FOCS-W 0401 - 1902

87,0-447 kW | Chiller, water source

(The photo of the unit is indicative and may vary depending on the model)

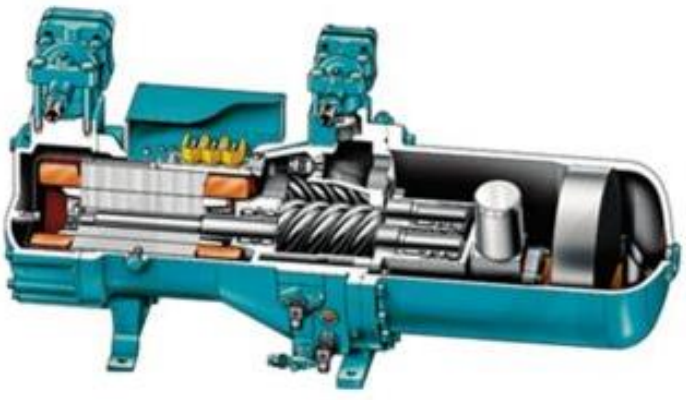
- FLEXIBILITY
- ADAPTABILITY
- HEAT PUMP OPTION

3.2 High efficiency chiller, water source
Indoor unit for the production of chilled water with semi-hermetic screw compressors optimized for R134a, thermostatic expansion valve, shell and tube condenser and evaporator.
Base and supporting structure and panels are of galvanized epoxy powder coated steel with increased thickness.
Flexible and reliable unit; it easily adapts itself to different thermal load conditions thanks to the precise thermoregulation. The high performance's level is achieved thanks to the accurate sizing of all internal components.
- The unit is supplied fully refrigerant charged and factory tested. On site installation only requires power and hydraulic connection.

3.3 Structure
Frame in polyester-painted galvanized steel.
The self-supporting frame is built to guarantee maximum accessibility for servicing and maintenance operations.

3.4 Refrigerant circuit
Unit designed with dedicated and independent refrigerant circuits in order to ensure continuous operation, limited pollution, and easy maintenance. In addition to main components described in the following sections, each refrigerant circuit is fitted as standard with:
- electronic expansion valve
- drier filter with replaceable cartridge
- refrigerant line sight glass with humidity indicator
- safety switching device for limiting the pressure
- non -return valve in compressor´s discharge line integrated in the compressor
- Inlet valve
- high and low pressure transducers
- on-off cock on the compressor´s suction and delivery line and on the refrigerant line
- differential pressure switch, water side

3.5 Compressor
New semi-hermetic screw compressors designed for high efficiency both at full and partial load.
Semi-hermetic screw compressors with 2 five- and six-lobe rotors: the five-lobe rotor is splined directly onto the motor (nominal speed 2950 rpm) without the use of interposed gears. The bearings provided along the rotor axis in a separate chamber isolated from the compression chamber are made in carbon steel. Each compressor is provided with an inlet for refrigerant injection (for the extension of operating limits) and the use of the economizer (for the output capacity and efficiency´s increase). Optimized lubrication guarantees oil´s distribution between mechanical parts, without using an oil pump; the built-in oil separator has 3 stages of separation, and a 10 mm stainless steel mesh filter ensures the constant presence of oil inside. Cooling power is partialized by a slide valve, which depending on the position assumed, permits a stepless compression chamber reduction; each compressor can therefore smoothly partialize from 25% to 100% of its capacity. The two pole motors are fitted as standard with electric devices to limit the absorbed current during compressor start-up, and with empty start-up. Each compressor is fitted with manual-reset motor thermal protection, delivery gas temperature and oil level controls and an electric resistance for the carter´s heating while the compressor is stopped. A check valve fitted on the refrigerant delivery line prevents the rotors from reversing after stopping. On-off cocks on the delivery line of each compressor to isolate the refrigerant charge in the heat exchanger when required.



3.6 Plant side heat exchanger
Direct expansion shell and tube exchanger with asymmetric refrigerant circuits for keeping the refrigerant at the correct speed inside the tubes during the change from the liquid to the gaseous phase. The steel shell is insulated with a closed-cell condensation proof lining in foamed lastomer. The copper pipes are internally grooved to improve heat exchange and are mechanically expanded onto the tube plate ends.

3.7 Source side heat exchanger
Intercambiador de haz tubular con camisa de acero y haz tubular formado por tubos de cobre con aletas externas integrales unidos con mandriles a las placas tubulares. Cabezales desmontables para permitir la inspección de los tubos. Los empalmes hídricos estándar se han preajustado para la conexión con agua de torre; sobre pedido se pueden suministrar con los empalmes para agua de pozo.

3.8 Electrical and control panel
Electrical and control panel built to EN60204-1 and EC204-1 standards, complete with:
- electronic controller
- control circuit transformer
- general door lock isolator
- power circuit with bar distribution system
- fuses for compressors
- compressors protection with internal thermal overload
- terminals for cumulative alarm block
- remote ON/OFF terminals
- spring-type control circuit terminal board
- phases sequence control
- relays for voltage monitoring

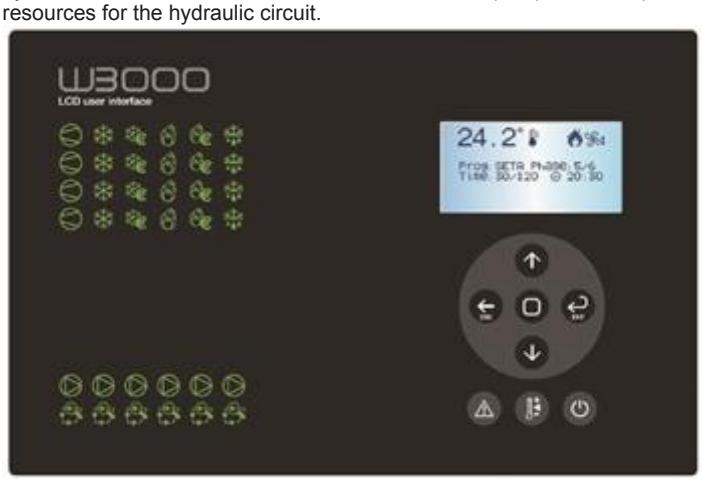
3.9 Certification, reference standard
The unit complies with the following directives and relative amendments:
- EUROVENT Certification program
- CE Declaration of conformity certificate for the European Union
- GOST Product quality certificate for Russian Federation
- SAFETY QUALITY LICENCE Product quality certificate for Popular Republic of China
- M&I Product quality certificate for Australia and New Zealand
- Machine directive 2006/42/EC
- PED directive 97/23/EC
- Low Voltage directive 2006/95/EC
- ElectroMagnetic compatibility directive 2004/108/EC
- ISO 9001 Company´s Quality Management System certification
- ISO 14001 Company´s Environmental Management System certification

3.10 Tests
Tests performed throughout the production process, as indicated in ISO9001.
Performance or noise tests can be performed by highly qualified staff in the presence of customers.
Performance tests comprise the measurement of:
- electrical data
- water flow rates
- working temperatures
- power input
- power output
- pressure drops on the water-side exchanger both at full load (at the conditions of selection and at the most critical conditions for the condenser) and at part load conditions.

During performance testing it is also possible to simulate the main alarm states.
Noise tests are performed to check noise emissions according to ISO3744.

3.11 Electronic control W3000 TE
The brand new W3000TE controller offers advanced functions and algorithms. The large format keyboard provides a complete view of the statuses of the unit. The controls and the complete LCD display favour an easy and safe access to the machine setup. These resources allow the assessment and intervention on the unit, by means of a multi-level menu, with selectable user's language. The led icons immediately show the operating status of the circuits, as well as of the fans and of the water pumps (if present). An optional extra is the touch screen interface: 7.0" WVGA colour display with adjustable LED backlight and front USB port. The touch screen technology allows intuitive navigation between the various screens, safe access to the data with a three-level password protection as well as the graphic display of the performance of some monitored measurements.
The diagnostics comprises a complete alarm management system, with "black box" (via PC) and alarm log functions (via display or also PC) for a better analysis of the unit performance.
For the systems made of several units, the adjustment of the resources is performed by optional proprietary devices.
Consumption metering and performance measurement are possible as

well. Supervision can be easily developed via proprietary devices or the integration in third party systems by means of the most common protocols as ModBus, Bacnet-over-IP, Echelon LonWorks protocols.
Compatibility with the remote keyboard managing up to 10 units.
The presence of the programmable timer allows the creation of an operating profile containing up to 4 typical days and 10 time bands.
The control is characterized by the continuous modulation of the unit capacity, based on PID algorithms and referring to the water delivery temperature.
Optionally (VPF package), capacity modulation can be integrated with hydraulic flow modulation, thanks to inverter-driven pumps and to specific resources for the hydraulic circuit.



3.12 Configurations
< >, Standard unit
Standard unit for production of chilled water

/D, with Desuperheater
Unit for production of chilled water, complete of an auxiliary heat exchanger on the discharge section of the compressor to the superheat reclaim. The reclaim heat is approximately the 20% of the total cooling capacity. This function is used for application with domestic hot water production or other secondary uses, as support of the existing boiler.

/R, with total heat Reclaim
Unit for the production of chilled water, with a dedicated heat exchanger refrigerant/water for the condensation heat reclaim. The heat reclaim is managed to reach the set-point. This function is used for air treatment in applications with AHU or for domestic hot water production together with an auxiliary boiler.

/H, Hydraulic side reversible heat pump
Heat pump reversible on hydraulic side. The unit has, as standard, an additional temperature probe on condenser and an extra insulating material on it. The controller is set to manage the unit on a double set-point, depending on the commutation: summer or winter mode.

FOCS-W / B			0401	0501	0551	0651	0751	0802	0851	0951	1002	1102
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**87,0**	**107**	**130**	**147**	**165**	**178**	**198**	**221**	**217**	**251**
Total power input	(1)	kW	19,6	24,5	28,1	32,7	36,9	39,3	42,7	49,6	49,2	55,8
EER	(1)		4,44	4,35	4,63	4,51	4,46	4,52	4,63	4,46	4,41	4,49
ESEER	(1)		5,15	5,32	5,25	5,29	5,40	5,39	5,54	5,42	5,52	5,24
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**86,7**	**106**	**130**	**147**	**164**	**177**	**197**	**220**	**216**	**250**
EER	(1)(2)		4,27	4,17	4,46	4,34	4,29	4,35	4,45	4,28	4,22	4,30
ESEER	(1)(2)		4,82	4,92	4,93	4,94	5,04	4,93	5,17	5,04	4,93	4,75
Cooling energy class			C	D	C	C	C	C	C	C	D	C
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	90,2	111	135	153	171	184	205	229	225	260
Total power input	(3)	kW	18,9	23,6	27,1	31,6	35,6	38,0	41,2	47,9	47,5	53,8
Desuperheater heating capacity	(3)	**kW**	**8,46**	**10,6**	**12,1**	**14,1**	**15,9**	**17,0**	**18,5**	**21,4**	**21,3**	**24,1**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity with total heat recovery	(4)	kW	77,4	95,2	116	131	147	158	175	197	194	223
Total power input	(4)	kW	23,5	29,2	34,2	39,2	44,0	47,1	51,2	59,1	58,7	67,9
Recovery heat exchanger capacity	(4)	**kW**	**99,5**	**123**	**148**	**168**	**189**	**202**	**223**	**252**	**249**	**287**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	m³/h	15,0	18,4	22,4	25,4	28,3	30,6	34,0	38,1	37,4	43,2
Pressure drop	(1)	kPa	17,7	17,5	14,1	18,1	22,6	17,6	21,8	41,3	39,8	53,1
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION												
Water flow	(1)	m³/h	18,2	22,5	27,1	30,8	34,5	37,1	41,2	46,4	45,6	52,5
Pressure drop	(1)	kPa	32,6	52,5	43,1	44,0	44,7	51,8	52,5	38,7	54,1	40,5
PARTIAL RECOVERY USER SIDE IN												
Water flow	(3)	m³/h	1,47	1,84	2,11	2,45	2,77	2,95	3,21	3,72	3,69	4,19
Pressure drop	(3)	kPa	6,08	0,69	0,52	0,70	0,57	6,13	0,77	0,56	0,69	0,51
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	m³/h	17,3	21,3	25,7	29,2	32,8	35,1	38,8	43,8	43,2	49,8
Pressure drop	(4)	kPa	44,9	34,4	49,7	43,6	39,7	46,3	46,1	42,1	35,3	46,9
COMPRESSORS												
N. of compressors		N°	1	1	1	1	1	2	1	1	2	2
Number of capacity		N°	0	0	0	0	0	0	0	0	0	0
No. of circuits		N°	1	1	1	1	1	2	1	1	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	50	50	50	50	50	25	50	50	25	25
Refrigerant			R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Refrigerant charge		kg	18,5	21,0	31,0	29,9	28,9	41,9	35,6	50,6	42,6	51,0
Oil charge		kg	9,00	9,00	15,0	15,0	15,0	18,0	15,0	15,0	18,0	30,0
NOISE LEVEL												
Noise Pressure	(5)	dB(A)	59	60	62	62	62	62	62	62	63	65
Noise Power	(6)	dB(A)	91	92	94	94	94	94	94	94	95	97
SIZE AND WEIGHT												
A	(7)	mm	2300	2500	2500	2500	2500	3200	3200	3200	3200	3200
B	(7)	mm	1000	1000	1000	1000	1000	1200	1000	1000	1200	1200
H	(7)	mm	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Operating weight	(7)	kg	800	840	1160	1180	1190	1470	1270	1350	1490	1930

Notes:
1 Evaporator water (in/out) = 12°C/7°C, condenser water (in/out) = 30°C/35°C, based on Eurovent Standard
2 Values in compliance with EN14511-3:2011
3 Evaporator water (in/out): 12°C/7°C; Condenser water (in/out): 30°C/35°C; Desuperheater water (in/out): 40°C/45°C.
4 Evaporator water (in/out) = 12°C/7°C; Recovery unit water (in/out) = 40°C/45°C.
5 Average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
6 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units.
7 Unit in standard configuration/execution, without optional accessories.
- Unavailable

COOLING CAPACITY PERFORMANCE

0651

Tcd	30	35	40	45	50	55	30	35	40	45	50	55	30	35	40	45	50	55
Tev				**6**						**7**						**8**		
Pf	**149**	**142**	**134**	**126**	**117**	**108**	**155**	**147**	**140**	**131**	**122**	**112**	**160**	**153**	**145**	**136**	**127**	**117**
Pat	29,8	32,4	35,4	38,9	42,8	47,1	30,0	32,7	35,8	39,2	43,1	47,4	30,3	33,0	36,1	39,6	43,5	47,8
Qev	25,7	24,5	23,1	21,7	20,2	18,6	26,6	25,4	24,0	22,6	21,0	19,3	27,5	26,3	24,9	23,4	21,8	20,1
Dpev	18,5	16,8	15,1	13,3	11,5	9,70	19,9	18,1	16,2	14,3	12,4	10,5	21,3	19,4	17,4	15,4	13,4	11,4
Pt	179	175	170	165	160	155	185	180	175	170	165	160	190	186	181	176	170	165
Qcd	30,6	29,9	29,1	28,3	27,4	26,5	31,6	30,8	30,0	29,2	28,3	27,4	32,6	31,8	31,0	30,1	29,2	28,2
Dpcd	43,4	41,3	39,1	37,0	34,8	32,5	46,2	44,0	41,7	39,4	37,0	34,6	49,1	46,7	44,3	41,9	39,3	36,8
Tev				**9**						**10**						**11**		
Pf	**165**	**158**	**150**	**141**	**131**	**121**	**171**	**163**	**155**	**146**	**136**	**126**	**177**	**169**	**160**	**151**	**141**	**131**
Pat	30,6	33,3	36,4	39,9	43,8	48,1	30,9	33,6	36,7	40,2	44,1	48,4	31,1	33,8	37,0	40,5	44,4	48,7
Qev	28,5	27,2	25,8	24,3	22,6	20,9	29,5	28,1	26,7	25,1	23,5	21,7	30,4	29,1	27,6	26,0	24,3	22,5
Dpev	22,8	20,8	18,7	16,6	14,4	12,3	24,4	22,2	20,0	17,8	15,5	13,2	26,0	23,7	21,4	19,0	16,6	14,2
Pt	196	191	186	181	175	169	202	197	192	186	180	174	208	203	197	192	186	179
Qcd	33,6	32,8	31,9	31,0	30,1	29,1	34,6	33,8	32,9	31,9	30,9	29,9	35,6	34,7	33,8	32,9	31,8	30,8
Dpcd	52,1	49,6	47,1	44,4	41,7	39,0	55,3	52,6	49,9	47,1	44,2	41,3	58,5	55,7	52,8	49,9	46,8	43,7

0751

Tcd	30	35	40	45	50	55	30	35	40	45	50	55	30	35	40	45	50	55
Tev				**6**						**7**						**8**		
Pf	**167**	**159**	**151**	**142**	**133**	**123**	**173**	**165**	**156**	**147**	**138**	**128**	**179**	**170**	**162**	**153**	**143**	**133**
Pat	33,7	36,5	39,8	43,6	47,9	52,8	34,1	36,9	40,2	44,0	48,3	53,1	34,5	37,3	40,6	44,4	48,7	53,5
Qev	28,7	27,3	25,9	24,4	22,9	21,2	29,7	28,3	26,9	25,3	23,7	22,0	30,7	29,3	27,8	26,3	24,6	22,9
Dpev	23,1	21,0	18,9	16,8	14,7	12,6	24,8	22,6	20,3	18,1	15,8	13,7	26,6	24,2	21,8	19,4	17,0	14,7
Pt	200	195	190	186	181	176	207	201	196	191	186	181	213	208	202	197	192	186
Qcd	34,3	33,5	32,6	31,8	31,0	30,1	35,4	34,5	33,6	32,8	31,9	31,0	36,5	35,6	34,7	33,8	32,9	32,0
Dpcd	44,1	42,0	39,9	37,9	35,9	34,1	47,0	44,7	42,4	40,3	38,2	36,2	49,9	47,5	45,1	42,8	40,5	38,3
Tev				**9**						**10**						**11**		
Pf	**185**	**176**	**167**	**158**	**148**	**138**	**191**	**182**	**173**	**163**	**153**	**143**	**197**	**188**	**179**	**169**	**159**	**148**
Pat	34,8	37,7	41,0	44,8	49,1	53,8	35,2	38,0	41,4	45,2	49,4	54,2	35,5	38,4	41,7	45,5	49,8	54,5
Qev	31,8	30,3	28,8	27,2	25,5	23,7	32,8	31,4	29,8	28,2	26,4	24,6	33,9	32,4	30,8	29,1	27,3	25,5
Dpev	28,4	25,9	23,3	20,8	18,3	15,8	30,3	27,6	25,0	22,3	19,6	17,0	32,3	29,5	26,7	23,8	21,0	18,2
Pt	219	214	208	203	197	192	226	220	214	209	203	197	232	226	220	214	208	202
Qcd	37,6	36,6	35,7	34,8	33,8	32,9	38,7	37,7	36,8	35,8	34,8	33,8	39,8	38,8	37,8	36,8	35,8	34,7
Dpcd	53,0	50,4	47,8	45,3	42,9	40,5	56,1	53,4	50,7	48,0	45,4	42,8	59,4	56,5	53,6	50,8	48,0	45,2

0802

Tcd	30	35	40	45	50	55	30	35	40	45	50	55	30	35	40	45	50	55
Tev				**6**						**7**						**8**		
Pf	**180**	**171**	**162**	**152**	**141**	**130**	**186**	**178**	**168**	**158**	**147**	**135**	**193**	**184**	**174**	**164**	**153**	**141**
Pat	35,7	39,0	42,7	46,8	51,3	56,2	36,1	39,3	43,0	47,1	51,7	56,7	36,4	39,7	43,4	47,5	52,1	57,1
Qev	30,9	29,5	27,9	26,2	24,3	22,3	32,1	30,6	28,9	27,2	25,3	23,3	33,2	31,7	30,0	28,2	26,3	24,2
Dpev	18,0	16,3	14,6	12,9	11,1	9,39	19,3	17,6	15,7	13,9	12,0	10,2	20,7	18,9	16,9	15,0	13,0	11,0
Pt	215	210	205	199	193	186	222	217	211	205	199	192	229	224	218	211	205	198
Qcd	36,9	36,0	35,0	34,0	33,0	31,9	38,1	37,1	36,2	35,1	34,0	32,9	39,3	38,3	37,3	36,2	35,1	33,9
Dpcd	51,0	48,6	46,0	43,5	40,8	38,1	54,3	51,8	49,1	46,3	43,4	40,5	57,8	55,1	52,2	49,2	46,2	43,1
Tev				**9**						**10**						**11**		
Pf	**199**	**190**	**181**	**170**	**158**	**146**	**206**	**197**	**187**	**176**	**164**	**152**	**213**	**204**	**193**	**182**	**170**	**157**
Pat	36,7	40,0	43,7	47,9	52,5	57,5	37,0	40,3	44,1	48,2	52,9	57,9	37,4	40,6	44,4	48,6	53,2	58,3
Qev	34,4	32,8	31,1	29,3	27,3	25,2	35,5	33,9	32,2	30,3	28,3	26,1	36,7	35,1	33,3	31,4	29,3	27,1
Dpev	22,2	20,2	18,2	16,1	14,0	11,9	23,7	21,6	19,5	17,3	15,1	12,8	25,3	23,1	20,9	18,5	16,2	13,8
Pt	236	230	224	218	211	204	243	237	231	224	217	210	250	244	238	231	223	216
Qcd	40,5	39,5	38,5	37,3	36,2	34,9	41,7	40,7	39,6	38,5	37,3	36,0	42,9	41,9	40,8	39,6	38,3	37,0
Dpcd	61,4	58,5	55,5	52,3	49,1	45,7	65,2	62,1	58,8	55,5	52,0	48,5	69,1	65,8	62,3	58,8	55,1	51,4

Tcd [°C] - Source (side) heat exchanger output water temperature
Tev [°C] - Plant (side) cooling exchanger output water temperature
Pf [kW] - Cooling capacity
Pat [kW] - Total power input
Qev [m³/h] - Plant (side) heat exchanger water flow
Dpev [kPa] - Plant (side) cooling exchanger pressure drop
Pt [kW] - Heating capacity
Qcd [m³/h] - Source (side) heating exchanger water flow
Dpcd [kPa] - Source (side) heat exchanger pressure drop
'-' Conditions outside the operating range
Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T

4. OPERATING RANGE

	FOCS-W		FOCS-W/FOCS-W/H /FOCS-W/R		FOCS-W/D	
	Plant (side) heat exchanger		Source side exchanger		Partial recovery heat exchanger	
	min	max	min	max	min	max
Exchanger water (in) (°C)	8 (1)	23 (1)	10 (2)	51 (2)	18 (2)	-
Exchanger water (out) (°C)	5 (1) (3)	15 (1)	26 (2)	55 (4) (5)	26 (2)	-
Thermal difference (°C)	3	8	4	16	4	-

Limits to exchanger water temperature are valid within the minimum - maximum water flow range indicated in the Hydraulic Data section.
(1) Condenser water temp. (in/out) 30/35 °C
(2) Evaporator water (in/out) 12/7 °C
(3) With temperatures down to -8°C use anti-freeze mixtures. In case of lower temperatures, please contact our Sales Department.
(4) Values related only to total heat-recovery and heat pump version.
(5) Valid for temperature of fluid the evaporator >=-3°C. In case of lower temperatures, please contact our Sales Department.

ETHYLENE GLYCOL MIXTURE

Ethylene glycol and water mixtures, used as a heat-conveying fluid, cause a variation in unit performance. For correct data, use the factors indicated in the following table.

	Freezing point (°C)							
	0	-5	-10	-15	-20	-25	-30	-35
	Ethylene glycol percentage by weight							
	0	12%	20%	30%	35%	40%	45%	50%
cPf	1	0,985	0,98	0,974	0,97	0,965	0,964	0,96
cQ	1	1,02	1,04	1,075	1,11	1,14	1,17	1,2
cdp	1	1,07	1,11	1,18	1,22	1,24	1,27	1,3

cPf: cooling capacity correction factor
cQ: flow correction factor
cdp: pressure drop correction factor

For data concerning other kind of anti-freeze solutions (e.g. propylene glycol) please contact our Sales Department.

FOULING FACTORS

Performances are based on clean condition of tubes (fouling factor = 1). For different fouling values, performance should be adjusted using the correction factors shown in the following table.

Fouling factors	Plant (side) heat exchanger			Sourge (side) / Recovery heat exchanger		Partial recovery heat exchanger
	f1	fk1	fx1	f2	fk2	fx2
(m^2°C/W) 4,4 x 10^{-5}	1	1	1	99,0	1	1
(m^2 °C/W) 0,86 x 10^{-4}	0,96	0,99	0,99	98,0	1,	1
(m^2 °C/W) 1,72 x 10^{-4}	0,93	0,98	0,98	97,0	1	1

f1 - f2 : capacity correction factors
fk1 - fk2 : compressor power input correction factors
fx1 - fx2 : total power input correction factors

5. HYDRAULIC DATA

WATER FLOW AND PRESSURE DROP

Water flow in the shell and tube heat exchangers is given by:
$Q=Px0,86/Dt$

Q: water flow (m^3/h)
Dt: difference between inlet and outlet water temp. (°C)
P: heat exchanger capacity (kW)

Pressure drop is given by:
$Dp= K \times Q^2/1000$

Q: water flow (m^3/h)
Dp: pressure drop (kPa)
K: unit size ratio

SIZE	Plant (side) heat exchanger				Surge (side) / Recovery heat exchanger (1)			Partial recovery heat exchanger		
	K	Q min m^3/h	Q max m^3/h	C.a. min m^3	K	Q min m^3/h	Q max m^3/h	K	Q min m^3/h	Q max m^3/h
0401	79,0	10,0	45,1	0,8	98,0	5,6	26,3	2813	---	3,8
0501	52,0	11,1	50,9	1,0	104	6,9	28,2	203	---	4,8
0551	28,1	15,9	73,7	1,2	58,6	8,4	35,0	116	---	5,6
0651	28,1	15,9	73,7	1,3	46,2	9,5	39,4	116	---	6,4
0751	28,1	15,9	73,7	1,5	37,5	10,7	43,8	74,4	---	7,2
0802	18,8	17,6	81,7	1,3	37,5	11,5	46,5	703	---	7,7
0851	18,8	17,6	81,7	1,8	30,9	12,8	51,6	74,4	---	8,3
0951	28,5	17,6	81,7	2,0	18,0	14,4	61,3	40,1	---	9,7
1002	28,5	17,6	81,7	1,6	26,0	14,2	57,1	50,8	---	9,6
1102	28,5	17,6	81,7	1,8	14,7	16,3	69,9	28,9	---	11,0
1302	17,5	28,0	108,0	2,1	11,6	19,4	78,7	28,9	---	12,9
1502	12,1	28,0	114,0	2,4	9,4	22,1	88,9	18,6	---	14,5
1702	12,1	28,0	114,0	2,8	7,7	25,5	103,1	18,6	---	16,6
1902	5,0	42,0	162,0	3,2	4,5	29,2	122,1	10,0	---	19,4

Q min: minimum water flow admitted to the heat exchanger.
Q max: maximum water flow admitted to the heat exchanger.
C.a. min: minimum water content admitted in the plant.

(1) In units with heat-recovery, this data is valid for both the condensing and the heat recovery exchangers.

6. ELECTRICAL DATA

Maximum values								
Size	n	Compressor			Total unit (1)			
		F.L.I. [kW]	F.L.A. [A]	L.R.A. [A]	F.L.I. [kW]	F.L.A. [A]	S.A. [A]	
0401	1	1x32.6	1x55.4	153	32.6	55.4	153	
0501	1	1x40.5	1x67.1	169	40.5	67.1	169	
0551	1	1x48.7	1x80.4	206	48.7	80.4	206	
0651	1	1x51.7	1x91.7	267	51.7	91.7	267	
0751	1	1x64.3	1x105	290	64.3	105	290	
0802	2	2x32.6	2x55.4	153	65.2	111	208	
0851	1	1x70.2	1x115	350	70.2	115	350	
0951	1	1x82.1	1x132	423	82.1	132	423	
1002	2	2x40.5	2x67.1	169	81.0	134	236	
1102	2	2x48.7	2x80.4	206	97.4	161	286	
1302	2	2x51.7	2x91.7	267	103	183	359	
1502	2	2x64.3	2x105	290	129	210	395	
1702	2	2x70.2	2x115	350	140	230	465	
1902	2	2x82.1	2x132	423	164	264	555	

F.L.I. Power input
F.L.A. Current absorption
L.R.A. Locked rotor current for single compressor
S.A. Starting current

(1) Safety values to be considered when cabling the unit for power supply and line-protections

Voltage tolerance: 10%
Maximum voltage unbalance: 3%

7. FULL LOAD SOUND LEVEL

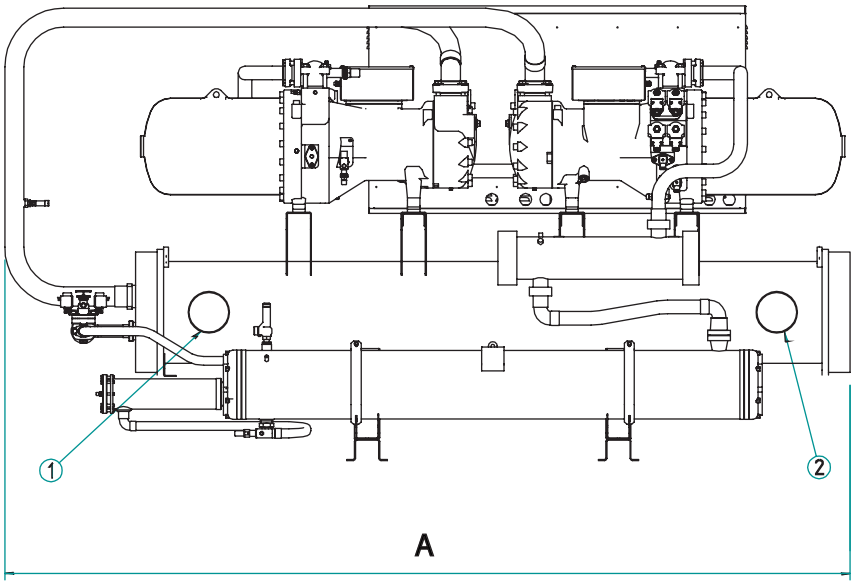
SOUND POWER									
SIZE	Octave band [Hz]								Total sound level
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB(A)								
0401	72	61	77	91	87	81	72	66	**91**
0501	69	61	78	92	88	82	73	64	**92**
0551	65	71	88	92	91	84	76	66	**94**
0651	73	76	94	90	91	84	77	65	**94**
0751	72	75	90	89	91	86	80	70	**94**
0802	75	64	80	94	90	84	75	69	**94**
0851	72	75	90	89	91	86	80	70	**94**
0951	72	75	90	89	91	86	80	70	**94**
1002	72	64	81	95	91	85	76	67	**95**
1102	68	74	91	95	94	87	79	69	**97**
1302	76	79	97	93	94	87	80	68	**97**
1502	75	78	93	92	94	89	83	73	**97**
1702	75	78	93	92	94	89	83	73	**97**
1902	75	78	93	92	94	89	83	73	**97**

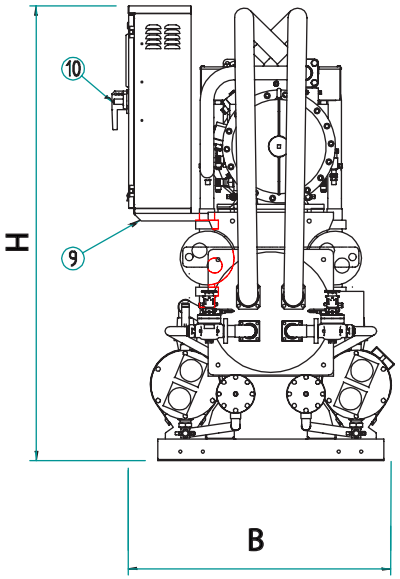
Working conditions
Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger water (in/out) 30/35 °C
Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;
in compliance with ISO 3744 for non-certified units
Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

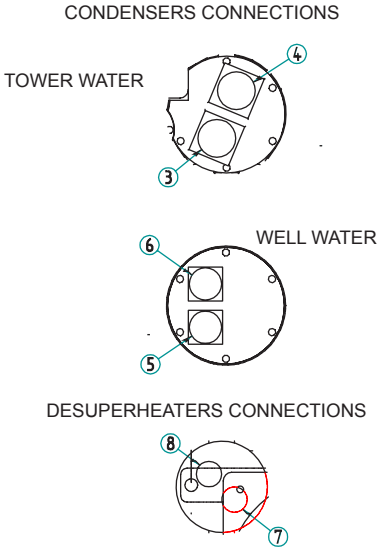
SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz] at 10 m								Total sound level
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB(A)								
0401	40	29	45	59	55	49	40	34	**59**
0501	37	29	46	60	56	50	41	32	**60**
0551	33	39	56	60	59	52	44	34	**62**
0651	41	44	62	58	59	52	45	33	**62**
0751	40	43	58	57	59	54	48	38	**62**
0802	43	32	48	62	58	52	43	37	**62**
0851	40	43	58	57	59	54	48	38	**62**
0951	40	43	58	57	59	54	48	38	**62**
1002	40	32	49	63	59	53	44	35	**63**
1102	36	42	59	63	62	55	47	37	**65**
1302	44	47	65	61	62	55	48	36	**65**
1502	43	46	61	60	62	57	51	41	**65**
1702	43	46	61	60	62	57	51	41	**65**
1902	43	46	61	60	62	57	51	41	**65**

Working conditions
Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger water (in/out) 30/35 °C
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained
from the sound power level

8. DIMENSIONAL DRAWINGS







① EVAPORATOR WATER INLET
② EVAPORATOR WATER OUTLET
③ CONDENSER WATER INLET
④ CONDENSER WATER OUTLET
⑤ CONDENSER WATER INLET
⑥ CONDENSER WATER OUTLET
⑦ DESUPERHEATER WATER INLET
⑧ DESUPERHEATER WATER OUTLET
⑨ POWER INLET
⑩ MAIN ISOLATOR

REMARKS:

For installation purposes, please refer to the documentation sent after the purchase-contract. This technical data should be considered as indicative.

CLIMAVENETA may modify them at any moment.

DIMENSIONAL DRAWINGS

Size	DIMENSIONS AND WEIGHTS												FREE SPACES (See fol. page)			
	FOCS-W - FOCS-W/H				FOCS-W/D				FOCS-W/R							
	A [mm]	B [mm]	H [mm]	P [kg]	A [mm]	B [mm]	H [mm]	P [kg]	A [mm]	B [mm]	H [mm]	P [kg]	R1 [mm]	R2 [mm]	R3 [mm]	R4 [mm]
0401 B	2300	1000	1500	800	2300	1000	1500	830	2300	1000	1500	850	2500	500	750	500
0501 B	2500	1000	1500	840	2500	1000	1500	890	2500	1000	1500	940	2500	500	750	500
0551 B	2500	1000	1500	1160	2500	1000	1500	1210	2500	1000	1500	1250	2500	500	750	500
0651 B	2500	1000	1500	1180	2500	1000	1500	1230	2500	1000	1500	1280	2500	500	750	500
0751 B	2500	1000	1500	1190	2500	1000	1500	1240	2500	1000	1500	1310	2500	500	750	500
0802 B	3200	1200	1500	1470	3200	1200	1500	1500	3200	1200	1500	1550	2000	500	850	500
0851 B	3200	1000	1500	1270	3200	1000	1500	1330	3200	1000	1500	1390	2500	500	750	500
0951 B	3200	1000	1500	1350	3200	1000	1500	1410	3200	1000	1500	1540	2500	500	750	500
1002 B	3200	1200	1500	1490	3200	1200	1500	1590	3200	1200	1500	1700	2000	500	850	500
1102 B	3200	1200	1500	1930	3200	1200	1500	2030	3200	1200	1500	2100	2000	500	850	500
1302 B	3500	1200	1800	2220	3500	1200	1800	2320	3500	1200	1800	2430	2000	500	850	500
1502 B	3500	1200	1800	2260	3500	1200	1800	2360	3500	1200	1800	2490	2000	500	850	500
1702 B	3500	1200	1800	2320	3500	1200	1800	2430	3500	1200	1800	2560	2000	500	850	500
1902 B	3500	1200	1800	2720	3500	1200	1800	2840	3500	1200	1800	3100	2000	500	850	500