WRH

R-407C

WATER COOLED WATER CHILLER FOR INDOOR INSTALLATION

Size	Cooling [kW]	Heating [kW]
102	27.1	32.4
142	36.5	43.6
162	40.3	49.2
182	47.5	58.1
202	55.9	68.0
222	61.8	75.4
242	68.4	83.2
292	89.4	106.0
322	104.0	125.0
362	119.0	143.0
422	144.0	176.0

REPLACE: BT02E005GB-00

The WRH series water-cooled water chillers with hermetic compressors are suitable for indoor installation; designed for medium-low cooling capacity requirements. They can be used in modern civil and industrial systems, featuring compact dimensions and low sound levels. They only require the electrical and water connections for installation: the units are in fact completely assembled and tested in the factory. The limited space required for installation significantly reduces installation and maintenance costs

BT02E005GB-03

Clivet is partecipating in the EUROVENT Certification Programme.
Products are listed in the EUROVENT Directory of Certified Products
and in the site www.eurovent-certification.com.

CERTIFIED QUALITY SYSTEM ISO 9001 : 2008

STANDARD UNIT SPECIFICATIONS

COMPRESSOR
Scroll compressor complete with: overload thermal protection, high refrigerant discharge temperature, rubber antivibration mounts, oil charge, acoustic and weather proof cabinet.

STRUCTURE
The base is assembled with a hot-galvanized steel frame (Z 200 g/m2). The internal structure is a frame made from «ALUZINK» metal plate. The alloy coating the Aluzink ensures excellent corrosion strength, thanks to the galvanic protection typical of the combination of aluminium and zinc.

PANELLING
pre-painted plate easy panelling external that can be removed for complete access to the internal components. Lined with class 1 heat insulation and soundproofing material.

INTERNAL EXCHANGER
direct expansion heat exchanger, braze-welded AISI 316 stainless steel plates with large exchange surface and complete with external heat and anti-condensate insulation.
the differential pressure switch on the water side is supplied as standard.
on sizes 292-322-362-422 the exchanger is provided with two independent circuits on the refrigerant side with dual alternating refrigerant channels to reach maximum heat transfer and balanced circuit operation.

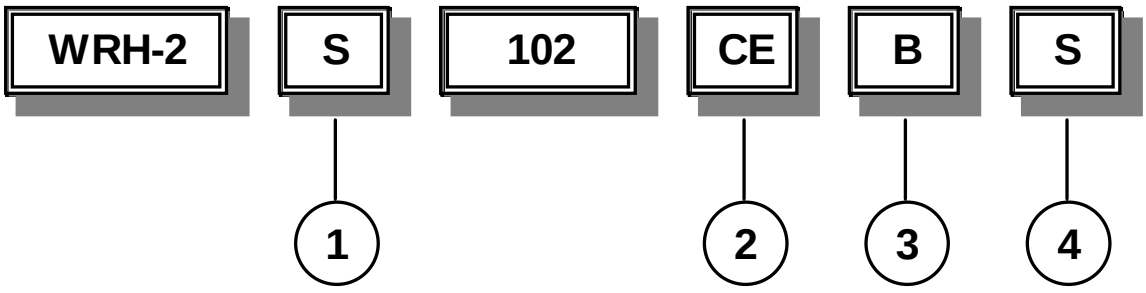
EXTERNAL EXCHANGER
Direct expansion heat exchanger, braze-welded AISI 316 stainless steel plates with large exchange surface and complete with external heat and anti-condensate insulation.
The differential pressure switch on the water side is supplied as standard.
On sizes 292-322-362-422 the exchanger is provided with two independent circuits on the refrigerant side with dual alternating refrigerant channels to reach maximum heat transfer and balanced circuit operation.

REFRIGERANT CIRCUIT
The circuit is complete with:
- liquid flow and moisture indicator
- thermostatic expansion valves with equalizer
- high pressure switch
- low pressure switch
- high pressure safety
- dehydrator filter

ELECTRICAL PANEL
the Power Section includes:
- compressor thermal overload relay
(size 102-142-162-182-202-222-242)
- main door lock isolator switch
- compressor fuses
- compressor control contactor
the control section includes:
- water pump control
- automatic compressor start rotation control
- centralised alarms with remote signalling
- self-diagnosis system with immediate display of the error code
- serial port with MODBUS (RS 485) output for remote communication
- antifreeze protection
- unit status parameter display
In addition, contacts auxiliary are available for:
- heating / cooling operation command
- remote ON/OFF control
- free contacts for enabling water circuit pump
Control keypad, including:
- buttons to display the parameter index and the status list
- ON/OFF and alarm reset buttons
- UP and DOWN buttons to increase and decrease the values
- heating and cooling operating mode buttons
- Compressor timer / operation signal LED

ACCESSORIES
- steel mesh mechanical filter positioned at the exchanger inlet. Suitable for filtering water and trapping the impurities present in the water circuit.
- phase monitor
- serial communication module to supervisor (MODBUS)
- daily and weekly programming clock
- remote microprocessor control unit
- water manifold kit for units with dual exchanger
- pressure switch kit, to control the water flow at the external exchanger inlet.

CONFIGURATION CODE



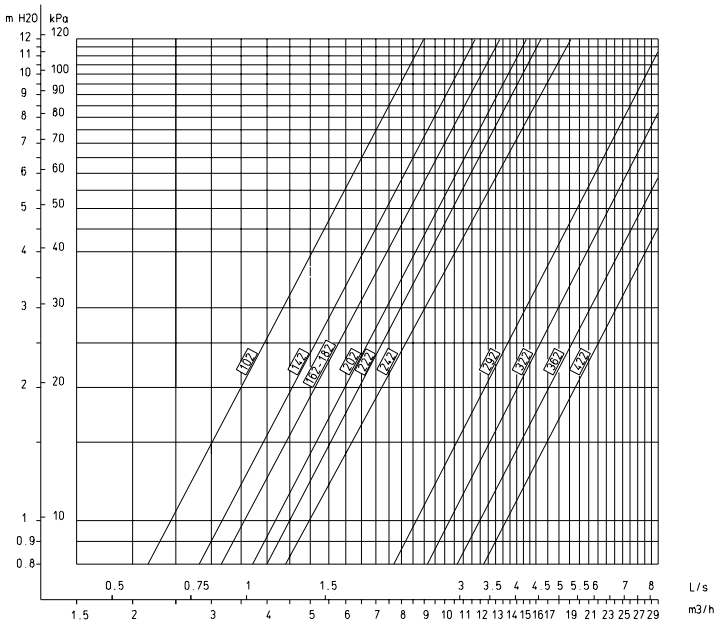
(1) VERSION:
Standard (S)
standard

(2) HEAT EXCHANGERS APPROVALS
CE = PED (European testing)

(3) LOW TEMPERATURE
Not required (-)
Low water temperature (B)
range of application of this version is between +5°C down to -7°C, using glycol solution

(4) OPERATION
Standard (S)
Reversal on water circuit (H)
version that allows water-water heat pump operation with reversing on the water circuit. Suitable for the production of domestic and industrial hot water. The external exchangers are lined with closed cell heat insulation material.

EXCHANGER PRESSURE DROP



CORRECTION FACTOR FOR ANTIFREEZE SOLUTIONS

% ethylene glycol by weight			5%	10%	15%	20%	25%	30%	35%	40%
Freezing temperature		°C	-2.0	-3.9	-6.5	-8.9	-11.8	-15.6	-19.0	-23.4
Safety temperature		°C	3.0	1.0	-1.0	-4.0	-6.0	-10.0	-14.0	-19.0
Cooling Capacity Factor		Nr	0.995	0.990	0.985	0.981	0.977	0.974	0.971	0.968
Compressor input Factor		Nr	0.997	0.993	0.990	0.988	0.986	0.984	0.982	0.981
Internal exchanger Glycol solution flow Factor		Nr	1.003	1.010	1.020	1.033	1.050	1.072	1.095	1.124
Pressure drop Factor		Nr	1.029	1.060	1.090	1.118	1.149	1.182	1.211	1.243

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 FACTOR

	INTERNAL EXCHANGER	
m² °C/W	F1	FK1
0.44 x 10^(-4)	1.00	1.00
0.88 x 10^(-4)	0.97	0.99
1.76 x 10^(-4)	0.94	0.98

F1 = Cooling capacity correction factors
FK1 = Compressor power input correction factor

EXCHANGER OPERATING LIMITS

	INTERNAL EXCHANGER					EXTERNAL EXCHANGER	
	DPr	DPw	Dteo (S - B)		Dtei	Dtci	Dtco
	kPa	kPa	°C		°C	°C	°C
PED (CE)	3000	3000	5	-7	24	10	56

DPr = Maximum operating pressure on refrigerant side
DPw = Maximum operating pressure on water side
DTeo = Minimum water temperature at internal exchanger outlet
DTei = Maximum water temperature at internal exchanger inlet
DTci = Minimum water temperature at external exchanger inlet
DTco = Maximum water temperature at external exchanger outlet

GENERAL TECHNICAL SPECIFICATIONS

Size			102	142	162	182	202	222	242	292	322	362	422
COOLING													
Cooling capacity	1	kW	27.1	36.5	40.3	47.5	55.9	61.8	68.4	89.4	104	119	144
Compressor power input	1	kW	6.96	8.85	10.78	12.89	14.4	16.37	17.93	21.02	25.22	28.87	36.07
Total power input	1	kW	7.4	9.5	11.4	14	15.6	17.8	19.5	22.3	26.6	30.4	38.2
EER	1	Nr	3.67	3.84	3.54	3.39	3.58	3.47	3.51	4.01	3.91	3.91	3.77
HEATING													
Heat output	2	kW	32.4	43.6	49.2	58.1	68	75.4	83.2	106	125	143	176
Compressor power input		kW	8.72	11	13.4	16.1	17.7	20.1	22	25.8	30.6	34.8	43.5
COMPRESSOR													
Type of compressors			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
No. of Compressors		Nr	2	2	2	2	2	2	2	2	2	2	2
Std Capacity control steps		Nr	2	2	2	2	2	2	2	2	2	2	2
Oil charge (C1)		l	1	2	4	4	4	4	4	4	8	8	8
Oil charge (C2)		l	1	2	4	4	4	4	4	4	4	8	8
Refrigerant charge (C1)		kg	1.6	2	2.2	2.2	2.4	2.6	2.6	7.9	8.1	8.5	8.6
Refrigerant charge (C2)		kg	1.6	2	2.2	2.2	2.4	2.4	2.6	7.9	8.1	8.5	8.6
Refrigerant circuits		Nr	2	2	2	2	2	2	2	2	2	2	2
INTERNAL EXCHANGER													
Type of internal exchanger			PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
No. of internal exchangers		Nr	2	2	2	2	2	2	2	1	1	1	1
Water flow-rate	1	l/s	1.29	1.74	1.93	2.27	2.67	2.95	3.27	4.27	4.97	5.69	6.88
Pressure drop		kPa	35	36	34	47	48	50	49	30	30	28	31
Water content		l	2.4	3	3.6	3.6	4.3	4.8	5.3	6.6	7.9	9.6	11.2
EXTERNAL EXCHANGER													
Water content		l	2.4	3	3.6	3.6	4.3	4.8	5.3	6.6	7.9	9.6	11.2
Quantity		Nr	2	2	2	2	2	2	2	1	1	1	1
REVERSAL ON WATER CIRCUIT (H)													
Water flow-rate	2	l/s	1.6	2.2	2.4	2.9	3.4	3.7	4.1	5.3	6.2	7.1	8.6
Pressure drop		kPa	52	61	53	77	70	72	74	47	46	42	47
CONNECTIONS													
Water fittings		Txt	1"	1"	1"	1"	1"	1"	1"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
DIMENSIONS													
Length		mm	802	802	802	802	802	802	802	1062	1062	1062	1062
Depth		mm	602	602	602	602	602	602	602	580	580	580	580
Height		mm	790	790	915	915	915	915	915	1538	1538	1538	1538
Packing volume		m3	0.5	0.5	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.1
STANDARD UNIT WEIGHTS													
Shipping weight		kg	180	200	248	250	260	266	271	450	490	520	580

(1) data refers to the following conditions :
internal exchanger water = 12/7°C
exchanger water outlet 35°C
(2) data refers to the following conditions :
internal exchanger water = 12/7°C
external exchanger water = 42/50°C (from 102 to 242)
external exchanger water = 45/50°C (from 292 to 422)
PHE = plates

OPERATING LIMITS (COOLING)

Size			102	142	162	182	202	222	242	292	322	362	422
EXTERNAL EXCHANGER													
Max water inlet temperature		°C	48	48	48	48	48	48	48	48	48	48	48
Min. water inlet temperature	1	°C	10	10	10	10	10	10	10	10	10	10	10
Min. water inlet temperature	2	°C	18	18	18	18	18	18	18	18	18	18	18
Max water outlet temperature		°C	56	56	56	56	56	56	56	56	56	56	56
Min. water outlet temperature	1	°C	26	26	26	26	26	26	26	26	26	26	26
Min. water outlet temperature	2	°C	28	28	28	28	28	28	28	28	28	28	28
Water thermal head (min / max)		°C	8 /16	8 /16	8 /16	8 /16	8 /16	8 /16	8 /16	5 / 16	5 / 16	5 / 16	5 / 16
INTERNAL EXCHANGER													
Max water inlet temperature		°C	24	24	24	24	24	24	24	24	24	24	24
Min. water outlet temperature	3	°C	6	6	6	6	6	6	6	5	5	5	5

(1) well water
(2) tower water
(3) data refers to units in capacity-controlled operation

Voltage: 400/3/50

ELECTRICAL DATA

Size			102	142	162	182	202	222	242	292	322	362	422
F.L.A. - FULL LOAD CURRENT AT MAX ADMISSIBLE CONDITIONS													
F.L.A. - Compressor 1		A	9.8	13.6	14.2	17.5	20	23	24.3	30.3	38.5	38.5	47.2
F.L.A. - Compressor 2		A	9.8	13.6	14.2	17.5	20	20	24.3	30.3	30.3	38.5	47.2
F.L.A. - Total		A	19.5	27.1	28.4	34.9	40.1	42	48.6	60.6	68.8	77	94.4
L.R.A. LOCKED ROTOR AMPERES													
L.R.A. - Compressor 1		A	62	96	90.5	116.5	127.5	168	168	175	215	215	270
L.R.A. - Compressor 2		A	62	96	90.5	116.5	127.5	127.5	168	175	175	215	270
F.L.I. FULL LOAD POWER INPUT AT MAX ADMISSIBLE CONDITION													
F.L.I. - Compressor 1		kW	5.7	7.6	8.8	10.4	11.9	14.6	14.6	18.1	23.9	23.9	29
F.L.I. - Compressor 2		kW	5.7	7.6	8.8	10.4	11.9	11.9	14.6	18.1	18.1	23.9	29
F.L.I. - Total		kW	11.3	15.2	17.6	20.7	23.8	25.7	29.2	36.2	42	47.7	58
M.I.C. MAXIMUM INRUSH CURRENT													
M.I.C. - Value		A	71.8	109.6	104.7	134	147.5	178	192.3	205.3	245.3	253.5	262.2

power supply: 400/3/50 Hz +/-6%
voltage unbalance: max 2 %

Voltage: 230/3/50

ELECTRICAL DATA

Size			102	142	162	182	202	222	242
F.L.A. - FULL LOAD CURRENT AT MAX ADMISSIBLE CONDITIONS									
F.L.A. - Compressor 1		A	19.7	25.3	24.1	31.2	35.8	35.8	45.2
F.L.A. - Compressor 2		A	19.7	25.3	24.1	31.2	35.8	45.2	45.2
F.L.A. - Total		A	39.3	50.7	48.2	62.4	71.6	81	90.4
L.R.A. LOCKED ROTOR AMPERES									
L.R.A. - Compressor 2		A	132.5	171	166	210.5	224	279.5	279.5
F.L.I. FULL LOAD POWER INPUT AT MAX ADMISSIBLE CONDITION									
F.L.I. - Compressor 1		kW	5.7	7.6	8.8	10.4	11.9	11.9	14.6
F.L.I. - Compressor 2		kW	5.7	7.6	8.8	10.4	11.9	14.6	14.6
F.L.I. - Total		kW	11.3	15.2	17.6	20.7	23.8	25.7	29.2
M.I.C. MAXIMUM INRUSH CURRENT									
M.I.C. - Value		A	152.2	196.3	190.1	241.7	259.8	315.3	324.7

power supply 230/3/50 Hz +/-6%
voltage unbalance: max 2 %

SOUND LEVELS

Size	Sound Power Level (dB)								Sound pressure level	Sound power level
	Octave band (Hz)									
	63	63	125	125	250	250	500	500	dB(A)	dB(A)
102	85	85	81	81	63	63	58	58	53	67
142	79	79	75	75	63	63	62	62	53	67
162	85	85	86	86	79	79	74	74	62	77
182	81	81	82	82	81	81	74	74	62	76
202	79	79	79	79	81	81	77	77	63	77
222	85	85	85	85	83	83	76	76	64	78
242	87	87	88	88	85	85	75	75	65	79
292	98	98	81	81	77	77	81	81	66	82
322	98	98	81	81	77	77	81	81	66	82
362	98	98	81	81	77	77	81	81	66	82
422	88	88	89	89	86	86	76	76	66	80

the sound levels refer to the unit at full load, in the rated test conditions.
The sound pressure level refers to a distance of 1m from the external surface of the units operating in an open field.

COOLING PERFORMANCE

Size	To (°C)	EXTERNAL EXCHANGER WATER OUTLET TEMPERATURE (°C)														
		30			35			40			45			50		
		kWf	kWe	kWt	kWf	kWe	kWt	kWf	kWe	kWt	kWf	kWe	kWt	kWf	kWe	kWt
102	5	26.6	6.18	32.8	25.3	6.89	32.2	23.7	7.71	31.4	22.0	8.64	30.6	20.2	9.69	29.9
	6	27.6	6.21	33.8	26.1	6.93	33.0	24.6	7.76	32.4	22.8	8.69	31.5	21.0	9.72	30.7
	7	28.6	6.24	34.8	27.1	6.96	34.1	25.5	7.79	33.3	23.7	8.72	32.4	21.8	9.75	31.6
	8	29.6	6.26	35.9	28.1	6.98	35.1	26.4	7.81	34.2	24.6	8.74	33.3	22.6	9.78	32.4
	9	30.7	6.29	37.0	29.2	7.00	36.2	27.5	7.82	35.3	25.6	8.75	34.4	23.6	9.81	33.4
	10	31.9	6.31	38.2	30.3	7.00	37.3	28.6	7.81	36.4	26.7	8.76	35.5	24.5	9.84	34.3
142	5	35.5	7.92	43.4	34.0	8.75	42.8	32.3	9.76	42.1	30.2	10.9	41.1	27.9	12.3	40.2
	6	36.7	7.97	44.7	35.2	8.80	44.0	33.5	9.80	43.3	31.4	11.0	42.4	29.0	12.3	41.3
	7	38.1	8.02	46.1	36.5	8.85	45.4	34.7	9.86	44.6	32.5	11.0	43.5	30.1	12.4	42.5
	8	39.4	8.07	47.5	37.8	8.91	46.7	35.9	9.91	45.8	33.8	11.1	44.9	31.3	12.4	43.7
	9	40.9	8.12	49.0	39.2	8.96	48.2	37.3	9.97	47.3	35.0	11.1	46.1	32.5	12.5	45.0
	10	42.4	8.16	50.6	40.7	9.02	49.7	38.6	10.0	48.6	36.3	11.2	47.5	33.7	12.5	46.2
162	5	39.5	9.70	49.2	37.7	10.7	48.4	35.6	11.9	47.5	33.4	13.2	46.6	31.0	14.7	45.7
	6	40.9	9.73	50.6	39.0	10.7	49.7	36.8	11.9	48.7	34.6	13.3	47.9	32.2	14.8	47.0
	7	42.3	9.77	52.1	40.3	10.8	51.1	38.1	12.0	50.1	35.8	13.4	49.2	33.4	14.9	48.3
	8	43.8	9.81	53.6	41.7	10.8	52.5	39.5	12.0	51.5	37.1	13.4	50.5	34.7	15.0	49.7
	9	45.4	9.86	55.3	43.2	10.9	54.1	40.9	12.1	53.0	38.5	13.5	52.0	36.0	15.1	51.1
	10	47.0	9.90	56.9	44.7	10.9	55.6	42.4	12.2	54.6	40.0	13.6	53.6	37.4	15.3	52.7
182	5	46.2	11.7	57.9	44.2	12.9	57.1	41.8	14.3	56.1	39.2	16.0	55.2	36.3	18.1	54.4
	6	47.8	11.7	59.5	45.8	12.9	58.7	43.4	14.3	57.7	40.5	16.1	56.6	37.2	18.1	55.3
	7	49.5	11.7	61.2	47.5	12.9	60.4	45.0	14.4	59.4	42.0	16.1	58.1	38.5	18.2	56.7
	8	51.3	11.7	63.0	49.1	12.9	62.0	46.5	14.4	60.9	43.5	16.2	59.7	40.0	18.2	58.2
	9	53.1	11.8	64.9	50.7	13.0	63.7	48.0	14.5	62.5	45.0	16.2	61.2	41.8	18.2	60.0
	10	55.0	11.8	66.8	52.2	13.1	65.3	49.4	14.5	63.9	46.7	16.2	62.9	43.9	18.2	62.1
202	5	54.5	13.0	67.5	52.1	14.3	66.4	49.6	15.9	65.5	46.8	17.6	64.4	43.9	19.5	63.4
	6	56.4	13.0	69.4	54.0	14.4	68.4	51.3	15.9	67.2	48.5	17.6	66.1	45.6	19.5	65.1
	7	58.4	13.0	71.4	55.9	14.4	70.3	53.1	16.0	69.1	50.3	17.7	68.0	47.2	19.6	66.8
	8	60.5	13.0	73.5	57.8	14.4	72.2	55.0	16.0	71.0	52.1	17.7	69.8	49.0	19.6	68.6
	9	62.7	13.1	75.8	59.9	14.5	74.4	57.0	16.0	73.0	54.0	17.8	71.8	50.8	19.7	70.5
	10	64.9	13.1	78.0	62.0	14.5	76.5	59.0	16.1	75.1	55.9	17.8	73.7	52.6	19.8	72.4
222	5	60.5	14.7	75.2	57.7	16.2	73.9	54.7	18.0	72.7	51.5	19.9	71.4	48.2	22.1	70.3
	6	62.6	14.7	77.3	59.7	16.3	76.0	56.6	18.1	74.7	53.3	20.0	73.3	50.0	22.2	72.2
	7	64.8	14.8	79.6	61.8	16.4	78.2	58.6	18.1	76.7	55.3	20.1	75.4	51.8	22.3	74.1
	8	67.0	14.8	81.8	63.9	16.4	80.3	60.7	18.2	78.9	57.3	20.2	77.5	53.7	22.4	76.1
	9	69.3	14.9	84.2	66.2	16.5	82.7	62.9	18.3	81.2	59.4	20.3	79.7	55.6	22.5	78.1
	10	71.6	15.0	86.6	68.5	16.6	85.1	65.1	18.4	83.5	61.5	20.4	81.9	57.7	22.6	80.3
242	5	67.0	16.2	83.2	63.9	17.8	81.7	60.6	19.6	80.2	57.0	21.8	78.8	53.2	24.1	77.3
	6	69.2	16.2	85.4	66.1	17.8	83.9	62.7	19.7	82.4	59.1	21.9	81.0	55.2	24.3	79.5
	7	71.5	16.3	87.8	68.4	17.9	86.3	64.9	19.8	84.7	61.2	22.0	83.2	57.2	24.4	81.6
	8	74.0	16.4	90.4	70.7	18.0	88.7	67.2	19.9	87.1	63.4	22.1	85.5	59.3	24.5	83.8
	9	76.6	16.5	93.1	73.2	18.1	91.3	69.6	20.0	89.6	65.7	22.2	87.9	61.5	24.6	86.1
	10	79.4	16.5	95.9	75.8	18.2	94.0	72.0	20.1	92.1	68.0	22.3	90.3	63.7	24.8	88.5

kWf = Cooling capacity in kW
kWe = Compressor power input in kW
kWt = Heating capacity to the external exchanger(kW)
To = Internal exchanger water outlet temperature in° C
With To = 5°C we recommend using 10% glycol solution

COOLING PERFORMANCE

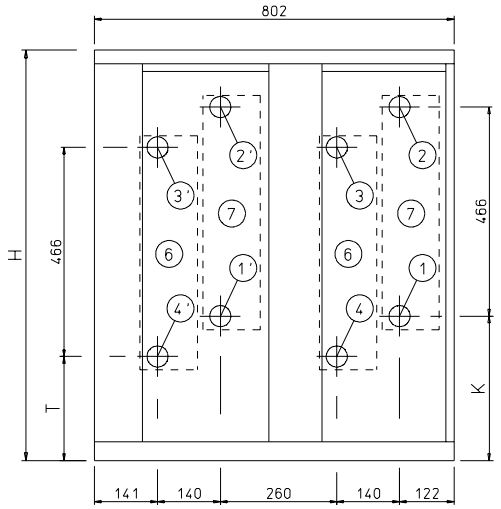
Size	To (°C)	EXTERNAL EXCHANGER WATER OUTLET TEMPERATURE (°C)														
		30			35			40			45			50		
		kWf	kWe	kWt	kWf	kWe	kWt	kWf	kWe	kWt	kWf	kWe	kWt	kWf	kWe	kWt
292	5	87.0	19.0	106.0	83.4	20.9	104.3	79.4	23.1	102.5	74.8	25.6	100.4	69.7	28.5	98.2
	6	90.0	19.1	109.1	86.4	20.9	107.3	82.2	23.2	105.4	77.5	25.7	103.2	72.2	28.6	100.8
	7	93.2	19.2	112.4	89.4	21.0	110.4	85.1	23.2	108.3	80.3	25.8	106.1	74.8	28.7	103.5
	8	96.5	19.2	115.7	92.6	21.1	113.7	88.2	23.3	111.5	83.2	25.9	109.1	77.6	28.8	106.4
	9	99.8	19.3	119.1	95.9	21.2	117.1	91.3	23.4	114.7	86.1	26.0	112.1	80.4	28.9	109.3
	10	103.3	19.4	122.7	99.2	21.3	120.5	94.5	23.5	118.0	89.2	26.1	115.3	83.4	29.0	112.4
322	5	100.8	23.1	123.9	97.2	25.0	122.2	92.9	27.4	120.3	87.8	30.3	118.1	82.0	33.7	115.7
	6	104.3	23.2	127.5	100.6	25.1	125.7	96.2	27.5	123.7	91.0	30.4	121.4	85.0	33.9	118.9
	7	108.0	23.3	131.3	104.2	25.2	129.4	99.6	27.6	127.2	94.3	30.6	124.9	88.2	34.0	122.2
	8	111.9	23.4	135.3	107.9	25.3	133.2	103.2	27.8	131.0	97.7	30.7	128.4	91.4	34.2	125.6
	9	115.9	23.5	139.4	111.8	25.5	137.3	106.9	27.9	134.8	101.2	30.9	132.1	94.8	34.4	129.2
	10	120.1	23.6	143.7	115.8	25.6	141.4	110.8	28.1	138.9	104.9	31.1	136.0	98.3	34.5	132.8
362	5	115.0	26.6	141.6	111.2	28.6	139.8	106.5	31.2	137.7	101.1	34.5	135.6	94.9	38.3	133.2
	6	119.2	26.7	145.9	115.2	28.7	143.9	110.4	31.4	141.8	104.8	34.6	139.4	98.4	38.5	136.9
	7	123.4	26.8	150.2	119.3	28.9	148.2	114.4	31.5	145.9	108.6	34.8	143.4	102.1	38.7	140.8
	8	127.9	26.9	154.8	123.6	29.0	152.6	118.5	31.7	150.2	112.6	35.0	147.6	105.9	38.9	144.8
	9	132.5	27.0	159.5	128.0	29.2	157.2	122.8	31.9	154.7	116.7	35.2	151.9	109.8	39.1	148.9
	10	137.2	27.2	164.4	132.6	29.3	161.9	127.2	32.1	159.3	120.9	35.4	156.3	113.9	39.3	153.2
422	5	138.2	32.9	171.1	134.5	35.6	170.1	129.4	39.0	168.4	123.2	43.0	166.2	115.6	47.6	163.2
	6	143.0	33.1	176.1	139.1	35.8	174.9	134.0	39.2	173.2	127.5	43.2	170.7	119.8	47.8	167.6
	7	148.1	33.3	181.4	144.0	36.1	180.1	138.6	39.5	178.1	132.0	43.5	175.5	124.1	48.1	172.2
	8	153.2	33.5	186.7	149.0	36.3	185.3	143.4	39.7	183.1	136.6	43.8	180.4	128.6	48.4	177.0
	9	158.5	33.7	192.2	154.1	36.6	190.7	148.4	40.0	188.4	141.4	44.1	185.5	133.2	48.7	181.9
	10	163.9	33.9	197.8	159.4	36.8	196.2	153.6	40.3	193.9	146.4	44.3	190.7	137.9	49.0	186.9

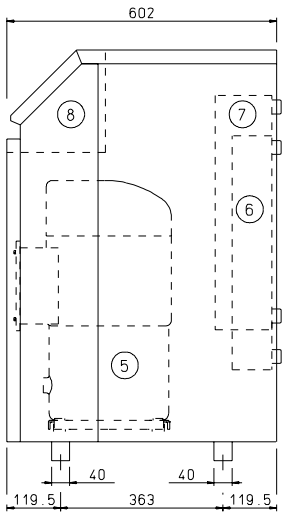
kWf = Cooling capacity in kW
kWe = Compressor power input in kW
kWt = Heating capacity to the external exchanger(kW)
To = Internal exchanger water outlet temperature in° C
With To = 5°C we recommend using 10% glycol solution

DIMENSIONAL DRAWING

Size			102	142	162	182	202	222	242	292	322	362	422
Dimensional dwg. no.			1	1	1	1	1	1	1	2	2	2	2
H		mm	790	790	915	915	915	915	915				
K		mm	197	197	322	322	322	322	322				
T		mm	107	107	232	232	232	232	232				

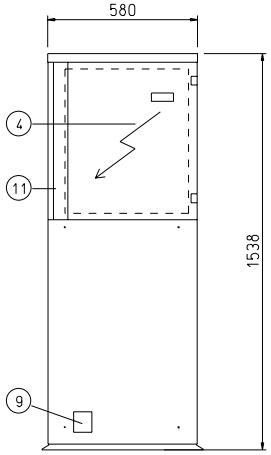
DIMENSIONAL DRAWING(1)

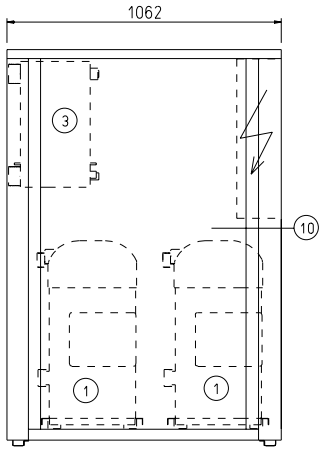


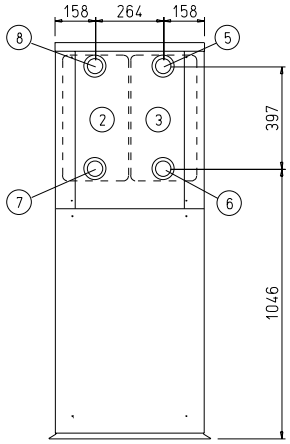


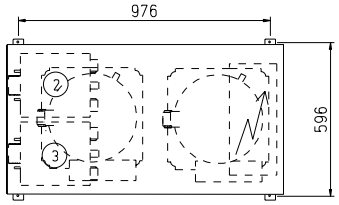
(1) INTERNAL EXCHANGER WATER OUTLET
(2) INTERNAL EXCHANGER WATER INLET
(3) EXTERNAL EXCHANGER WATER OUTLET
(4) EXTERNAL EXCHANGER WATER INLET
(5) COMPRESSOR
(6) EXTERNAL EXCHANGER
(7) INTERNAL EXCHANGER
(8) ELECTRICAL PANEL

DIMENSIONAL DRAWING(2)









(1) COMPRESSOR
(2) EXTERNAL EXCHANGER
(3) INTERNAL EXCHANGER
(4) ELECTRICAL PANEL
(5) INTERNAL EXCHANGER WATER INLET
(6) INTERNAL EXCHANGER WATER OUTLET
(7) EXTERNAL EXCHANGER WATER INLET
(8) EXTERNAL EXCHANGER WATER OUTLET
(9) POWER INPUT
(10) ACCESS TO THE COMPONENTS
(11) ACCESS TO THE ELECTRICAL PANEL

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