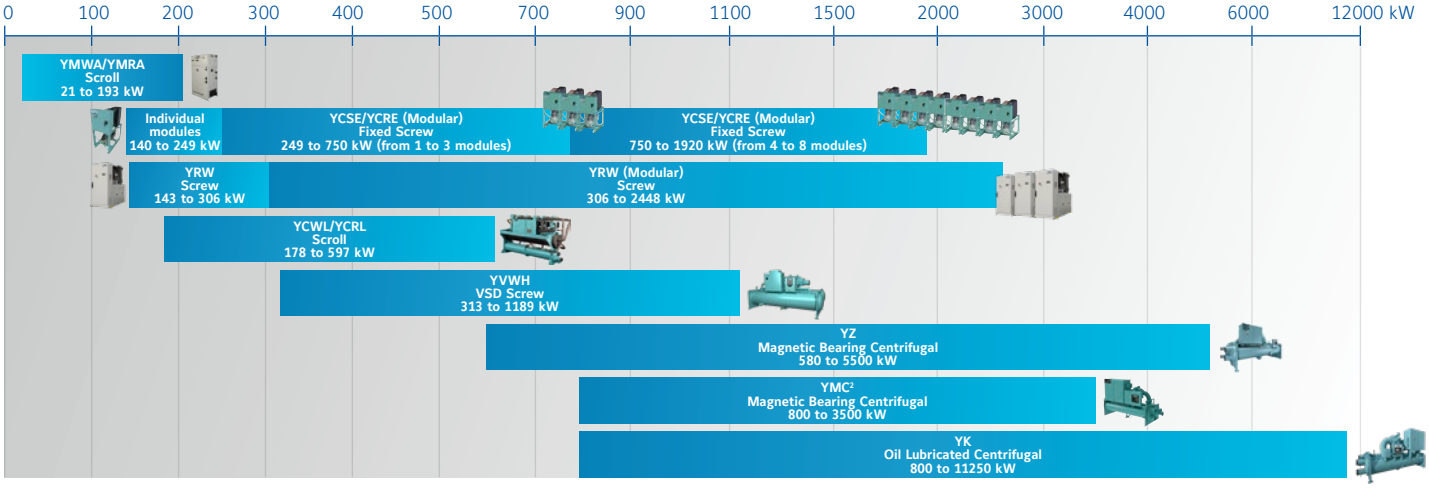
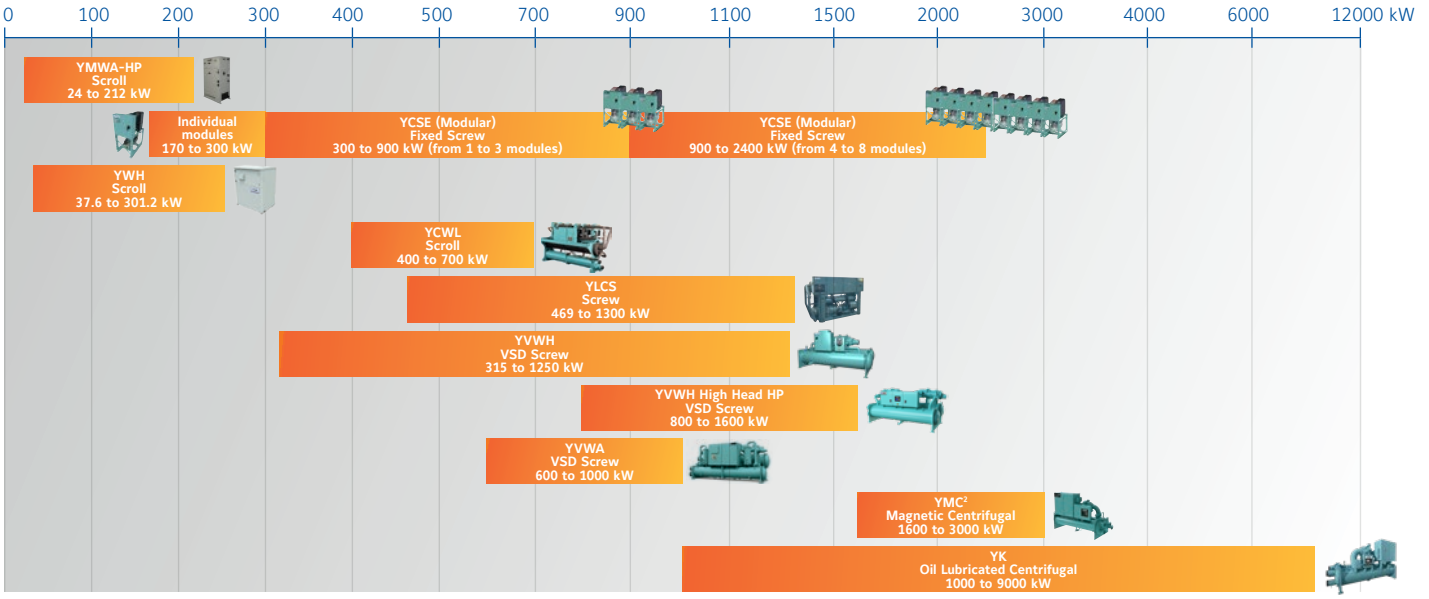
Water-Cooled Chillers and Heat Pumps

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

YORK Chillers Units



YORK Heat Pump Units



Three different compressor technologies for to meet the most challenging requirements

Scroll compressor
YMWA, YCWL, YWH

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

Screw compressor
YCSE, YRW, YVWH, YVWA, YLCS

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

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

Centrifugal compressor
YZ, YMC², YK

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

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

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

R410A

EUROVENT CERTIFIED PERFORMANCE

Features

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

Available versions

14 available YMWA sizes in three versions:

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

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

Nominal capacity and technical data

YMWA-CO	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	21.2	26.2	31.1	34.8	39.2	46.6	50.9	61.1	77.3	91.1	118.4	147.1	170	192.7
EER	4.58	4.54	4.46	4.53	4.48	4.57	4.29	4.48	4.48	4.38	4.46	4.46	4.50	4.51
SEER	5.58	5.60	5.45	5.50	5.35	5.83	6.13	6.38	5.95	6.70	5.90	6.13	6.08	6.20
ηs, c	220	221	215	217	211	230	242	252	235	265	233	242	240	245
Length / Width / Height (mm)	821 / 455 / 1350						1210 / 850 / 1500							
Operating weight (kg)	162	182	179	185	191	214	352	371	392	411	597	666	701	745

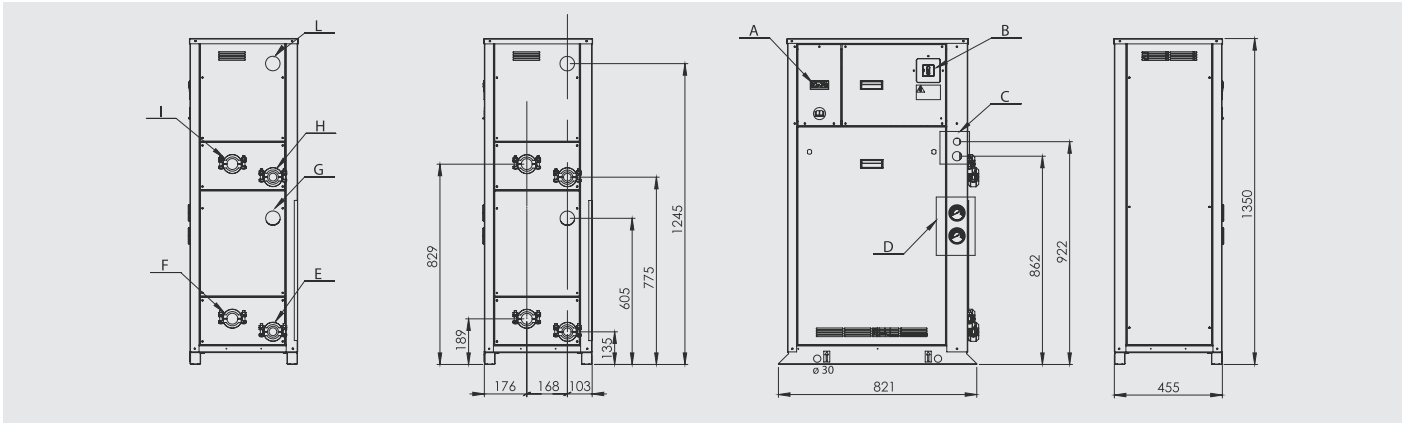
YMRA	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	21.2	26.2	31.1	34.8	39.2	46.6	50.9	61.1	77.3	91.1	118.4	147.1	170	192.7
Length / Width / Height (mm)	821 / 455 / 1350						1210 / 850 / 1500							
Operating weight (kg)	144	164	166	166	172	172	332	344	365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

YMWA-HP	0020	0025	0030	0035	0040	0045	0050	0060	0075	0090	0120	0150	0170	0190
Cooling Capacity (kW)	20.8	26.0	30.1	34.0	38.1	45.5	49.9	58.9	76.1	88.6	114.9	144.3	165.7	185.4
Heating Capacity (kW)	23.7	28.9	33.6	38.5	42.9	51.2	57.7	68.2	86.3	102.2	132.0	164.2	190.1	212.3
EER	4.45	4.47	4.28	4.35	4.33	4.39	4.15	4.24	4.36	4.20	4.26	4.33	4.34	4.28
COP	3.88	3.85	3.73	3.79	3.77	3.85	3.83	3.81	3.92	3.89	3.92	3.95	3.93	3.93
SCOP	5.65	5.40	5.24	5.23	5.18	5.46	5.06	5.57	5.28	5.05	5.5	5.12	5.21	5.34
ηs, h	218	208	202	201	199	210	194	215	203	194	212	197	200	205
Length / Width / Height (mm)	821 / 455 / 1350						1210 / 850 / 1500							
Operating weight (kg)	165	187	184	190	195	219	360	379	403	422	610	683	718	762

Net values at Eurovent nominal conditions:
YMWA-CO: Standard Eurovent LCP/W/AC conditions in cooling mode: evaporator EWT/LWT 12°C/7°C, condenser EWT/LWT 30°C/35°C
YMRA: Evaporator EWT/LWT 12°C/7°C, condensing temperature 40°C
YMWA-HP: Standard Eurovent LCP/W/AC conditions in cooling mode: evaporator EWT/LWT 12°C/7°C, condenser EWT/LWT 30°C/35°C
YMWA-HP: Standard Eurovent LCP/W/AC conditions in heating mode: evaporator EWT/LWT 10°C/7°C, condenser EWT/LWT 40°C/45°C
Ecodesign figures are calculated following variable water flow and variable outlet approach (VW/VO). For other Ecodesign calculations, please contact your JCI representative.
SEER and SCOP calculated according to EN14511 and EN14825
ηs calculated according to Ecodesign regulation for chillers comfort cooling and heating (813/2013, 2016/2281).
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects

Dimensions and hydraulic connections

YMWA-CO/HP 0020-0045

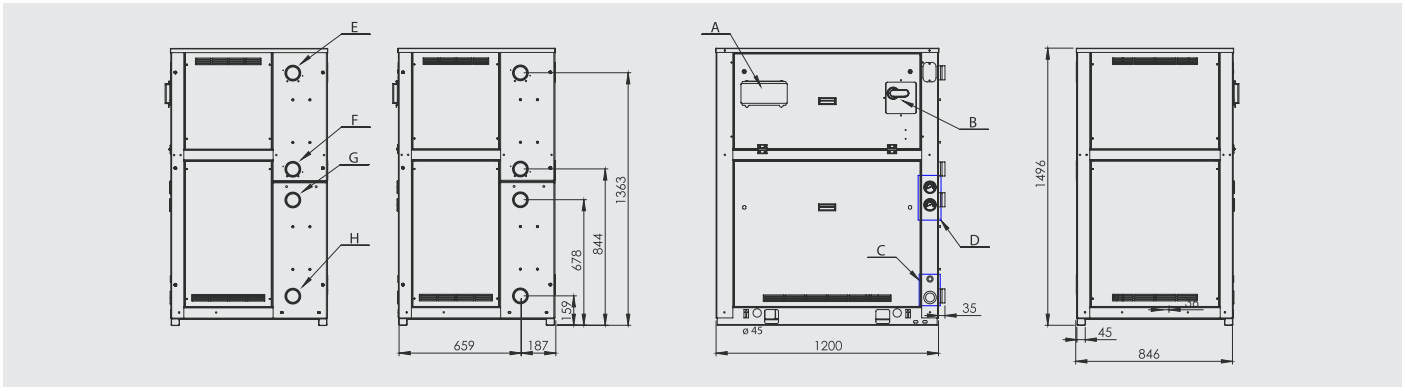


A	Control display	**D**	Gauge kit
B	Main switch	**E, F, G**	Water evaporator connections Ø 1 1/2" victaulic
C	Auxiliary lines, electrical connection	**H, I, L**	Water condenser connections Ø 1 1/2" victaulic

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

All dimensions in mm. Drawings not in scale.

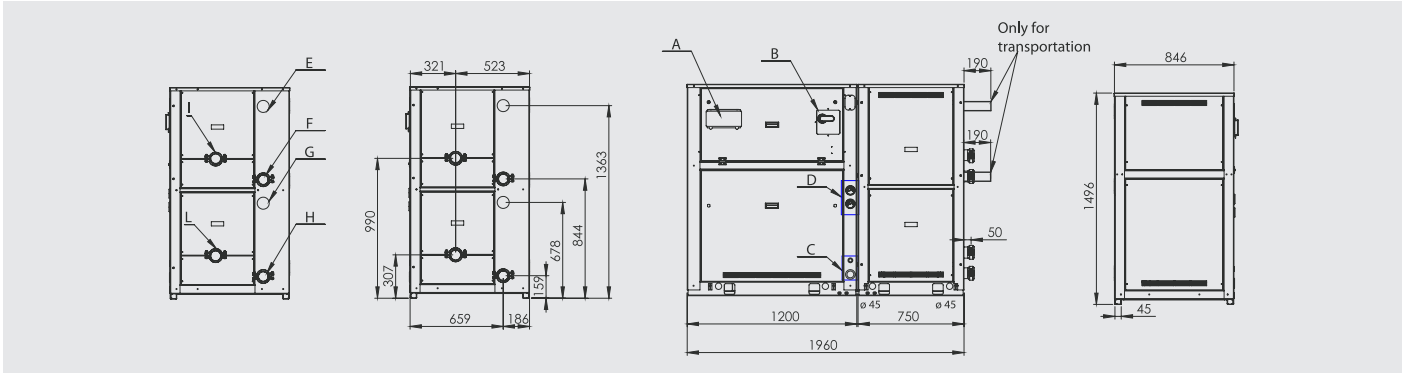
YMWA-CO/HP 0050-0190 without Hydrokit



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

All dimensions in mm. Drawings not in scale.

YMWA-CO/HP 0050-0190 with Hydrokit



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

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

All dimensions in mm. Drawings not in scale.

Manufacturer reserves the rights to change specifications without prior notice.

YRW
Water-cooled screw compressor chiller

Cooling capacities from 143 kW to 306 kW

R513A

INVERTER

Available as option

EUROVENT CERTIFIED PERFORMANCE

Features

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

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

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

Options

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

Water-cooled screw compressor chiller

YRW 151 to 301

Performances

YRW		151	201	251	301
Cooling capacity (kW)		143	195	236	306
Absorbed power (kW)		30.7	43.6	50.8	66.4
SEER [1]		5.57	5.29	5.52	5.33
EER		4.66	4.47	4.65	4.61
Regulation		25/50 ~ 100%			
Refrigerant charge (kg)		20	27	35	41
Evaporator	Inlet water temp. (°C)	12	12	12	12
	Outlet water temp. (°C)	7	7	7	7
	Waterflow (m^3/h)	24.59	33.54	49.42	52.65
	Pressure drop (kPa)	11.2	13	15	17.9
Condenser	Inlet water temp. (°C)	30	30	30	30
	Outlet water temp. (°C)	35	35	35	35
	Waterflow (m^3/h)	29.96	41.11	40.57	64.10
	Pressure drop (kPa)	16.2	22.3	12.1	28.9
Sound power level dB(A)		92	91	95	92
Max absorbed current (A)		90	125	155	195
Inrush current (A)		269	350	439	612
Power supply		400V /3PH/ 50Hz			

1: Ratings in accordance to Ecodesign, variable water flow and variable outlet (VW/VO).
The above data is based on Johnson Controls' selection software. Please refer to the latest version of the software for specific projects and available options.
In the software you can also find the performance data for YRW-VS, the series with the inverter option.

Technical data

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

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

Manufacturer reserves the rights to change specifications without prior notice.

YCSE/YCRE Style C
Water-cooled screw compressor chiller

Cooling capacities from 140 kW to 249 kW
Heating capacities from 170 kW to 300 kW

R134a

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

Available on request
R513A

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

Features

Model sizes
4 cooling only and 4 heat pumps.

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

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

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

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

Modular concept

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

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

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

Options/Accessories

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

Nominal capacity and technical data

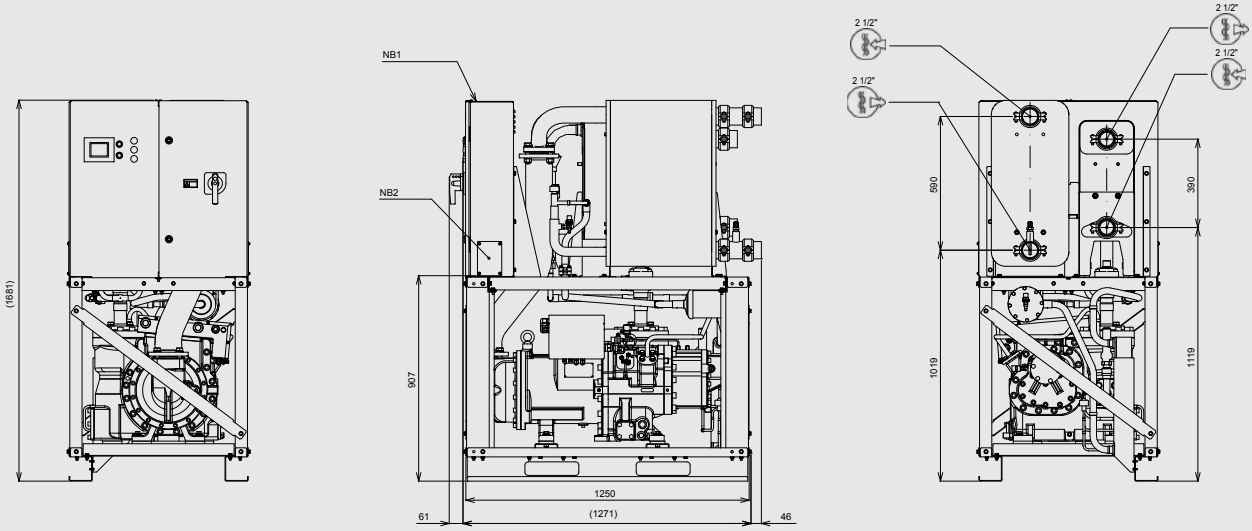
Model	YCSE				YCRE		
Size	0141	0181	0221	0241	0141	0181	0221
Cooling Capacity (kW) *	140	180	220	249	135	175	215
EER	4.85	4.81	4.71	4.73	4.22	4.19	4.10
SEER	5.27	5.46	5.51	5.52	Not Applicable		
ηs, c	208	215	217	218			
Sound power level (dBA)	87	88	89	90	88	89	90
Length / Width / Height (mm)	Base 1378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

* YCSE: At 35°C leaving condenser liquid temperature and 7°C leaving chilled liquid temperature according to EUROVENT calculation EN14511:2011
* YCRE: At 45°C condensing temperature and 7°C leaving chilled liquid temperature
Ecodesign figures are calculated following fixed water and fixed outlet approach (FW/FO). For other Ecodesign calculations, please contact your JCI representative.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects

Dimensions and hydraulic connections

YCSE 0141 to 0241

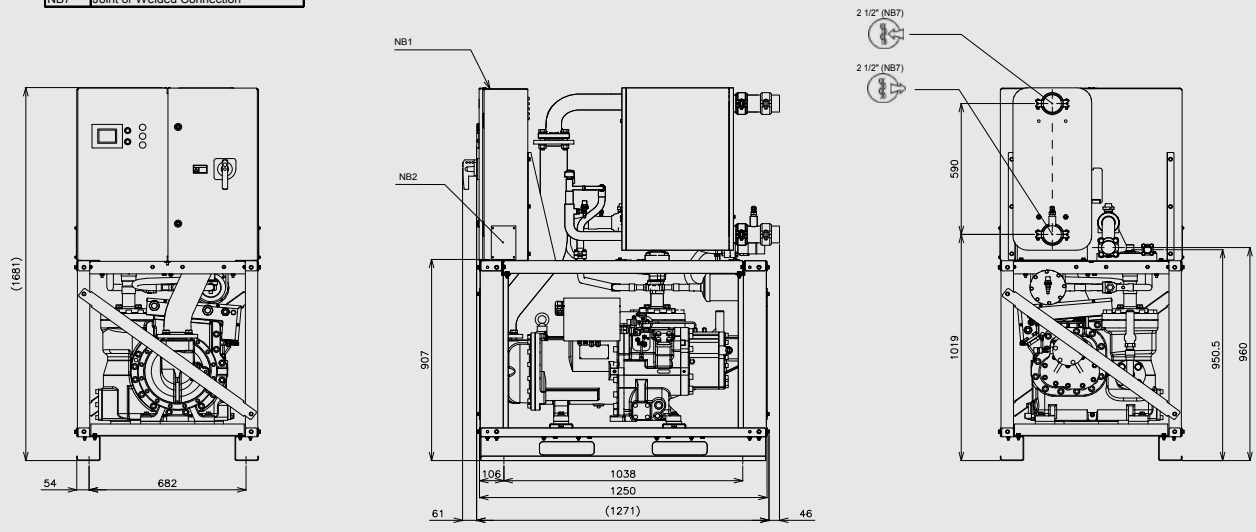
NB1	Electrical Box
NB2	Customer Wiring Entry (both sides)
NB3	2 1/2" Victaulic Connection
NB4	76.1 mm Welded Connection



All dimensions in mm. Drawings not in scale.

YCRE 0141 to 0221

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

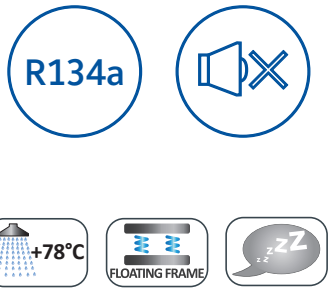


All dimensions in mm. Drawings not in scale.

Manufacturer reserves the rights to change specifications without prior notice.

YWH
Super-high temperature water to water scroll heat pumps

Heating capacities from 37.6 kW to 301.2 kW



Features

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

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

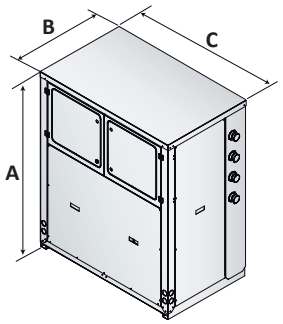
Options

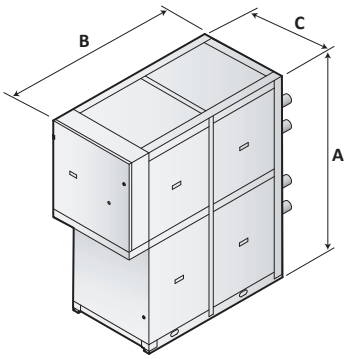
HT High source leaving water temperature up to 40°C, water temperature production up to 78°C.

LT Medium source leaving water temperature up to 20°C, water temperature production up to 70°C.

XL Floating frame and super low noise version, up to 12 dBA attenuation

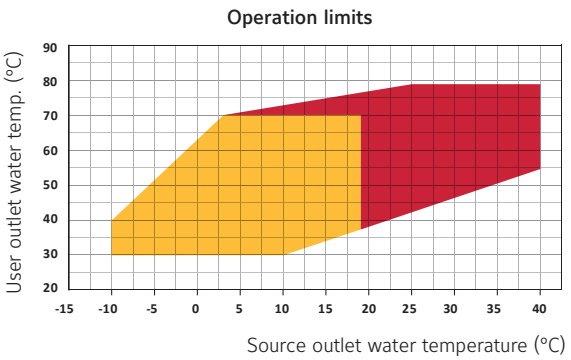
HK Hydraulic kit, single or dual pump, for mod. 1804, 2304, 2604 only





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

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



Super-high temperature water to water scroll heat pumps

YWH 302 to 2604

Nominal capacity

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

(1) Heating: user water temperature 30/35°C, source water temperature 10/7°C.
(2) Ratings in accordance with Ecodesign regulation 813/2013, average climatic profile and variable water outlet temperature.
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1 m from the unit in free field conditions in accordance with ISO 3744.

Nominal capacity

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

(1) Heating: user water temperature 30/35°C, source water temperature 10/7°C.
(2) Ratings in accordance with Ecodesign regulation 813/2013, average climatic profile and variable water outlet temperature.
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1 m from the unit in free field conditions in accordance with ISO 3744.

YCWL/YCRL
Water-cooled scroll compressor chiller

Cooling capacities from 178 kW to 597 kW
Heating capacities from 200 kW to 700 kW

R410A

SMART EQUIPMENT

EUROVENT CERTIFIED PERFORMANCE

Features

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

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

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

Options

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

Available with remote condenser option (mod. YCRL)

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

Water-cooled scroll compressor chiller

YCWL / YCRL 0201 to 0611

Performances

YCWL-SE	0292	0343	0396
Cooling capacity (kW) [1]	294	333	371
EER [1]	4.72	4.67	4.72
SEER [1]	7.54	7.15	7.25
ηs, c [1]	299	283	287
Sound Pressure (dB(A)) [2]	72	73	73

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

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

1: Ratings in accordance to Ecodesign, variable water flow and variable outlet (VW/VO).
2: Sound pressure measured at 1m.
3: Cooling capacity and efficiencies at 12/7°C chilled water in the evaporator and saturated discharge temperature 45°C.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

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

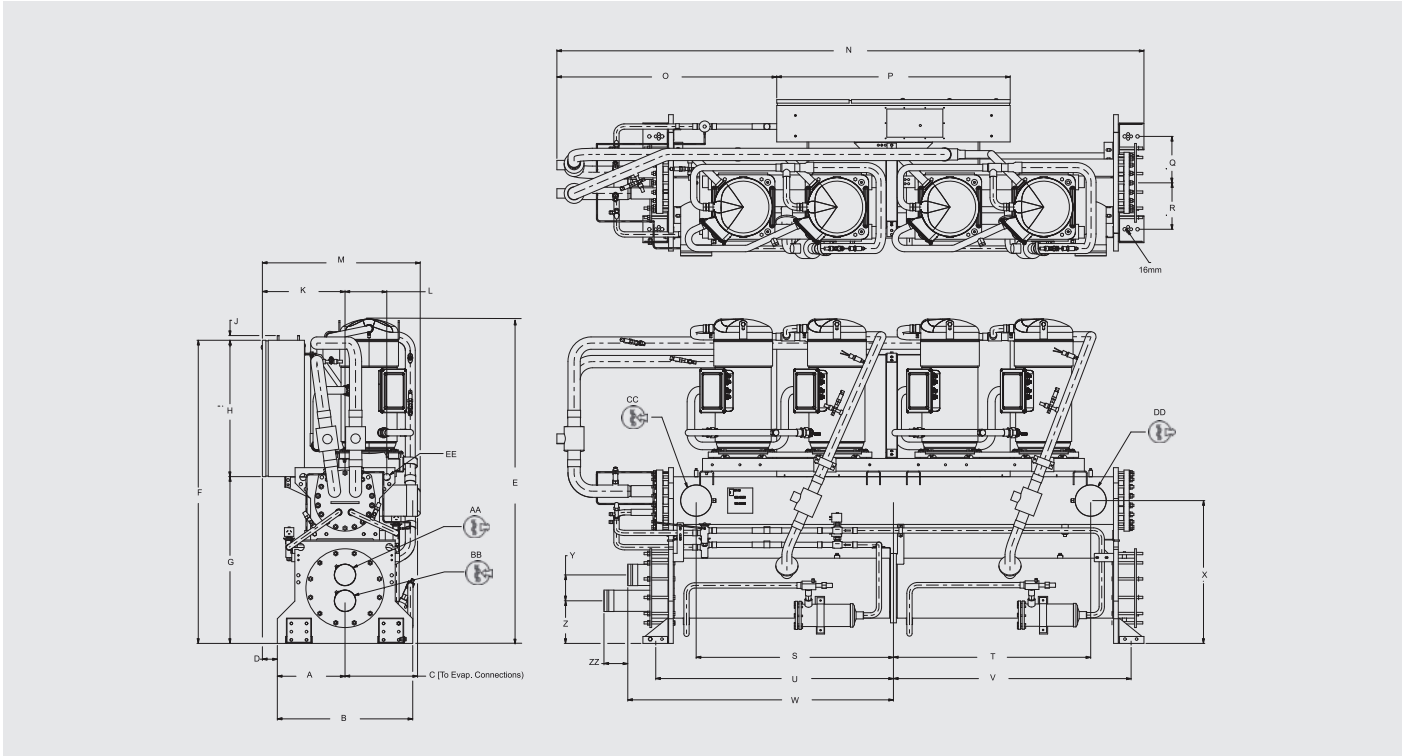
YCWL-HE			0201	0231	0261	0302	0347	0426	0447	0532	0611
Dimensions	Length	mm	3161	3098	3154	3169	3132	3133	3643		
	Width	mm	859	857	844	859		859	885		
	Height	mm	1670	1914	1820	1819	1889	1889	1946	1965	
Operating weight		kg	2218	2512	2463	2481	2808	2824	3632	3838	3999

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

Manufacturer reserves the rights to change specifications without prior notice.

Dimensions and hydraulic connections

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



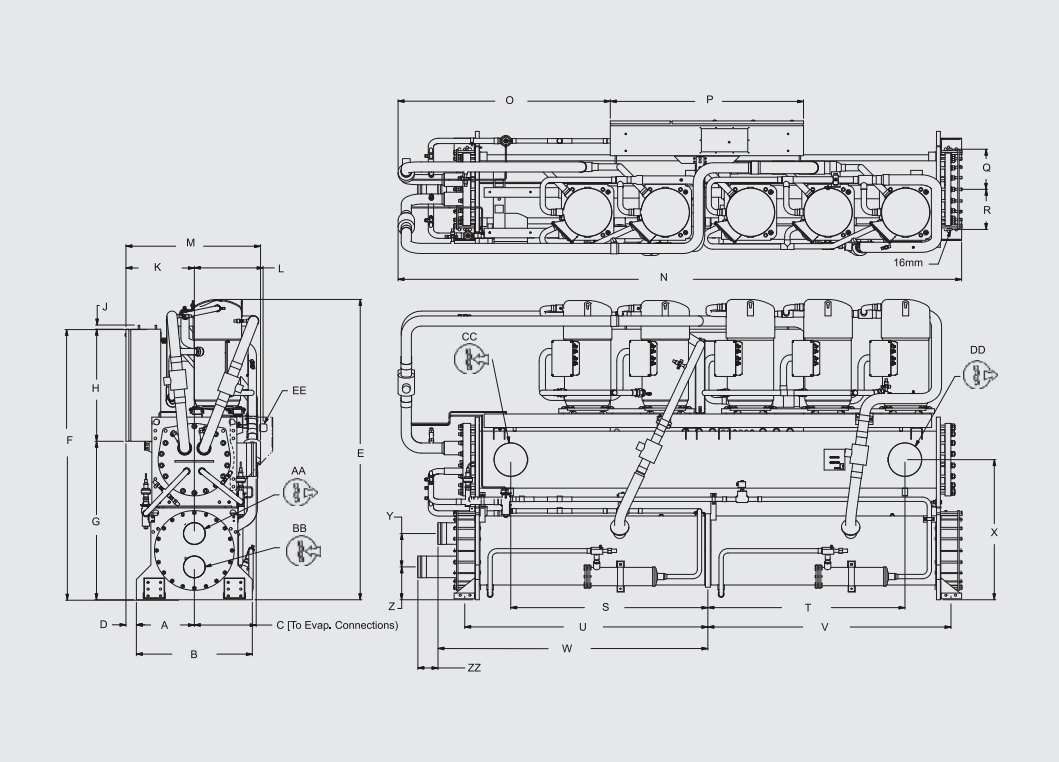
YCWL	0292SE	0343SE	0396SE	0201HE	0231HE	0261HE	0302HE	0347HE	0426HE	0447HE
Dimension	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
A	368	368	368	368	368	368	368	368	368	381
B	737	737	737	737	737	737	737	737	737	762
C	299	394	394	299	407	394	394	406	406	406
D	81	81	81	81	81	81	81	81	81	69
E	1830	1819	1819	1670	1914	1820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

All dimensions in mm. Drawings not in scale.

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

Dimensions and hydraulic connections

YCWL0532HE

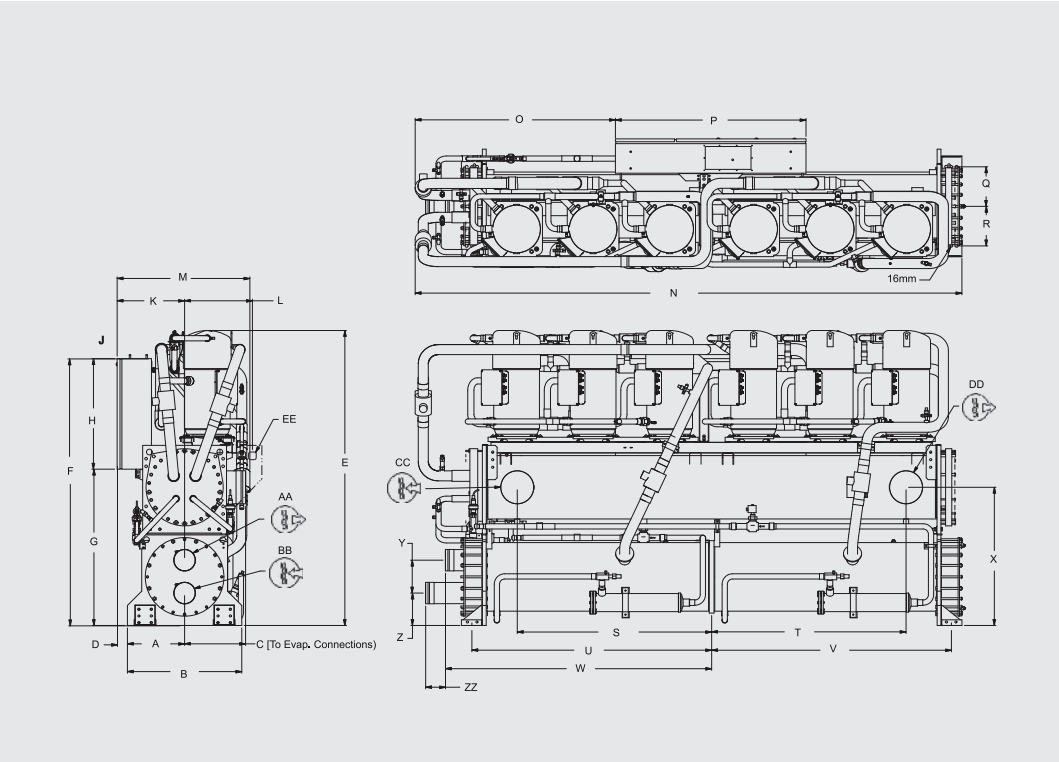


YCWL	0532HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	263
R	263
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

All dimensions in mm.

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

YCWL0611HE



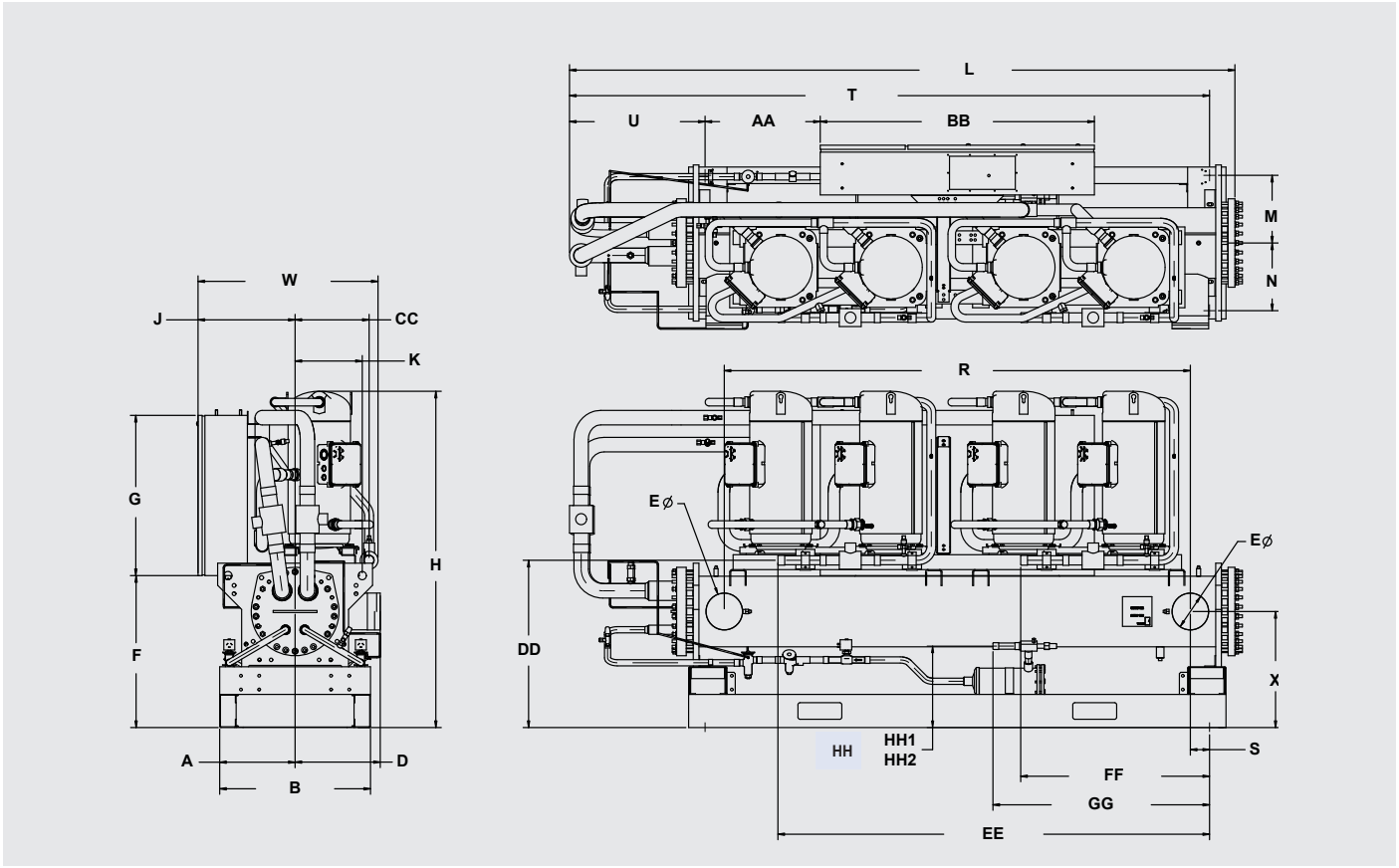
YCWL	0611HE
Dimension	mm
A	381
B	762
C	406
D	69
E	1965
F	1778
G	1041
H	737
J	25
K	450
L	452
M	885
N	3643
O	1334
P	1270
Q	264
R	264
S	1295
T	1295
U	1598
V	1598
W	1774
X	921
Y	219
Z	216
ZZ	132
EE Ø	51

All dimensions in mm.

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

Dimensions and hydraulic connections

YCRL 0201 HE to YCRL 0347 HE

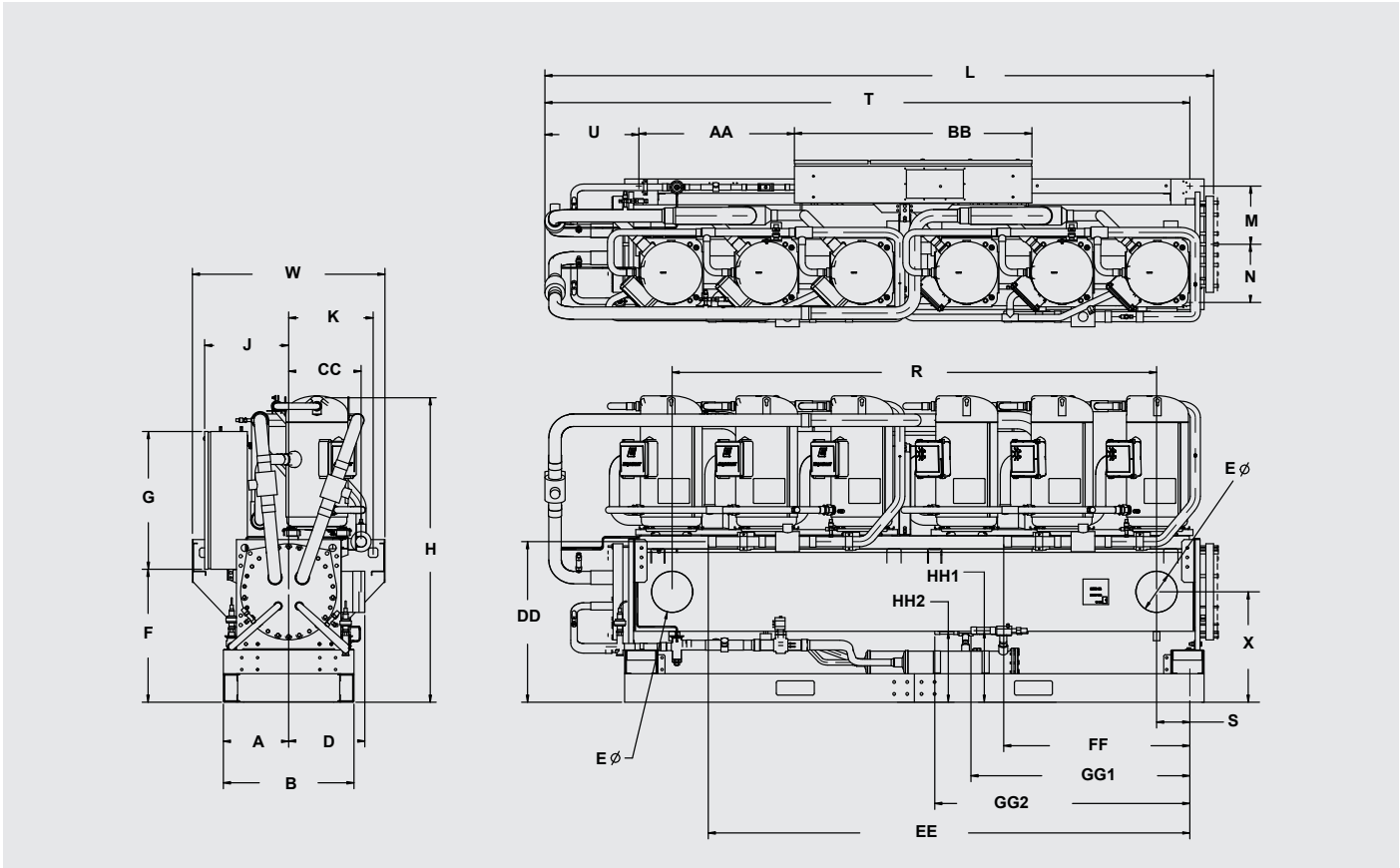


YCRL	0201 HE	0231 HE	0261 HE	0302 HE	0347 HE
W	824	834	834	834	846
H	1437	1616	1546	1544	1613
L	3085	3062	3082	3082	3062
A	349	349	349	349	349
B	699	692	699	699	699
D	299	407	394	394	407
E	219	219	168	168	219
F	622	737	699	699	737
G	737	737	737	737	737
J	450	450	450	450	450
K	311	324	311	311	324
M	311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

All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

YCRL 0386 HE to YCRL 0611 HE



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

All dimensions in mm. Drawings not in scale.

YLCS
Remote Air-Cooled and Heat Pump screw compressor

Cooling capacities from 323 kW to 1079 kW
Heating capacities from 469 kW to 1307 kW

R134a

Features

Designed to operate with leaving chilled liquid temperature from -4.5°C to +15°C and warm water to 60°C in heat pump.

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

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

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

Options/Accessories

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

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

YLCS 0350 to 1120

Remote Air Cooled Chiller (Condenser less)

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

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

At 7°C leaving chilled water and condensing at 45°C with 5°C sub cooling.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Heat Pump Application

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

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

At 12-7°C leaving chilled water and condensing at 40-45°C.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

Technical data

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

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

Manufacturer reserves the rights to change specifications without prior notice.

YVWH
Premium-efficiency VSD water-cooled screw compressor chiller

Cooling capacity: 313 kW to 1189 kW (R1234ze) - 1566 kW (R134a)
Heating capacity: 315 kW to 1250 kW (R1234ze) - 1730 kW (R134a)

Features

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

Key components

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

Committed to sustainability

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

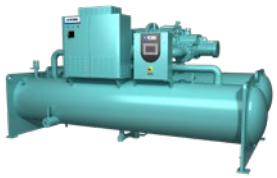
Options/Accessories

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

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

Premium-efficiency VSD water-cooled screw compressor chiller

YVWH 115 to 445



Performances (R1234ze)

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

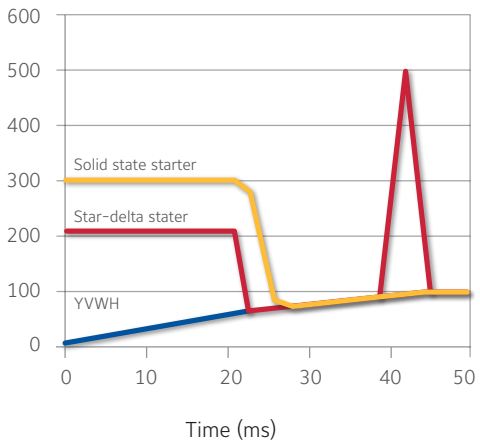
Ratings in accordance to Ecodesign, variable water flow and variable outlet (VW/VO). Rated with YORKworks 21.04a.
For other Ecodesign calculations or R134a information, please contact your JCI Representative.
[1] Bare unit. Sound kit 1 or 2 are available for sound attenuation.

Technical data

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

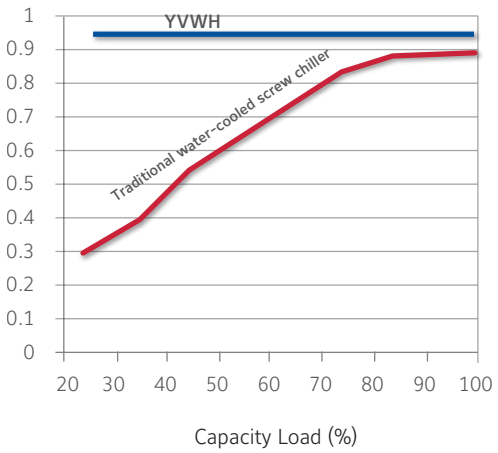
Soft Start

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



Displacement Power Factor (DPF)

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



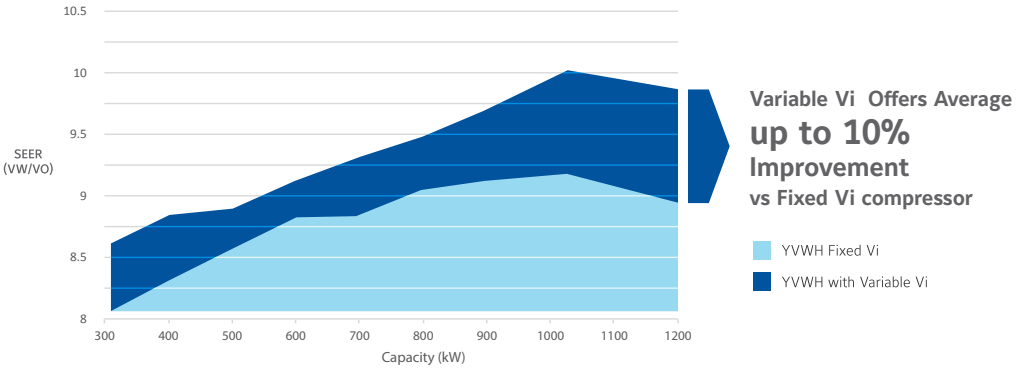
Manufacturer reserves the rights to change specifications without prior notice.

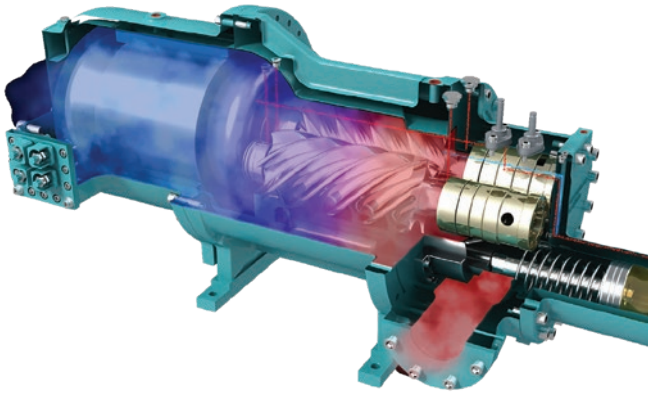
YVWH main features

Variable Vi

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

Performance Improvement by Variable Vi



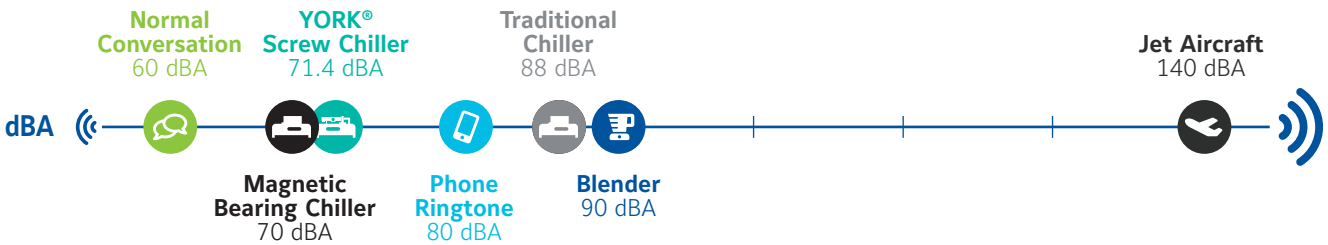


Optimized Compressor

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

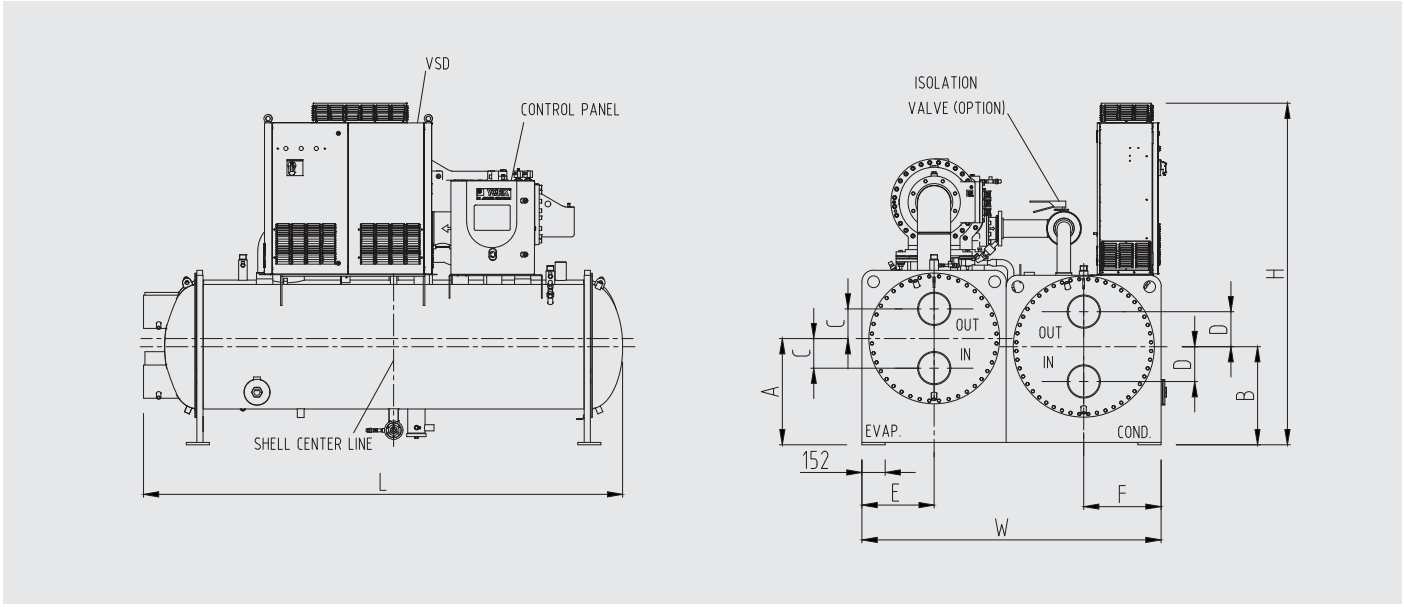
Reduced Sound Pressure Levels (1m)

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



Dimensions and hydraulic connections

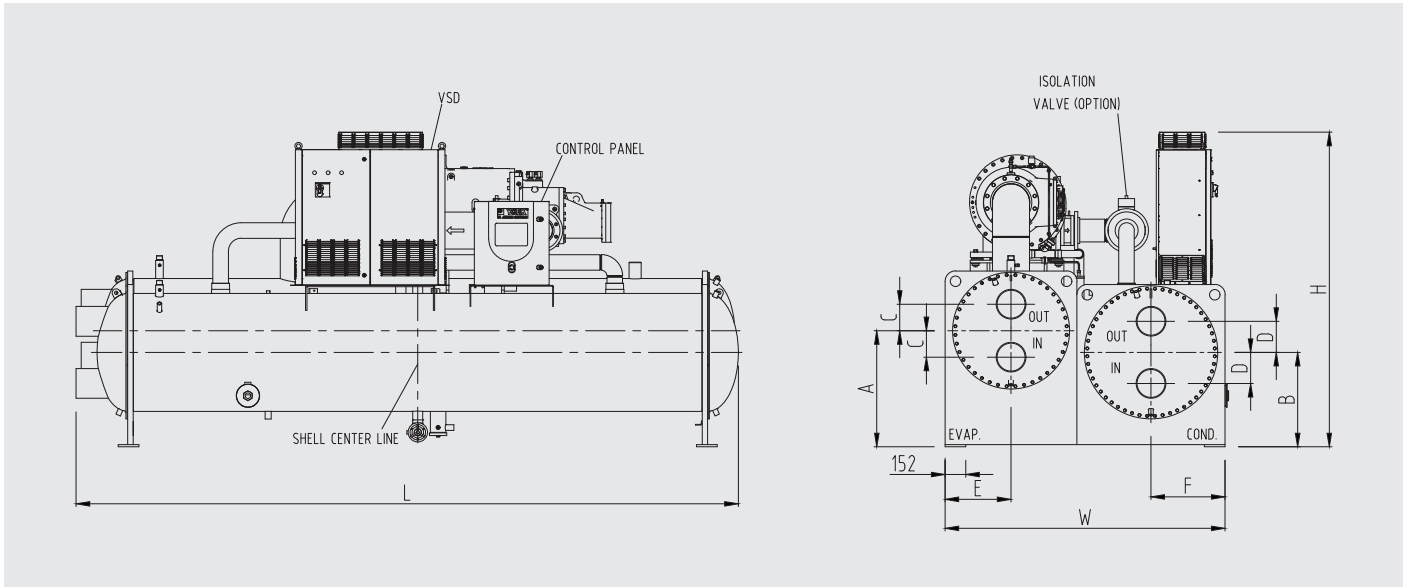
YVWH 115/145/180/225



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

All dimensions in mm. Drawings not in scale.

YVWH 265/305/325/380/445



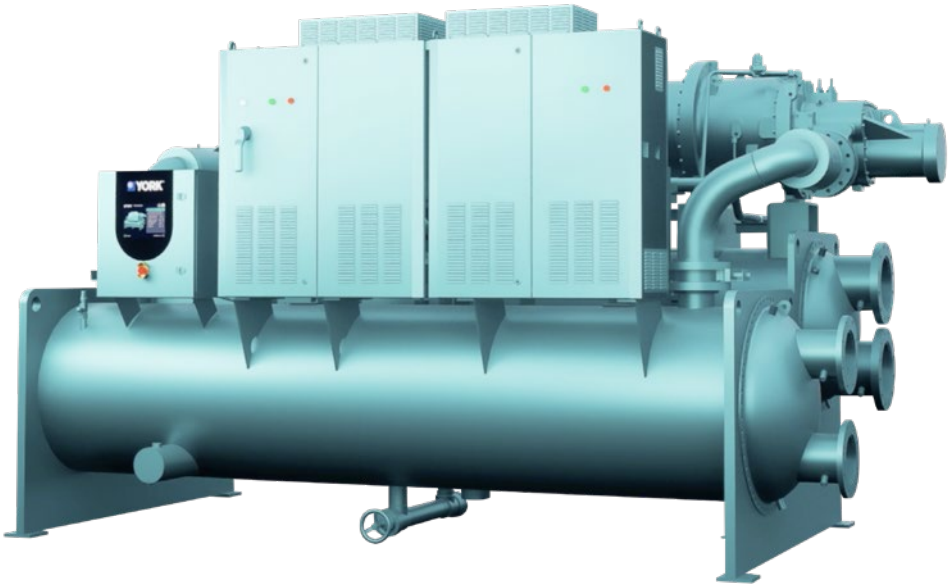
Model	L (mm)	W (mm)	H (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
YVWH265	4807	1925	2300	856	696	195	195	460	485
YVWH305	4832	1988	2300	856	696	195	230	460	520
YVWH325/380/445	4873	2086	2320	856	696	195	229	485	545

All dimensions in mm. Drawings not in scale.

YVWH HP
Premium-efficiency VSD water-cooled screw compressor heat pump

NEW

Cooling capacity: 788 kW to 1576 kW
Heating capacity: 900 kW to 1800 kW



R1234ze | INVERTER | R515B

Features

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

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

Key components

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

Committed to sustainability

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

Options/Accessories

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

Premium-efficiency VSD water-cooled screw compressor heat pump

YVWH HP 270 to 550

Performances (R1234ze and 515B) – Preliminary Data

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

1) Ratings in accordance to Ecodesign at 10/7 - 47/55°C
2) Ratings variable water flow and variable outlet (VW/VO).
3) The table above shows only a representative sample of performance points. For job specific operating conditions contact your JCI Representative.

Technical data

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

GT Screw Compressor

Variable Speed Drive

OptiView LT Panel

Manufacturer reserves the rights to change specifications without prior notice.

YVWA
Water-cooled VSD screw compressor chiller

Cooling capacity from 546 kW to 1074 kW
Heating capacity from 600 kW to 1000 kW

R513A
INVERTER
R134a
SMART EQUIPMENT
EUROVENT CERTIFIED PERFORMANCE
AHRI CERTIFIED
Ask About Our Certified Products

Features

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

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

Enhanced sustainability
Achieved through high efficiency operation and low refrigerant charges.

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

Options/Accessories

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

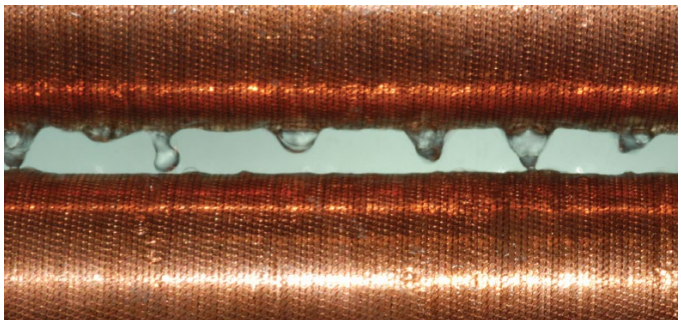


Photo courtesy of the LTCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland

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

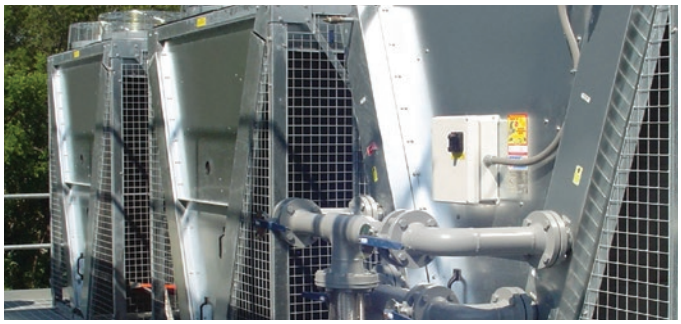


Photo courtesy of Baltimore Air Coil.

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

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

Water-cooled VSD screw compressor chiller

YVWA

R513A sample selections

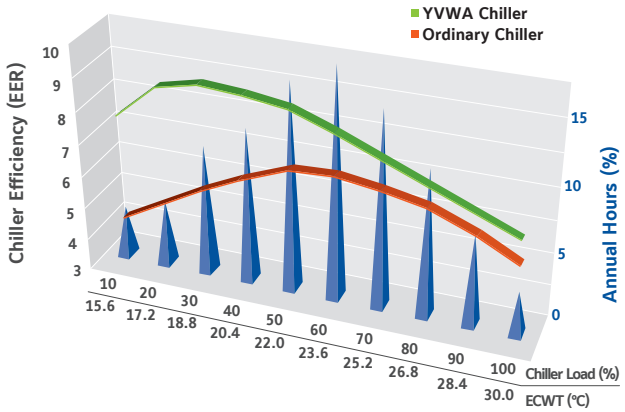
Model	YVWACDCDFX	YVWACDCDGX	YVWAMEMEEE	YVWAMEMEFF
Cooling capacity (kW)	546	701	904	1074
EER	5.11	4.79	5.16	4.88
SEER	7.76	8.25	8.34	7.93
ηs, c	307	327	330	314

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

Technical data

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

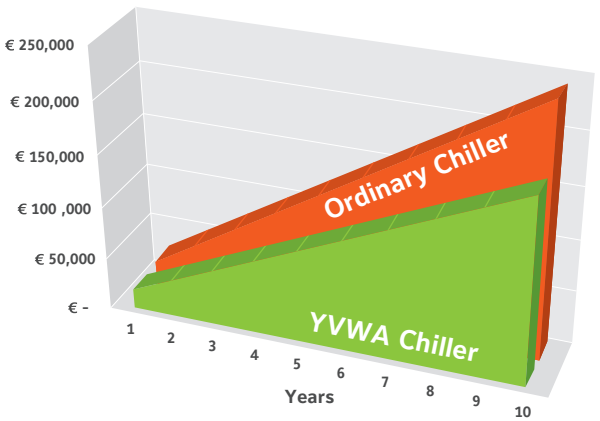
YVWA Efficiency vs. Ordinary Chiller



ECWT = Entering Condenser Water Temperature

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

YVWA Energy Cost vs. Ordinary Chiller

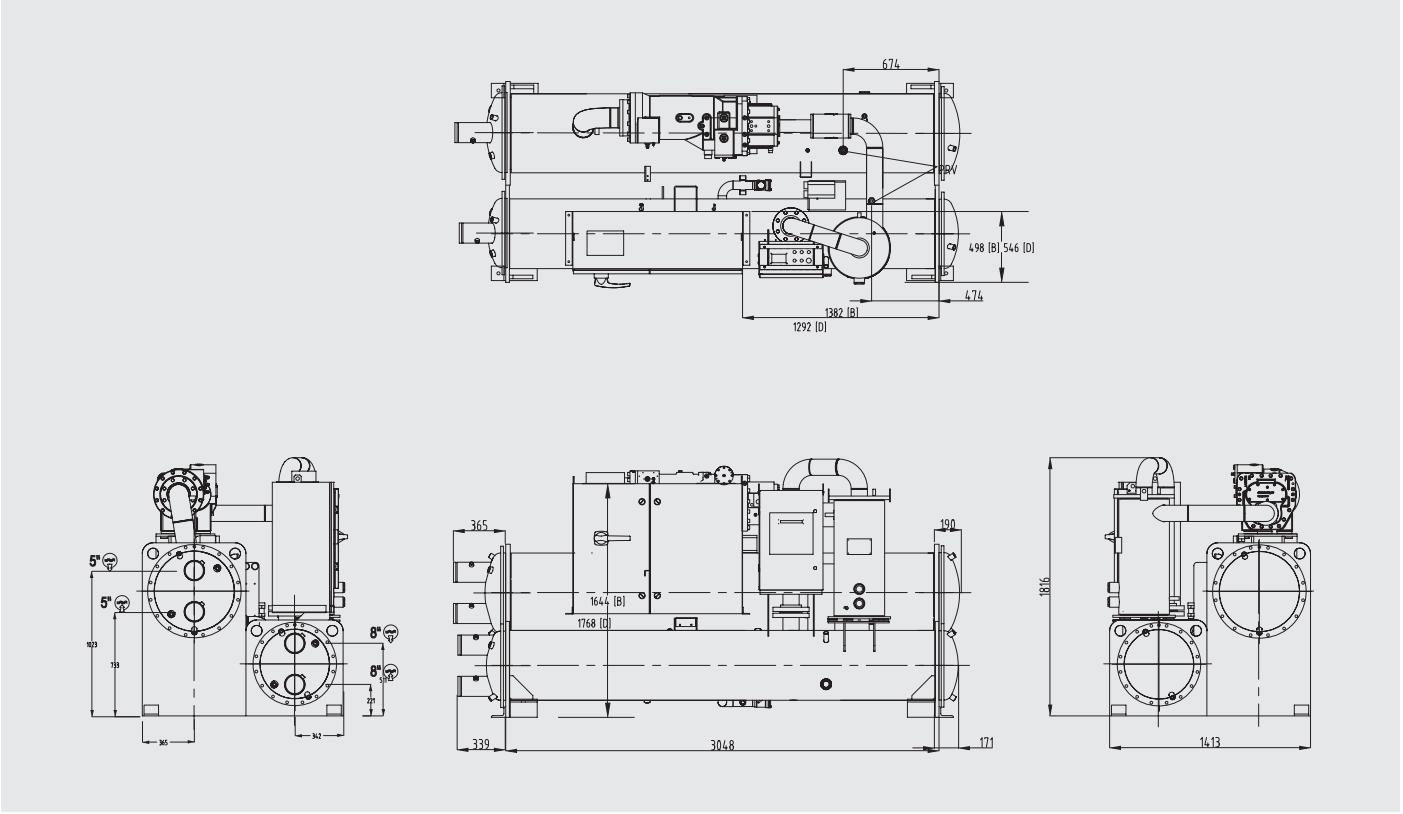


Note: 3,500 operating hours, 0.10 EUR/kWh energy rate, 800 kW design cooling load

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

Dimensions and hydraulic connections

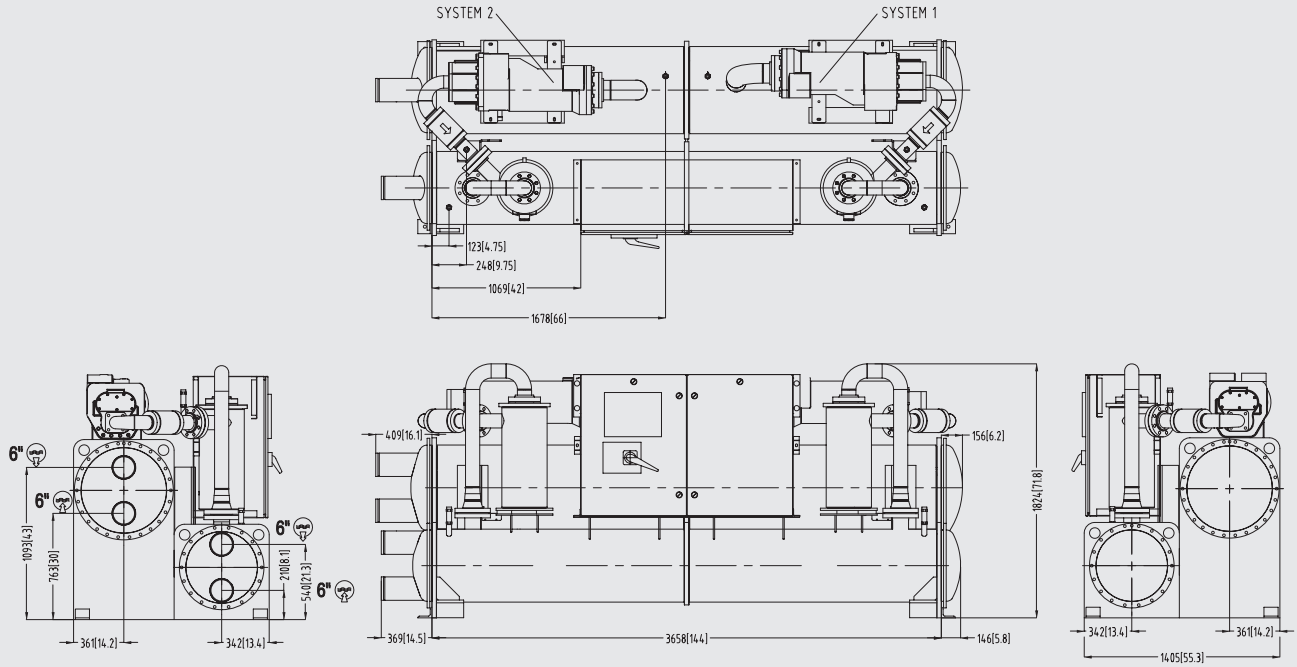
YVWA C models



All dimensions in mm. Drawings not in scale.

Dimensions and hydraulic connections

YVWA M models



All dimensions in mm. Drawings not in scale.

YZ
Magnetic bearing centrifugal chiller

Cooling capacities from 580 kW to 5500 kW

R1233zd

INVERTER

SMART EQUIPMENT

AHRI CERTIFIED

"Tailor and tune" customized units around job specific design.

Features

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

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

Committed to sustainability

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

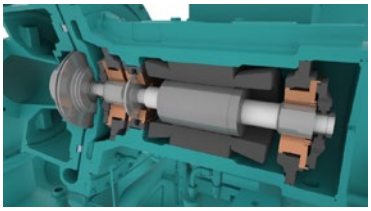
Magnetic bearing centrifugal chiller
YZ

Proven Firsts

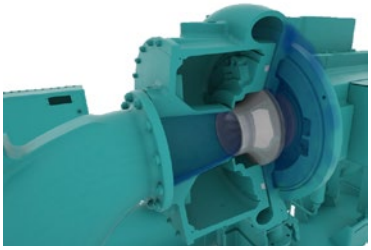
Groundbreaking YORK innovations refined over decades of real-world use have been brought together to create a revolution in chiller design and optimization. It's everything we've learned to-date, and then some.

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

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



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



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

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

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

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

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

Magnetic Driveline Superiority

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

Ultimate Performance Efficiency

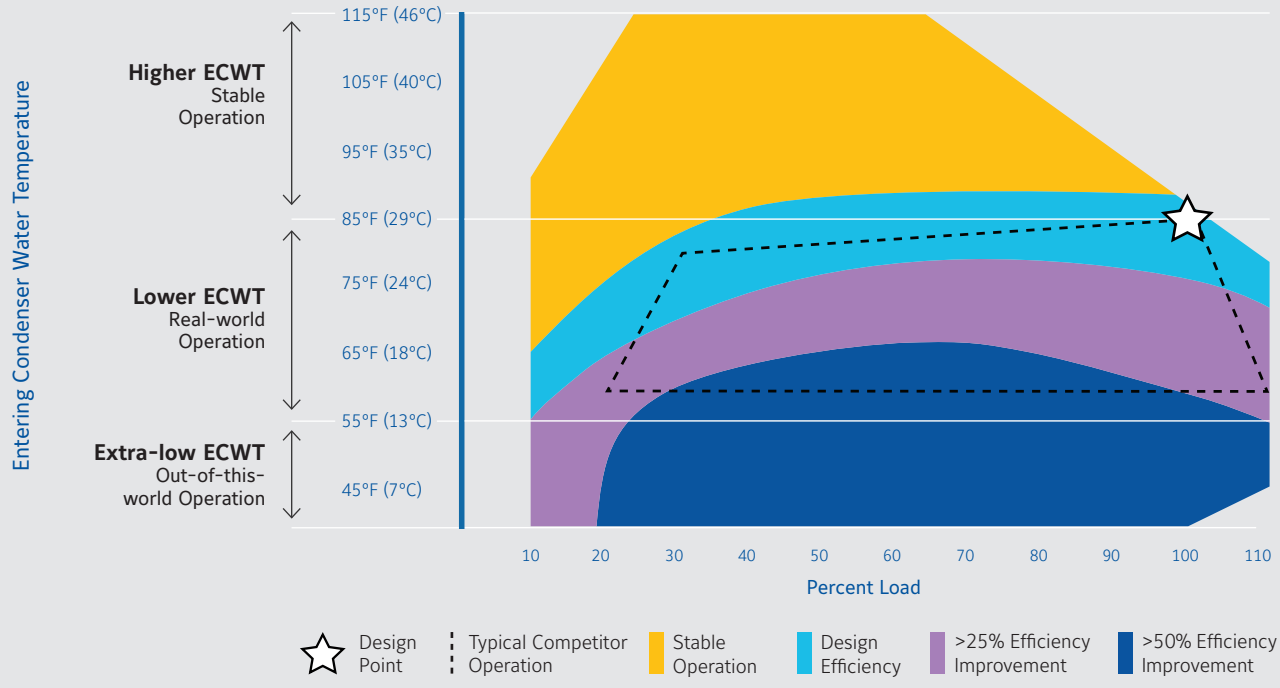
Thanks to magnetic bearing and lubrication free design YZ can run stably in the whole envelope shown in figure.

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

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

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

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



Minimum Driveline Maintenance and Costs of Ownership

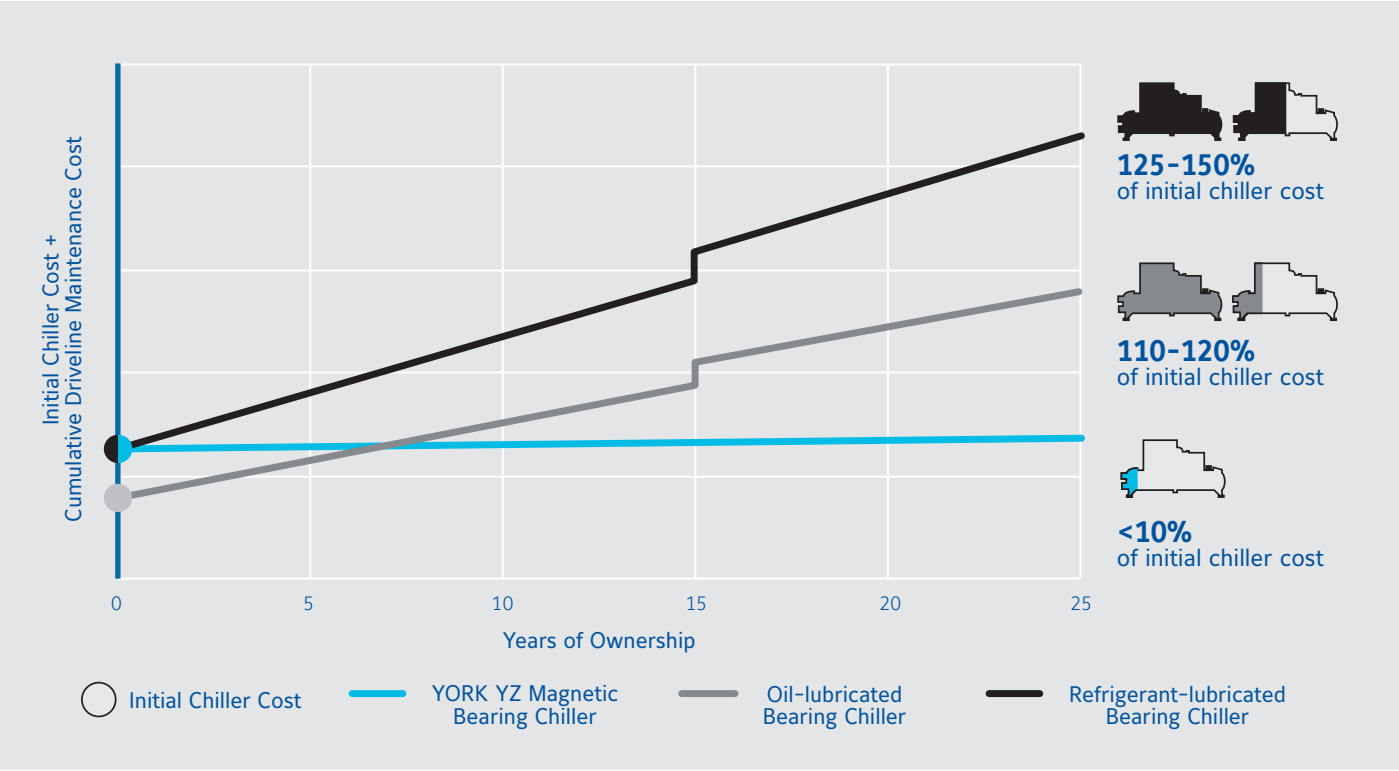
YZ driveline features a single moving assembly suspended in a magnetic field that does not require lubrication.

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

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

Magnetic bearings and lubrication free designs mean:

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



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

Performances

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

Ratings in accordance to Ecodesign, fixed water flow and variable outlet (FW/VO). For other Ecodesign calculations please contact your JCI Representative.
The table above shows only a representative sample of performance points based on generic project operating conditions working with R1233zd refrigerant.
For larger capacities up to 5500 kW, contact JCI Representative.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

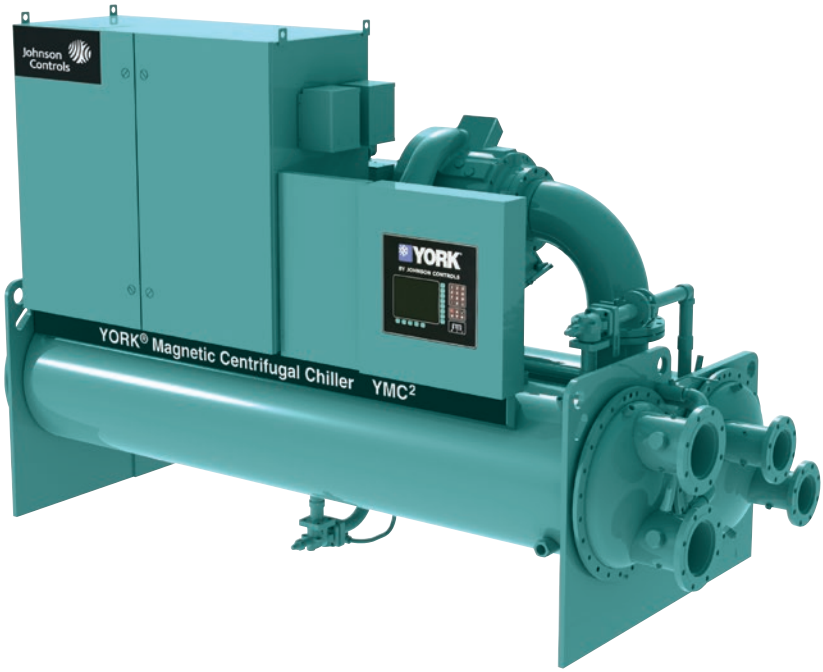
Technical data

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

1. All dimensions are approximate. Certified dimensions, shipping and operating weights are available on request.
2. Refrigerant charge quantity and unit weight will vary based on tube count.

YMC²
Water-cooled magnetic centrifugal chiller

Cooling capacities from 800 kW to 3500 kW



R134a

R513A

INVERTER

SMART EQUIPMENT

AHRI CERTIFIED

"Tailor and tune" customized units around job specific design.

Features

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

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

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

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

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

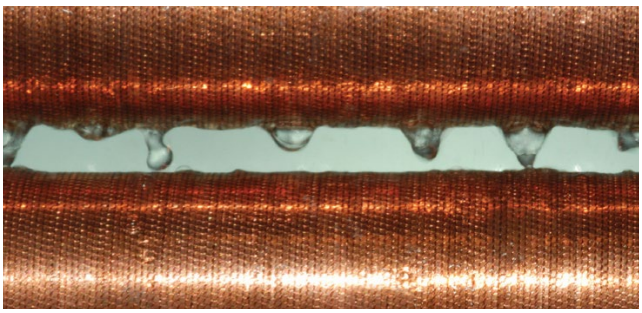
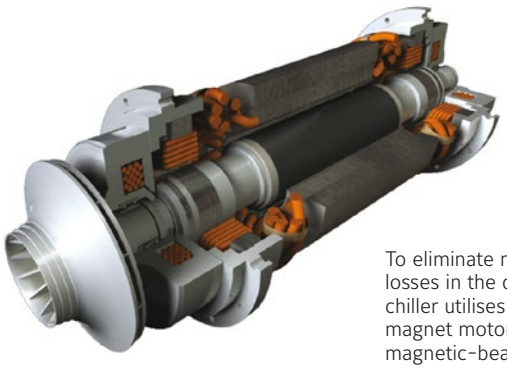


Photo courtesy of the LTCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland

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



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

Water-cooled magnetic centrifugal chiller

YMC² S0800AA to S3500AB

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

Performances

YMC²	S0800AA	S1000AA	S1200AB	S1400AA	S1600AB	S1800AB	S2000AB
Cooling capacity (kW)	800	1000	1200	1400	1600	1800	2000
EER	6.06	6.13	6.32	6.33	6.31	6.07	6.00
SEER	7.58	7.83	7.92	8.34	8.59	7.83	8.16
ηs, c	300	310	304	331	340	310	323
Sound pressure at 1 m (dBA)	77	77	76	76	77	79	80

Ratings in accordance to Ecodesign, fixed water flow and fixed outlet (FW/FO). For other Ecodesign calculations please contact your JCI Representative.
The table above shows only a representative sample of performance points based on generic project operating conditions working with R513A refrigerant.
For larger capacities up to 3500 kW or R134a information, contact JCI Representative.
The above data is based on Johnson Controls' selection software YORKworks 21.04a. Please refer to the latest version of the software for specific projects.

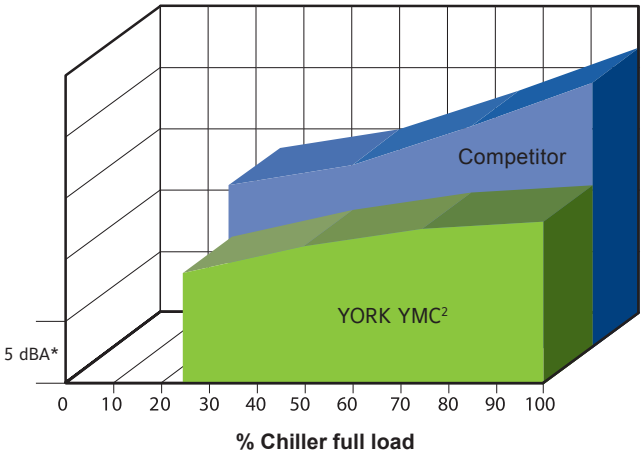
Technical data

YMC²			S0800AA	S1000AA	S1200AB	S1400AA	S1600AB	S1800AB	S2000AB
Dimensions	Length	mm	3048					4267	
	Width	mm	1880				2007		
	Height	mm	2410				2499	2573	
Shipping weight (kg)			5171		5810		6579	7809	
Refrigerant charge (kg)			278	280	423	454	445	612	656

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

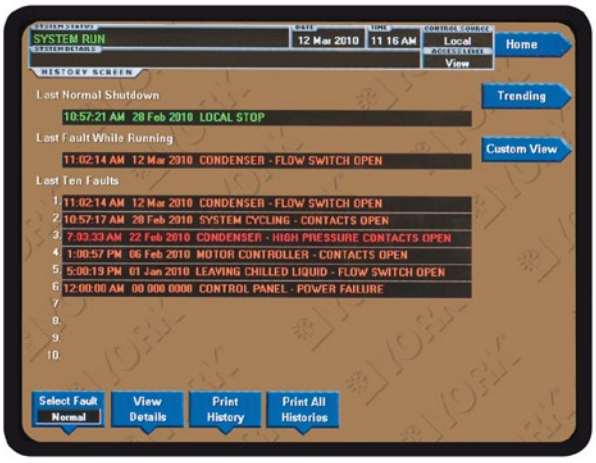
Superior sound reduction

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



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

OptiView control centre



The OptiView control centre provides complete diagnostics to speed troubleshooting.

YK
Water-cooled centrifugal chiller

Cooling capacities from 800 kW to 11250 kW

R1234ze R513A R134a

SMART EQUIPMENT

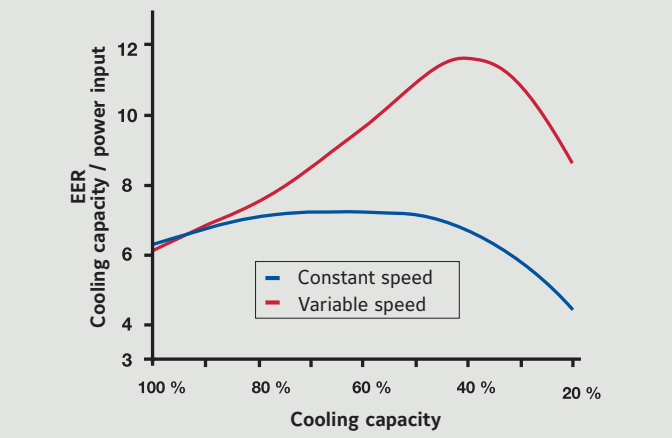
AHRI CERTIFIED Ask About Our Certified Products

"Tailor and tune" customized units around job specific design.

Old but Bold, wondering why?

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

OptiView panel



Speed comparison

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

Water-cooled centrifugal chiller

YK

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

Nominal capacity

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

Cooling capacities at 7°C leaving chilled water and 30°C entering condensed water.
The table above shows only a representative sample of performance points based on generic project operating conditions working with R513A and R134a refrigerants.
For R1234ze information contact your JCI Representative.

Heat Recovery

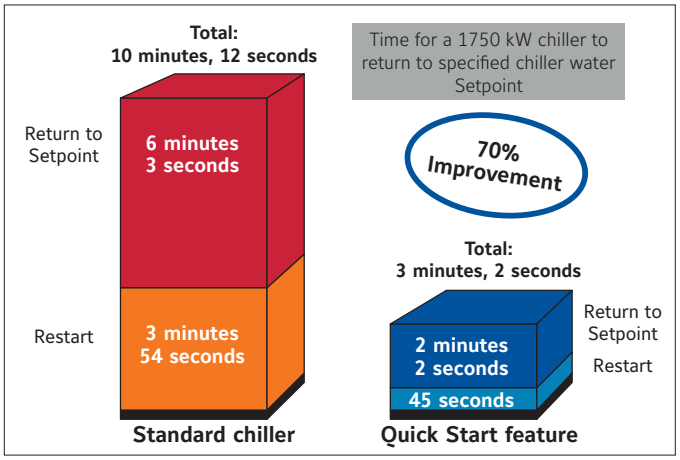
The YK Heat Recovery option can be used for domestic hot water preheat, process heat, facility air reheat, and humidity control. Heat recovery delivers operational savings, CO2 reductions, and reduced water consumption.

Medium Voltage Variable Speed Drive

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

Quick Start (only available for VSD units)

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



Manufacturer reserves the rights to change specifications without prior notice.

Tailored water-cooled offerings

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

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

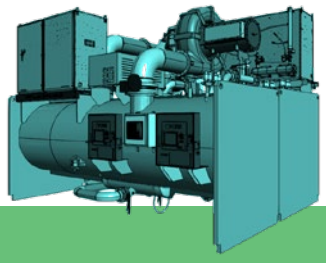
Connect with your JCI representative for details and support.

YZ

Magnetic bearing centrifugal chiller

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

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



YZD

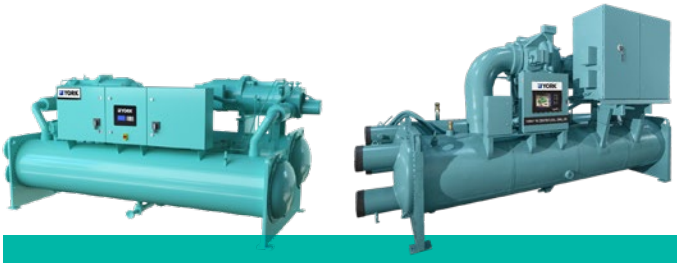
Dual magnetic bearing centrifugal chiller

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

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

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

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



YVWH high head screw compressor with R1234ze

YK Oil lubricated centrifugal chiller with HFO R1234ze

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

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

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

Heat Pumps

Customized temperature settings with both HFC and HFO refrigerants

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

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

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

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

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

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

What are absorption chillers?

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

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

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

Applying absorption chillers

Reusing Waste Energy for Cooling and Comfort

Industry
Petroleum and Chemical

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

Energy
Waste Heat

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

Industry
Brewery

Driving Heat Source
Uses heat recovered from cookers and kettles

Energy
Waste Heat

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

Industry
Printing

Driving Heat Source
Uses heat recovered from press drying units

Energy
Hot Air

Application and Chiller Selection
For hot water:
YHAU-CL/CH & YHAU-CHW

Industry
Pulp and Paper Mill

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

Energy
Steam

Application and Chiller Selection
For low-pressure steam: YHAU-C
For high-pressure steam: YHAU-CW

Industry
District Cooling

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

Energy
Steam

Application and Chiller Selection
For low-pressure steam: YHAU-C
For high-pressure steam: YHAU-CW

Industry
Incinerator

Driving Heat Source
Uses recovered heat from hot exhaust

Energy
Hot Exhaust

Application and Chiller Selection
For hot water or low-pressure steam: YHAU-CL/CH & YHAU-C

Industry
Landfill Gas

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

Energy
Gas

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

Industry
Biogas

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

Energy
Gas

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

Industry
Combined Heat and Power

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

Energy
Hot Exhaust; Hot Water

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

Industry
Solar Thermal

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

Energy
Hot Water

Application and Chiller Selection
For hot water:
YHAU-CL/CH

YORK absorption chillers and heat pumps

With innovative 2-step evaporation and absorption-cycle technology

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

** Utilizes standard cycle*

YORK absorption chillers and heat pumps

With innovative 2-step evaporation and absorption-cycle technology

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

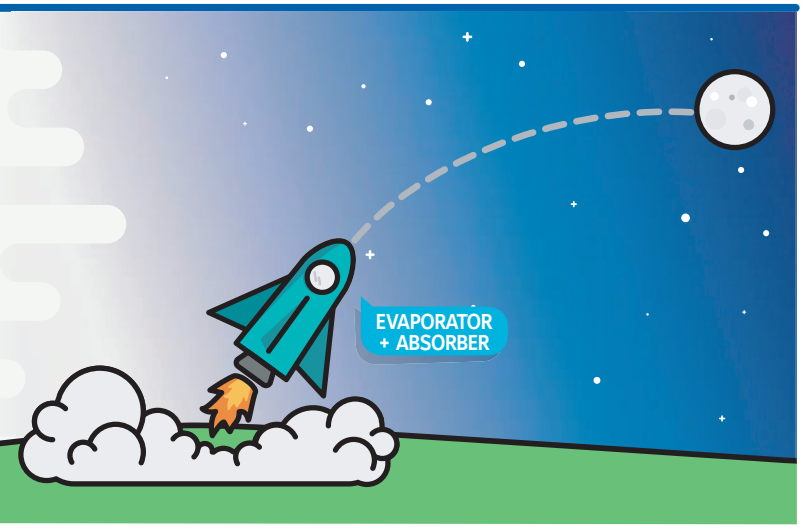
The 2-step cycle in YORK absorption chillers

Reliable energy-saving technology, explained.

Conventional Cycle

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

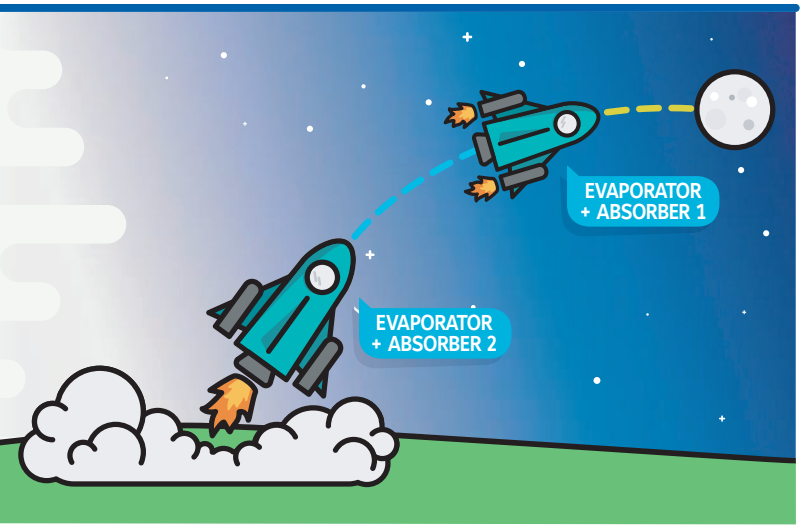
In the example here, the rocket ship only has one rocket to push it the entire distance from the earth to the moon – requiring 100% of the fuel. In much the same way, a conventional-cycle absorption chiller only has one evaporator and absorber to overcome cooling output requirements and achieve the cooling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



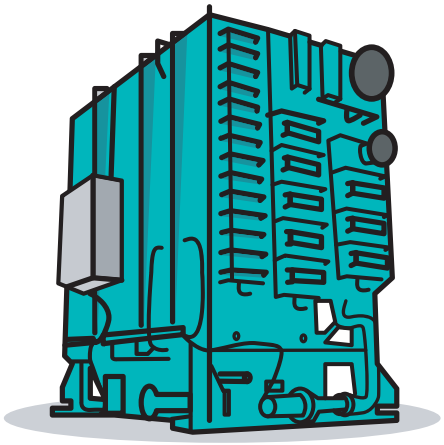
2-Step Evaporator/Absorber Cycle

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

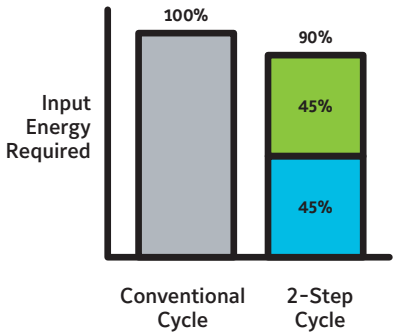
Both rockets need less fuel, since they share the effort to get the rocket ship to its goal. Instead of a single rocket bearing the entire job from point A to point B, two rockets split the effort, allowing for a continuation of effective effort and requiring only 90% of the fuel. This example illustrates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



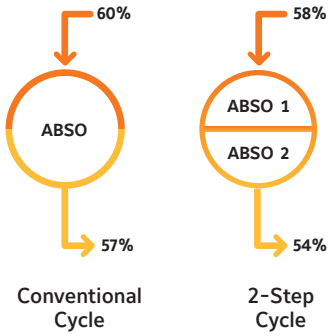
The 2-step cycle evaporator/absorber requires less energy input and a lower salt solution concentration, allowing for increased reliability and 10% energy savings.



Input Energy Required to Achieve Cooling Load



Salt Solution Concentration



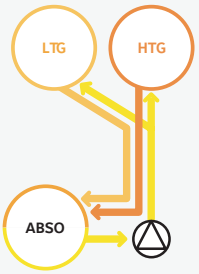
Learn more about the benefits of YORK 2-step cycle technology at YORK.com/Absorption-Chillers

YORK parallel flow and 2-step cycle absorption chiller technology

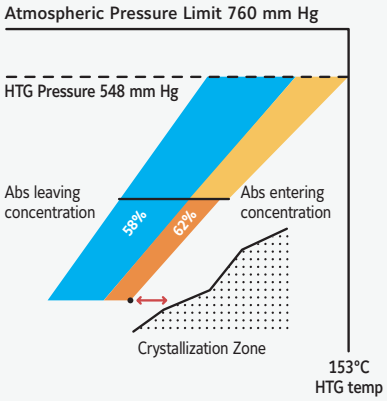
A challenge in absorption chiller design is engineering a unit that operates furthest from the crystallization line. Johnson Controls absorption engineers accepted the challenge with the development of a parallel flow and 2-step evaporator/absorber design technology.

Typical Industry Flow Cycles

Parallel

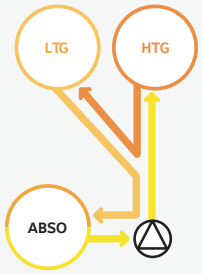


Divides the Lithium Bromide (LiBr) solution flow between the low-temperature and high-temperature generators into two parallel balanced paths.

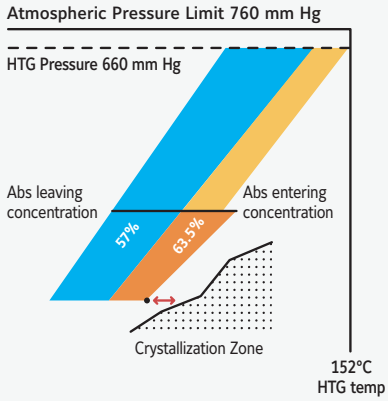


- Abs entering temp 43.5°C
- ↔ Distance from Crystallization Zone 23.5°C

Series

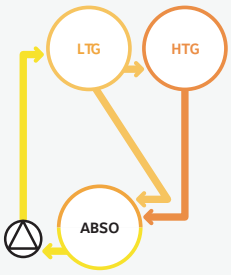


All of the Lithium Bromide (LiBr) solution from the absorber section flows first to the HTG, then to the LTG and back into the absorber section.

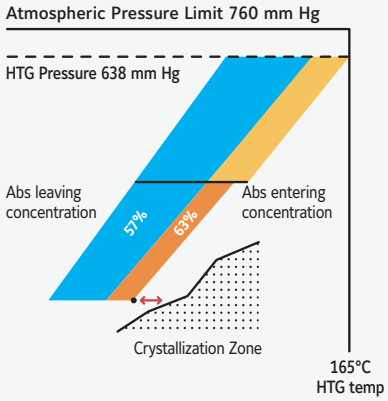


- Abs entering temp 49°C
- ↔ Distance from Crystallization Zone 23°C

Reverse

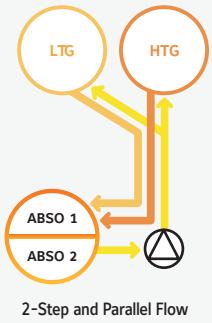


All of the Lithium Bromide (LiBr) solution from the absorber section flows first to the LTG, then to the HTG and back into the absorber section.

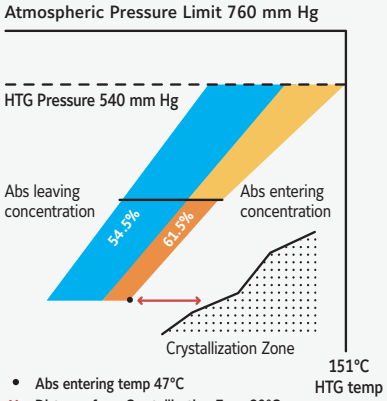


- Abs entering temp 48°C
- ↔ Distance from Crystallization Zone 23°C

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



2-Step and Parallel Flow



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

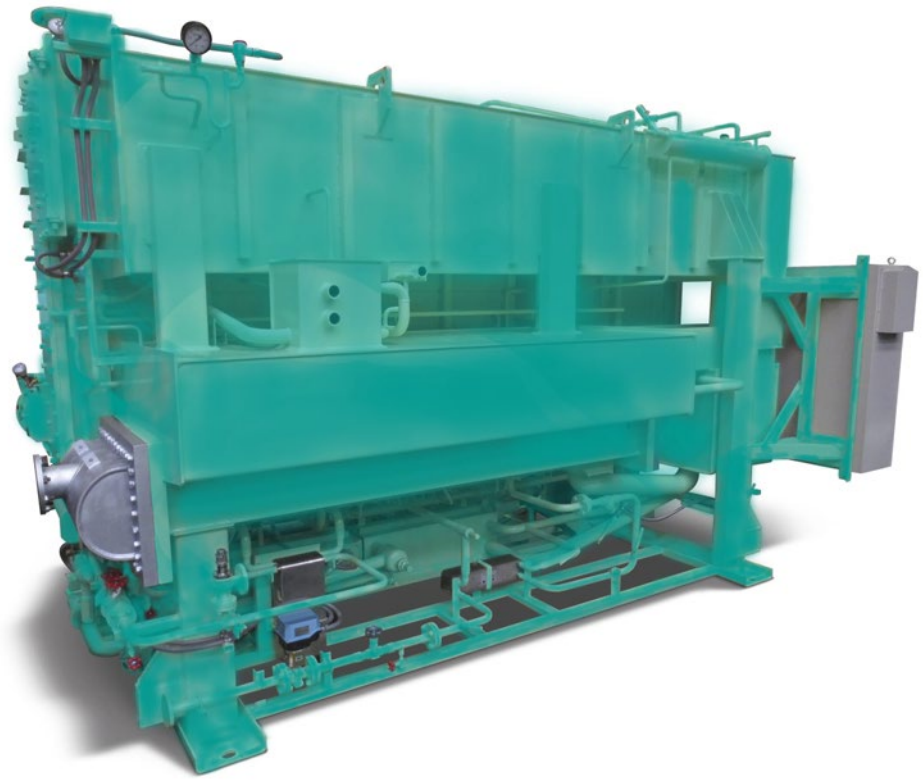
Combining these two technologies, our two-step and parallel flow design provides the lowest temperature, pressure and concentration. Because this design uses a lower LiBr concentration, it is easier to heat in the generator section. Therefore, it requires a relatively lower grade for the driving heat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

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

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

YHAP
Absorption heat pump

Custom capacities from 1 MW to 40 MW



H_2O

Achieves highest energy and water savings while helping reduce CO_2 emissions

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

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

Maximizing performance by design

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

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

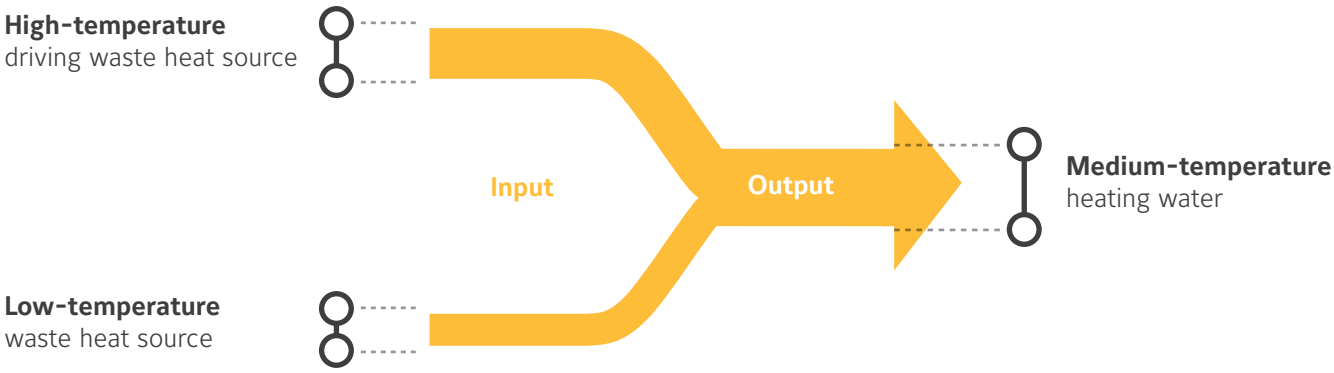
Type I heat pump, also referred to as a heat amplifier, is driven by a high-temperature driving heat source in the generator section.

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

Two Types of YHAP Heat Pumps

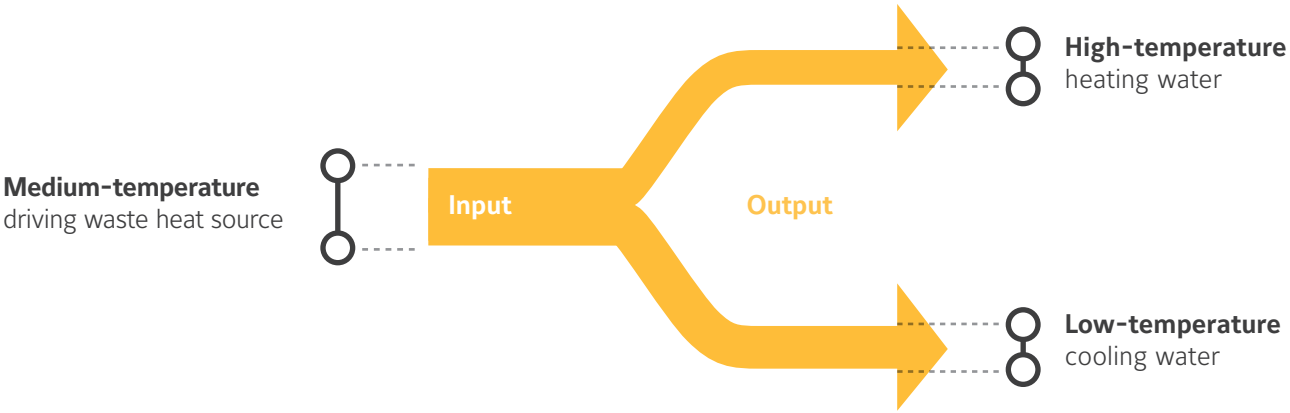
Type I

Driven by high-temperature driving heat source in generator



Type II

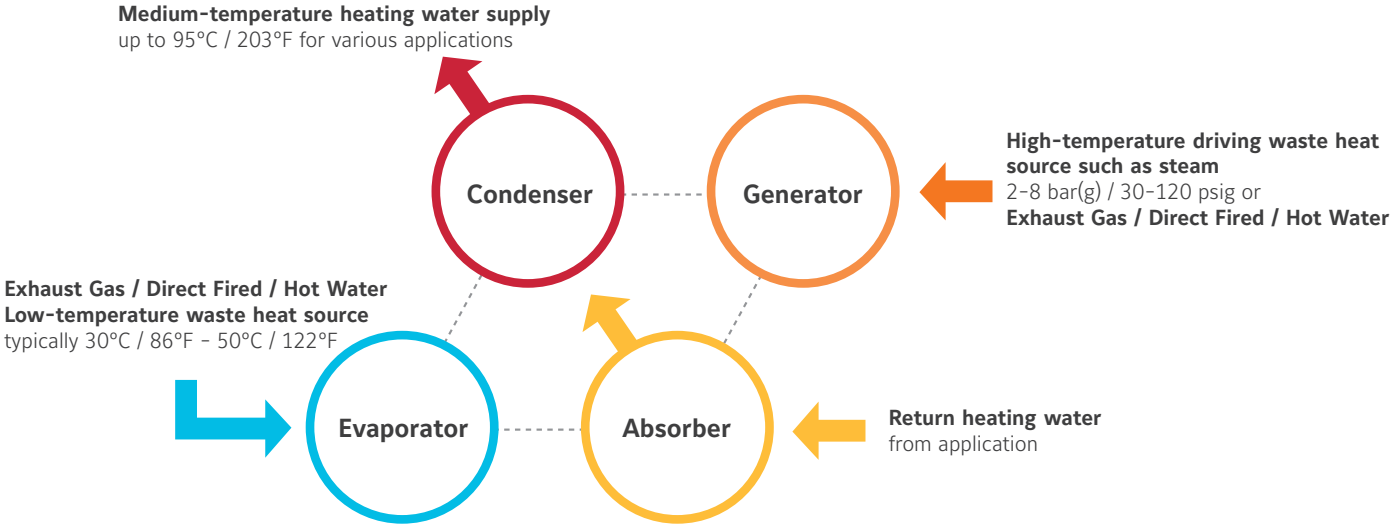
Driven by medium-temperature driving heat source in generator and evaporator



Type I
Flexible Operating Envelope

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

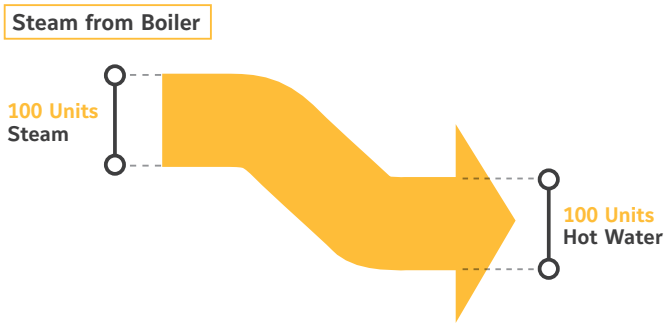
How it Works

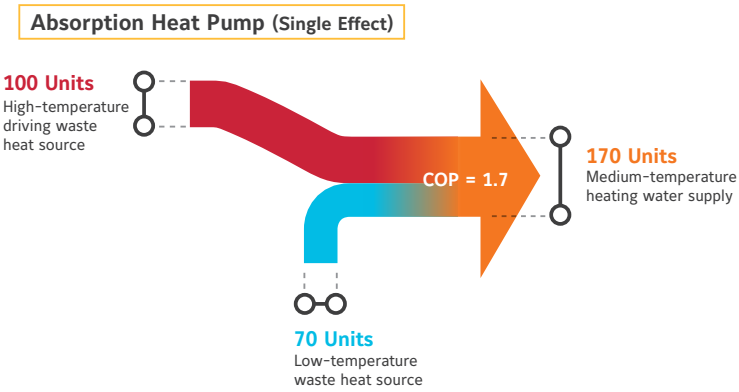


Heat Balance

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

Performance of Boiler Compared to Absorption Heat Pump





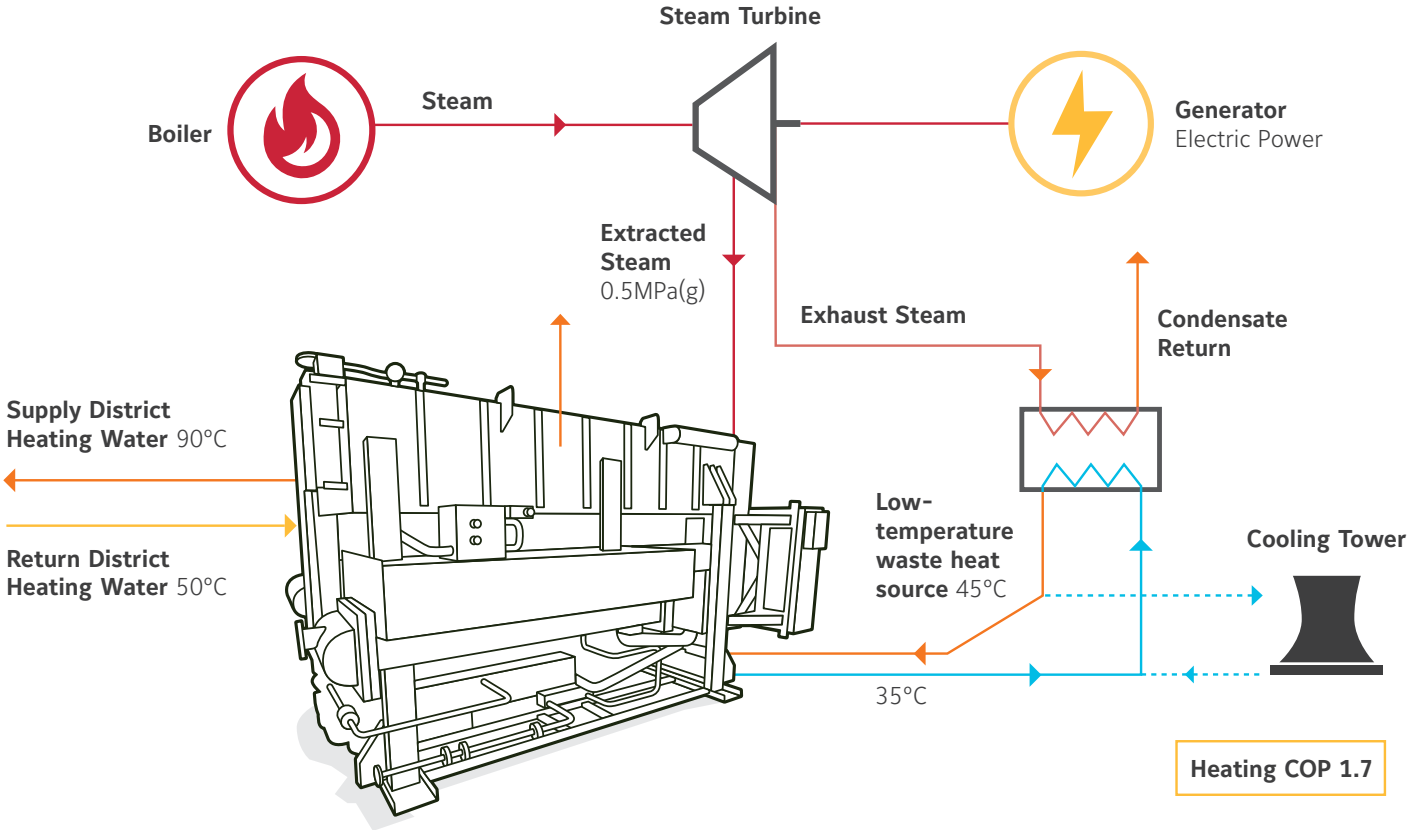
* YORK double-effect absorption heat pumps are also available with heating COP as high as 2.3 on a case by case basis.

Type I Industrial Application

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

In this Type I application, the extracted steam at 0.5 MPa(g) from the power steam turbine is the driving heat source in the generator section. The water diverted from the cooling tower is the low-temperature waste heat source that is fed into the evaporator section. The heat pump delivers 90°C (194°F) from the absorber and condenser section, which can be used for district heating or boiler feed water pre-heating. This application saves primary energy, reduces steam and water consumption and helps cut emissions.

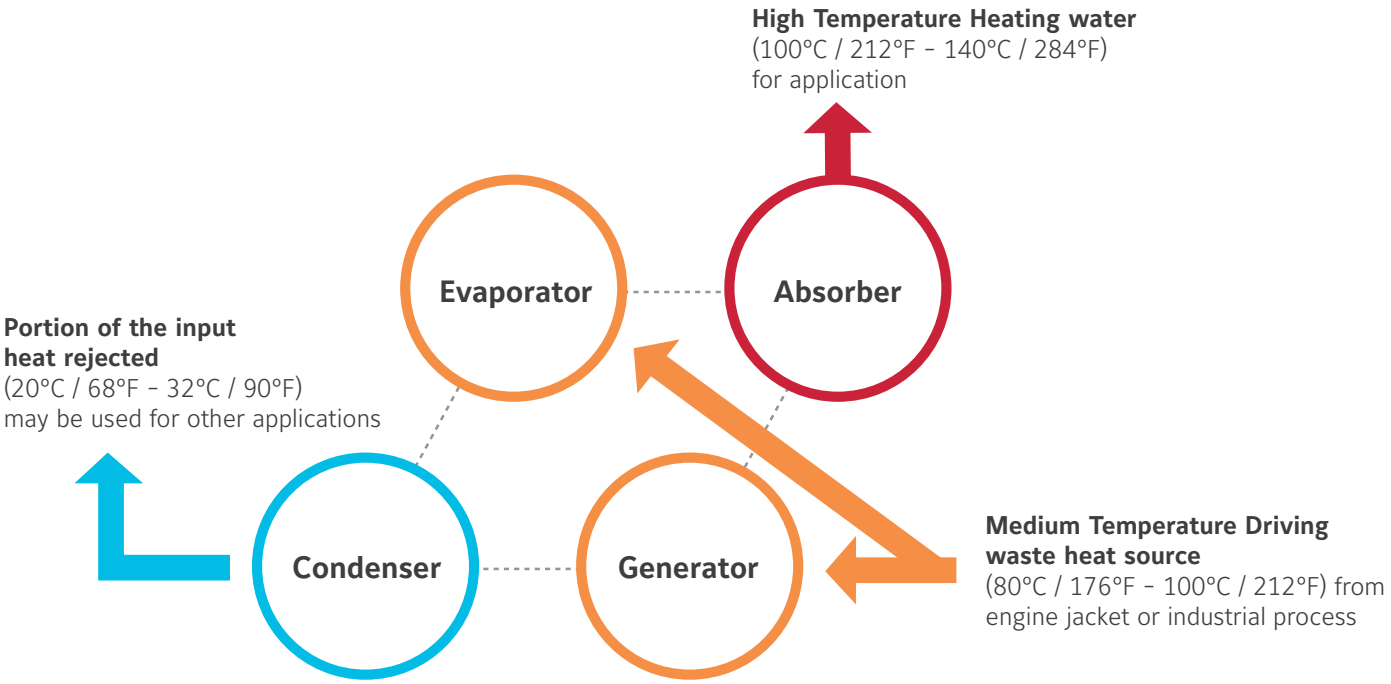
With a Type I absorption heat pump, it is typical to have a heating COP of 1.7, meaning 1.7 units of heat is obtained from the absorber and condenser with a 1.0 unit of driving heat source in the generator and .7 units being in the evaporator section.



Type II
Flexible Operating Envelope

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

How it Works



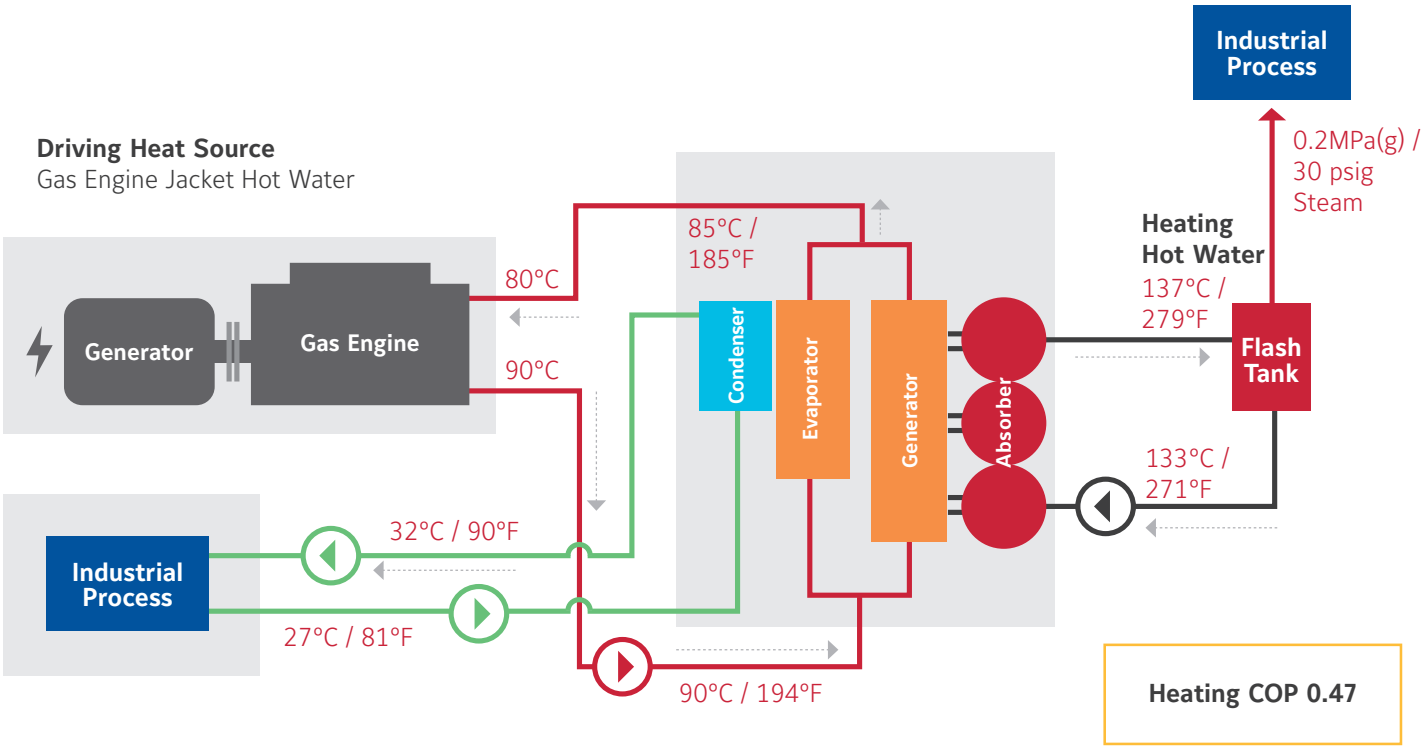
Heat Balance

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

Type II Industry Application Process Heating Application

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

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



YHAU-CL/CH
Single Effect hot water driven absorption chiller

Cooling capacities from 105 kW to 6350 kW

H_2O

Features

Flexible Operating Envelope

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

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

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

Refrigerant cycle

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

Single Effect hot water driven absorption chiller

YHAU-CL/CH

Two Step Evaporator and Absorber Design

Efficiency, Reliability, Cost of Ownership

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

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

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

Full Automatic Purging System

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

Chiller control

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

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

Nominal capacity

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

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

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

Technical data

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

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

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

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

CE ISO 9001

Manufacturer reserves the rights to change specifications without prior notice.

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

Cooling capacities from 176 kW to 2813 kW

H_2O

Features

Flexible Operating Envelope

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

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

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

Refrigerant cycle

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

Single Effect Double Lift Hot Water Driven Absorption Chiller

YHAU-CL/CH-DXS

Parallel Flow and Two Step Evaporator and Absorber Design

Efficiency, Reliability, Cost of Ownership

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

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

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

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

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

Full Automatic Purging System

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

Chiller control

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

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

Nominal capacity

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

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

Technical data

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

CE ISO 9001

Manufacturer reserves the rights to change specifications without prior notice.

WFC SC
Single Effect Hot Water Absorption Chiller
Cooling capacities from 17.6 kW to 175.8 kW

H_2O

Features WFC SC

WFC SC chillers from **Yazaki** are single stage hot water driven chillers. Compared to electrically driven chillers the **WFC SC** series can dramatically lower system operating costs when using waste heat. Applications particularly well suited to the **Yazaki WFC SC** absorption chiller include waste heat recovery from cogeneration or biomass, waste heat from district power station or industry as well as solar thermal. This makes absorption cooling an environmentally friendly and cost-saving alternative to conventional air-conditioning systems. A low electrical energy consumption results in low CO_2 emissions and provide a relief for electricity grids by replacing conventional cooling demand peaks. All chillers are pre-filled and ready for "plug & chill".

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

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

YAZAKI

Single Effect Hot Water Absorption Chiller

WFC SC

Nominal capacity WFC SC

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

Technical data WFC SC

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