



Air source inverter chiller for outdoor installation

ELFOEnergy SHEEN EVO

WSAT-YSi 16.2 - 55.2 RANGE



TECHNICAL BULLETIN



SIZE	16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
COOLING CAPACITY KW	43,0	54,0	65,0	76,0	87,0	98,0	110	120	130

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Clivet participates in the ECP Programme for "Liquid Chillers and Hydronic Heat Pumps".
Check ongoing validity of certificate on www.eurovent-certification.com"

Features

ELFOEnergy Sheen EVO series is the new air cooled chiller equipped with Full DC Inverter technology and R32 refrigerant, for outdoor installation.

It is available from 43 kW up to 130 kW and is the most effective and valuable solution both in terms of capital investment and running costs.

Energy efficiency

SEER up to 5,37.
Average Capacity modulation from 30% to 100%.

Wide operating range

Outdoor air temperature	max	min
Cooling	48°C	-20°C
Outlet water temperature	max	min
Cooling	20°C	-8°C

Functionality

Climate compensation with outdoor temperature.

ECO mode

- temperature set for maximum comfort (for example during the day);
- temperature set for maximum energy saving (for example at night);
- time bands and customizable temperatures.

SILENT mode

- speed reduction of compressors and fans;
- three levels of silence: standard mode, silenced, super silenced and Night only for size 45.2-55.

Application Versatility

All the main system components are integrated in the unit, assuring the best reliability and an easy installation:

- Hydronic assembly with 1 or 2 inverter pump
- System storage tank: 160 liters (size 16.2 - 20.2 - 24.2), 275 liters (size 30.2 - 35.2 - 40.2) or 300 liters (size 45.2 - 50.2 - 55.2)

It is possible to connect up to 16 units in a local network, reaching a maximum capacity of 2080 kW.

Technology

The technical solutions adopted place ELFOEnergy Storm EVO on top of its category:

- DC inverter technology on compressors and fans
- Electronic expansion valve
- Flow switch
- Microchannel coil

Perfect for LEED

All models satisfy prerequisites 2 (Minimum Energy Performance) and 3 (Fundamental Refrigerant Management) of Energy and Environment thematic area of LEED certification.

Compressor

Size 16.2 - 20.2 - 24.2

Inverter controlled rotary-type hermetic compressor equipped with a motor protection device for overheating, overcurrents and excessive temperatures of the supply gas. It is installed on anti-vibration mounts and it is equipped with oil charge. The compressor is wrapped in a sound-absorbing hood, that reduces its sound emissions and it thermally insulates it. A crankcase heater, which starts automatically, keeps the oil from being diluted by the refrigerant when the compressor stops.

Compressors are connected in tandem on a single refrigerating circuit with a dedicated system for the oil recovery.

Size 30.2 - 35.2 - 40.2 - 45.2 - 50.2 - 55.2

Scroll hermetic compressor with steam injection controlled by inverter, complete with motor over-temperature and over-current devices and protection against excessive gas discharge temperature. It is installed on anti-vibration mounts and it is equipped with oil charge. The compressor is wrapped in a sound-absorbing hood, that reduces its sound emissions and it thermally insulates it. A crankcase heater, which starts automatically, keeps the oil from being diluted by the refrigerant when the compressor stops.

Compressors are connected in tandem on a single refrigerating circuit with a dedicated system for the oil recovery.

Structure

Bearing structure realised with frame in steel with zinc-magnesium superficial treatment painted with polyester powder RAL 9001, that ensures excellent mechanical features and high long-term resilience against corrosion.

Panelling

External RAL 9001 painted zinc-magnesium sheet metal panelling that ensures superior resistance to corrosion for outdoor installation and eliminates the need for periodic painting. Each panel can be easily removed to allow full access to internal components.

Internal exchanger

Direct expansion heat exchanger, brazed AISI 316 stainless steel plates, in pack without seals using copper as the brazing material, with low refrigerant charge and large exchange surface.

The exchanger comes complete with:

- external thermal insulation no-condensation, thickness 17 mm, in expanded polypropylene (EPP);
- antifreeze heater to protect the water side exchanger, preventing the formation of frost if the water temperature falls below a set value;
- flow switch;
- anti-ice probe.

External exchanger

Full aluminium microchannel coil. The entire exchanger (tubes, fins and manifolds) is made of aluminum and welded into a single body through a special brazing technology in a controlled-temperature chamber. The fins have a special corrugated surface to ensure maximum heat exchange efficiency. The special flat configuration of the pipes reduces the section that opposes to the air flow, limiting the pressure drops and maximizing the surface. The total refrigerant charge into the microchannel coil is reduced by 40% compared to an equivalent copper coil.

Fan

Helical fans with 4 profiled blades made of reinforced plastic, directly coupled to the DC brushless motor with electronic control, IP 54 execution up to the sizes 40.2, IP44 for the sizes 45.2-55.2.

Refrigeration circuit

Refrigeration circuit with:

- pressure transducer;
- refrigerant temperature probe;
- electronic expansion valves;
- non return valve;
- high pressure safety pressure switch;
- low pressure pressure switch;
- low pressure safety valve,
- inlet liquid separator;
- oil separator;
- high compressor discharge temperature safety thermostat;
- cooling system of the of the electrical control panel using undercooled liquid.

Only for size 30.2 - 35.2 - 40.2:

- economiser exchanger.

Electrical panel

- phase monitor;
- interface terminal with graphic display;
- intuitive graphical interface retro lighted;
- display of operating status;
- unit On/Off and overload reset;
- main switch on board as standard for sizes 45.2-55.2;
- management of the operating parameters,
- daily, weekly programmer of temperature set-point and unit on/off,
- self-diagnosis system with immediate display of the fault code;
- compressor overload protection;
- relay for remote cumulative fault signal;
- potential-free contact for remote on-off control;
- potential-free contacts for compressor status;
- serial port with modbus port (RS485) for remote communication.

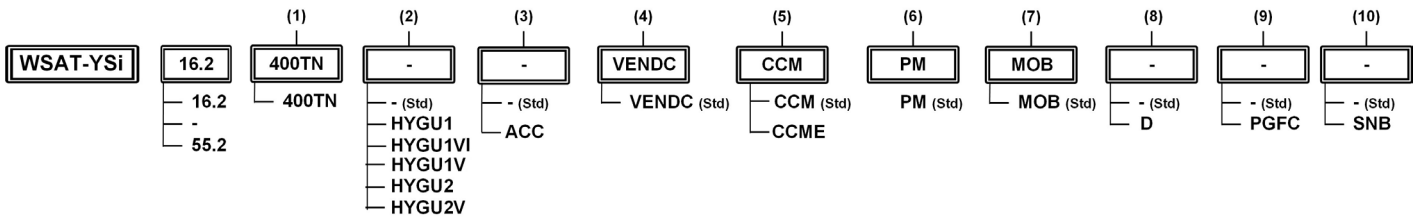
Water circuit

- safety valve 6 bar (on units with pumps kit);
- flow switch;
- antifreeze heaters to protect the water side exchanger to prevent ice from forming if the water temperature drops below the pre-set value;
- drain valve;
- temperature sensors;
- low pressure safety switch;
- relief valve (on units with pumps kit);

Test

Unit subjected to factory-tested in specific steps and test pressure of the piping of the refrigerant circuit (with nitrogen and hydrogen), before shipping them.

Unit Configuration



(1) Voltage

400TN - Supply voltage 400/3/50 + N (standard)

(2) User side hydronic unit

(-) not required (standard)

HYGU1 - Hydronic assembly with 1 ON/OFF pump

HYGU1VI - User side hydronic group with 1 inverter pumps (only for size 16.2 ÷ 40.2)

HYGU1V - User side hydronic assembly with 1 inverter pump (only for size 45.2 ÷ 55.2)

HYGU2 - Hydronic group with 2 ON/OFF pumps (only for size 45.2 ÷ 55.2)

HYGU2V - hydronic group with 2 inverter pumps (only for size 45.2 ÷ 55.2)

(3) Storage tank

(-) not required (standard)

ACC - Storage tank

(4) Fans

VENDC - DC high efficiency fans (standard)

(5) Condensing coil

CCM - Batteria condensante microcanali in alluminio (Standard)

CCME - E-coated microchannel coil

(6) Phase monitor

PM - Phase monitor (standard)

(7) Serial communication module Modbus

MOB - Serial port RS485 with modbus protocol (standard)

(8) Condensation heat recovery

(-) not required (standard)

D - Partial energy recovery

(9) Protection grill

(-) not required (standard)

PGFC - Finned coil protection grill

(10) Main switch

(-) not required (standard)

SNB - Main switch on board (standard for sizes 45.2-50.2-55.2)

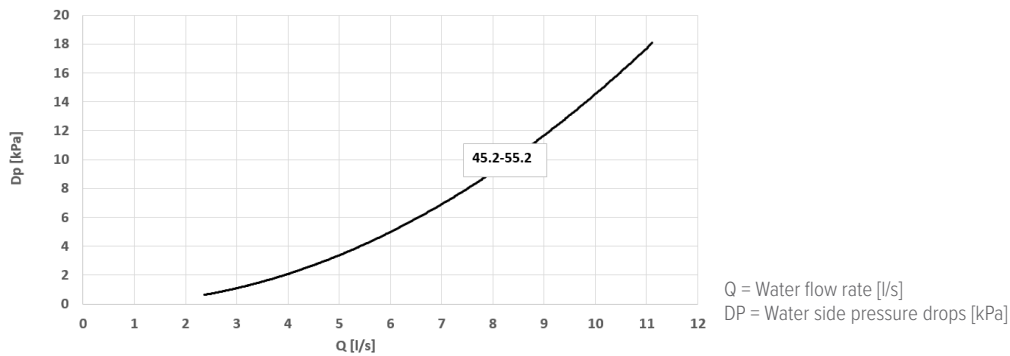
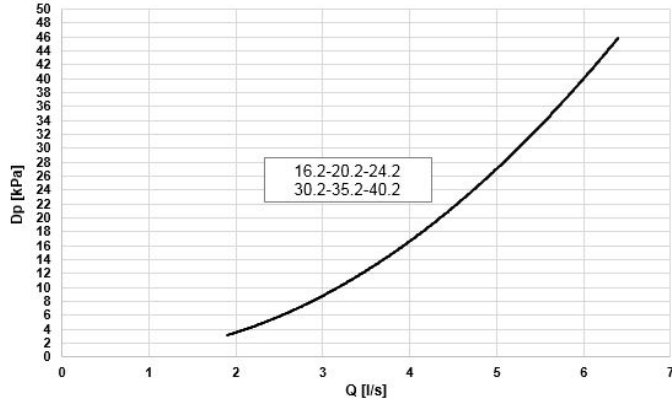
HYGU1	Hydronic group with 1 ON/OFF pump Hydronic unit made of a centrifugal electric pump, adjusted by way of inverter, body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection and complete with heat formed insulating casing (only for size 16.2 ÷ 40.2). The water connection are 2" Victaulic on size 16.2 ÷ 40.2 and 2 1/2" Victaulic on size 45.2 ÷ 55.2.
HYGU1VI	User side hydronic group with 1 inverter pumps (only for size 16.2 ÷ 40.2) Hydronic unit made of a centrifugal electric pump, adjusted by way of inverter, body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection and complete with heat formed insulating casing. The water connection are 2" Victaulic.
HYGU1V	User side hydronic group with 1 inverter pump (only for size 45.2 ÷ 55.2) Hydronic unit made of a centrifugal electric pump, adjusted by way of inverter, body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection. The water connection are 2 1/2" Victaulic.
HYGU2	Hydronic group with 2 ON/OFF pumps (only for size 45.2 ÷ 55.2) Hydronic unit made of 2 centrifugal electric pumps body and propeller made in AISI 304 steel. The electric pump is equipped with a three-phase electric motor with IP55 protection. The water connection are 2 1/2" Victaulic.
HYGU2V	Hydronic group with 2 inverter pumps (only for size 45.2 ÷ 55.2) Hydronic unit made of 2 centrifugal electric pump, adjusted by way of inverter, body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection and complete with heat formed insulating casing. The water connection are 2 1/2" Victaulic.
ACC	Storage tank Option supplied built-in the unit. Steel storage tank complete with double layer covering with closed-cell insulation, stainless steel anti-freeze immersion resistance, bleed valve, draw off cock, cast-iron shut-off butterfly valve with quick connections and activation lever with a mechanical calibration lock at the evaporator output, quick connections with insulated casing. The storage tank capacity is 160 liters for size 16.2, 20.2 and 24.2. The storage tank capacity is 275 liters for size 30.2, 35.2 and 40.2. The storage tank capacity is 300 liters for size 45.2, 50.2 and 55.2.
REMAU	Additional board for advanced functions management (only for size 45.2 ÷ 55.2) Multifunction board installed in the electrical panel of the unit for the advanced functions management. The available digital contacts allow the following remote functions: <ul style="list-style-type: none">• remote on/off• heat/cool (summer/winter switch)• DHW production• Double set-point management• Sgready function• EVUlock function• Demand limit• Activation of super-silenced acoustic version (selectable on the user interface) The additional board does not allow the simultaneous use of digital inputs and Modbus signal.
SNB	Main switch on board (standard on size 45.2 ÷ 55.2) Main switch for the unit ON/OFF, mounted on board.
PGFC	Finned coil protection grill The grilles protect the external coil from accidental contact with objects or persons. Ideal for installation in places where persons can pass from, such as car parks, terraces, etc.

Built-in options

IFWI **Steel mesh strainer on the water side include in the packaging**
The device prevents the exchanger from getting dirty by any impurities present in the hydraulic circuit. The mechanical stainless steel mesh filter must be positioned on the water inlet line. It can be easily dismantled for periodic maintenance and cleaning.

The water connections of the filter are Victaulic 2 " (size 16.2 ÷ 40.2) and 2 1/2" (size 45.2-55.2)

Steel mesh strainer pressure drops



Q = Water flow rate [l/s]
DP = Water side pressure drops [kPa]

CCME **E-coated microchannel coil**
The full aluminium microchannel coil is completely treated by electrolysis so as to create a protective layer of epoxy polymer on the surface, with the following characteristics:

- over 3000 hours of protection against salt spray (ASTM G85 A3 - SWAAT);
- over 2000 hours of protection against UV rays (ASTM G155-05a);
- provide a very high resistance against corrosion.

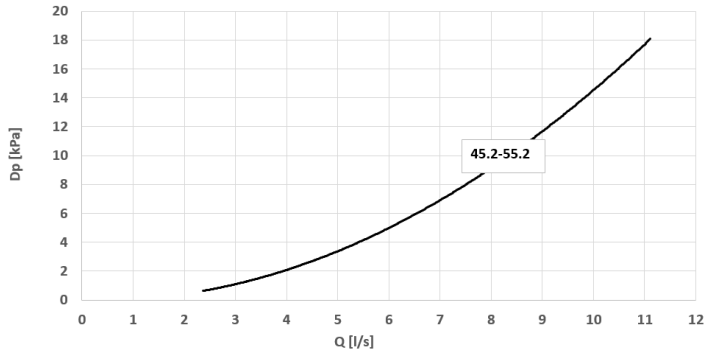
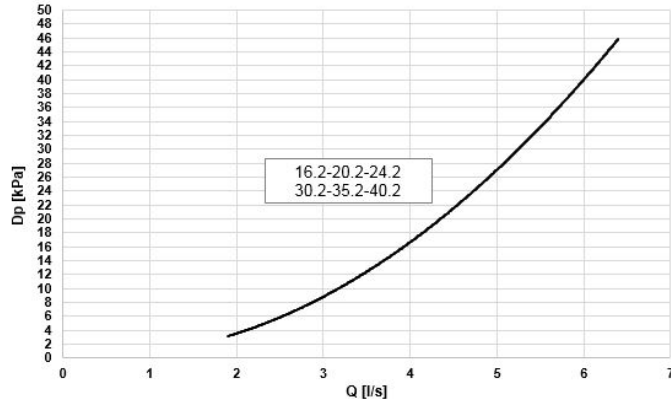
FEMC **EMC filtering for residential, commercial and light industry environments (direct connection to the public grid). (only for size 30.2 - 40.2)**
It allows the unit to be installed in residential, commercial or light industrial environments, reducing electromagnetic interference.

IFWX

Steel mesh strainer on the water side

The device stops the exchanger from being clogged by any impurities which are in the hydraulic circuit. The mechanical steel mesh strainer must be placed on the water input line. It can be easily dismantled for periodical maintenance and cleaning. Filter fittings are Victaulic type by 2".

Steel mesh strainer pressure drops



Q = Water flow rate [l/s]
DP = Water side pressure drops [kPa]

⚠ Installation is a responsibility of the Customer.

AVIBX

Anti-vibration mount support

The rubber (on size 16.2-40.2) and spring (size 45.2-55.2) antivibration mounts are attached in special housing on the support frame and serve to smooth the vibrations produced by the unit thus reducing the noise transmitted to the support structure.

⚠ Installation is a responsibility of the Customer.

PGFCX

Finned coil protection grill

The grilles protect the external coil from accidental contact with objects or persons. Ideal for installation in places where persons can pass from, such as car parks, terraces, etc.

⚠ Installation is a responsibility of the Customer.

AMMSX

Anti-seismic spring antivibration mounts

The anti-seismic spring antivibration mounts must be fastened in special housings on the supporting metal struts. The containment structure is designed to ensure high resistance multidirectional forces acting on the surface of the unit in the presence of wind and / or telluric movements. The antivibration mounts have been tested according to ANSI/ASHRAE 171-2008 standard (Method of Testing Seismic Restraint devices for HVAC&R Equipment). The performance levels and the test methodology have been validated and certified by Lloyd's Register.

⚠ Installation is a responsibility of the Customer.

Accessories separately supplied

IOTX

IoT industrial module for cloud based interoperability & services

This device allows the monitoring and the remote control the unit via Clivet Eye, the supervision cloud system for Clivet units.

With IoT module (i-LINK) it will be possible to monitor and manage the unit through the mobile app Clivet Eye and the dedicated web page.

Among the main functions, for all monitored units they allow to:

- display the main working parameters;
- display the alarms;
- switch on/off the unit;
- change the setpoint;
- change the operating mode;
- set the daily/weekly start-up or power-off programming of the unit;
- create charts of main system parameters trend (via web interface);
- display in a map the units monitored by Clivet Eye (via web interface).

Web interface at www.cliveteye.com.

Clivet Eye app available in Google Play and Apple Store

- ⚠ IoT module to be provided for each unit to be remotely monitored.
- ⚠ Internet ethernet connection in charge of customer.
- ⚠ Clivet Eye management is alternative to an external BMS supervision system.
- ⚠ Installation provided by the Customer.



Performance

SIZE			16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
RADIANT PANELS											
Cooling											
Cooling capacity	kW	1	64	72	86,1	110	118	133	148	160	170
EER		2	4,03	3,76	2,78	3,76	3,14	2,65	3,55	3,40	3,19
Water flow-rate	l/s	1	3,06	3,45	4,13	5,27	5,67	6,37	7,08	7,66	8,15
User side exchanger pressure drops	kPa	1	36,1	45,1	63,2	70,4	80,8	101	51,7	60,9	69,3
TERMINAL UNIT											
Cooling											
Cooling capacity	kW	3	43	54	64,9	76	86,8	97,7	110	120	130
EER		2	3,31	3,14	2,72	3,25	3,02	2,74	3,00	2,90	2,80
SEER		4	4,97	4,81	4,65	5,37	5,15	4,95	5,10	5,02	4,97
η _{s,c}	%	5	196	189	183	212	203	195	201	198	196
Water flow-rate	l/s	4	2,05	2,57	3,09	3,62	4,13	4,65	5,24	5,72	6,19
User side exchanger pressure drops	kPa	3	16,9	25,9	36,6	34,3	44,2	55,5	27,6	33,1	39

The Product is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 811/2013 (rated heat output ≤ 70 kW at specified reference conditions) and the Commission delegated Regulation (EU) No 813/2013 (rated heat output ≤ 400 kW at specified reference conditions).

1. Entering/leaving water temperature user side 23/18 °C, Entering external exchanger air temperature 35 °C.
2. EER (EN 14511:2018) cooling performance coefficient. Ratio between delivered cooling capacity and power input in compliance with EN 14511:2018.
3. User side entering/leaving water temperature 12/7 °C, external exchanger entering air 35 °C.
4. Data calculated according to the EN 14825:2016 Regulation
5. The seasonal space cooling efficiency η_{s,c} expressed in %.

Construction

SIZE			16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
Compressor											
Compressor type			ROTARY INVERTER				SCROLL INVERTER				
Refrigerant							R32				
N° compressor	Nr		2	2	2	2	2	2	2	2	2
Oil charge	l		4,6	4,6	4,6	4,2	4,2	4,2	4,6	4,6	4,6
Refrigerant charge	Kg		4,5	4,5	4,5	7,5	7,5	7,5	9,8	9,8	9,8
N° circuits	Nr		1	1	1	1	1	1	1	1	1
User side exchanger											
Type of internal exchanger		1					BPHE				
Water content	l		5,7	5,7	5,7	7,8	7,8	7,8	11,1	11,1	11,1
External Section Fans											
Fans type			BRUSHLESS DC MOTOR								
N° fans	Nr		2	2	2	3	3	3	2	2	2
Standard air-flow	m ³ /h		25000			37500			50000		
Installed unit power	kW		0,8	0,8	0,8	0,9	0,9	0,9	1,5	1,5	1,5
Water circuit											
Maximum water side pressure	MPa		1	1	1	1	1	1	1	1	1
Minimum circuit water volume in cooling	l	2	150	150	150	200	200	200	300	300	300
Total internal water volume	l		12	12	12	17,9	17,9	17,9	21,6	21,6	21,6
Power supply											
Standard power supply			400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N

1. BPHE = plate exchanger

General technical data

Electrical data

Supply voltage 400/3/50+N

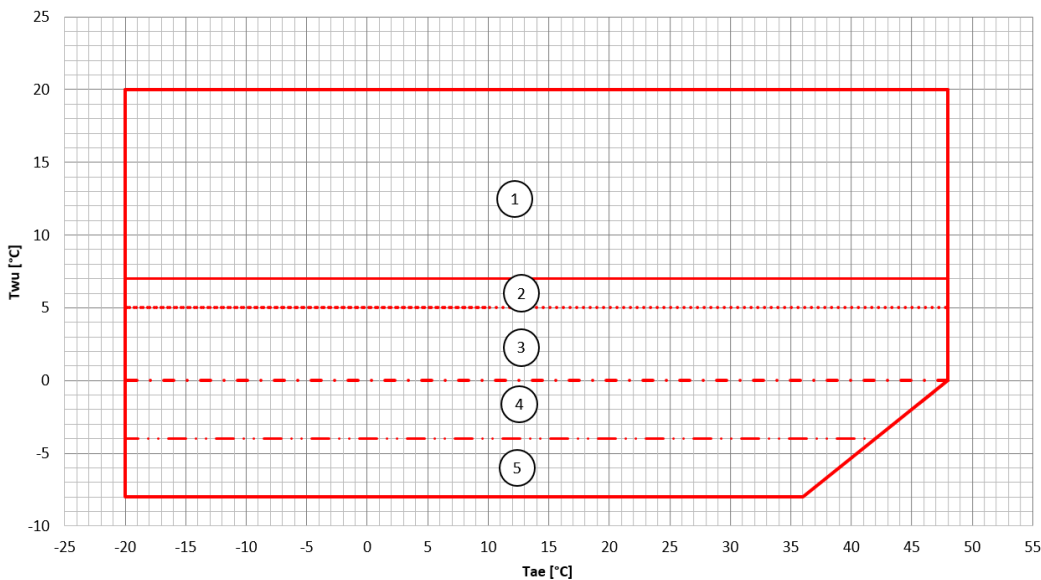
SIZE		16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
F.L.A. Full load current at max admissible conditions										
F.L.A. - Total	[A]	46,0	46,0	46,0	60,2	60,2	60,2	80,0	89,0	99,0
F.L.I. Full load power input at max admissible conditions										
F.L.I. - Total	[kW]	31,8	31,8	31,8	42,0	42,0	42,0	51,0	57,0	63,0
M.I.C. Maximum inrush current										
M.I.C. - Total	[A]	46,0	46,0	46,0	60,2	60,2	60,2	49,5	49,5	49,5

Power supply 400/3/50 (+ NEUTRAL) +/- 10%.

Maximum Phase Unbalance: 2%.

For non standard voltage please contact Clivet technical office.

Operating range



T_{wu} [°C] = Leaving exchanger water temperature

T_{ae} [°C] = External exchanger inlet air temperature

1. Normal operating range.
2. Operating range where the use of only water as operating fluid is allowed
3. Operating range where the use of ethylene glycol is mandatory in a percentage above to 10%
4. Operating range where the use of ethylene glycol is mandatory in a percentage above to 20%
5. Operating range where the use of ethylene glycol is mandatory in a percentage above to 30%

Sound levels

Standard mode

SIZE	Sound power level								Sound pressure level	Sound power level
	Octave band (Hz)									
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
16.2	69	72	73	76	77	73	65	55	65	80
20.2	70	73	74	77	77	74	67	57	66	81
24.2	70	72	75	78	79	75	69	59	67	82
30.2	67	79	73	76	79	74	67	58	66	82
35.2	74	75	75	77	81	75	68	60	68	83
40.2	77	77	75	78	81	76	70	62	69	84
45.2	62	72	80	77	80	78	69	68	66	84
50.2	63	73	81	78	80	79	70	69	66	84
55.2	64	73	81	78	81	79	71	69	67	85

Sound levels refer to units with nominal test conditions.
The sound pressure level refers to a distance of 1 meter from the outer surface of the unit operating in open field.
Noise levels are determined using the tensiometric method (UNI EN ISO 9614-2)

Data referred to the following conditions in cooling:
- internal exchanger water = 12/7°C
- ambient temperature = 35°C

Silent mode

SIZE	Sound power level								Sound pressure level	Sound power level
	Octave band (Hz)									
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
16.2	74	72	68	70	72	73	65	57	62	77
20.2	74	72	68	70	72	73	65	57	62	77
24.2	74	72	68	70	72	73	65	57	62	77
30.2	63	79	72	74	74	70	63	54	62	78
35.2	63	79	72	74	74	70	63	54	62	78
40.2	63	79	72	74	74	70	63	54	62	78
45.2	55	67	81	75	76	73	66	65	62	80
50.2	56	67	82	75	77	73	67	66	63	81
55.2	56	68	83	76	77	74	68	67	64	81

Sound levels refer to units with nominal test conditions.
The sound pressure level refers to a distance of 1 meter from the outer surface of the unit operating in open field.
Noise levels are determined using the tensiometric method (UNI EN ISO 9614-2)

Data referred to the following conditions in cooling:
- internal exchanger water = 12/7°C
- ambient temperature = 35°C

Silenced mode can be set from the user interfa

General technical data

Super silent mode

SIZE	Sound power level								Sound pressure level dB(A)	Sound power level dB(A)	
	Octave band (Hz)										
	63	125	250	500	1000	2000	4000	8000			
16.2	52	71	63	69	68	67	58	49	58	73	Sound levels refer to units with nominal test conditions. The sound pressure level refers to a distance of 1 meter from the outer surface of the unit operating in open field. Noise levels are determined using the tensiometric method (UNI EN ISO 9614-2) Data referred to the following conditions in cooling: - internal exchanger water = 12/7°C - ambient temperature = 35°C Super Silenced mode can be set from the user interface terminal.
20.2	52	71	63	69	68	67	58	49	58	73	
24.2	52	71	63	69	68	67	58	49	58	73	
30.2	64	71	67	72	71	68	63	53	60	75	
35.2	64	71	67	72	71	68	63	53	60	75	
40.2	64	71	67	72	71	68	63	53	60	75	
45.2	52	66	76	73	73	70	64	62	59	77	
50.2	53	67	77	73	73	71	64	63	60	77	
55.2	53	67	78	74	74	71	65	64	60	78	

Night mode

SIZE	Sound power level								Sound pressure level dB(A)	Sound power level dB(A)
	Octave band (Hz)									
	63	125	250	500	1000	2000	4000	8000		
16.2	-	-	-	-	-	-	-	-	-	-
20.2	-	-	-	-	-	-	-	-	-	-
24.2	-	-	-	-	-	-	-	-	-	-
30.2	-	-	-	-	-	-	-	-	-	-
35.2	-	-	-	-	-	-	-	-	-	-
40.2	-	-	-	-	-	-	-	-	-	-
45.2	55	64	69	71	71	69	63	60	57	75
50.2	56	64	69	71	72	69	63	60	58	76
55.2	56	65	70	72	72	70	64	61	59	76

- = Not available for sizes 16.2 to 40.2.

At maximum conditions data

SIZE	Sound power level								Sound pressure level dB(A)	Sound power level dB(A)	
	Octave band (Hz)										
	63	125	250	500	1000	2000	4000	8000			
16.2	70	72	75	78	79	75	69	59	67	82	Sound levels refer to units with nominal test conditions. The sound pressure level refers to a distance of 1 meter from the outer surface of the unit operating in open field. Noise levels are determined using the tensiometric method (UNI EN ISO 9614-2).
20.2	70	72	75	78	79	75	69	59	67	82	
24.2	70	72	75	78	79	75	69	59	67	82	
30.2	77	77	75	78	81	76	70	62	69	84	
35.2	77	77	75	78	81	76	70	62	69	84	
40.2	77	77	75	78	81	76	70	62	69	84	
45.2	62	72	80	77	80	78	69	68	66	84	
50.2	63	73	81	78	80	79	70	69	66	84	
55.2	64	73	81	78	81	79	71	69	67	85	

Performance correction factors- Silent Mode

SIZE		16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
Cooling capacity factor	Nr	0,930	0,930	0,930	0,930	0,930	0,930	0,958	0,958	0,958
Total power input factor	Nr	1,000	1,000	1,000	1,000	1,000	1,000	1,022	1,022	1,022
EER factor	Nr	0,930	0,930	0,930	0,930	0,930	0,930	0,937	0,937	0,937

Performance correction factors - Super Silent Mode

SIZE		16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
Cooling capacity factor	Nr	0,880	0,880	0,880	0,880	0,880	0,880	0,856	0,856	0,856
Total power input factor	Nr	1,020	1,020	1,020	1,020	1,020	1,020	0,932	0,932	0,932
EER factor	Nr	0,860	0,860	0,860	0,860	0,860	0,860	0,918	0,918	0,918

Performance correction factors - Night Mode

SIZE		16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
Fattore Potenza frigorifera	Nr	-	-	-	-	-	-	0,775	0,775	0,775
Fattore Potenza assorbita totale	Nr	-	-	-	-	-	-	0,875	0,875	0,875
Fattore EER	Nr	-	-	-	-	-	-	0,886	0,886	0,886

Correction factors for glycol use

% ethylene glycol by weight		0%	10%	20%	30%	40%	50%
Freezing point	°C	0	-4	-9	-16	-23	-37
Correction factor for unit cooling capacity	Nr	1	0,984	0,973	0,965	0,960	0,950
Correction factor for flow rate	Nr	1	1,019	1,051	1,092	1,145	1,200
Correction factor for system pressure drop	Nr	1	1,118	1,268	1,482	1,791	2,100

The correction factors shown refer to water and glycol ethylene mixes used to prevent the formation of frost on the exchangers in the water circuit during inactivity in winter.

Fouling Correction Factors

m ² K/W	Internal exchanger	
	F1	FK1
0,44x10 ⁽⁻⁴⁾	-	-
0,88x10 ⁽⁻⁴⁾	0,96	0,99
1,76x10 ⁽⁻⁴⁾	0,93	0,98

The cooling performance values provided in the tables are based on the external exchanger having clean plates (fouling factor 1). For different fouling factor values, multiply the performance by the coefficients shown in the table.

F1 = Cooling capacity correction factors.

FK1 = Compressor power input correction factor.

Overload and control device calibrations

		Open	Close	Sizes 16.2-40.2	Sizes 45.2-55.2
Refrigerant side					
High pressure safety switch	kPa	42	33	-	-
Low pressure safety switch	kPa	140	300	-	-
Low pressure safety valve	kPa	-	-	30	34
Compressor discharge high temperature safety thermostat	°C	75	115	-	-
Water side					
Antifreeze protection ¹	°C	7	4	-	-
High pressure safety valve ²	kPa	-	-	6	6

1. The value entered refers to units supplied with a hydronic group installed on board.

2. Available only with pump kits.

Configurations

Standard unit

Internal exchanger pressure drop

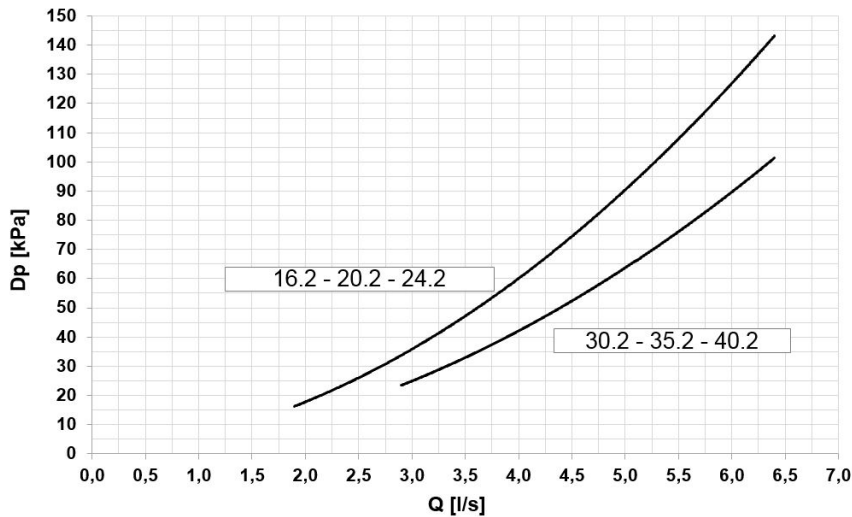
Standard unit without hydronic assembly on the user side, but equipped with components as listed on the key of the enclosed plumbing circuit diagram.

It is possible to control an external pump by an on/off or 0-10V signal.

Water fittings are Victaulic type by 2".

Internal exchanger pressure drop curves

Size 16.2 ÷ 40.2



The pressure drops on the water side are calculated by considering an average water temperature at 7°C.

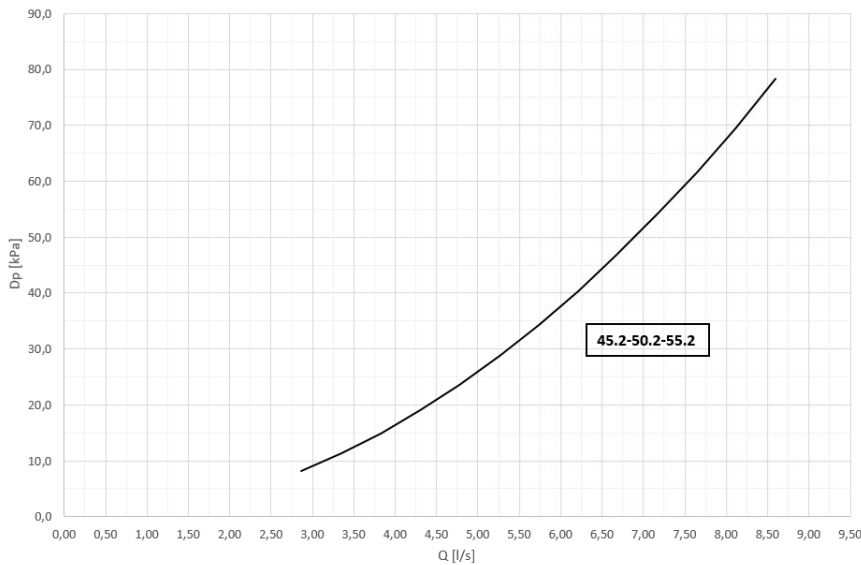
Q = Water flow rate [l/s]
DP = Pressure drops [kPa]

The water flow rate must be calculated with the following formula

$$Q [l/s] = kWf / (4,186 \times DT)$$

kWf = Cooling capacity in kW
DT = Temperature difference between entering / leaving water

Size 45.2 ÷ 55.2



⚠ To the internal exchanger pressure drops, it must be added the pressure drops of the steel mesh mechanical filter that must be placed on the water input line. It is a device mandatory for the the correct unit operation, and it is provided by Clivet as accessory.

Admissible water flow rates

Min. (Qmin) and max. (Qmax) water flow-rates admissibles for the correct unit operation

SIZE		16.2	20.2	24.2	30.2	35.2	40.2	45.2	50.2	55.2
Minimum flow-rate	[l/s]	1,8	1,8	1,8	2,9	2,9	2,9	2,4	2,4	2,4
Maximum flow-rate	[l/s]	5,0	5,0	5,0	6,4	6,4	6,4	10,0	10,0	10,0

D - Partial energy recovery

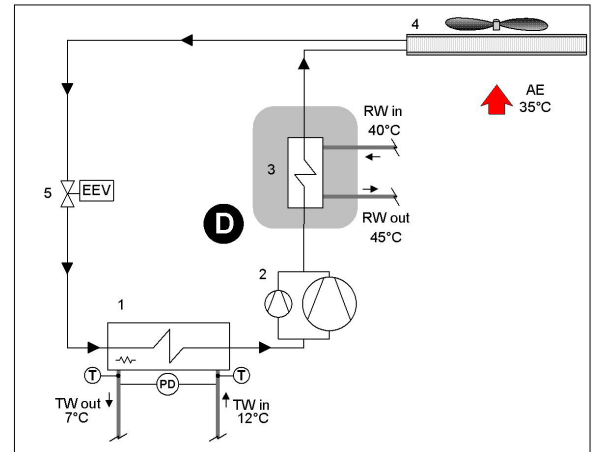
A configuration which enables the production of hot water free-of-charge while operating in the cooling mode, thanks to the partial recovery of condensation heat that would otherwise be disposed of into the external heat source.

This option is also known as “desuperheater”. It is made up of a Inox 316 stainless steel brazed plate heat exchangers, suitable for recovering a part of the capacity dispersed by the unit (the dispersed heating capacity is equal to the sum of the cooling capacity and the electrical input capacity of the compressors).

The partial recovery device is considered to be operating when it is powered by the water flow which is to be heated. This condition improves the unit performance, since it reduces the condensation temperature.

When the temperature of water to be heated is particularly low, it is necessary to control the flow-rate to maintain the outlet temperature at recovery above 35°C and prevent condensation of the refrigerant in the partial energy recovery device.

The water connections of the partial energy recovery device are 1" 1/4 for all sizes.



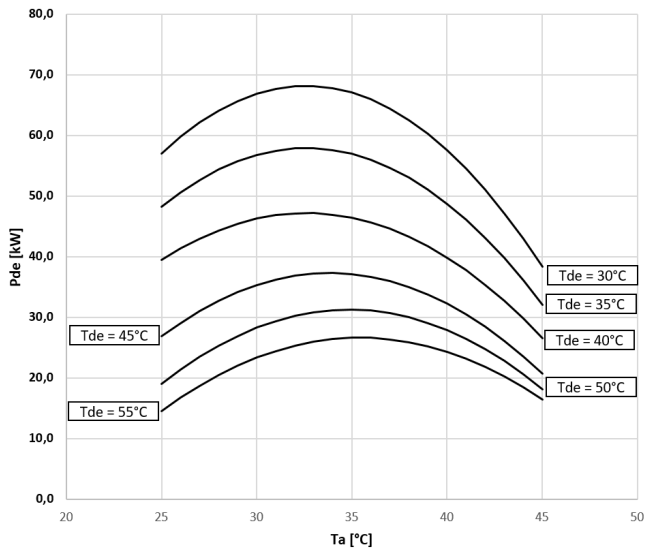
D - Partial recovery device

- 1 - Internal exchanger
- 2 - Compressors
- 3 - Recovery exchanger
- 4 - External exchanger
- 5 - Electronic expansion valve

- TW in chilled water inlet
- TW out chilled water outlet
- RW in - Ingresso acqua recupero
- RW out - Uscita acqua recupero

- T - Temperature probe
- PD - Differential pressure switch
- AE Aria esterna

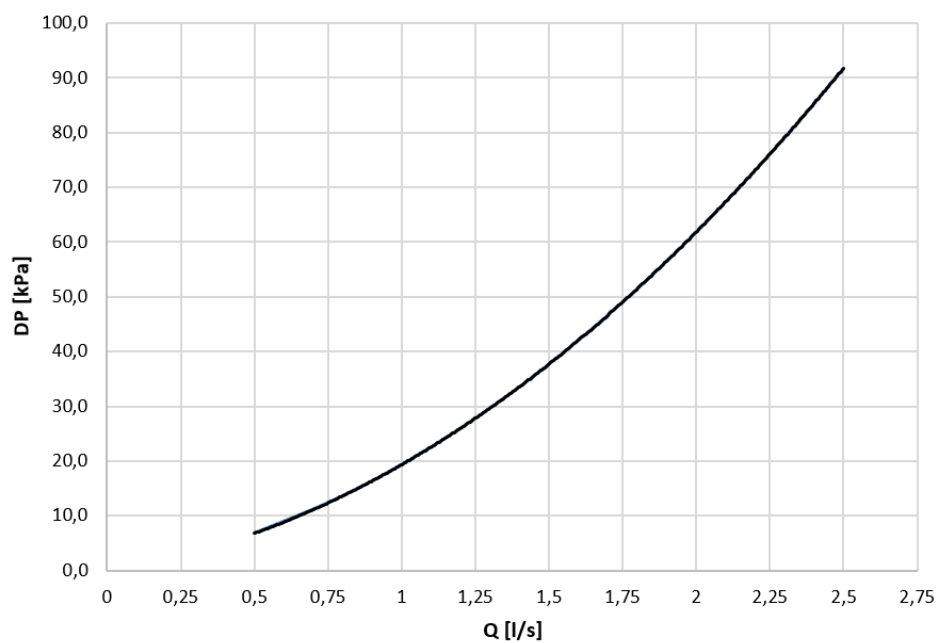
Partial recovery heating capacity ($\Delta T_w = 10K$)



Pde = Heat recovered / Condenser heating capacity [kW]
 Tde = Desuperheater water outlet temperature [°C]

Configurations

Partial energy recovery exchanger pressure drops



Q = Water flow-rate[l/s]

DP = Water side pressure drops [kPa]

Admissible water flow-rates

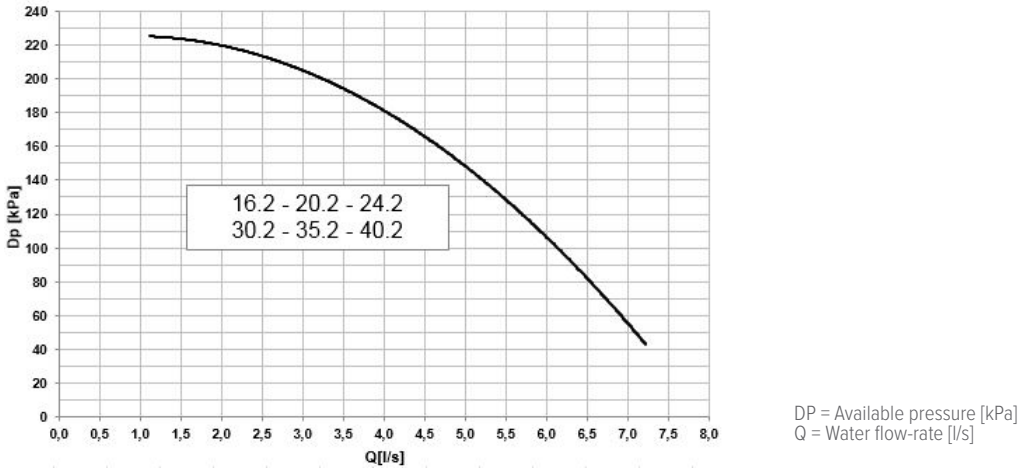
Minimum (Qmin) and maximum (Qmax) admissible water flow rates for correct operation of the unit.

SIZE		45.2	50.2	55.2
Qmin	[l/s]	0,5	0,5	0,5
Qmax	[l/s]	2,5	2,5	2,5

Hydronic assembly - Unit with 1 ON/OFF pump (HYGU1)

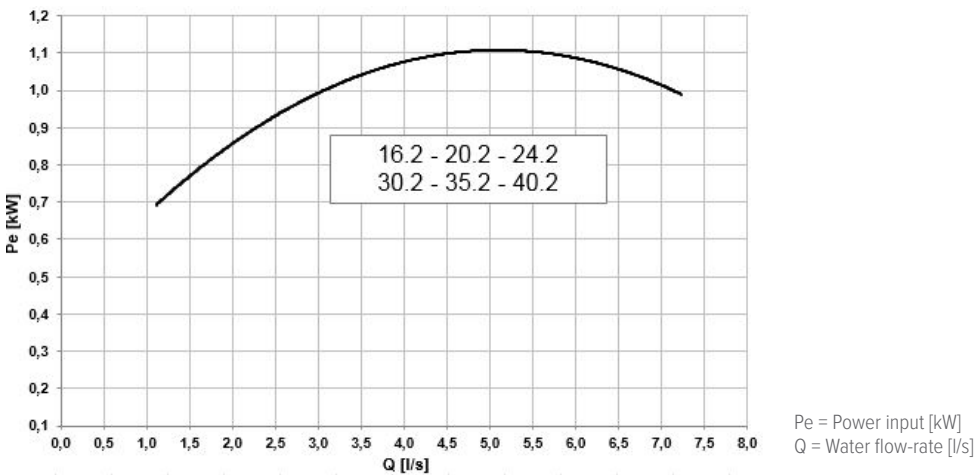
Hydronic unit made of a centrifugal electric pump, adjusted by way of inverter, body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection and complete with heat formed insulating casing (only for size 16.2 ÷ 40.2). The water connection are 2" Victaulic on size 16.2 ÷ 40.2 and 2 1/2" Victaulic on size 45.2 ÷ 55.2.

ON/OFF pump available pressure curves - Size 16.2 ÷ 40.2



- ⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:
- User side exchanger pressure drops
 - IFWX - Steel mesh strainer on the water side" accessory (where present).

ON/OFF pump absorption curves - Size 16.2 ÷ 40.2



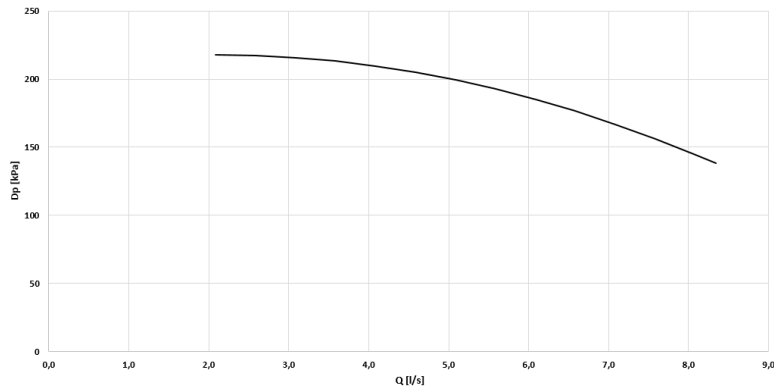
Electrical data

SIZE		16.2	20.2	24.2	30.2	35.2	40.2
F.L.A.	A	2,5	2,5	2,5	2,5	2,5	2,5
F.L.I.	kW	1,07	1,07	1,07	1,07	1,07	1,07

Configurations

Hydronic assembly - Unit with 1 ON/OFF pump (HYGU1)

ON/OFF pump available pressure curves - Size 45.2 ÷ 55.2

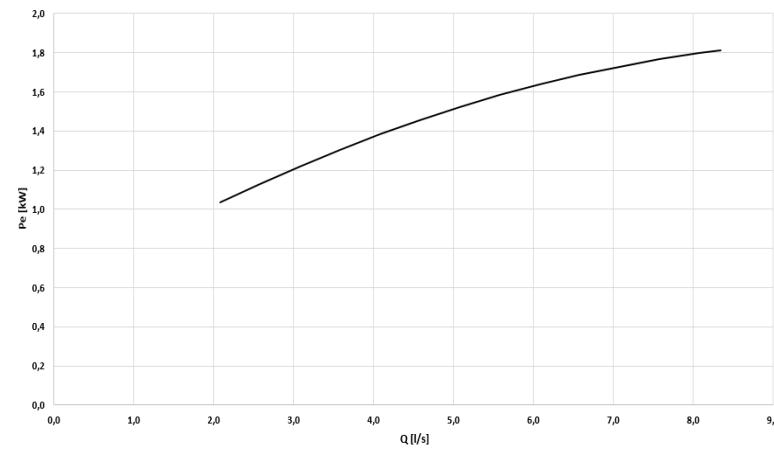


DP = Available pressure [kPa]
Q = Water flow-rate [l/s]

⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:

- User side exchanger pressure drops
- IFWX - Steel mesh strainer on the water side” accessory (where present).

ON/OFF pump absorption curves - Size 45.2 ÷ 55.2



Pe = Power input [kW]
Q = Water flow-rate [l/s]

Electrical data

SIZE		45.2	50.2	55.2
F.L.A.	A	4,27	4,27	4,27
F.L.I.	kW	1,85	1,85	1,85

Hydronic assembly - Unit with 1 inverter pump (HYGU1VI)

This configuration provides for one inverter-controlled electric centrifugal pump with body and impeller in AISI 304 steel and components listed in the key of the included water diagram. The electric pump is equipped with three-phase electric motor with IP55-protection and complete with thermoformed insulated casing.

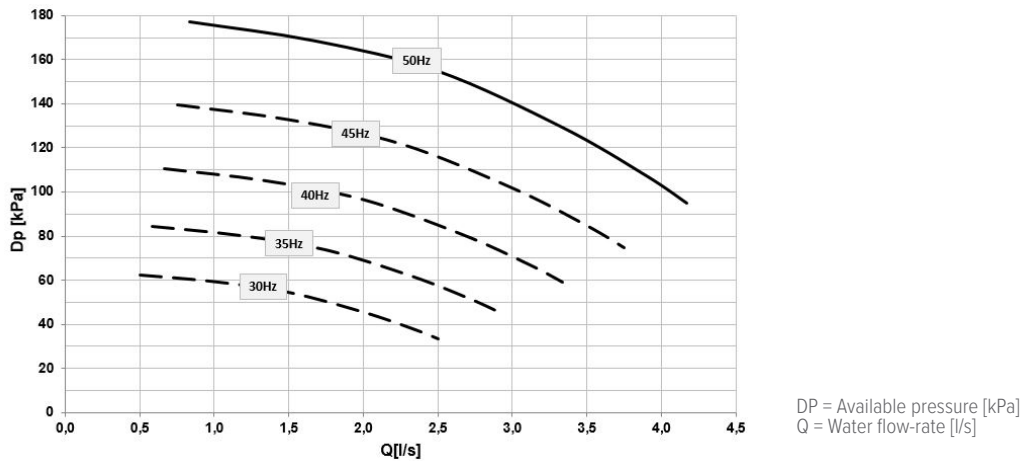
During the installation phase it is possible to choose the most suitable head curve for system requirements by setting the inverter frequency.

The pump will always work at fixed flow.

In case of maximum frequency derating the pump will work at fixed flowrate. Otherwise if not limited, the pump will modulate the flow according to the unit logic basing on thermal head.

Water fittings are Victaulic type by 2".

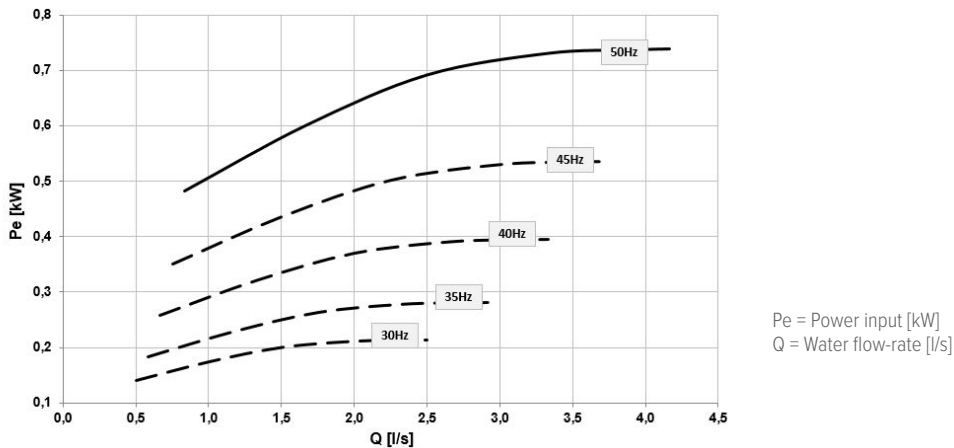
Inverter pump available pressure curves - Size 16.2 - 20.2 - 24.2



⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:

- User side exchanger pressure drops
- IFWX - Steel mesh strainer on the water side" accessory (where present).

Inverter pump absorption curves - Size 16.2 - 20.2 - 24.2



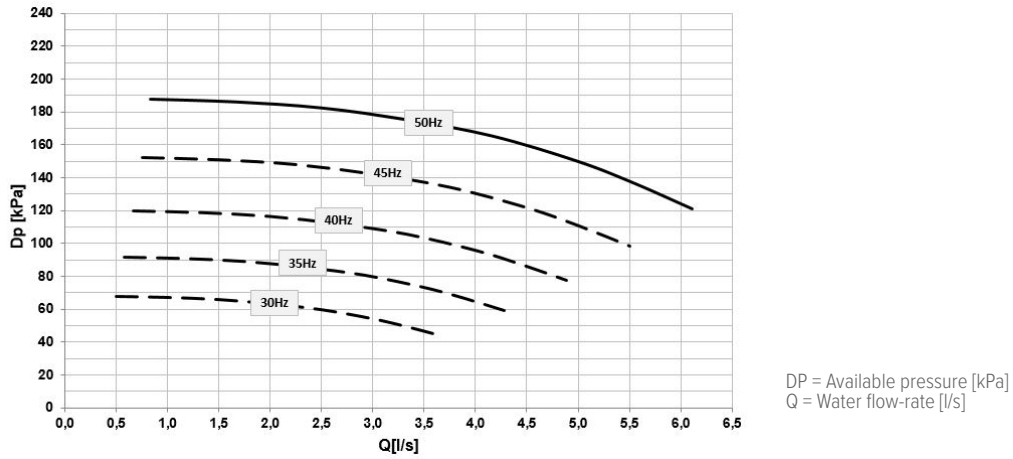
Electrical data

SIZE		16.2	20.2	24.2
F.L.A.	A	2,2	2,2	2,2
F.L.I.	kW	1,1	1,1	1,1

Configurations

Hydronic assembly - Unit with 1 inverter pump (HYGU1VI)

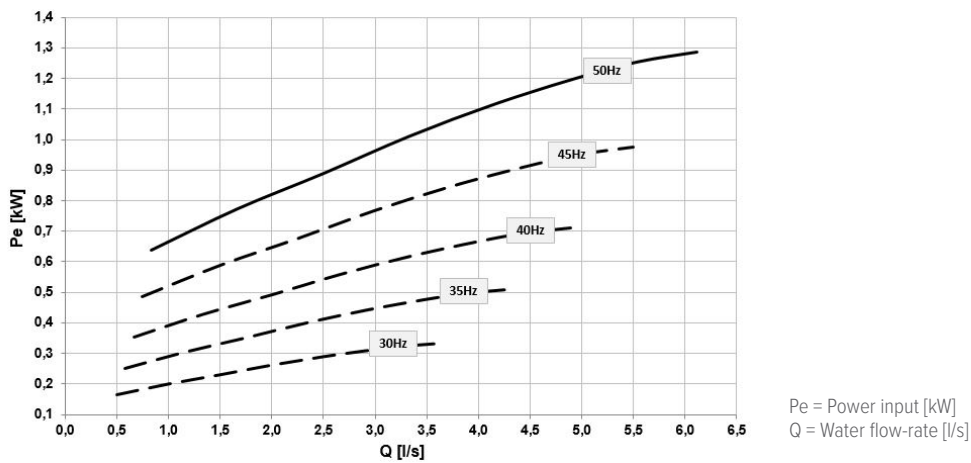
Inverter pump available pressure curves 30.2 - 35.2 - 40.2



⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:

- User side exchanger pressure drops
- IFWX - Steel mesh strainer on the water side" accessory (where present).

Inverter pump absorption curves - Size 30.2 - 35.2 - 40.2



Electrical data

SIZE		30.2	35.2	40.2
F.L.A.	A	4,15	4,15	4,15
F.L.I.	kW	2,2	2,2	2,2

Hydronic assembly - Unit with 1 inverter pump (HYGU1V) (only for sizes 45.2-55.2)

This configuration provides for one inverter-controlled electric centrifugal pump with body and impeller in AISI 304 steel and components listed in the key of the included water diagram. The electric pump is equipped with three-phase electric motor with IP55-protection and complete with thermoformed insulated casing.

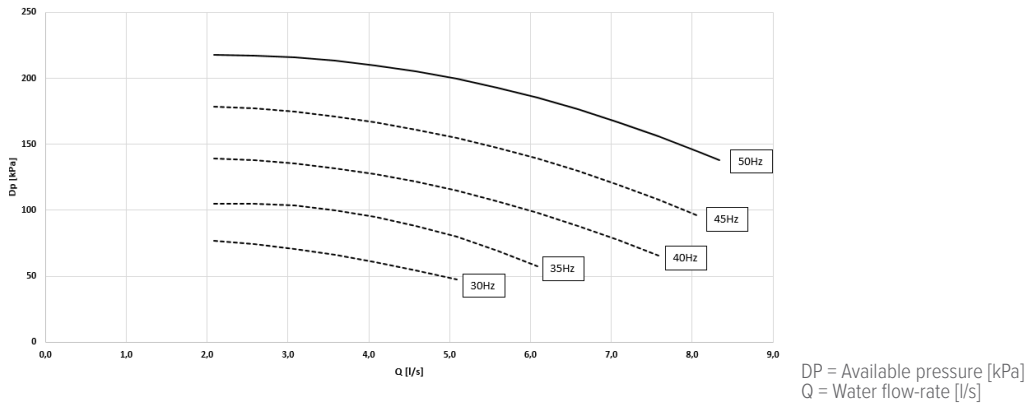
During the installation phase it is possible to choose the most suitable head curve for system requirements by setting the inverter frequency.

In case of maximum frequency derating the pump will work at fixed flowrate. Otherwise if not limited, the pump will modulate the flow according to the unit logic basing on thermal head.

The option is only available for installations up to maximum temperatures of 40 °C.

Water fittings are 2 1/2" Victaulic.

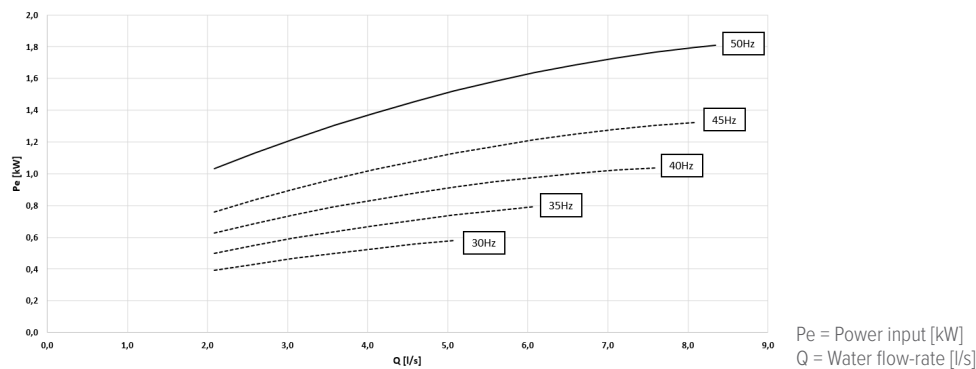
Inverter pump available pressure curves - Size 45.2 - 50.2 - 55.2



⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:

- User side exchanger pressure drops
- IFWX - Steel mesh strainer on the water side" accessory (where present).

Inverter pump absorption curves - Size 45.2 - 50.2 - 55.2



Electrical data

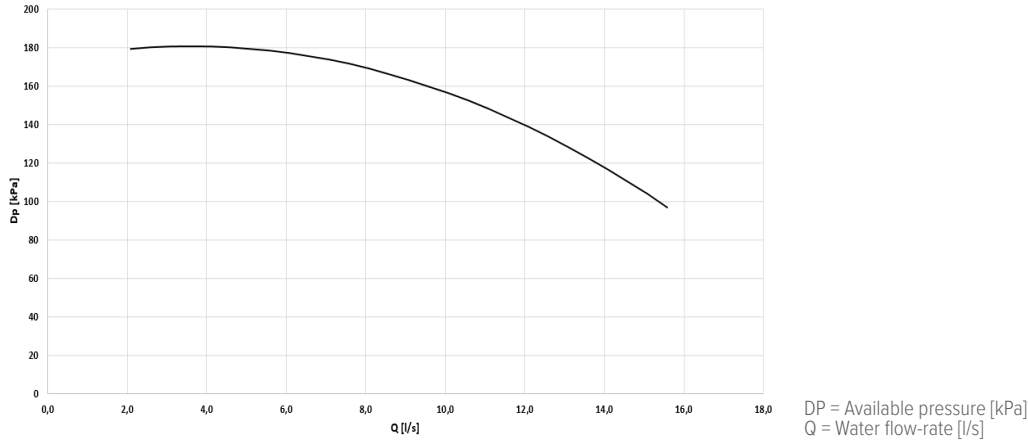
SIZE		45.2	50.2	55.2
F.L.A.	A	4,27	4,27	4,27
F.L.I.	kW	1,85	1,85	1,85

Configurations

Hydronic assembly - Unit with 2 ON/OFF pumps (HYGU2) (only for size 45.2-55.2)

Hydronic unit made of 2 centrifugal electric pumps body and propeller made in AISI 304 steel. The electric pump is equipped with a three-phase electric motor with IP55 protection. The water connection are 2 1/2" Victaulic.

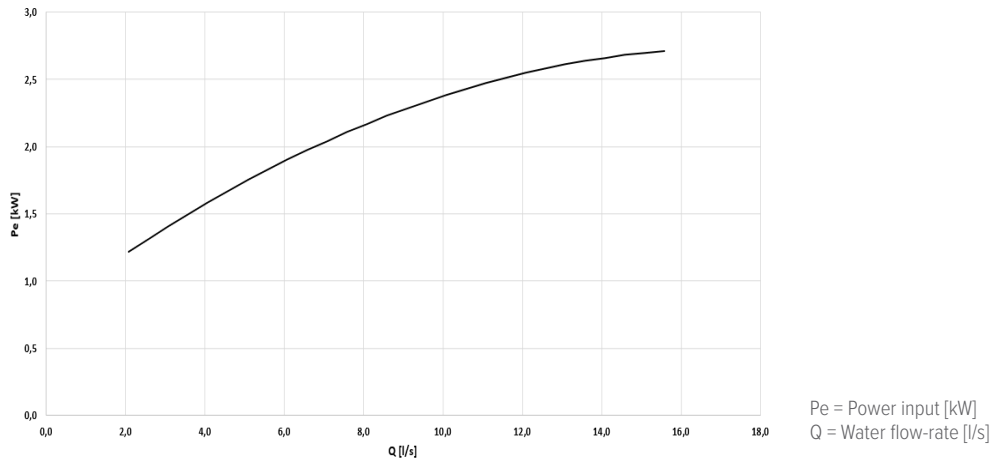
Inverter pump available pressure curves - Size 45.2 - 50.2 - 55.2



⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:

- User side exchanger pressure drops
- IFWX - Steel mesh strainer on the water side" accessory (where present).

Inverter pump absorption curves - Size 45.2 - 50.2 - 55.2



Electrical data

SIZE		45.2	50.2	55.2
F.L.A.	A	7	7	7
F.L.I.	kW	3	3	3

Hydronic assembly - Unit with 2 inverter pumps (HYGU2V)(only for sizes 45.2-55.2)

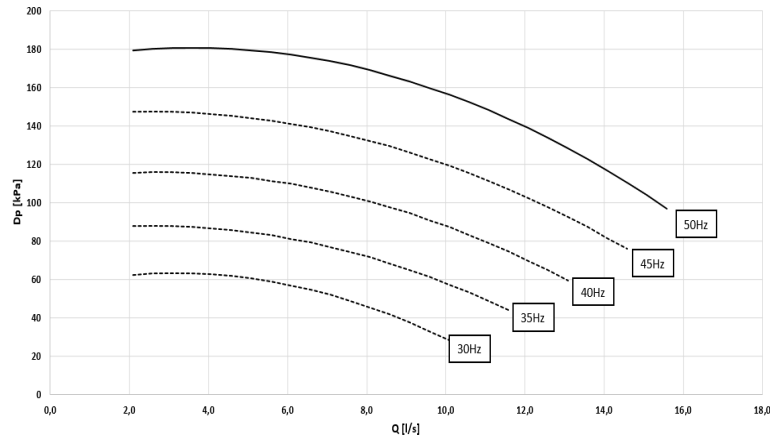
Hydronic unit made of 2 centrifugal electric pump, adjusted by way of inverter, body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection.

In case of maximum frequency derating the pump will work at fixed flowrate. Otherwise if not limited, the pump will modulate the flow according to the unit logic basing on thermal head.

The option is only available for installations up to maximum temperatures of 40 °C.

The water connection are 2 1/2" Victaulic.

Inverter pump available pressure curves - Size 45.2 - 50.2 - 55.2

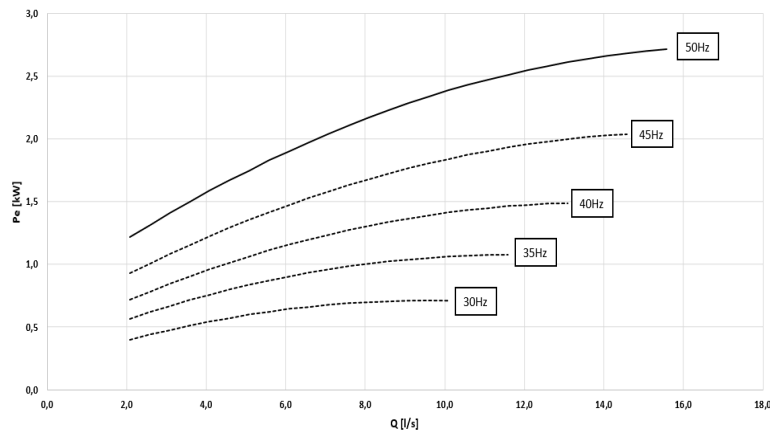


DP = Available pressure [kPa]
Q = Water flow-rate [l/s]

⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:

- User side exchanger pressure drops
- IFWX - Steel mesh strainer on the water side" accessory (where present).

Inverter pump absorption curves - Size 45.2 - 50.2 - 55.2



Pe = Power input [kW]
Q = Water flow-rate [l/s]

Electrical data

SIZE		45.2	50.2	55.2
F.L.A.	A	7	7	7
F.L.I.	kW	3	3	3

Performances

Cooling - Size 16.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER
5	15	50,66	5,38	45,40	5,48	41,04	5,56	36,52	5,93	32,07	6,33	26,91	7,05	22,67	8,10	18,52	9,70
	20	48,39	4,66	43,35	4,77	39,17	4,85	34,81	5,15	30,50	5,46	25,47	5,99	21,34	6,75	17,26	7,74
	25	46,08	4,04	41,29	4,15	37,28	4,22	33,07	4,46	28,91	4,69	24,02	5,08	19,98	5,58	15,97	6,14
	30	43,74	3,51	39,18	3,60	35,35	3,66	31,31	3,85	27,28	4,02	22,54	4,28	18,59	4,58	14,66	4,85
	35	41,37	3,04	37,06	3,12	33,40	3,18	29,52	3,31	25,62	3,43	21,02	3,59	17,17	3,75	13,32	3,82
	40	38,96	2,63	34,89	2,70	31,41	2,75	27,69	2,85	23,94	2,92	19,48	2,99	15,72	3,04	11,95	2,97
	45	36,52	2,28	32,68	2,33	29,39	2,36	25,82	2,43	22,22	2,47	17,90	2,48	14,23	2,45	10,54	2,29
7	15	54,16	5,73	48,54	5,86	43,87	5,94	39,01	6,34	34,22	6,76	28,64	7,50	24,05	8,62	19,54	10,23
	20	51,76	4,95	46,40	5,08	41,92	5,18	37,22	5,49	32,57	5,82	27,14	6,37	22,65	7,15	18,22	8,17
	25	49,34	4,29	44,22	4,41	39,92	4,49	35,39	4,74	30,89	4,99	25,60	5,38	21,22	5,89	16,87	6,46
	30	46,87	3,71	42,00	3,82	37,88	3,89	33,52	4,09	29,16	4,26	24,03	4,53	19,74	4,83	15,47	5,09
	35	43,00	3,30	39,73	3,31	35,80	3,37	31,61	3,52	27,40	3,63	22,41	3,79	18,23	3,94	14,04	3,99
	40	41,79	2,78	37,42	2,86	33,68	2,91	29,65	3,01	25,59	3,09	20,75	3,16	16,67	3,19	12,57	3,10
	45	39,18	2,41	35,06	2,47	31,51	2,51	27,65	2,57	23,74	2,61	19,05	2,61	15,07	2,57	11,05	2,38
10	15	59,60	6,29	53,42	6,45	48,27	6,57	42,87	6,99	37,53	7,46	31,29	8,28	26,15	9,48	21,08	11,27
	20	57,03	5,42	51,12	5,58	46,16	5,69	40,94	6,04	35,75	6,38	29,68	6,98	24,65	7,83	19,68	8,91
	25	54,40	4,67	48,75	4,82	44,00	4,92	38,95	5,19	33,93	5,46	28,01	5,87	23,10	6,42	18,22	7,01
	30	51,71	4,04	46,34	4,17	41,78	4,26	36,91	4,46	32,04	4,65	26,29	4,92	21,49	5,23	16,70	5,48
	35	48,96	3,49	43,86	3,60	39,50	3,67	34,81	3,83	30,11	3,95	24,52	4,11	19,83	4,26	15,13	4,26
	40	46,15	3,02	41,32	3,11	37,16	3,17	32,66	3,28	28,11	3,35	22,69	3,41	18,11	3,43	13,51	3,30
	45	43,27	2,60	38,70	2,68	34,76	2,72	30,43	2,79	26,05	2,82	20,79	2,81	16,33	2,75	11,82	2,52
12	15	63,36	6,68	56,79	6,87	51,29	7,00	45,51	7,46	39,78	7,96	33,09	8,82	27,57	10,14	22,13	12,09
	20	60,66	5,74	54,36	5,92	49,07	6,05	43,47	6,42	37,92	6,80	31,40	7,42	26,00	8,31	20,65	9,47
	25	57,88	4,94	51,87	5,11	46,79	5,22	41,38	5,51	35,99	5,79	29,65	6,23	24,37	6,79	19,12	7,41
	30	55,04	4,26	49,30	4,41	44,44	4,51	39,22	4,73	34,00	4,92	27,83	5,20	22,67	5,53	17,52	5,76
	35	52,12	3,68	46,68	3,80	42,02	3,89	36,99	4,05	31,94	4,18	25,94	4,33	20,91	4,48	15,86	4,47
	40	49,13	3,18	43,97	3,28	39,53	3,34	34,70	3,46	29,81	3,52	23,99	3,59	19,08	3,60	14,13	3,44
	45	46,06	2,74	41,18	2,82	36,96	2,87	32,32	2,94	27,61	2,97	21,97	2,95	17,17	2,88	12,34	2,61
15	15	69,19	7,29	61,99	7,53	55,95	7,71	49,56	8,22	43,23	8,77	35,84	9,77	29,73	11,26	23,71	13,55
	20	66,26	6,24	59,36	6,46	53,55	6,62	47,37	7,03	41,23	7,44	34,02	8,16	28,05	9,14	22,13	10,44
	25	63,25	5,36	56,66	5,56	51,08	5,70	45,10	6,01	39,14	6,31	32,13	6,81	26,29	7,43	20,49	8,10
	30	60,16	4,61	53,87	4,78	48,52	4,90	42,76	5,14	36,98	5,35	30,16	5,66	24,45	5,99	18,76	6,25
	35	56,97	3,97	51,00	4,12	45,88	4,21	40,32	4,39	34,74	4,52	28,10	4,68	22,53	4,84	16,96	4,82
	40	53,70	3,42	48,04	3,54	43,16	3,62	37,81	3,74	32,41	3,81	25,97	3,87	20,54	3,88	15,08	3,69
	45	50,32	2,94	44,98	3,04	40,33	3,09	35,20	3,17	29,99	3,19	23,75	3,17	18,45	3,08	13,12	2,78
18	15	75,21	7,93	67,35	8,23	60,75	8,46	53,72	9,04	46,77	9,66	38,64	10,82	31,92	12,57	25,30	15,33
	20	72,04	6,76	64,51	7,04	58,16	7,24	51,37	7,70	44,61	8,16	36,69	8,97	30,12	10,11	23,62	11,69
	25	68,77	5,79	61,58	6,03	55,48	6,21	48,91	6,56	42,36	6,89	34,65	7,44	28,23	8,14	21,86	8,92
	30	65,41	4,97	58,55	5,17	52,70	5,32	46,36	5,58	40,01	5,81	32,52	6,15	26,25	6,53	20,01	6,83
	35	64,00	4,02	55,42	4,44	49,83	4,56	43,72	4,75	37,57	4,89	30,29	5,07	24,18	5,23	18,07	5,22
	40	58,37	3,67	52,19	3,81	46,85	3,90	40,97	4,03	35,03	4,10	27,97	4,17	22,01	4,17	16,03	3,96
	45	54,68	3,15	48,84	3,27	43,77	3,33	38,12	3,41	32,39	3,43	25,55	3,41	19,74	3,30	13,91	2,97
20	15	79,30	8,37	70,99	8,73	63,99	9,00	56,54	9,63	49,15	10,33	40,52	11,61	33,39	13,63	26,36	16,90
	20	75,95	7,13	68,00	7,44	61,28	7,67	54,06	8,17	46,89	8,68	38,48	9,57	31,51	10,87	24,62	12,69
	25	72,51	6,08	64,90	6,36	58,45	6,55	51,48	6,93	44,52	7,30	36,34	7,90	29,53	8,66	22,78	9,57
	30	68,95	5,22	61,71	5,44	55,52	5,61	48,79	5,89	42,05	6,13	34,10	6,51	27,45	6,91	20,84	7,26
	35	65,29	4,48	58,40	4,67	52,49	4,80	46,00	5,00	39,48	5,15	31,76	5,35	25,27	5,52	18,81	5,52
	40	61,51	3,84	54,98	4,00	49,34	4,10	43,09	4,23	36,79	4,31	29,31	4,38	22,99	4,38	16,67	4,17
	45	57,60	3,30	51,44	3,42	46,07	3,49	40,08	3,58	34,00	3,60	26,75	3,57	20,60	3,45	14,43	3,10

To = Leaving internal exchanger water temperature (°C).

Tae [°C]= External exchanger inlet air temperature.

Performances in function of the inlet/outlet water temperature differential = 5°C.

Cooling capacity and EER calculated according to EN 14511:2018.

Cooling - Size 20.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER
5	15	59,42	5,14	53,27	5,29	48,00	5,40	42,48	5,70	37,07	6,01	30,96	6,55	25,82	7,31	20,79	8,42
	20	56,69	4,43	50,86	4,57	45,84	4,69	40,55	4,94	35,33	5,20	29,42	5,63	24,41	6,18	19,49	6,91
	25	53,94	3,82	48,43	3,97	43,65	4,07	38,59	4,28	33,57	4,49	27,85	4,80	22,98	5,20	18,17	5,63
	30	51,15	3,31	45,96	3,44	41,44	3,54	36,60	3,71	31,78	3,87	26,25	4,10	21,52	4,35	16,82	4,57
	35	48,32	2,86	43,46	2,98	39,19	3,07	34,58	3,21	29,96	3,33	24,62	3,48	20,03	3,62	15,43	3,68
	40	45,45	2,48	40,93	2,58	36,91	2,66	32,53	2,77	28,10	2,85	22,96	2,94	18,51	3,01	14,02	2,95
45	42,54	2,14	38,35	2,23	34,59	2,30	30,43	2,38	26,21	2,43	21,27	2,48	16,95	2,47	12,57	2,34	
7	15	63,46	5,45	56,93	5,63	51,32	5,76	45,42	6,09	39,60	6,42	33,02	6,98	27,46	7,80	22,01	8,91
	20	60,60	4,69	54,41	4,86	49,06	4,99	43,39	5,27	37,78	5,54	31,39	5,98	25,98	6,56	20,65	7,30
	25	57,70	4,04	51,85	4,21	46,75	4,33	41,32	4,55	35,91	4,77	29,74	5,10	24,47	5,50	19,25	5,92
	30	54,76	3,49	49,25	3,64	44,41	3,75	39,21	3,93	34,02	4,10	28,04	4,33	22,92	4,59	17,81	4,80
	35	54,00	3,14	46,60	3,15	42,03	3,25	37,07	3,40	32,07	3,52	26,31	3,68	21,33	3,82	16,34	3,86
	40	48,72	2,61	43,89	2,73	39,59	2,81	34,87	2,93	30,09	3,02	24,53	3,11	19,69	3,16	14,82	3,08
10	15	69,77	5,94	62,64	6,17	56,49	6,33	49,96	6,70	43,50	7,06	36,17	7,68	29,97	8,56	23,86	9,78
	20	66,69	5,09	59,93	5,30	54,05	5,47	47,77	5,77	41,54	6,06	34,43	6,55	28,38	7,17	22,40	7,94
	25	63,56	4,37	57,16	4,57	51,56	4,73	45,53	4,97	39,52	5,21	32,63	5,56	26,74	5,98	20,88	6,43
	30	60,37	3,77	54,33	3,95	49,01	4,09	43,23	4,29	37,45	4,47	30,78	4,71	25,04	4,98	19,32	5,18
	35	57,11	3,26	51,44	3,42	46,40	3,53	40,88	3,69	35,32	3,82	28,87	3,99	23,30	4,12	17,70	4,15
	40	53,78	2,81	48,47	2,95	43,72	3,05	38,46	3,18	33,12	3,27	26,90	3,36	21,49	3,40	16,02	3,30
45	50,38	2,43	45,44	2,55	40,98	2,63	35,98	2,72	30,87	2,78	24,88	2,81	19,62	2,79	14,29	2,60	
12	15	74,15	6,27	66,60	6,54	60,05	6,73	53,08	7,13	46,18	7,52	38,32	8,19	31,66	9,12	25,10	10,42
	20	70,91	5,36	63,74	5,61	57,48	5,80	50,78	6,12	44,11	6,44	36,49	6,95	30,00	7,61	23,57	8,42
	25	67,61	4,61	60,82	4,83	54,86	5,00	48,41	5,27	41,98	5,52	34,59	5,89	28,27	6,34	21,98	6,78
	30	64,23	3,97	57,82	4,17	52,16	4,32	45,98	4,53	39,78	4,72	32,63	4,98	26,48	5,25	20,33	5,45
	35	60,78	3,42	54,76	3,60	49,39	3,73	43,48	3,90	37,51	4,03	30,61	4,21	24,62	4,34	18,61	4,35
	40	57,25	2,95	51,61	3,11	46,55	3,22	40,90	3,34	35,18	3,44	28,51	3,53	22,69	3,57	16,83	3,45
45	53,62	2,55	48,38	2,68	43,62	2,77	38,26	2,87	32,77	2,92	26,34	2,96	20,70	2,92	14,98	2,71	
15	15	80,95	6,79	72,73	7,12	65,57	7,37	57,89	7,80	50,28	8,24	41,61	9,01	34,25	10,07	26,99	11,53
	20	77,45	5,78	69,64	6,09	62,79	6,32	55,41	6,68	48,05	7,03	39,64	7,59	32,46	8,34	25,36	9,26
	25	73,87	4,96	66,46	5,23	59,94	5,43	52,84	5,73	45,73	5,99	37,58	6,41	30,59	6,89	23,65	7,39
	30	70,20	4,26	63,20	4,50	57,00	4,68	50,19	4,91	43,35	5,11	35,45	5,40	28,65	5,70	21,86	5,89
	35	66,43	3,67	59,85	3,87	53,98	4,03	47,46	4,21	40,87	4,36	33,24	4,54	26,63	4,69	19,99	4,68
	40	62,57	3,17	56,41	3,34	50,87	3,47	44,64	3,61	38,31	3,71	30,95	3,81	24,52	3,84	18,05	3,69
45	58,60	2,72	52,87	2,88	47,66	2,98	41,73	3,08	35,67	3,14	28,56	3,17	22,33	3,12	16,02	2,89	
18	15	88,00	7,32	79,07	7,72	71,26	8,04	62,84	8,54	54,48	9,04	44,97	9,91	36,88	11,14	28,91	12,91
	20	84,21	6,22	75,72	6,58	68,26	6,87	60,16	7,27	52,08	7,66	42,84	8,30	34,96	9,15	27,16	10,21
	25	80,32	5,32	72,27	5,63	65,17	5,88	57,38	6,20	49,57	6,51	40,63	6,97	32,95	7,52	25,32	8,09
	30	76,32	4,57	68,73	4,84	61,97	5,05	54,50	5,31	46,98	5,53	38,31	5,85	30,85	6,17	23,39	6,41
	35	72,00	3,76	65,08	4,16	58,68	4,34	51,52	4,54	44,29	4,70	35,91	4,90	28,65	5,05	21,38	5,05
	40	68,01	3,38	61,33	3,58	55,28	3,73	48,44	3,88	41,49	3,99	33,41	4,09	26,36	4,13	19,27	3,97
45	63,68	2,91	57,46	3,08	51,77	3,20	45,26	3,31	38,60	3,37	30,81	3,40	23,98	3,34	17,07	3,08	
20	15	92,79	7,68	83,37	8,14	75,13	8,51	66,20	9,04	57,33	9,60	47,23	10,57	38,64	11,93	30,19	13,98
	20	88,80	6,52	79,84	6,92	71,96	7,25	63,37	7,68	54,79	8,12	45,00	8,82	36,63	9,74	28,36	10,95
	25	84,68	5,56	76,21	5,91	68,70	6,20	60,44	6,54	52,16	6,87	42,67	7,37	34,52	7,97	26,44	8,61
	30	80,46	4,77	72,46	5,07	65,33	5,31	57,40	5,58	49,42	5,82	40,24	6,16	32,31	6,51	24,42	6,78
	35	76,13	4,10	68,60	4,36	61,85	4,55	54,25	4,77	46,58	4,93	37,70	5,15	30,01	5,32	22,30	5,32
	40	71,68	3,53	64,63	3,74	58,25	3,91	51,00	4,07	43,63	4,18	35,06	4,29	27,59	4,32	20,09	4,16
45	67,09	3,03	60,53	3,22	54,53	3,35	47,63	3,46	40,56	3,53	32,31	3,56	25,08	3,50	17,77	3,22	

To = Leaving internal exchanger water temperature (°C)

Tae [°C]= External exchanger inlet air temperature

Performances in function of the inlet/outlet water temperature differential = 5°C

Cooling capacity and EER calculated according to EN 14511:2018

Performances

Cooling - Size 24.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER
5	15	72,40	4,71	65,49	4,92	58,49	5,10	51,06	5,36	45,47	5,56	37,50	5,96	29,77	6,59	23,83	7,24
	20	68,88	4,02	62,40	4,22	55,80	4,40	48,75	4,63	43,40	4,81	35,74	5,14	28,25	5,63	22,46	6,09
	25	65,31	3,45	59,29	3,64	53,10	3,81	46,40	4,01	41,30	4,16	33,95	4,43	26,71	4,80	21,07	5,09
	30	61,71	2,97	56,14	3,14	50,36	3,30	44,03	3,48	39,17	3,60	32,13	3,81	25,14	4,07	19,66	4,23
	35	58,06	2,56	52,95	2,71	47,57	2,86	41,62	3,01	37,01	3,11	30,28	3,27	23,54	3,44	18,21	3,50
	40	54,37	2,20	49,72	2,34	44,76	2,47	39,17	2,60	34,80	2,68	28,40	2,81	21,91	2,90	16,73	2,87
	45	50,62	1,89	46,43	2,02	41,89	2,14	36,68	2,25	32,56	2,31	26,47	2,40	20,24	2,43	15,21	2,34
7	15	77,11	4,95	69,86	5,20	62,46	5,42	54,57	5,70	48,60	5,92	40,06	6,35	31,73	7,00	25,30	7,69
	20	73,43	4,22	66,63	4,45	59,66	4,67	52,14	4,92	46,42	5,10	38,20	5,47	30,13	5,97	23,87	6,43
	25	69,69	3,62	63,36	3,83	56,81	4,03	49,67	4,25	44,20	4,41	36,31	4,70	28,50	5,07	22,40	5,36
	30	65,91	3,11	60,04	3,30	53,92	3,48	47,16	3,68	41,95	3,80	34,38	4,04	26,84	4,30	20,89	4,45
	35	65,00	2,76	56,67	2,85	50,98	3,01	44,61	3,18	39,65	3,29	32,41	3,46	25,13	3,63	19,35	3,67
	40	58,16	2,31	53,25	2,46	47,98	2,61	42,00	2,75	37,30	2,83	30,39	2,96	23,38	3,06	17,76	3,01
	45	54,19	1,98	49,76	2,12	44,94	2,25	39,34	2,37	34,90	2,43	28,33	2,53	21,58	2,56	16,12	2,45
10	15	84,55	5,18	76,72	5,49	68,70	5,76	60,04	6,08	53,44	6,31	43,99	6,78	34,73	7,49	27,55	8,20
	20	80,59	4,41	73,26	4,68	65,68	4,94	57,41	5,22	51,09	5,42	41,99	5,82	33,01	6,36	26,00	6,82
	25	76,56	3,78	69,73	4,02	62,59	4,26	54,74	4,50	48,69	4,66	39,93	4,98	31,24	5,38	24,41	5,66
	30	72,47	3,24	66,13	3,46	59,46	3,67	52,01	3,88	46,23	4,02	37,83	4,27	29,42	4,54	22,77	4,68
	35	68,31	2,79	62,47	2,99	56,25	3,17	49,21	3,35	43,71	3,46	35,66	3,65	27,54	3,83	21,07	3,85
	40	64,06	2,40	58,73	2,58	52,98	2,74	46,35	2,89	41,12	2,98	33,43	3,11	25,61	3,21	19,31	3,15
	45	59,73	2,06	54,92	2,22	49,63	2,36	43,42	2,49	38,47	2,56	31,14	2,65	23,61	2,68	17,49	2,55
12	15	89,74	5,25	81,49	5,58	73,01	5,90	63,80	6,23	56,77	6,47	46,68	6,96	36,76	7,69	29,06	8,45
	20	85,58	4,46	77,85	4,76	69,84	5,04	61,05	5,34	54,30	5,54	44,57	5,94	34,96	6,51	27,45	7,00
	25	81,32	3,81	74,13	4,08	66,59	4,33	58,22	4,59	51,76	4,76	42,40	5,08	33,09	5,49	25,77	5,78
	30	77,01	3,27	70,33	3,50	63,27	3,73	55,33	3,95	49,15	4,09	40,17	4,34	31,17	4,63	24,03	4,77
	35	72,61	2,81	66,46	3,02	59,88	3,22	52,37	3,40	46,47	3,51	37,87	3,71	29,17	3,88	22,22	3,90
	40	68,11	2,42	62,49	2,60	56,40	2,78	49,32	2,93	43,72	3,02	35,49	3,16	27,10	3,25	20,35	3,18
	45	63,52	2,08	58,44	2,24	52,84	2,40	46,20	2,52	40,89	2,59	33,05	2,68	24,97	2,71	18,41	2,57
15	15	97,81	5,25	88,93	5,64	79,73	6,01	69,64	6,37	61,91	6,61	50,81	7,14	39,88	7,93	31,37	8,71
	20	93,32	4,45	84,97	4,79	76,29	5,12	66,65	5,43	59,22	5,63	48,53	6,06	37,93	6,65	29,63	7,17
	25	88,72	3,79	80,94	4,09	72,76	4,38	63,58	4,64	56,47	4,82	46,18	5,16	35,91	5,59	27,82	5,88
	30	84,03	3,25	76,82	3,51	69,15	3,76	60,44	3,99	53,63	4,13	43,74	4,39	33,81	4,68	25,93	4,82
	35	79,25	2,79	72,60	3,02	65,45	3,24	57,20	3,43	50,71	3,54	41,22	3,74	31,64	3,92	23,96	3,92
	40	74,36	2,40	68,28	2,60	61,65	2,79	53,87	2,95	47,69	3,03	38,62	3,17	29,37	3,26	21,92	3,18
	45	69,34	2,06	63,85	2,24	57,75	2,40	50,44	2,53	44,58	2,59	35,93	2,69	27,03	2,71	19,79	2,56
18	15	106,05	5,24	96,64	5,69	86,68	6,12	75,66	6,51	67,18	6,75	55,02	7,33	43,05	8,20	33,70	9,11
	20	101,24	4,44	92,36	4,82	82,96	5,20	72,42	5,52	64,28	5,73	52,57	6,19	40,95	6,84	31,84	7,41
	25	96,34	3,78	87,98	4,11	79,13	4,43	69,10	4,71	61,29	4,88	50,01	5,25	38,77	5,70	29,89	6,03
	30	91,27	3,24	83,50	3,52	75,20	3,80	65,68	4,03	58,20	4,17	47,37	4,45	36,49	4,76	27,84	4,90
	35	86,07	2,78	80,00	3,07	71,17	3,26	62,15	3,46	55,01	3,57	44,63	3,77	34,12	3,96	25,72	3,98
	40	80,73	2,39	74,20	2,60	67,02	2,80	58,51	2,96	51,72	3,05	41,79	3,20	31,66	3,29	23,49	3,21
	45	75,28	2,05	69,36	2,23	62,76	2,41	54,76	2,54	48,32	2,60	38,85	2,70	29,10	2,72	21,18	2,57
20	15	111,74	5,24	101,74	5,73	91,40	6,21	79,74	6,62	70,76	6,88	57,87	7,50	45,17	8,43	35,26	9,43
	20	106,61	4,44	97,35	4,85	87,47	5,25	76,33	5,60	67,70	5,82	55,28	6,30	42,98	6,99	33,31	7,61
	25	101,39	3,78	92,74	4,13	83,43	4,48	72,82	4,77	64,54	4,95	52,60	5,32	40,68	5,80	31,27	6,16
	30	96,13	3,24	88,00	3,53	79,29	3,83	69,20	4,07	61,28	4,21	49,81	4,50	38,28	4,83	29,12	4,98
	35	90,64	2,78	83,16	3,03	75,03	3,29	65,47	3,48	57,91	3,60	46,91	3,81	35,79	4,01	26,88	4,02
	40	85,02	2,39	78,18	2,61	70,64	2,82	61,63	2,99	54,42	3,07	43,91	3,22	33,19	3,32	24,54	3,24
	45	79,26	2,05	73,07	2,24	66,13	2,42	57,66	2,56	50,83	2,62	40,80	2,72	30,49	2,74	22,11	2,59

To = Leaving internal exchanger water temperature (°C)

Tae [°C]= External exchanger inlet air temperature

Performances in function of the inlet/outlet water temperature differential = 5°C

Cooling capacity and EER calculated according to EN 14511:2018

Cooling - Size 30.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER
5	15	84,01	5,15	76,86	5,28	70,53	5,37	62,61	5,66	54,46	5,93	50,69	6,19	38,71	6,65	29,90	6,97
	20	81,09	4,58	74,16	4,74	67,99	4,86	60,24	5,14	52,25	5,42	48,54	5,64	36,71	6,12	27,99	6,43
	25	78,14	4,03	71,44	4,20	65,44	4,33	57,87	4,59	50,02	4,82	46,38	5,00	34,71	5,40	26,07	5,61
	30	75,17	3,53	68,69	3,69	62,87	3,81	55,48	4,02	47,79	4,21	44,21	4,34	32,69	4,60	24,14	4,66
	35	72,16	3,07	65,92	3,21	60,27	3,32	53,07	3,49	45,54	3,63	42,02	3,70	30,67	3,82	22,21	3,72
	40	69,12	2,67	63,12	2,78	57,66	2,87	50,65	3,00	43,28	3,08	39,83	3,12	28,65	3,11	20,27	2,90
	45	66,05	2,31	60,29	2,40	55,02	2,47	48,20	2,56	41,00	2,59	37,61	2,60	26,61	2,50	18,32	2,21
7	15	89,20	5,42	81,58	5,57	74,82	5,67	66,34	5,98	57,61	6,26	53,56	6,53	40,72	7,01	31,28	7,31
	20	86,10	4,82	78,71	4,99	72,13	5,12	63,84	5,43	55,27	5,71	51,30	5,94	38,63	6,44	29,28	6,73
	25	82,99	4,25	75,85	4,43	69,44	4,56	61,35	4,84	52,95	5,09	49,05	5,27	36,54	5,67	27,28	5,87
	30	79,85	3,72	72,96	3,89	66,75	4,02	58,85	4,25	50,62	4,44	46,79	4,57	34,45	4,85	25,29	4,87
	35	76,00	3,25	70,06	3,39	64,05	3,50	56,35	3,68	48,30	3,83	44,54	3,90	32,38	4,03	23,31	3,91
	40	73,53	2,81	67,16	2,94	61,34	3,04	53,85	3,17	45,97	3,26	42,28	3,29	30,31	3,29	21,33	3,04
	45	70,34	2,44	64,23	2,54	58,62	2,62	51,34	2,71	43,65	2,75	40,03	2,75	28,25	2,65	19,37	2,33
10	15	97,30	5,69	88,96	5,87	81,53	6,00	72,19	6,33	62,55	6,63	58,08	6,90	43,90	7,40	33,47	7,69
	20	93,95	5,06	85,86	5,26	78,63	5,41	69,50	5,73	60,05	6,04	55,66	6,27	41,66	6,79	31,33	7,07
	25	90,58	4,46	82,77	4,66	75,76	4,82	66,85	5,11	57,58	5,37	53,26	5,55	39,46	5,97	29,23	6,15
	30	87,24	3,91	79,71	4,10	72,89	4,24	64,19	4,48	55,12	4,69	50,89	4,82	37,27	5,10	27,15	5,12
	35	83,89	3,41	76,63	3,58	70,03	3,71	61,56	3,90	52,69	4,05	48,53	4,12	35,11	4,24	25,09	4,10
	40	80,54	2,97	73,57	3,11	67,19	3,22	58,95	3,36	50,28	3,45	46,20	3,48	32,99	3,47	23,07	3,21
	45	77,17	2,58	70,50	2,69	64,35	2,78	56,35	2,88	47,88	2,92	43,89	2,92	30,88	2,81	21,07	2,47
12	15	102,82	5,77	94,13	5,98	86,24	6,13	76,29	6,47	66,02	6,78	61,24	7,05	46,14	7,58	35,02	7,89
	20	99,44	5,14	90,88	5,36	83,22	5,52	73,49	5,86	63,42	6,16	58,73	6,40	43,82	6,92	32,80	7,23
	25	95,93	4,53	87,66	4,75	80,21	4,92	70,71	5,21	60,85	5,49	56,24	5,66	41,53	6,10	30,62	6,29
	30	92,44	3,97	84,46	4,17	77,22	4,33	67,98	4,58	58,31	4,80	53,80	4,91	39,28	5,20	28,48	5,22
	35	88,96	3,47	81,28	3,65	74,27	3,79	65,26	3,98	55,81	4,13	51,38	4,21	37,08	4,34	26,38	4,18
	40	85,49	3,02	78,11	3,18	71,34	3,29	62,58	3,44	53,34	3,53	49,00	3,56	34,91	3,55	24,33	3,28
	45	82,03	2,63	74,96	2,76	68,44	2,85	59,93	2,95	50,90	2,99	46,65	2,99	32,78	2,88	22,31	2,53
15	15	114,01	5,94	104,22	6,18	95,59	6,37	84,46	6,74	72,99	7,08	67,62	7,36	50,71	7,95	38,25	8,28
	20	110,18	5,28	100,83	5,54	92,29	5,74	81,43	6,10	70,17	6,44	64,91	6,66	48,21	7,26	35,88	7,59
	25	106,38	4,66	97,35	4,91	89,05	5,11	78,44	5,43	67,41	5,72	62,24	5,89	45,77	6,38	33,55	6,58
	30	102,74	4,10	93,91	4,32	85,85	4,51	75,50	4,77	64,70	5,00	59,63	5,12	43,38	5,43	31,29	5,46
	35	99,04	3,59	90,49	3,79	82,70	3,94	72,62	4,15	62,04	4,31	57,08	4,37	41,06	4,53	29,07	4,37
	40	95,33	3,13	87,12	3,30	79,57	3,43	69,79	3,58	59,45	3,69	54,58	3,71	38,80	3,71	26,93	3,43
	45	91,64	2,73	83,79	2,87	76,50	2,98	67,00	3,08	56,91	3,13	52,15	3,12	36,60	3,02	24,86	2,66
18	15	126,23	6,16	115,36	6,46	105,65	6,69	93,40	7,11	80,60	7,51	74,60	7,80	55,73	8,50	41,83	8,92
	20	122,09	5,49	111,57	5,79	102,24	6,04	90,14	6,44	77,57	6,82	71,70	7,06	53,06	7,75	39,28	8,15
	25	118,01	4,86	107,82	5,14	98,76	5,39	86,94	5,74	74,62	6,06	68,86	6,25	50,46	6,80	36,80	7,05
	30	113,98	4,28	104,28	4,54	95,34	4,75	83,82	5,04	71,76	5,30	66,10	5,42	47,94	5,79	34,41	5,82
	35	110,00	3,76	100,67	3,99	92,00	4,16	80,76	4,39	68,96	4,58	63,41	4,64	45,51	4,83	32,10	4,67
	40	106,06	3,29	97,09	3,49	88,70	3,63	77,78	3,80	66,24	3,92	60,80	3,94	43,15	3,96	29,88	3,67
	45	102,29	2,88	93,58	3,04	85,48	3,16	74,87	3,28	63,59	3,34	58,27	3,32	40,88	3,22	27,73	2,85
20	15	133,23	6,19	121,77	6,52	111,49	6,77	98,53	7,23	84,96	7,68	78,59	7,99	58,59	8,78	43,83	9,27
	20	128,95	5,53	117,84	5,85	107,84	6,12	95,15	6,55	81,84	6,97	75,60	7,22	55,84	7,99	41,21	8,46
	25	124,74	4,90	113,98	5,21	104,37	5,47	91,87	5,84	78,81	6,20	72,68	6,38	53,17	7,01	38,68	7,31
	30	120,59	4,33	110,20	4,60	100,88	4,84	88,67	5,14	75,88	5,42	69,86	5,54	50,59	5,95	36,23	6,03
	35	116,50	3,81	106,48	4,05	97,45	4,25	85,54	4,49	73,02	4,68	67,13	4,75	48,12	4,96	33,88	4,82
	40	112,45	3,34	102,98	3,55	94,09	3,71	82,50	3,88	70,25	4,01	64,49	4,03	45,74	4,07	31,63	3,78
	45	108,46	2,93	99,39	3,10	90,80	3,23	79,55	3,35	67,58	3,42	61,93	3,40	43,45	3,31	29,48	2,94

To = Leaving internal exchanger water temperature (°C)

Tae [°C]= External exchanger inlet air temperature

Performances in function of the inlet/outlet water temperature differential = 5°C

Cooling capacity and EER calculated according to EN 14511:2018

Performances

Cooling - Size 35.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER
5	15	94,58	4,84	86,89	5,03	78,84	5,18	71,15	5,44	61,05	5,71	52,86	6,01	43,29	6,35	33,40	6,60
	20	91,27	4,26	83,87	4,45	76,07	4,64	68,59	4,89	58,71	5,17	50,67	5,46	41,25	5,80	31,47	6,06
	25	87,92	3,72	80,82	3,92	73,29	4,11	66,02	4,34	56,37	4,60	48,47	4,84	39,19	5,13	29,52	5,31
	30	84,53	3,24	77,73	3,43	70,48	3,60	63,41	3,80	54,00	4,02	46,26	4,21	37,12	4,41	27,56	4,47
	35	81,11	2,82	74,62	2,99	67,64	3,14	60,79	3,30	51,62	3,48	44,04	3,61	35,05	3,71	25,60	3,64
	40	77,63	2,44	71,48	2,59	64,78	2,73	58,15	2,85	49,22	2,98	41,80	3,05	32,96	3,07	23,63	2,90
	45	74,11	2,12	68,28	2,24	61,89	2,36	55,48	2,45	46,80	2,53	39,55	2,56	30,86	2,51	21,66	2,27
7	15	100,43	5,09	92,26	5,29	83,69	5,46	75,47	5,74	64,65	6,03	55,88	6,34	45,64	6,69	35,04	6,94
	20	96,92	4,47	89,06	4,69	80,76	4,89	72,76	5,15	62,20	5,46	53,59	5,76	43,49	6,11	33,01	6,36
	25	93,37	3,91	85,83	4,12	77,82	4,33	70,04	4,57	59,73	4,85	51,29	5,10	41,35	5,40	30,99	5,56
	30	89,79	3,41	82,58	3,61	74,87	3,80	67,33	4,01	57,27	4,24	48,99	4,44	39,21	4,64	28,97	4,68
	35	87,00	3,07	79,32	3,15	71,91	3,32	64,60	3,49	54,80	3,67	46,70	3,80	37,07	3,91	26,96	3,82
	40	82,54	2,58	76,04	2,73	68,93	2,88	61,87	3,02	52,33	3,15	44,40	3,22	34,94	3,24	24,95	3,05
	45	78,87	2,23	72,72	2,37	65,93	2,49	59,11	2,60	49,85	2,68	42,10	2,71	32,81	2,66	22,95	2,40
10	15	109,42	5,30	100,64	5,55	91,28	5,75	82,23	6,05	70,32	6,37	60,64	6,69	49,33	7,08	37,62	7,33
	20	105,59	4,66	97,18	4,92	88,11	5,14	79,32	5,43	67,68	5,76	58,18	6,07	47,04	6,44	35,47	6,69
	25	101,76	4,08	93,71	4,33	84,95	4,56	76,41	4,81	65,05	5,11	55,74	5,38	44,77	5,68	33,33	5,85
	30	98,07	3,57	90,23	3,79	81,80	4,00	73,51	4,23	62,45	4,47	53,33	4,68	42,53	4,89	31,22	4,92
	35	94,21	3,11	86,75	3,31	78,65	3,50	70,63	3,68	59,86	3,87	50,93	4,01	40,31	4,12	29,13	4,02
	40	90,33	2,71	83,27	2,88	75,51	3,05	67,76	3,19	57,28	3,33	48,55	3,41	38,11	3,42	27,08	3,22
	45	86,45	2,35	79,77	2,50	72,37	2,64	64,89	2,75	54,72	2,84	46,19	2,87	35,94	2,82	25,05	2,55
12	15	115,80	5,36	106,38	5,62	96,60	5,86	86,97	6,16	74,29	6,50	63,98	6,84	51,93	7,23	39,45	7,49
	20	111,76	4,72	102,74	4,98	93,27	5,24	83,92	5,53	71,54	5,87	61,42	6,19	49,55	6,58	37,21	6,84
	25	107,76	4,14	99,24	4,39	89,97	4,64	80,89	4,90	68,81	5,21	58,89	5,48	47,20	5,80	35,00	5,97
	30	103,74	3,61	95,62	3,85	86,69	4,08	77,88	4,30	66,11	4,56	56,40	4,77	44,89	4,99	32,83	5,02
	35	99,88	3,16	92,00	3,37	83,43	3,57	74,90	3,75	63,45	3,95	53,94	4,10	42,62	4,21	30,70	4,10
	40	95,85	2,75	88,38	2,93	80,18	3,11	71,95	3,25	60,80	3,40	51,50	3,48	40,38	3,50	28,61	3,29
	45	91,82	2,40	84,77	2,55	76,94	2,70	69,01	2,81	58,19	2,91	49,11	2,94	38,18	2,89	26,57	2,61
15	15	125,86	5,36	115,67	5,66	104,86	5,92	94,48	6,26	80,61	6,63	69,30	6,99	56,07	7,42	42,37	7,72
	20	121,57	4,73	111,75	5,02	101,36	5,30	91,23	5,61	77,68	5,98	66,59	6,32	53,56	6,74	40,01	7,02
	25	117,29	4,15	107,90	4,43	97,96	4,70	88,03	4,98	74,80	5,31	63,93	5,59	51,10	5,93	37,71	6,12
	30	113,03	3,64	104,05	3,89	94,49	4,14	84,87	4,37	71,99	4,65	61,33	4,87	48,70	5,09	35,45	5,15
	35	108,78	3,18	100,37	3,41	91,06	3,63	81,75	3,82	69,20	4,03	58,78	4,18	46,35	4,30	33,26	4,20
	40	104,56	2,78	96,61	2,98	87,67	3,17	78,67	3,32	66,47	3,48	56,27	3,56	44,06	3,58	31,13	3,38
	45	100,44	2,43	92,83	2,60	84,31	2,76	75,63	2,87	63,79	2,98	53,82	3,01	41,83	2,96	29,06	2,69
18	15	136,64	5,37	125,58	5,71	113,86	6,02	102,39	6,38	87,39	6,81	75,01	7,21	60,54	7,70	45,54	8,07
	20	132,06	4,75	121,46	5,08	110,12	5,40	99,10	5,73	84,31	6,14	72,18	6,51	57,91	6,99	43,07	7,34
	25	127,55	4,19	117,37	4,49	106,42	4,79	95,75	5,09	81,30	5,45	69,40	5,76	55,35	6,14	40,67	6,37
	30	123,05	3,68	113,34	3,95	102,80	4,23	92,44	4,48	78,35	4,78	66,69	5,01	52,86	5,27	38,34	5,35
	35	118,59	3,23	109,36	3,47	101,00	3,78	89,20	3,92	75,47	4,15	64,06	4,31	50,44	4,44	36,09	4,36
	40	114,16	2,83	105,39	3,04	95,83	3,25	86,00	3,41	72,66	3,58	61,49	3,68	48,10	3,71	33,92	3,51
	45	109,76	2,48	101,48	2,66	92,35	2,84	82,87	2,96	69,91	3,08	59,00	3,12	45,84	3,07	31,83	2,80
20	15	144,17	5,40	132,54	5,76	120,19	6,11	108,05	6,49	92,16	6,97	79,05	7,42	63,71	7,97	47,79	8,43
	20	139,45	4,79	128,28	5,14	116,32	5,49	104,52	5,84	88,98	6,29	76,13	6,70	61,00	7,22	45,25	7,63
	25	134,76	4,23	124,06	4,55	112,51	4,88	101,12	5,19	85,89	5,59	73,28	5,93	58,37	6,35	42,79	6,62
	30	130,14	3,73	119,91	4,02	108,76	4,31	97,81	4,58	82,87	4,90	70,51	5,16	55,83	5,44	40,42	5,55
	35	125,54	3,28	115,81	3,54	105,10	3,80	94,48	4,01	79,94	4,26	67,83	4,44	53,37	4,59	38,13	4,52
	40	121,01	2,89	111,75	3,11	101,50	3,33	91,22	3,50	77,08	3,69	65,23	3,79	51,01	3,83	35,94	3,63
	45	116,48	2,54	107,74	2,73	98,08	2,92	88,03	3,05	74,29	3,17	62,70	3,22	48,73	3,18	33,84	2,90

To = Leaving internal exchanger water temperature (°C)

Tae [°C]= External exchanger inlet air temperature

Performances in function of the inlet/outlet water temperature differential = 5°C

Cooling capacity and EER calculated according to EN 14511:2018

Cooling - Size 40.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER
5	15	107,77	4,42	97,29	4,73	88,77	4,94	79,35	5,21	69,55	5,47	59,42	5,77	52,30	6,01	38,04	6,33
	20	103,83	3,83	93,87	4,15	85,67	4,37	76,56	4,65	67,04	4,91	57,12	5,21	50,12	5,43	36,06	5,77
	25	100,00	3,32	90,39	3,62	82,56	3,84	73,74	4,10	64,48	4,34	54,80	4,61	47,93	4,79	34,07	5,06
	30	95,93	2,87	86,89	3,15	79,40	3,36	70,91	3,58	61,92	3,79	52,47	4,02	45,73	4,15	32,07	4,31
	35	91,83	2,49	83,33	2,74	76,21	2,93	68,04	3,12	59,33	3,29	50,11	3,46	43,51	3,54	30,06	3,57
	40	87,64	2,15	79,73	2,38	72,98	2,54	65,13	2,70	56,72	2,83	47,74	2,95	41,27	2,98	28,04	2,91
	45	83,40	1,86	76,07	2,06	69,71	2,20	62,21	2,33	54,07	2,43	45,34	2,50	39,03	2,49	26,01	2,34
7	15	114,40	4,62	103,15	4,96	94,26	5,19	84,21	5,49	73,75	5,76	62,91	6,08	55,27	6,33	40,00	6,66
	20	110,20	4,01	99,66	4,35	90,97	4,60	81,26	4,89	71,09	5,17	60,48	5,48	52,99	5,72	37,93	6,06
	25	105,95	3,47	95,98	3,80	87,67	4,04	78,29	4,31	68,41	4,57	58,06	4,85	50,71	5,04	35,86	5,32
	30	101,66	3,01	92,28	3,31	84,35	3,54	75,32	3,77	65,73	4,00	55,62	4,23	48,42	4,37	33,80	4,53
	35	98,00	2,79	88,53	2,88	81,01	3,08	72,32	3,29	63,04	3,47	53,19	3,64	46,13	3,73	31,74	3,76
	40	93,07	2,26	84,76	2,50	77,63	2,68	69,30	2,85	60,33	2,99	50,75	3,11	43,84	3,15	29,68	3,06
	45	88,61	1,96	80,94	2,17	74,23	2,32	66,27	2,46	57,61	2,57	48,30	2,64	41,55	2,64	27,62	2,47
10	15	124,73	4,79	112,56	5,17	102,71	5,44	91,83	5,77	80,33	6,07	68,38	6,41	59,95	6,68	43,10	7,02
	20	120,13	4,16	108,58	4,54	99,29	4,82	88,63	5,13	77,45	5,43	65,78	5,77	57,52	6,02	40,90	6,38
	25	115,53	3,61	104,61	3,97	95,73	4,24	85,45	4,53	74,59	4,80	63,20	5,10	55,09	5,30	38,72	5,59
	30	110,88	3,13	100,70	3,46	92,16	3,71	82,26	3,96	71,75	4,20	60,63	4,45	52,69	4,59	36,56	4,75
	35	106,21	2,72	96,77	3,02	88,59	3,24	79,09	3,46	68,91	3,65	58,08	3,84	50,31	3,92	34,42	3,95
	40	101,50	2,36	92,73	2,63	85,01	2,82	75,91	3,00	66,07	3,16	55,54	3,28	47,94	3,32	32,31	3,23
	45	96,89	2,05	88,67	2,28	81,42	2,45	72,73	2,60	63,25	2,72	53,02	2,80	45,59	2,79	30,22	2,62
12	15	131,93	4,81	119,10	5,22	108,70	5,52	97,15	5,86	84,93	6,17	72,22	6,54	63,24	6,81	45,29	7,19
	20	127,10	4,18	114,93	4,59	104,97	4,88	93,81	5,21	81,92	5,52	69,51	5,88	60,70	6,13	43,00	6,52
	25	122,25	3,64	110,76	4,01	101,27	4,30	90,48	4,60	78,95	4,89	66,83	5,20	58,20	5,39	40,75	5,70
	30	117,38	3,16	106,59	3,51	97,67	3,77	87,17	4,03	76,00	4,28	64,18	4,53	55,72	4,67	38,53	4,85
	35	112,50	2,75	102,42	3,06	93,96	3,30	83,88	3,52	73,07	3,72	61,55	3,91	53,28	3,99	36,35	4,03
	40	107,59	2,39	98,38	2,67	90,24	2,87	80,60	3,06	70,15	3,22	58,96	3,35	50,86	3,38	34,21	3,30
	45	102,64	2,08	94,17	2,33	86,54	2,50	77,32	2,65	67,26	2,77	56,38	2,86	48,47	2,85	32,10	2,68
15	15	143,28	4,76	129,46	5,22	118,18	5,55	105,44	5,90	92,22	6,25	78,31	6,65	68,46	6,94	48,78	7,38
	20	138,10	4,16	124,99	4,59	114,19	4,91	101,88	5,26	89,04	5,59	75,45	5,97	65,78	6,23	46,38	6,67
	25	132,90	3,62	120,55	4,03	110,23	4,33	98,50	4,65	85,89	4,95	72,63	5,28	63,16	5,48	44,02	5,83
	30	127,73	3,16	116,12	3,52	106,29	3,80	95,01	4,08	82,79	4,34	69,85	4,60	60,58	4,75	41,72	4,96
	35	122,54	2,76	111,70	3,08	102,38	3,33	91,55	3,57	79,74	3,78	67,13	3,98	58,05	4,06	39,47	4,12
	40	117,34	2,41	107,29	2,69	98,63	2,92	88,11	3,11	76,71	3,27	64,45	3,42	55,57	3,45	37,28	3,38
	45	112,12	2,10	102,87	2,35	94,74	2,55	84,71	2,70	73,72	2,83	61,81	2,92	53,14	2,91	35,15	2,75
18	15	155,38	4,62	140,52	5,11	128,34	5,47	114,45	5,85	100,06	6,24	84,86	6,67	74,08	6,98	52,56	7,54
	20	149,84	4,04	135,77	4,51	124,09	4,86	110,69	5,22	96,70	5,58	81,85	5,99	71,27	6,26	50,04	6,79
	25	144,36	3,54	131,06	3,97	119,92	4,30	106,98	4,62	93,40	4,94	78,90	5,30	68,54	5,51	47,59	5,91
	30	138,89	3,10	126,40	3,48	115,77	3,78	103,33	4,06	90,16	4,34	76,02	4,62	65,87	4,77	45,21	5,02
	35	133,41	2,72	121,75	3,06	113,00	3,37	99,87	3,56	86,98	3,78	73,21	4,00	63,27	4,09	42,91	4,17
	40	127,95	2,38	117,13	2,68	107,60	2,91	96,30	3,11	83,86	3,29	70,45	3,44	60,73	3,47	40,68	3,42
	45	122,47	2,09	112,52	2,35	103,56	2,55	92,78	2,72	80,78	2,85	67,76	2,95	58,26	2,94	38,53	2,79
20	15	163,83	4,71	148,25	5,23	135,43	5,64	120,80	6,05	105,40	6,47	89,48	6,98	78,05	7,32	55,24	7,98
	20	158,12	4,14	143,34	4,63	131,06	5,02	116,91	5,41	101,96	5,80	86,38	6,27	75,16	6,57	52,65	7,19
	25	152,44	3,64	138,49	4,09	126,75	4,45	113,09	4,80	98,71	5,15	83,35	5,54	72,36	5,78	50,15	6,25
	30	146,76	3,20	133,65	3,61	122,47	3,93	109,33	4,23	95,38	4,53	80,41	4,84	69,64	5,01	47,72	5,30
	35	141,13	2,82	128,88	3,18	118,25	3,46	105,63	3,71	92,13	3,96	77,53	4,20	66,99	4,29	45,38	4,40
	40	135,51	2,48	124,12	2,80	114,07	3,04	101,99	3,25	88,94	3,45	74,74	3,61	64,42	3,65	43,14	3,62
	45	129,86	2,18	119,40	2,46	109,94	2,67	98,54	2,85	85,82	2,99	72,01	3,10	61,93	3,09	40,97	2,95

To = Leaving internal exchanger water temperature (°C)

Tae [°C]= External exchanger inlet air temperature

Performances in function of the inlet/outlet water temperature differential = 5°C

Cooling capacity and EER calculated according to EN 14511:2018

Performances

Cooling - Size 45.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER
5	15	117	4,52	108	4,65	95,4	4,81	82,4	5,09	69,1	5,40	62,4	5,52	55,6	5,68	41,9	6,00
	20	114	4,12	105	4,27	92,7	4,47	80,1	4,74	67,0	5,02	60,4	5,14	53,8	5,29	40,3	5,58
	25	112	3,72	105	3,88	93,2	4,13	81,5	4,39	69,2	4,64	62,9	4,77	56,5	4,90	39,0	5,16
	30	108	3,28	101	3,43	89,9	3,64	78,5	3,86	66,6	4,05	60,4	4,15	54,2	4,23	38,0	4,36
	35	104	2,89	96,9	3,02	86,4	3,20	75,5	3,37	63,9	3,51	60,4	3,56	51,8	3,62	37,5	3,63
	40	99,5	2,54	92,9	2,65	83,1	2,80	72,5	2,92	61,2	3,02	55,4	3,05	-	-	-	-
	45	83,7	2,37	82,0	2,44	71,4	2,53	60,2	2,59	54,4	2,63	-	-	-	-	-	-
7	15	125	4,78	116	4,89	102	5,04	87,6	5,19	73,5	5,79	66,3	5,94	59,1	6,09	42,6	6,54
	20	121	4,34	112	4,49	98,2	4,69	84,7	4,91	70,8	5,36	63,8	5,51	56,7	5,65	40,9	6,04
	25	119	3,90	111	4,09	99,0	4,35	86,3	4,63	73,3	4,93	66,6	5,08	59,8	5,22	39,6	5,53
	30	115	3,44	107	3,60	95,5	3,84	83,4	4,08	70,7	4,32	64,0	4,40	57,4	4,50	38,6	4,66
	35	110	3,03	103	3,17	91,8	3,36	80,2	3,55	67,8	3,72	61,5	3,78	54,9	3,84	38,1	3,88
	40	106	2,67	98,7	2,78	88,2	2,94	77,0	3,08	65,0	3,19	58,8	3,23	-	-	-	-
	45	85,3	2,62	75,9	2,67	64,0	2,73	57,8	2,78	55,2	2,81	-	-	-	-	-	-
10	15	136	4,97	126	5,14	110	5,36	94,9	5,73	79,4	6,14	71,5	6,32	63,6	6,48	43,2	6,88
	20	132	4,57	122	4,76	107	5,03	91,7	5,38	76,6	5,76	68,9	5,94	61,1	6,12	41,5	6,53
	25	130	4,17	121	4,39	108	4,69	94,0	5,02	79,7	5,38	72,4	5,56	64,9	5,75	40,2	6,18
	30	125	3,68	117	3,86	104	4,13	90,7	4,40	76,8	4,68	69,6	4,80	62,3	4,93	39,1	5,17
	35	120	3,24	112	3,40	100	3,62	87,3	3,83	73,8	4,03	66,9	4,12	59,7	4,19	38,6	4,27
	40	115	2,85	108	2,98	96,2	3,16	83,9	3,33	70,8	3,46	64,0	3,50	-	-	-	-
	45	86,8	2,81	82,8	2,88	69,8	2,96	63,0	3,00	55,9	3,03	-	-	-	-	-	-
12	15	150	5,19	138	5,29	121	5,41	104	5,53	86,9	6,49	78,2	6,68	69,5	6,88	43,9	7,27
	20	145	4,82	134	4,98	117	5,24	101	5,46	83,9	6,15	75,4	6,36	66,8	6,57	42,1	7,03
	25	144	4,44	134	4,68	119	5,07	104	5,40	87,7	5,81	79,5	6,03	71,3	6,26	40,8	6,80
	30	138	3,92	129	4,12	115	4,42	99,9	4,72	84,6	5,04	76,7	5,23	68,5	5,34	39,7	5,64
	35	133	3,45	124	3,62	110	3,86	96,2	4,11	81,3	4,33	73,6	4,43	65,6	4,52	39,2	4,63
	40	131	3,04	123	3,18	109	3,37	95,1	3,56	83,7	3,66	72,6	3,76	64,6	3,80	-	-
	45	94,5	3,07	78,3	3,13	70,7	3,17	67,2	3,18	63,7	3,21	-	-	-	-	-	-
15	15	155	5,26	142	5,24	124	5,37	106	5,82	88,5	6,39	79,6	6,60	70,6	6,78	44,5	7,14
	20	149	4,90	137	4,96	120	5,22	103	5,65	85,5	6,16	76,8	6,40	67,9	6,63	42,8	7,17
	25	148	4,53	138	4,68	123	5,07	106	5,47	89,9	5,94	81,6	6,20	73,0	6,49	41,4	7,20
	30	143	4,01	133	4,12	118	4,43	103	4,77	86,8	5,12	78,6	5,31	70,2	5,48	40,3	5,89
	35	137	3,52	128	3,69	114	3,87	99,0	4,13	83,6	4,39	75,5	4,50	67,4	4,61	39,8	4,77
	40	135	3,22	132	3,30	113	3,38	98,0	3,57	82,6	3,74	74,6	3,81	66,4	3,85	-	-
	45	98,9	3,17	80,6	3,19	72,7	3,24	64,6	3,28	-	-	-	-	-	-	-	-
18	15	167	5,43	153	5,53	134	5,66	114	5,78	94,7	6,71	85,0	6,84	75,2	7,10	45,2	7,47
	20	162	5,06	148	5,25	129	5,54	110	5,84	91,4	6,58	81,9	6,80	72,3	7,12	43,4	7,80
	25	160	4,68	149	4,97	132	5,41	115	5,90	96,8	6,44	87,6	6,77	78,4	7,14	42,0	8,14
	30	154	4,12	144	4,36	128	4,72	111	5,10	93,4	5,52	84,5	5,75	75,5	6,02	40,9	6,54
	35	148	3,62	138	3,82	123	4,11	107	4,40	89,9	4,70	81,3	4,85	72,4	4,99	40,4	5,25
	40	137	3,40	122	3,64	106	3,86	88,9	4,14	80,3	4,25	71,4	4,32	-	-	-	-
	45	103	3,26	86,9	3,49	78,3	3,67	69,5	3,71	-	-	-	-	-	-	-	-
20	15	175	5,60	161	5,70	140	5,83	119	6,30	98,8	6,87	88,5	6,95	78,2	7,26	45,9	7,63
	20	169	5,22	155	5,42	135	5,73	115	6,24	95,3	6,79	85,2	7,00	75,2	7,36	44,1	8,12
	25	168	4,84	156	5,15	139	5,63	120	6,18	101,4	6,70	91,7	7,05	82,0	7,47	42,6	8,62
	30	162	4,26	151	4,51	134	4,90	116	5,32	97,9	5,72	88,5	5,97	79,0	6,29	41,6	6,87
	35	156	3,74	145	3,95	129	4,26	112	4,58	94,2	4,85	85,1	5,02	75,8	5,17	41,0	5,48
	40	144	3,52	128	3,77	111	4,01	93,3	4,33	84,2	4,48	74,8	4,54	-	-	-	-
	45	109	3,38	91,1	3,63	82,1	3,79	72,8	3,81	-	-	-	-	-	-	-	-

To = Temperatura acqua uscita scambiatore interno (°C)

Tae [°C] = Temperatura aria ingresso scambiatore esterno

Prestazioni in funzione del salto termico acqua ingresso/uscita = 5°C

Potenze frigorifere ed EER calcolati secondo EN 14511:2018

Cooling - Size 50.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER	P_cool	EER
5	15	130	4,44	118	4,66	109	4,79	96,2	4,95	83,1	5,24	69,7	5,56	56,7	5,85	42,8	6,16
	20	126	4,02	115	4,24	106	4,39	93,6	4,60	80,8	4,88	67,7	5,17	54,9	5,45	41,1	5,74
	25	123	3,61	113	3,83	106	3,99	94,1	4,25	82,2	4,52	69,8	4,78	57,6	5,05	39,8	5,31
	30	118	3,18	109	3,38	102	3,53	90,7	3,75	79,3	3,98	67,2	4,18	55,2	4,36	38,8	4,49
	35	113	2,81	105	2,98	97,8	3,11	87,2	3,29	76,2	3,47	64,5	3,62	52,9	3,72	38,3	3,74
	40	102	2,57	95,3	2,68	85,2	2,83	74,3	2,95	62,7	3,06	56,8	3,12	-	-	-	-
	45	85,8	2,37	84,0	2,47	73,2	2,56	61,7	2,61	55,8	2,65	-	-	-	-	-	-
7	15	139	4,69	126	4,93	117	5,03	103	5,19	88,4	5,35	74,1	5,96	60,2	6,27	43,4	6,74
	20	134	4,23	122	4,47	113	4,62	99,1	4,84	85,5	5,06	71,5	5,52	57,8	5,82	41,7	6,22
	25	131	3,77	120	4,02	112	4,21	99,9	4,48	87,1	4,77	74,0	5,07	61,0	5,38	40,4	5,70
	30	125	3,33	116	3,54	108	3,71	96,3	3,95	84,1	4,20	71,3	4,45	58,5	4,64	39,3	4,80
	35	120	2,94	111	3,12	104	3,26	92,7	3,46	80,9	3,66	68,4	3,83	56,0	3,95	38,8	3,99
	40	108	2,69	101	2,81	90,4	2,97	78,9	3,12	66,6	3,24	60,3	3,30	-	-	-	-
	45	87,4	2,62	77,8	2,70	65,6	2,76	59,2	2,86	56,5	2,78	-	-	-	-	-	-
10	15	151	4,92	138	5,12	127	5,29	111	5,52	95,8	5,90	80,1	6,32	64,8	6,68	44,1	7,21
	20	146	4,47	133	4,71	123	4,91	108	5,18	92,5	5,54	77,3	5,93	62,3	6,30	42,3	6,80
	25	142	4,02	131	4,30	122	4,52	109	4,83	94,9	5,17	80,5	5,54	66,2	5,93	41,0	6,40
	30	137	3,55	126	3,79	118	3,98	105	4,26	91,5	4,54	77,6	4,82	63,6	5,08	39,9	5,30
	35	131	3,14	122	3,34	113	3,50	101	3,73	88,1	3,95	74,5	4,15	60,9	4,31	39,4	4,40
	40	118	2,88	111	3,01	98,6	3,19	86,0	3,36	72,6	3,51	65,6	3,58	-	-	-	-
	45	89,0	2,81	84,9	2,91	71,5	2,99	64,5	3,03	57,3	3,00	-	-	-	-	-	-
12	15	165	5,22	150	5,34	138	5,44	121	5,56	104	5,68	86,8	6,68	70,8	7,07	44,7	7,47
	20	159	4,74	145	4,96	134	5,13	117	5,39	101	5,62	83,8	6,33	68,2	6,75	43,0	7,23
	25	155	4,27	143	4,57	133	4,81	119	5,22	103	5,56	87,6	5,98	72,7	6,44	41,6	6,99
	30	150	3,77	138	4,03	129	4,24	115	4,54	99,7	4,86	84,4	5,19	69,8	5,49	40,5	5,80
	35	143	3,33	133	3,55	124	3,72	110	3,97	96,0	4,22	81,2	4,46	67,0	4,65	40,0	4,77
	40	134	3,03	126	3,17	112	3,37	97,5	3,55	85,8	3,71	74,4	3,79	66,3	3,82	-	-
	45	96,9	3,07	80,3	3,15	72,4	3,21	68,9	3,15	65,3	3,18	-	-	-	-	-	-
15	15	170	5,32	154	5,30	142	5,39	124	5,52	106	5,98	88,4	6,57	72,0	6,98	45,4	7,35
	20	164	4,83	149	4,93	137	5,11	120	5,37	103	5,81	85,4	6,34	69,3	6,82	43,6	7,22
	25	160	4,34	148	4,56	138	4,82	122	5,22	106	5,63	89,8	6,10	74,5	6,67	42,2	7,10
	30	154	3,85	142	4,01	133	4,23	118	4,56	103	4,90	86,6	5,27	71,6	5,64	41,1	6,06
	35	148	3,39	137	3,53	128	3,72	114	3,98	98,9	4,25	83,4	4,51	68,7	4,74	40,6	5,00
	40	139	3,19	135	3,31	115	3,37	100	3,56	84,7	3,77	76,5	3,86	68,0	3,91	-	-
	45	101	3,17	82,6	3,27	74,5	3,36	66,2	3,25	-	-	-	-	-	-	-	-
18	15	184	5,46	166	5,59	153	5,69	134	5,82	114	5,94	94,6	6,90	76,7	7,30	46,1	7,68
	20	177	4,96	166	5,20	148	5,40	129	5,69	110	6,00	91,3	6,76	73,8	7,05	44,3	7,59
	25	173	4,46	160	4,82	149	5,11	132	5,56	115	6,06	96,6	6,63	79,9	6,80	42,9	7,50
	30	167	3,94	154	4,24	143	4,48	127	4,85	111	5,25	93,3	5,67	77,0	6,19	41,8	6,73
	35	160	3,47	148	3,73	138	3,93	123	4,22	107	4,53	89,8	4,83	73,9	5,13	41,2	5,40
	40	140	3,37	125	3,60	108	3,82	91,2	4,10	82,3	4,21	73,2	4,28	-	-	-	-
	45	106	3,26	89,1	3,45	80,3	3,64	71,2	3,67	-	-	-	-	-	-	-	-
20	15	193	5,63	175	5,76	160	5,86	140	6,00	119	5,93	98,6	7,07	79,8	7,46	46,8	7,84
	20	186	5,11	169	5,37	155	5,58	135	5,89	115	6,10	95,2	6,98	76,7	7,16	44,9	7,77
	25	182	4,60	168	4,98	156	5,30	139	5,79	120	6,28	101	6,80	83,6	7,00	43,5	7,80
	30	175	4,06	162	4,38	151	4,64	134	5,04	116	5,42	97,7	5,88	80,6	6,47	42,4	7,07
	35	160	3,66	149	3,90	132	4,16	115	4,48	96,6	4,78	87,2	5,12	77,6	5,10	41,9	5,44
	40	147	3,48	131	3,73	114	3,97	95,6	4,28	86,3	4,44	76,7	4,49	-	-	-	-
	45	111	3,38	93,4	3,59	84,2	3,76	74,6	3,78	-	-	-	-	-	-	-	-

To = Temperatura acqua uscita scambiatore interno (°C)

Tae [°C] = Temperatura aria ingresso scambiatore esterno

Prestazioni in funzione del salto termico acqua ingresso/uscita = 5°C

Potenze frigorifere ed EER calcolati secondo EN 14511:2018

Performances

Cooling - Size 55.2

To	Tae	Percentage of compressor load															
		100%		90%		80%		70%		60%		50%		40%		30%	
°C	°C	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER	P _{cool}	EER
5	15	143	4,33	132	4,53	121	4,75	111	4,89	98,1	5,06	84,7	5,35	58,1	5,80	43,8	6,20
	20	139	3,91	129	4,11	117	4,33	108	4,49	95,4	4,70	82,3	4,98	56,2	5,41	42,1	5,81
	25	133	3,49	125	3,68	116	3,91	108	4,08	95,9	4,34	83,8	4,61	59,0	5,02	40,8	5,42
	30	128	3,08	120	3,25	111	3,45	104	3,61	92,4	3,83	80,8	4,06	56,6	4,36	39,7	4,59
	35	123	2,72	115	2,87	107	3,04	99,6	3,17	88,9	3,36	77,7	3,54	54,1	3,68	39,2	3,82
	40	104	2,59	97,6	2,70	87,2	2,85	76,1	2,98	64,3	3,11	58,2	3,20	-	-	-	-
	45	87,9	2,37	86,1	2,49	75,0	2,58	63,2	2,64	57,1	2,67	-	-	-	-	-	-
7	15	152,8	4,63	142	4,79	129	5,03	119	5,14	105	5,30	90,1	5,46	61,7	5,93	44,5	6,88
	20	147,2	4,13	137	4,32	124	4,57	115	4,72	101	4,94	87,1	5,17	59,3	5,63	42,7	6,35
	25	141,7	3,64	133	3,85	123	4,10	114	4,30	102	4,57	88,8	4,87	62,5	5,34	41,4	5,82
	30	136,0	3,22	128	3,40	118	3,62	110	3,79	98,2	4,04	85,7	4,29	60,0	4,63	40,3	4,90
	35	130,3	2,84	123	3,00	113	3,19	106	3,33	94,4	3,54	82,5	3,74	57,4	3,98	39,8	4,08
	40	111,0	2,72	104	2,84	92,6	3,00	80,8	3,15	68,2	3,29	61,7	3,38	-	-	-	-
	45	89,5	2,62	79,7	2,72	67,2	2,80	60,7	2,94	57,9	2,75	-	-	-	-	-	-
10	15	167	4,92	154	5,03	140	5,22	129	5,40	114	5,64	97,6	6,03	66,4	6,64	45,2	7,36
	20	161	4,40	149	4,57	136	4,80	125	5,01	110	5,29	94,3	5,66	63,9	6,24	43,4	6,88
	25	155	3,87	145	4,11	134	4,39	125	4,61	111	4,93	96,7	5,28	67,8	5,85	42,0	6,40
	30	148	3,42	140	3,63	129	3,87	120	4,06	107	4,34	93,3	4,63	65,1	5,05	40,9	5,45
	35	142	3,02	134	3,20	124	3,41	116	3,57	103	3,80	89,8	4,03	62,4	4,33	40,4	4,47
	40	121	2,91	113	3,04	101	3,22	88,1	3,39	74,3	3,57	67,2	3,66	-	-	-	-
	45	91,2	2,81	87,0	2,94	73,2	3,03	66,1	3,07	58,7	2,97	-	-	-	-	-	-
12	15	182	5,11	169	5,22	153	5,34	141	5,43	124	5,56	106	5,68	72,6	6,54	45,8	7,47
	20	176	4,56	163	4,74	148	4,95	136	5,12	120	5,39	103	5,61	69,8	6,37	44,0	7,13
	25	169	4,01	159	4,27	146	4,57	136	4,81	122	5,21	106	5,55	74,5	6,20	42,6	6,80
	30	162	3,55	153	3,77	141	4,03	131	4,23	117	4,54	102	4,85	71,5	5,37	41,5	5,80
	35	156	3,13	146	3,32	135	3,55	126	3,72	113	3,97	98,0	4,22	68,6	4,55	41,0	4,76
	40	138	3,03	129	3,17	115	3,36	99,9	3,54	87,9	3,75	76,2	3,81	67,9	3,84	-	-
	45	99,2	3,07	82,3	3,18	74,2	3,25	70,5	3,12	66,9	3,15	-	-	-	-	-	-
15	15	188	5,20	174	5,17	158	5,29	145	5,39	127	5,52	109	5,98	73,7	6,78	46,5	7,34
	20	181	4,64	168	4,70	152	4,92	140	5,10	123	5,36	105	5,80	71,0	6,58	44,7	7,17
	25	175	4,07	164	4,24	151	4,55	140	4,81	125	5,21	109	5,63	76,3	6,37	43,3	7,00
	30	168	3,61	158	3,74	145	4,01	135	4,23	120	4,56	105	4,90	73,4	5,46	42,1	6,05
	35	161	3,20	151	3,30	140	3,53	130	3,71	116	3,98	101	4,24	70,4	4,63	41,6	5,01
	40	142	3,15	138	3,32	118	3,36	103	3,56	86,7	3,79	78,3	3,92	69,7	3,96	-	-
	45	104	3,17	84,7	3,35	76,3	3,47	67,9	3,21	-	-	-	-	-	-	-	-
18	15	203	5,34	188	5,45	170	5,58	156	5,68	136	5,82	116	5,94	78,6	7,02	47,2	7,67
	20	196	4,75	181	4,96	170	5,20	151	5,39	132	5,69	113	6,00	75,6	6,81	45,4	7,43
	25	189	4,17	177	4,46	163	4,81	152	5,10	135	5,56	117	6,06	81,9	6,60	43,9	7,18
	30	181	3,68	170	3,93	157	4,23	146	4,48	130	4,85	113	5,24	78,9	5,91	42,8	6,30
	35	171	3,26	164	3,47	151	3,72	141	3,92	125	4,22	109	4,52	75,7	4,98	42,2	5,39
	40	144	3,34	128	3,56	111	3,78	93,4	4,06	84,3	4,17	75,0	4,24	-	-	-	-
	45	109	3,26	91,3	3,42	82,2	3,60	72,9	3,64	-	-	-	-	-	-	-	-
20	15	214	5,50	197	5,62	178	5,75	164	5,86	143	5,99	122	6,47	81,7	7,17	47,9	7,85
	20	206	4,90	190	5,11	172	5,37	158	5,57	138	5,89	118	6,41	78,6	7,03	46,0	7,78
	25	198	4,29	186	4,60	171	4,98	159	5,29	141	5,78	123	6,35	85,7	6,88	44,6	7,70
	30	191	3,79	179	4,06	165	4,37	154	4,63	137	5,03	119	5,47	82,6	6,22	43,4	6,48
	35	164	3,58	152	3,84	136	4,06	118	4,38	99,0	4,71	89,4	5,21	79,3	5,03	42,8	5,39
	40	151	3,45	134	3,69	117	3,93	97,9	4,24	88,4	4,39	78,5	4,45	-	-	-	-
	45	114	3,38	95,7	3,56	86,2	3,72	76,5	3,74	-	-	-	-	-	-	-	-

To = Temperatura acqua uscita scambiatore interno (°C)

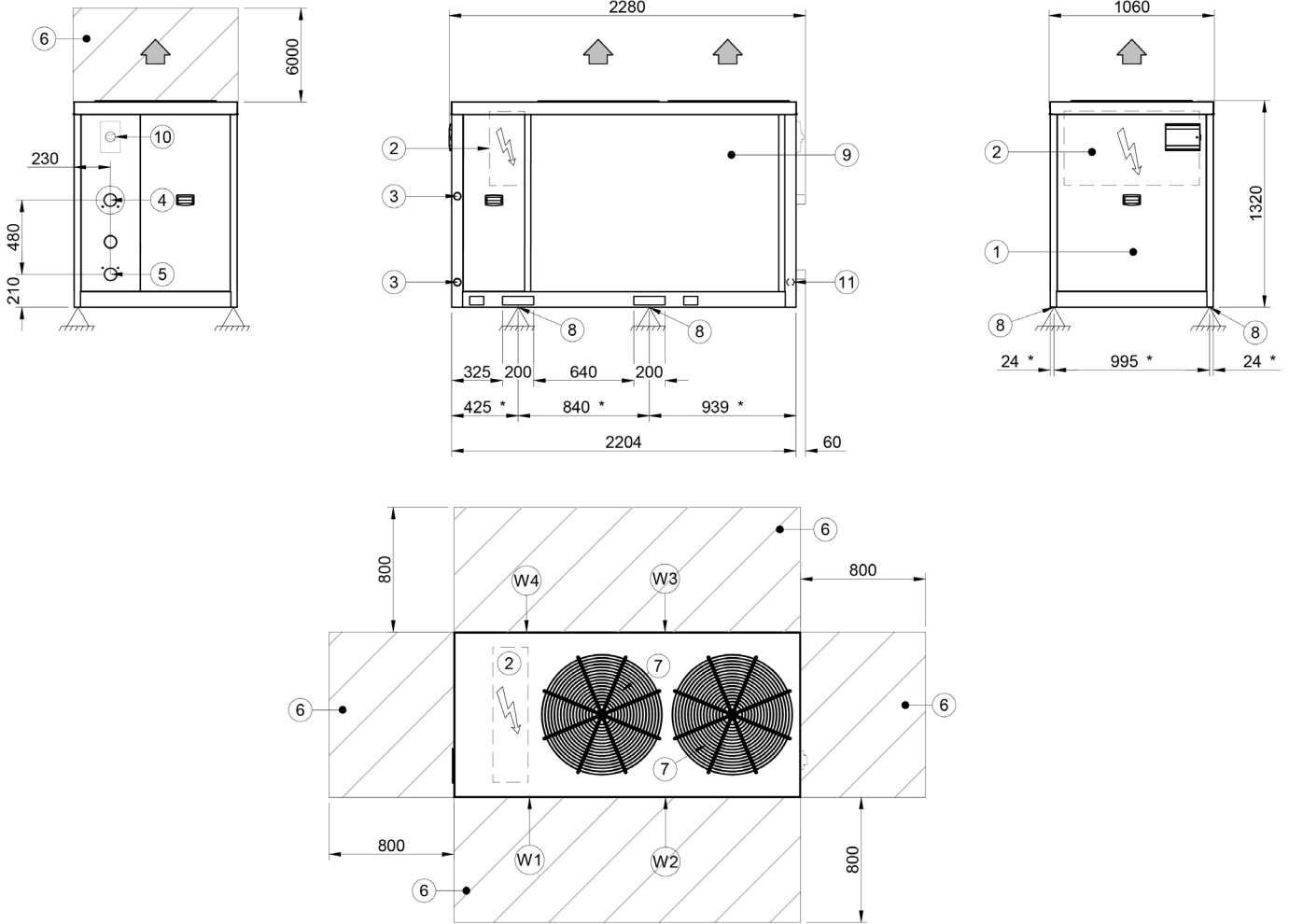
Tae [°C] = Temperatura aria ingresso scambiatore esterno

Prestazioni in funzione del salto termico acqua ingresso/uscita = 5°C

Potenze frigorifere ed EER calcolati secondo EN 14511:2018

Size 16.2 - 20.2 - 24.2

DAANC0001_16.2-24.2 REV02
Data/Date 04-02-2022



1. Compressor enclosure
 2. Quadro elettrico
 3. Power input
 4. Inlet water connection Victaulic 2"
 5. Outlet water connection Victaulic 2"
 6. Functional spaces
 7. Electrical fan
 8. Unit fixing holes
 9. External exchanger
 10. On board main switch (optional)
 11. Power input main switch (optional)
- * Antivibration mounts position

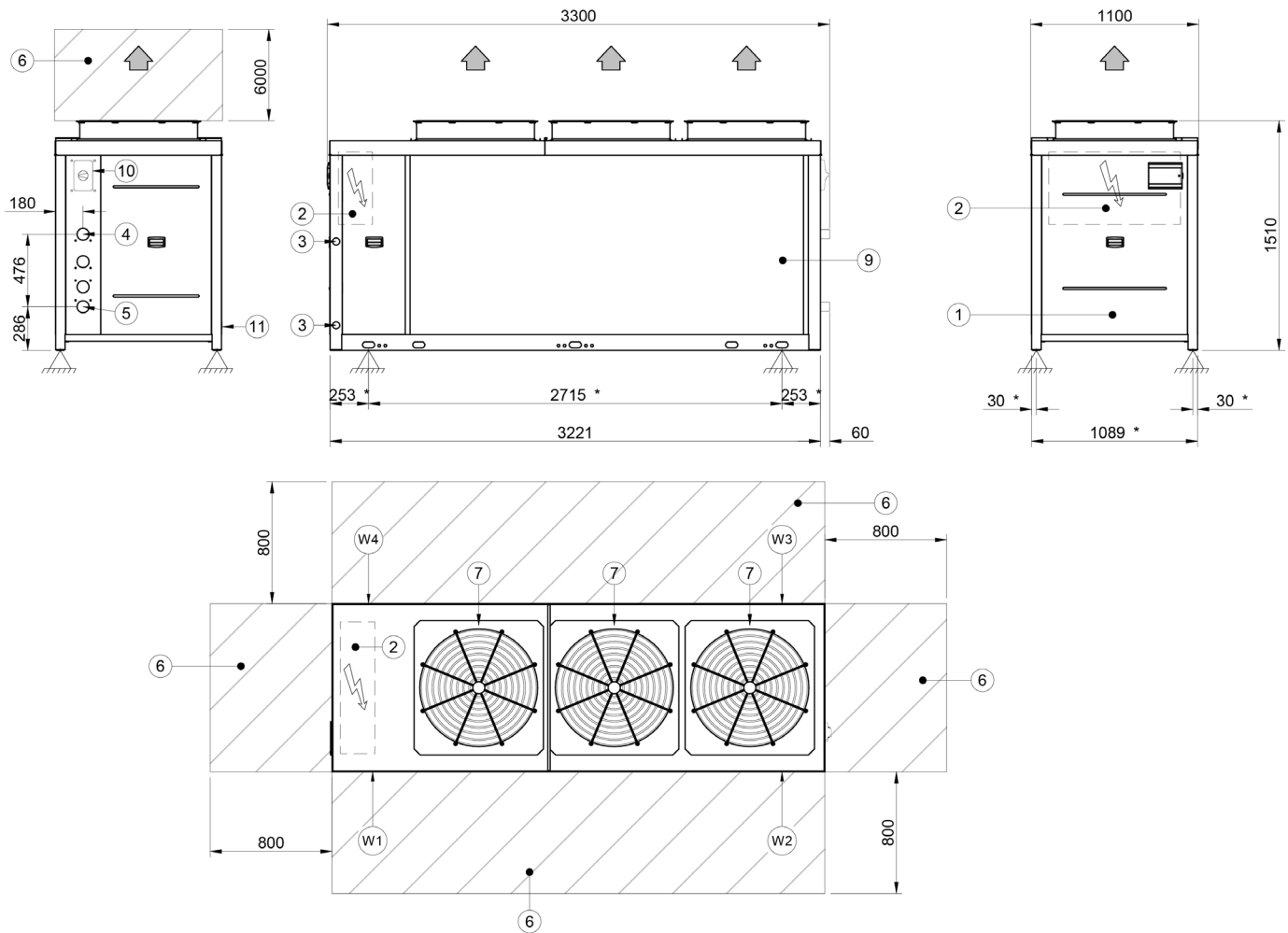
SIZE		16.2	20.2	24.2
Lenght	mm	2280	2280	2280
Depth	mm	1060	1060	1060
Height	mm	1320	1320	1320
W1 Support point	kg	141	141	141
W2 Support point	kg	94	94	94
W3 Support point	kg	94	94	94
W4 Support point	kg	141	141	141
Operating weight	kg	470	470	470
Shipping weight	kg	450	450	450

The presence of optional accessories may result in a substantial variation of the weights shown in the table.

Dimensional drawings

Size 30.2 - 35.2 - 40.2

DAANC0002_30.2-40.2 REV02
Data/Date 04-02-2022



1. Compressor enclosure
2. Quadro elettrico
3. Power input
4. Inlet water connection Victaulic 2"
5. Outlet water connection Victaulic 2"
6. Functional spaces
7. Electrical fan
8. Unit fixing holes
9. External exchanger
10. On board main switch (optional)
11. Power input main switch (optional)

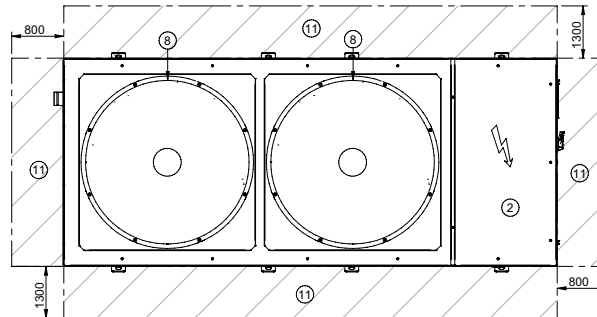
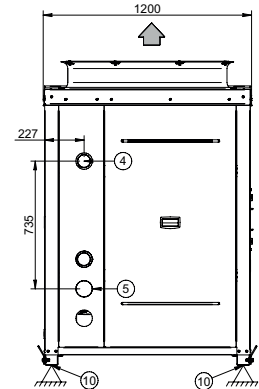
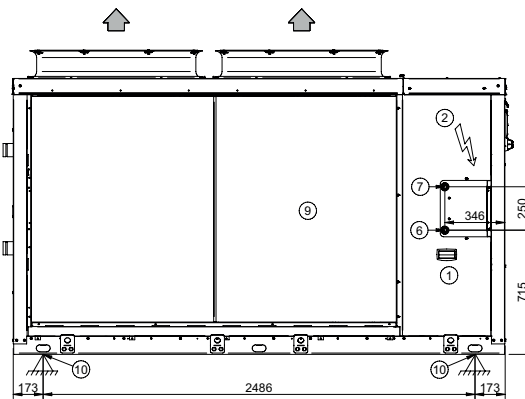
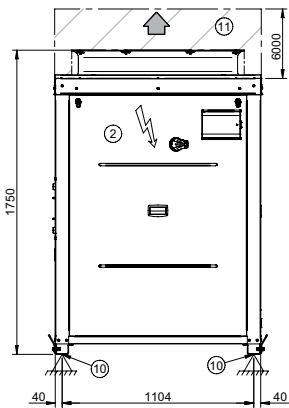
* Antivibration mounts position

SIZE		30.2	35.2	40.2
Lenght	mm	3300	3300	3300
Depth	mm	1100	1100	1100
Height	mm	1510	1510	1510
W1 Support point	kg	214	214	214
W2 Support point	kg	126	126	126
W3 Support point	kg	126	126	126
W4 Support point	kg	214	214	214
Operating weight	kg	680	680	680
Shipping weight	kg	650	650	650

The presence of optional accessories may result in a substantial variation of the weights shown in the table.

Size 45.2 - 50.2 - 55.2

DAANC0008_45.2-50.2-55.2 REV00
Data/Date 23-03-2023



- | | |
|--|-----------------------|
| 1. Compressor enclosure | 10. Unit fixing holes |
| 2. Electrical panel | 11. Functional spaces |
| 3. Power input | |
| 4. Inlet water connection Victaulic 2" 1/2 | |
| 5. Outlet water connection Victaulic 2" 1/2 | |
| 6. Dessuperheater water connection inlet 1 1/2" Victaulic | |
| 7. Dessuperheater water connection outlet 1 1/2" Victaulic | |
| 8. Electric Fan | |
| 9. Source Exchanger | |

SIZE		45.2	50.2	55.2
Lenght	mm	2832	2832	2832
Depth	mm	1184	1184	1184
Height	mm	1750	1750	1750
W1 Support point	kg	241	241	241
W2 Support point	kg	162	162	162
W3 Support point	kg	138	138	138
W4 Support point	kg	214	214	214
Operating weight	kg	771	771	771
Shipping weight	kg	756	756	756

The presence of optional accessories may result in a substantial variation of the weights shown in the table.

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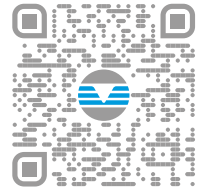
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