8	35.6	43.6	53.5	60.7	87.1	106.1	123.9	149.2	172.0	207.5	235.3
Nominal absorbed capacity	kW	12.4	14.2	14.2	21.1	25.4	34.6	41.9	51.2	57.4	71.7	85.5	103.2
Nominal absorbed current	A	30.2	31.6	31.6	43.3	52.2	58.3	86.3	105.0	122.1	135.5	168.3	204.7
EER	-	2.56	2.52	2.52	2.54	2.39	2.52	2.53	2.42	2.60	2.40	2.43	2.28
SEPR	-	3.58	3.51	3.38	3.70	3.42	3.35	3.75	3.49	3.75	3.38	3.68	3.47
Cooling circuit		1	1	1	1	1	2	2	2	2	2	2	2
Number of compressors		1	1	1	1	1	2	2	2	4	4	4	4
Refrigerant charge	kg	4.0	4.0	7.0	7.0	7.0	14.0	14.0	15.0	16.0	18.0	23.0	24.0
Evaporator: Water + 35% Ethylenglycol Temperature IN/OUT: -3°C/-8°C													
Water flow	m³/h	6.2	7.07	8.6	10.5	11.9	17.1	20.8	24.3	29.3	33.7	40.7	46.1
Pressure drop	kPa	20.4	25.3	12.0	16.9	21.0	13.9	19.4	17.7	24.3	18.6	25.6	31.7
Axial Fan External air temperature: 35°C													
Quantity		2	2	2	2	2	4	4	4	4	4	6	6
Air flow	m³/h	14420	15780	16750	29580	31030	33440	58990	65520	65600	70780	97550	102310
Absorbed power	kW	1.2	1.2	1.2	3.9	3.9	2.4	7.8	7.8	7.8	7.8	11.6	11.6
Absorbed current	A	5.2	5.2	5.2	7.8	7.8	10.5	15.6	15.6	15.6	15.6	23.4	23.4
Weight													
Transport	kg	1052	1056	1164	1242	1246	1942	2096	2162	2518	2600	3102	3120
Operation	kg	1056	1060	1170	1248	1252	1956	2110	2188	2540	2632	3134	3152
Dimensions													
Length	mm	2590	2590	2590	2590	2590	4840	4840	4840	4840	4840	4430	4430
Width	mm	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	2260	2260
Height	mm	2570	2570	2570	2570	2570	2570	2570	2570	2570	2570	2480	2480
Noise level													
Unit total LWA	dB(A)	86.3	88.1	88.1	92.2	92.2	92.6	95.7	95.7	96.0	96.0	99.2	99.7
Unit total SPL at 1 m free field	dB(A)	67.8	69.6	69.6	73.7	73.7	73.0	76.0	76.0	76.3	76.3	79.3	79.8
Power supply													
Tension/Phases/Frequence	V/ph/Hz	400/3/50+N+PE											

YAS/Rc-MC equipment

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

▲ Standard ■ Not available

o Optional ★ Please contact your JCI representative

YAS/Rc-MC VB equipment

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

▲ Standard ■ Not available

o Optional ★ Please contact your JCI representative

YAS/Rc-F

Technical data

Models		521	591	721	871	1001	1402	1702	2102	2402	2902	3402
Nominal cooling capacity	kW	50.9	60.1	73.8	89.1	103.8	146.6	174.9	208.5	222.0	283.3	332.6
Nominal absorbed capacity	kW	18.2	20.2	23.9	30.8	35.3	47.5	59.5	70.2	83.6	96.5	118.5
Nominal absorbed current	A	35.1	37.2	41.8	55.2	65.0	83.4	105.7	127.1	153.5	168.6	206.5
EER	-	2.80	2.98	3.08	2.89	2.94	3.08	2.94	2.97	2.65	2.94	2.81
SEPR	-	5.32	5.33	5.34	5.49	5.47	4.51	5.41	5.34	5.23	5.28	5.24
Cooling circuit		1	1	1	1	1	2	2	2	2	2	2
Number of compressors		1	1	1	1	1	2	2	2	4	4	4
Refrigerant charge	kg	4	6	7	7	11	13	15	19	14	19	24
Evaporator: Water temperature IN/OUT: 12°C/7°C												
Water flow	m³/h	9.7	11.4	14.0	16.9	19.7	27.8	33.2	39.5	42.1	53.7	63.1
Pressure drop	kPa	35.3	47.2	22.4	31.1	40.5	26.1	35.5	33.4	40.5	33.7	44.6
Free-cooling section												
F.C. cooling capacity	kW	31.5	32.8	26.3	63.6	66.2	52.1	103.2	82.6	103.1	112.4	119.2
Fluid flow	mc/h	9.7	11.4	14.0	16.9	19.7	27.8	33.2	39.5	42.1	53.7	63.1
Pressure drop	kPa	20.5	27.2	25.0	41.8	54.1	22.6	68.7	61.0	46.2	64.3	58.0
Axial Fan External air temperature: 35°C												
Quantity		1	1	1	2	2	2	3	3	4	4	4
Air flow	m³/h	24120	22870	22910	46960	43780	45350	67380	67670	100610	95900	89990
Absorbed power	kW	2.5	2.5	2.5	5.0	5.0	5.0	7.4	7.4	9.9	9.9	9.9
Absorbed current	A	5.2	5.2	5.2	10.3	10.3	10.3	15.5	15.5	20.6	20.6	20.6
Weight												
Transport	kg	1066	1102	1131	1451	1517	1739	2180	2220	2703	2874	3100
Operation	kg	1088	1124	1150	1482	1558	1776	2246	2280	2794	2974	3178
Dimensions												
Length	mm	1730	1730	1730	2770	2770	2770	3810	3810	4850	4850	4850
Width	mm	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420	2420	2420	2420	2420	2420
Noise level												
Unit total LWA	dB(A)	88.9	90.1	91.8	94.5	94.5	94.7	94.7	96.7	96.5	97.1	99.2
Unit total SPL at 1 m free field	dB(A)	71.0	72.2	73.3	75.9	75.9	76.1	75.6	77.6	76.8	77.4	79.5
Power supply												
Tension/Phases/Frequence	V/ph/Hz	400/3/50+N+PE										

YAS-Rc F equipment

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

▲ Standard ■ Not available

o Optional ★ Please contact your JCI representative

YAS/Rc-WP

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

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

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

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

Main components

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

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

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

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

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

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

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

YAS/Rc-WP

Technical data

Models		1001	1201	1502	1702	2102	2502	2902	3402
Nominal cooling capacity	kW	90.9	104.3	129.7	148.4	180.6	209.5	248.2	296.8
Nominal absorbed capacity	kW	29.3	35.4	40.0	47.5	58.7	70.9	78.4	96.0
Nominal absorbed current	A	52.0	63.8	74.8	83.6	104.0	128.2	145.5	169.8
EER	-	3.10	2.94	3.24	3.13	3.08	2.96	3.17	3.09
Cooling circuit		1	1	2	2	2	2	2	2
Number of compressors		1	1	2	2	2	2	4	4
Refrigerant charge	kg	13	13	15	20	37	37	46	57
Evaporator: Water									
Water flow	m³/h	15.6	17.9	22.3	25.5	31.1	36.0	42.7	51.1
Pressure drop	kPa	23	29	15	19	27	24	32	26
Axial Fan									
Quantity		2	2	3	3	4	4	5	5
Air flow	m³/h	41700	41700	64710	62580	83400	83400	104250	125250
Absorbed power	kW	3.9	3.9	5.8	5.8	7.8	7.8	9.7	12.4
Absorbed current	A	7.8	7.8	11.7	11.7	15.6	15.6	19.5	25.8
Heat pump working at external air temp. 7°C and water inlet 40/45°C									
Nominal thermical power	kW	103.3	119.5	142.2	168.0	209.3	239.8	280.1	333.8
Nominal absorbed power	kW	29.3	34.4	38.7	46.2	58.8	68.0	76.7	94.2
Nominal absorbed current	A	52.3	62.5	73.6	82.2	104.5	123.9	144.1	168.4
SCOP	-	3.45	3.35	3.30	3.25	3.29	3.29	3.38	3.27
COP	-	3.53	3.48	3.68	3.63	3.56	3.53	3.65	3.54
Weight									
Transport	kg	1416	1466	1798	1876	2246	2366	2918	3106
Operation	kg	1422	1472	1812	1890	2260	2388	2949	3138
Dimensions									
Length	mm	2660	2660	3700	4850	4850	4850	5890	5890
Width	mm	1370	1370	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420	2420	2420
Noise level									
Unit total LWA	dB(A)	93.2	93.2	93.7	93.7	95.2	95.2	95.2	95.5
Unit total SPL at 1 m free field	dB(A)	74.7	74.7	74.6	74.6	75.6	75.6	75.1	75.4
Power supply									
Tension/Phases/Frequence	V/ph/Hz	400/3/50+N+PE							

YAS/Rc-WP equipment

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

▲ Standard ■ Not available

o Optional ★ Please contact your JCI representative