

Z-Power FREECOOLING

TFAVBZ - TFAVIZ - TFAVSZ
2420÷21100

Cooling capacity 469÷1.216 kW

Features



High efficiency

Standard electronic expansion valve

Integrated MASTER/SLAVE control

Extended operation limits

Tax incentives*



Air cooled water chillers in Freecooling mode with axial fans. Range with semi-hermetic screw compressors and R134a refrigerant gas.

Construction features

- Compressor: high energy efficiency semi-hermetic screw compressor, with star-delta limited start and complete with integral protection, casing heater and refrigerant gas outlet piping shut-off valve.
- 2 circuits/ 6 capacity steps.
- Water side heat exchanger: counterflow dry expansion shell and tube type, complete with: differential pressure switch, air vent valve, water drain cock, closed cell polyurethane foam rubber insulation with protection film against UVA rays. Victaulic connections.
- Air side heat exchanger: consisting of coil made of copper pipes and aluminium fins divided into two sections: one dedicated to the condensation of the refrigerant gas and one dedicated to cooling the water in free-cooling mode.
- 3-way modulating valve to divert the water flow from the system towards the free-cooling coil or directly towards the evaporator.
- Fan: external rotor axial type electric fans, equipped with internal thermal protection, accident protection grilles and a proportional electronic device for pressurised and continuous fan rotation speed regulation up to an outdoor air temperature of -15°C.
- Control: electronic microprocessor control prepared for the connection with the main BMS available on the

market (MODBUS RTU, LON, BacNet).

- Structure: load-bearing structure made of galvanised and painted steel plate with polyester powder coating. The unit is also complete with:
 - display of cooling circuit high and low pressure;
 - Master/Slave control up to 4 units in parallel;
 - clock board.

Versions

- B - High efficiency standard version (TFAVBZ).
- I - Soundproofed version with soundproofing lining on the compressor compartment (TFAVIZ).
- S - Silenced version with soundproofing lining on the compressor compartment and reduced speed fans (TFAVSZ).

Models

- TFAVBZ: high efficiency base unit in Freecooling mode.
- TFAVIZ: soundproofed unit in Freecooling mode.
- TFAVSZ: silenced unit in Freecooling mode.

Factory fitted accessories

- Condensing control -20°C with fans with EC motor.
- Power factor correction capacitors ($\cos\phi > 0.94$).
- Compressor and fan circuit breaker switches.
- Forced limit of power consumption.
- Inlet compressor shut-off valves.
- Low and high pressure gauges for each cooling circuit.
- Bottom compartment protection nets.
- Coil protection nets.
- Coil protection metal filter.
- Compressors with linear capacity control (25-100 %).
- Evaporator antifreeze heater.
- Digital input for double set-point.
- Low water temperature.
- Double high pressure safety valve with exchange valve.
- Stainless steel cooling circuit.
- Electrical panel heater.
- Soft starter.
- Compressor oil level sensor.
- Control of min/max power supply voltage.
- 4-20 mA analogue signal for shifting set-point.
- Pre-painted copper/coils or copper/copper coils.
- Interfaces for serial communication with other devices.
- Spring anti-vibration mounts.

Separately supplied accessories

- Remote keypad with display.
- Rhoss supervisors for unit monitoring and remote management.

Technical data

TFAVBZ – TFAVIZ – TFAVSZ MODEL		2420	2450	2500	2560	2660	2750	2800	2850
FREE-COOLING OFF									
❶ Nominal cooling capacity	kW	481	512	574	636	756	825	885	944
❶ Nominal cooling capacity	kW	469	499	555	618	737	811	867	922
❶ E.E.R.		3,79	3,79	3,7	3,72	3,74	3,77	3,71	3,66
❶ E.E.R.		3,78	3,78	3,6	3,68	3,76	3,75	3,66	3,57
❶ Absorbed power	kW	127	135	155	171	202	219	238,5	258
❶ Absorbed power	kW	124	132	154	168	196	216	237	258
FREE-COOLING ON 100%									
❷ Nominal cooling capacity	kW	481	512	574	636	756	825	885	944
❷ Nominal cooling capacity	kW	469	499	555	618	737	811	867	922
❷ E.E.R.		24,05	25,6	28,7	26,5	23,63	25,78	27,66	29,5
❷ E.E.R.		37,5	39,89	44,43	41,19	36,84	40,57	43,36	46,12
❷ Absorbed power	kW	20	20	20	24	32	32	32	32
❷ Absorbed power	kW	12,5	12,5	12,5	15	20	20	20	20
❷ Total Free-cooling Temperature	°C	2,4	1,8	1,1	1,8	2,3	1,9	1,2	0,6
❷ Total Free-cooling Temperature	°C	1,2	0,5	0	0,8	1,1	0,5	0	-0,7
TFAVBZ – TFAVSZ MODEL		2420	2450	2500	2560	2660	2750	2800	2850
❸ Sound pressure	dB(A)	65	65	65	66	68	68	68	68
❸ Sound pressure	dB(A)	60	60	60	60	62	62	62	62
❸ Sound power	dB(A)	98	98	98	99	101	101	101	101
❸ Sound power	dB(A)	92	92	92	93	95	95	95	95
Screw compressors/steps	n.	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/6
Circuits	n.	2	2	2	2	2	2	2	2
Electrical 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
DIMENSIONS AND WEIGHTS		2420	2450	2500	2560	2660	2750	2800	2850
L – Width	mm	6130	6130	6130	7160	10080	10080	10080	10080
H – Height	mm	2580	2580	2580	2580	2580	2580	2580	2580
P – Depth	mm	2260	2260	2260	2260	2260	2260	2260	2260
❹ TFAVBZ weight	kg	4850	5700	5780	6470	8180	8280	8740	9155
❹ TFAVIZ – TFAVSZ weight	kg	5090	6000	6080	6770	8560	8660	9120	9535
SEASONAL ENERGY PERFORMANCE		2420	2450	2500	2560	2660	2750	2800	2850
TFAVBZ – TFAVIZ MODEL SEASONAL PERFORMANCE IN COOLING MODE									
❺ PdesignR	kW	419,8	447,6	501,5	554,3	658,9	745,2	796,8	847
❺ SEPR		5,59	5,59	5,57	5,57	5,6	5,61	5,56	5,54
TFAVSZ MODEL SEASONAL PERFORMANCE IN COOLING MODE									
❺ PdesignR	kW	408,8	435,9	484,8	538,7	641,9	731,1	779	825,5
❺ SEPR		5,64	5,64	5,62	5,65	5,63	5,63	5,61	5,6
TFAVBZ – TFAVIZ – TFAVSZ MODEL					2920	2990	21050	21100	
FREE-COOLING OFF									
❶ Nominal cooling capacity			kW	1019	1093	1155	1216		
❶ Nominal cooling capacity			kW	1000	1071	1129	1186		
❶ E.E.R.				3,69	3,72	3,68	3,64		
❶ E.E.R.				3,68	3,69	3,61	3,55		
❶ Absorbed power			kW	276	294	314	334		
❶ Absorbed power			kW	272	290	313	334		
FREE-COOLING ON 100%									
❷ Nominal cooling capacity			kW	1019	1093	1155	1216		
❷ Nominal cooling capacity			kW	1000	1071	1129	1186		
❷ E.E.R.				25,48	27,33	28,88	30,4		
❷ E.E.R.				39,99	42,84	45,15	47,44		
❷ Absorbed power			kW	40	40	40	40		
❷ Absorbed power			kW	25	25	25	25		
❷ Total Free-cooling Temperature			°C	1,1	1,6	1,1	0,5		
❷ Total Free-cooling Temperature			°C	0	0,3	-0,5	-1		
TFAVBZ – TFAVSZ MODEL					2920	2990	21050	21100	
❸ Sound pressure			dB(A)	69	69	69	69		

⑥ Sound pressure	dB(A)	63	63	63	63
④ Sound power	dB(A)	102	102	102	102
④ Sound power	dB(A)	96	96	96	96
Screw compressors/steps	n.	2/6	2/6	2/6	2/6
Circuits	n.	2	2	2	2
Electrical supply	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-50
DIMENSIONS AND WEIGHTS		2920	2990	21050	21100
L – Width	mm	12080	12080	12080	12080
H – Height	mm	2580	2580	2580	2580
P – Depth	mm	2260	2260	2260	2260
⑤ TFAVBZ weight	kg	10245	10255	10580	10640
⑤ TFAVIZ – TFAVSZ weight	kg	10625	10635	10960	11020
SEASONAL ENERGY PERFORMANCE		2920	2990	21050	21100
TFAVBZ – TFAVIZ MODEL SEASONAL PERFORMANCE IN COOLING MODE					
⑤ PdesignR	kW	917,5	983,2	1038,8	1092,7
⑤ SEPR		5,6	5,61	5,61	5,58
TFAVSZ MODEL SEASONAL PERFORMANCE IN COOLING MODE					
⑤ PdesignR	kW	898,2	961,1	1013,1	1063,4
⑤ SEPR		5,65	5,63	5,68	5,6

Data at the following conditions:

- ① Air: 30°C – Water: 15/10°C – Ethylene glycol 30%.
- ② Water: 15/10°C – Ethylene glycol 30%.
- ③ In open field (Q = 2) at 10 m from the unit.
- ④ Total sound power level in dB(A) based on measurements carried out in accordance with regulation UNI EN-ISO 9614.
- ⑤ Weight referred to the unit without load and not accessorised.
- TFAVSZ silenced version.
- ⑤ Application for high temperature (7°C) process chiller (EU Regulation 2016/2281)



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