



## TWA 332÷1822 VV/Y/A

A CLASS ENERGY EFFICIENCY AIRCOOLED LIQUID CHILLERS AND HEAT PUMPS WITH AXIAL FANS, (INVERTER) SCREW COMPRESSORS AND SHELL AND TUBE EXCHANGER.

The TWA 332÷1822 VV/Y/A units in A CLASS energy efficiency have extremely high efficiency levels due to reduced electrical absorption and a high efficiency of the compressor-exchanger combination. The latest generation Screw compressors and the new design optimized in every detail ensure the reach of the highest efficiency. Furthermore, accessories as the Inverter control on Screw compressors, on circulating pumps and EC Inverter on fans are also available for getting the highest efficiency at part load. The super silenced version, obtained through acoustic insulation on compressors and wider exchangers, is particularly suitable for installations where extremely quiet operation are essential for the ideal execution of the system.

The Microchannel condensing coils, available on dedicated versions, ensure an even higher efficiency (high EER), having a better heat exchange than traditional coils. A wide range of accessories, factory fitted or supplied separately, complete the outstanding versatility and functionality of the series.

Are available as option the new **EC Inverter fans with high available static pressure and efficiency**. The Heat Pump versions are designed for **hot water production up to 55 °C**.

FROM 263 KW TO 1533 KW.

### VERSION

<b>TWA</b>
Cooling only
<b>TWA/MC</b>
Cooling only with MICROCHANNEL condensing coils
<b>TWA/WP</b>
Reversible Heat Pump
<b>TWA/SSL</b>
Super silenced cooling only
<b>TWA/MC/SSL</b>
Super silenced cooling only with MICROCHANNEL condensing coils
<b>TWA/WP/SSL</b>
Super silenced reversible Heat Pump

### TWA 332÷1822 VV/J/A

On request, units can be supplied with **R513A** refrigerant.

### FEATURES

- Self-supporting galvanized steel frame protected with additional protection achieved via polyester powder painting.
- Screw compressors with built-in oil separator, suction filter, crankcase heater, oil sight glass, thermal protection and stepless capacity steps.
- Axial fans directly coupled to an electric motor with external rotor.
- Condenser made of copper tube and aluminum finned coils or aluminium MICROCHANNEL coils.
- Shell and tube evaporator with two independent circuits on the refrigerant side and one on the water side, complete with water differential pressure switch.
- Cooling circuit shut-off valves on discharge and liquid line.
- Electronic expansion valve.
- Electronic high and low pressure gauges.
- R134a refrigerant. On request R513A refrigerant.
- Electrical board includes: main switch with door safety interlock, fuses, thermal protection relays for compressors and thermocontacts for fans.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to 0 °C in cooling mode. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation and high and low pressure transducers on cooling circuit.
- Functioning in heating mode with outside air temperature down to -10 °C.
- Microprocessor control and regulation system.

### ACCESSORIES

#### FACTORY FITTED ACCESSORIES:

IM	Automatic circuit breakers
SL	Unit silencement
CC	Condensing control down to -20 °C
BT	Low water temperature kit
EC	EC Inverter fans
ECH	EC Inverter fans with high available static pressure
HR	Desuperheater
HRT/S	Total heat recovery in series
HRT/P	Total heat recovery in parallel
TX	Coil with pre-coated fins
TXB	Coil with epoxy treatment
EW	External water connections
SP	Inertial tank
PU	Single circulating pump
PUI	Inverter single circulating pump
PD	Double circulating pump
PDI	Inverter double circulating pump
SPU	Inertial tank and single circulating pump
SPUI	Inertial tank and Inverter single circulating pump

SPD	Inertial tank and double circulating pump	ISB	BACnet MSTP protocol, RS485 serial interface
SPDI	Inertial tank and Inverter double circulating pump	ISBT	BACnet TCP/IP protocol, Ethernet port
FE	Antifreeze heater for evaporator	ISL	LonWorks protocol, FTT-10 serial interface
FX	Antifreeze heater for evaporator and pipes	ISS	SNMP protocol, Ethernet port
FB	Antifreeze heater for evaporator/tank	IAV	Remote set-point, 0-10 V signal
FQ	Antifreeze heater on evaporator/tank and pipes	IAA	Remote set-point, 4-20 mA signal
FZ	Antifreeze heater for evaporator, single pump and pipes	IAS	Remote signal for second set-point activation
FH	Antifreeze heater for evaporator, double pump and pipes	IDL	Demand limit from digital input
FU	Antifreeze heater for evaporator/tank, single pump and pipes	CP	Potential free contacts
FD	Antifreeze heater for evaporator/tank, double pump and pipes		
II	Inverter on one compressor and soft start		
ID	Inverter on all compressors		
SS	Soft start		
WM	Web Monitoring - Wireless remote monitoring (GPRS/EDGE/3G/TCP-IP)		
IS	Modbus RTU protocol, RS485 serial interface		
IST	Modbus TCP/IP protocol, Ethernet port		

#### LOOSE ACCESSORIES:

MN	High and low pressure gauges
CR	Remote control panel
RP	Coils protection metallic guards
FP	Coils protection metallic guards with filter
AG	Rubber shock absorbers
AM	Spring shock absorbers
FL	Flow switch

## TECHNICAL DATA - TWA 332÷1822 VV/Y/A

MODEL			332	352	402	462	482	602	742	912	1202	1342	1522	1702	1822
Cooling STD versions	Cooling capacity (1)	kW	263	313	359	413	464	574	696	839	959	1136	1264	1398	1533
	Absorbed power (1)	kW	82	96	114	131	146	179	219	256	305	352	380	440	480
	EER (1)		3.21	3.26	3.15	3.15	3.18	3.21	3.18	3.28	3.14	3.23	3.33	3.18	3.19
Cooling STD versions (EN14511)	Cooling capacity (1)	kW	262	312	358	412	463	573	694	837	956	1132	1263	1397	1532
	Absorbed power (1)	kW	83	97	115	132	147	180	221	258	308	356	383	444	485
	EER (1)		3.16	3.22	3.11	3.12	3.15	3.18	3.14	3.24	3.10	3.18	3.3	3.15	3.16
	SEER (2)		4.13	4.25	4.22	4.14	4.18	4.19	4.11	4.25	4.3	4.23	4.24	4.17	4.22
	Energy Efficiency (2)	%	162	167	166	163	164	165	161	167	169	166	167	164	166
	SEER with EC or ECH accessory (2)		4.63	4.76	4.73	4.73	4.74	4.77	4.65	4.86	4.85	4.69	4.74	4.71	4.73
	Energy Efficiency with EC or ECH accessory (2)	%	182	187	186	186	187	188	183	191	191	185	187	185	186
Cooling MC versions	Cooling capacity (1)	kW	263	313	359	413	464	574	696	839	959	1136	1264	1398	1533
	Absorbed power (1)	kW	80	94	112	128	143	175	215	251	299	345	372	431	470
	EER (1)		3.29	3.33	3.21	3.23	3.24	3.28	3.24	3.34	3.21	3.29	3.4	3.24	3.26
Cooling MC versions (EN14511)	Cooling capacity (1)	kW	262	312	358	412	463	573	694	837	956	1132	1263	1397	1532
	Absorbed power (1)	kW	81	95	113	129	144	176	217	253	302	349	375	435	475
	EER (1)		3.23	3.28	3.17	3.19	3.22	3.26	3.20	3.31	3.17	3.24	3.37	3.21	3.23
	SEER con EC/ECH (2)		4.14	4.26	4.23	4.15	4.19	4.19	4.12	4.25	4.31	4.25	4.24	4.17	4.23
	Energy Efficiency (2)	%	163	167	166	163	165	165	162	167	169	167	167	164	166
	SEER with EC or ECH accessory (2)		4.64	4.77	4.74	4.74	4.75	4.78	4.66	4.87	4.86	4.7	4.75	4.72	4.74
	Energy Efficiency with EC or ECH accessory (2)	%	183	188	187	187	187	188	183	192	191	185	187	186	187
Heating STD versions	Heating capacity (3)	kW	272	324	372	428	480	594	721	869	993	1176	—	—	—
	Absorbed power (3)	kW	81	95	113	130	144	177	217	253	302	348	—	—	—
	COP (3)		3.36	3.41	3.29	3.29	3.33	3.36	3.32	3.43	3.29	3.38	—	—	—
Heating STD versions (EN14511)	Heating capacity (3)	kW	273	325	373	430	482	596	723	872	996	1180	—	—	—
	Absorbed power (3)	kW	83	97	116	133	147	181	222	259	309	356	—	—	—
	COP (3)		3.29	3.34	3.23	3.23	3.27	3.29	3.26	3.36	3.22	3.31	—	—	—
	SCOP (4)		3.20	3.32	3.34	3.33	3.32	3.34	3.32	3.36	3.32	3.36	—	—	—
Compressor	Energy Efficiency (4)	%	125	130	131	130	130	131	130	131	130	131	—	—	—
	Quantity	n°	2	2	2	2	2	2	2	2	2	2	2	2	2
	Refrigerant circuits	n°	2	2	2	2	2	2	2	2	2	2	2	2	2
Evaporator	Capacity steps	n°	Stepless												
	Water flow	l/s	12.57	14.95	17.15	19.73	22.17	27.42	33.25	40.09	45.82	54.28	60.39	66.79	73.24
	Pressure drops	kPa	30	26	49	44	34	28	42	34	39	48	38	46	59
Electrical characteristics	Water connections	DN	125	125	150	150	150	150	150	200	200	200	250	250	250
	Power supply	V/Ph/Hz	400/3/50												
	Max. running current	A	201	237	261	301	337	393	485	580	664	720	922	876	1002
Unit with tank and pump	Max. starting current	A	263	281	337	361	405	504	596	785	827	855	1267	1261	1379
	Pump available static pressure	kPa	130	150	155	140	175	160	165	145	120	160	140	95	180
	Tank water volume	l	2000	2000	2000	2000	2000	2000	3000	3000	—	—	—	—	—
Sound pressure	Water connections	DN	100	100	100	125	125	150	150	200	200	200	200	200	200
	STD versions (5)	dB(A)	76	76	76	76	77	76	77	77	77	78	79	79	80
	STD versions with SL accessory (5)	dB(A)	73	73	73	73	74	73	74	74	74	75	76	76	77
	SSL versions (5)	dB(A)	66	66	66	65	66	66	67	68	68	—	—	—	—
	MC versions (5)	dB(A)	75	75	75	75	76	75	76	76	76	77	78	78	79
	MC versions with SL accessory (5)	dB(A)	72	72	72	72	73	72	73	73	73	74	75	75	76
Weights	MC/SSL versions (5)	dB(A)	65	65	65	64	65	65	66	67	67	—	—	—	—
	Transport weight (6)	Kg	3562	3609	3708	4207	4782	5202	6496	7430	7484	8773	9640	10380	10800
	Operating weight (6)	Kg	3690	3740	3850	4390	5070	5540	6790	8070	8170	9230	10160	10890	11270

## DIMENSIONS

MODEL			332	352	402	462	482	602	742	912	1202	1342	1522	1702	1822
L	STD-MC	mm	4400	4400	5000	5550	6200	6700	8900	11100	11100	11100	13400	13400	13400
	SSL-MC/SSL	mm	5550	5550	5550	6700	8900	8900	11100	11100	11100	13400	—	—	—
	WP	mm	5550	5550	5550	7750	7750	8900	10050	13400	13400	13400	—	—	—
	WP/SSL	mm	7750	7750	7750	8900	10050	10050	13400	13400	13400	—	—	—	—
W	STD-SSL-MC-MC/SSL	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
	WP-WP/SSL	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	—	—	—
H	STD-MC	mm	2100	2100	2100	2100	2100	2100	2100	2100	2100	2500	2500	2500	2500
	SSL-MC/SSL	mm	2100	2100	2100	2100	2100	2100	2100	2500	2500	2500	—	—	—
	WP	mm	2100	2100	2100	2100	2100	2100	2100	2100	2100	2500	—	—	—
	WP/SSL	mm	2100	2100	2100	2100	2100	2100	2100	2500	2500	—	—	—	—

## CLEARANCE AREA

TWA 332÷1822 VV/Y/A

500 | 1800 | 1000 | 1800



Electrical board side

## NOTES

- Chilled water from 12 to 7 °C, ambient air temperature 35 °C.
  - Seasonal energy efficiency of cooling at low temperature. According to EU Regulation n. 2016/2281.
  - Heated water from 40 to 45 °C, ambient air temperature 7 °C d.b./6 °C w.b.
  - Seasonal energy efficiency of heating at low temperature with average climatic conditions. According to EU Regulation n. 813/2013.
  - Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.
  - Unit without tank and pump.
- N.B. Weights of SSL and WP versions are specified on technical brochure.  
N.B. Data of MC versions are specified on technical brochure.