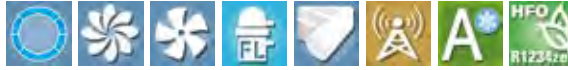


FROM 262 KW TO 1340 KW.

# CHA/TTH 1301-1÷4904-2

**A CLASS ENERGY EFFICIENCY AIRCOOLED LIQUID CHILLERS WITH AXIAL FANS, TURBOCOR (MAGNETIC LEVITATION) COMPRESSORS AND FLOODED SHELL AND TUBE EXCHANGER.**



The innovative CHA/TTH 1301-1÷4904-2 **TURBOLINE** units, with **HFO-R1234ze** refrigerant, are designed to provide an effective solution to highly selective system needs. The latest generation refrigerant HFO-R1234ze, with GWP<1 (Global Warming Potential), is the most environmentally sustainable refrigerant on the market, and meets the strictest international environmental regulations. Furthermore, thanks to Turbocor compressors, the units perform with top efficiency at partial loads, low inrush currents, an excellent silent functioning and reduced weight.

The use of TURBOCOR dynamic partial-load oil-free magnetic levitation compressors managed by the TURBOSOFT self-adaptive electronic control, of flooded shell and tube evaporator and innovative heat exchangers, traditional or Microchannel, results in a high energy efficiency with unequalled SEER values, with minimum water content, and an excellent silent functioning. Compared to traditional units, equipped with Screw compressors, TURBOLINE units have low operational costs during their entire operating period, even lower than 50%. Besides, the units are equipped with a WEB MONITORING system for the monitoring and remote management of the units through the GPRS/EDGE/3G/TCP-IP communication protocol. Users enabled to the use of this service can, by using a specific Web page, have access to the Monitoring, Managing and Statistics activities. Are available as option the new EC Inverter fans with high available static pressure and efficiency.

**TURBOLINE**  
**MICROCHANNEL**   
**HFO R1234ze**

**The units are compliant to the ErP 2021 Regulation.**

## VERSION

### CHA/TTH

Cooling only

### CHA/TTH/MC

Cooling only with MICROCHANNEL coils

## FEATURES

- Self-supporting galvanized steel frame protected with additional protection achieved via polyester powder painting.
- Semi-hermetic centrifugal compressors with dual Turbocor turbine, oil free, magnetic rising rotor, thermal protection, continuous capacity adjustment system thanks to built-in INVERTER, automatic anti-cavitation system. The power circuit of the compressor is fitted with a set of electrolytic condensers to control the rising in the event of a power failure, reactor for the power factor correction, EMI filter for electromagnetic compatibility.
- Axial fans directly coupled to an electric motor with external rotor.
- Condenser made of copper tube and aluminium finned coils or aluminium MICROCHANNEL coils.
- High efficiency flooded shell and tube type evaporator, with one or 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 suction, discharge and liquid line.
- Electronic expansion valve.
- Electronic high and low pressure gauges.
- HFO-R1234ze refrigerant.
- Electrical board includes: main on-off switch with door lock, fuses, electronic/digital overload device to protect the compressors and thermocontacts for fans, interface relay and terminals for external connections.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation, high and low pressure transducers on cooling circuit and an electrical heater on electrical board.
- TURBOSOFT control and regulation system is fitted with RS485 serial interface and Web Monitoring device for remote monitoring via GPRS/EDGE/3G/TCP-IP network.

## ACCESSORIES

### FACTORY FITTED ACCESSORIES

IM	Automatic circuit breakers
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
PU	Single circulating pump
PD	Double circulating pump
FE	Antifreeze heater for evaporator

FX	Antifreeze heater for evaporator and pipes
FZ	Antifreeze heater for evaporator, single pump and pipes
FH	Antifreeze heater for evaporator, double pump and pipes
TS	Touch screen Interface
IST	Modbus TCP/IP protocol, Ethernet port
ISB	BACnet MSTP protocol, RS485 serial interface
ISBT	BACnet TCP/IP protocol, Ethernet port
ISL	LonWorks protocol, FTT-10 serial interface
ISS	SNMP protocol, Ethernet port

IAV	Remote set-point, 0-10 V signal
IAA	Remote set-point, 4-20 mA signal
IAS	Remote signal for second set-point activation
IDL	Demand limit from digital input
CP	Potential free contacts

### LOOSE ACCESSORIES

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

MODEL			1301-1	1701-1	2802-1	3502-1	4103-1	4403-1	4904-1	2802-2	3502-2	4904-2
Cooling STD version	Cooling capacity (1)	kW	262	335	524	670	777	1000	1340	524	670	1340
	Absorbed power (1)	kW	76	94	154	191	228	280	377	154	193	381
	EER (1)		3.45	3.56	3.40	3.51	3.41	3.57	3.55	3.40	3.51	3.55
Cooling STD version (EN14511)	Cooling capacity (1)	kW	261	334	522	668	774	997	1336	523	668	1335
	Absorbed power (1)	kW	77	95	156	193	231	283	381	155	195	386
	EER (1)		3.39	3.52	3.35	3.46	3.35	3.52	3.51	3.37	3.46	3.51
	SEER (2)		5.50	5.73	5.52	5.70	5.60	5.88	5.86	5.52	5.70	5.59
	Energy Efficiency (2)	%	217	226	218	225	221	232	232	218	225	221
Cooling MC version	Cooling capacity (1)	kW	262	335	524	670	777	1000	1340	524	670	1340
	Absorbed power (1)	kW	72	89	145	181	216	264	356	145	183	360
	EER		3.64	3.76	3.59	3.70	3.60	3.79	3.76	3.59	3.70	3.76
Cooling MC version (EN14511)	Cooling capacity (1)	kW	259	334	518	668	774	997	1336	519	668	1335
	Absorbed power (1)	kW	73	90	147	183	219	267	360	146	185	365
	EER (1)		3.55	3.71	3.52	3.65	3.53	3.73	3.71	3.55	3.65	3.71
	SEER (2)		5.55	5.79	5.58	5.76	5.65	5.94	5.93	5.58	5.76	5.65
	Energy Efficiency (2)	%	219	229	220	227	223	235	234	220	227	223
Compressor	Quantity	n°	1	1	2	2	3	3	4	2	2	4
	Refrigerant circuits	n°	1	1	1	1	1	1	1	2	2	2
	Capacity steps	n°	Stepless									
Evaporator	Water flow	l/s	12.52	16.01	25.04	32.01	37.12	47.78	64.02	25.04	32.01	64.02
	Pressure drops	kPa	40	47	47	50	40	43	32	47	50	32
	Water connections	DN	100	100	125	125	150	150	150	125	125	150
Electrical characteristics	Power supply	V/Ph/Hz	400/3/50									
	Max. running current	A	173	173	339	347	505	520	678	339	347	678
	Max. starting current	A	25	25	191	199	357	372	530	191	199	530
Unit with pump	Pump available static pressure	kPa	140	120	110	125	105	120	145	110	125	145
	Water connections	DN	100	100	150	150	150	150	200	150	150	200
Sound pressure	STD version (3)	dB(A)	70	70	71	71	71	71	72	71	71	72
	MC version (3)	dB(A)	69	69	70	70	70	71	71	70	70	71
Weights	Transport weight	Kg	2610	3000	4050	4460	6050	6820	8100	4290	4700	8400
	Operating weight	Kg	2670	3070	4150	4580	6210	7010	8400	4390	4820	8700

DIMENSIONS			1301-1	1701-1	2802-1	3502-1	4103-1	4403-1	4904-1	2802-2	3502-2	4904-2
L	STD/MC	mm	4000	5000	6200	7200	8400	10050	11700	6200	7200	11700
W	STD/MC	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
H	STD/MC	mm	2100	2100	2100	2100	2500	2500	2500	2100	2100	2500

CLEARANCE AREA

CHA/TTH 1301-1÷4904-2

500 | 1800 | 1000 | 1800



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.
  - Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.
- N.B. Data of MC version are specified on technical brochure.

FROM 279 KW TO 1386 KW.

# CHA/TTH/FC 1301-1÷4904-2

**AIRCOOLED LIQUID CHILLERS FREE-COOLING WITH AXIAL FANS, TURBOCOR (MAGNETIC LEVITATION) COMPRESSORS AND FLOODED SHELL AND TUBE EXCHANGER.**



The innovative CHA/TTH/FC 1301-1 ÷4904-2 **TURBOLINE** units, with **HFO-R1234ze** refrigerant and **FREE-COOLING** technology, are designed to provide an effective solution to installation requirements of large areas, both commercial and industrial, where the production of chilled water is required in continuous service throughout the year. The latest generation refrigerant HFO-R1234ze, with GWP<1 (Global Warming Potential), is the most environmentally sustainable refrigerant on the market, and meets the strictest international environmental regulations. Furthermore, thanks to Turbocor compressors, the units perform with top efficiency at partial loads, low inrush currents, an excellent silent functioning and reduced weight. The unit, designed with specific attention to every aspect of construction and combined with the use of TURBOCOR dynamic partialization oil-free magnetic levitation compressors - managed by the TURBOSOFT self-adaptive electronic control - and with the use of flooded shell and tube evaporator, achieves a high rate of energy efficiency, with unequalled SEPR values, with minimum water content, and an excellent silent functioning. Depending on outside air temperature, the microprocessor controller manages the functioning in CHILLER, FREE-COOLING or MIXED (both CHILLER and FREE-COOLING) mode. The units are also equipped with a WEB MONITORING system for the monitoring and remote management of the units through the communication protocol GPRS/EDGE/3G/TCP-IP. Users enabled to the use of this service can, by using a specific Web page, have access to the Monitoring, Managing and Statistics activities. Are available as option the new EC Inverter fans with high available static pressure and efficiency.

**The units are compliant to the ErP 2021 Regulation for process cooling application.**

  
**TURBOLINE**  
**FREE COOLING**   
**HFO R1234ze** 

## VERSION

**CHA/TTH/FC**

Cooling only

## FEATURES

- Self-supporting galvanized steel frame protected with additional protection achieved via polyester powder painting.
- Semi-hermetic centrifugal compressors with dual Turbocor turbine, oil free, magnetic rising rotor, thermal protection, continuous capacity adjustment system thanks to built-in INVERTER, automatic anti-cavitation system. The power circuit of the compressor is fitted with a set of electrolytic condensers to control the rising in the event of a power failure, reactor for the power factor correction, EMI filter for electromagnetic compatibility.
- Axial fans directly coupled to an electric motor with external rotor.
- Condenser made of copper tubes and aluminium finned coils combined with FREE-COOLING coils.
- High efficiency flooded shell and tube type evaporator, with one or 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 suction, discharge and liquid line.
- Electronic expansion valve.
- Electronic high and low pressure gauges.
- HFO-R1234ze refrigerant.
- Electrical board includes: main on-off switch with door lock, fuses, electronic/digital overload device to protect the compressors and thermocontacts for fans, interface relay and terminals for external connections.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation, high and low pressure transducers on cooling circuit and an electrical heater on electrical board.
- TURBOSOFT control and regulation system is fitted with RS485 serial interface and Web Monitoring device for remote monitoring via GPRS/EDGE/3G/TCP-IP network.

## ACCESSORIES

### FACTORY FITTED ACCESSORIES

IM	Automatic circuit breakers
EC	EC Inverter fans
ECH	EC Inverter fans with high available static pressure
HRT/P	Total heat recovery in parallel
TX	Coil with pre-coated fins
PU	Single circulating pump
PD	Double circulating pump
TS	Touch screen Interface

IST	Modbus TCP/IP protocol, Ethernet port
ISB	BACnet MSTP protocol, RS485 serial interface
ISBT	BACnet TCP/IP protocol, Ethernet port
ISL	LonWorks protocol, FTT-10 serial interface
ISS	SNMP protocol, Ethernet port
IAV	Remote set-point, 0-10 V signal
IAA	Remote set-point, 4-20 mA signal

IAS	Remote signal for second set-point activation
IDL	Demand limit from digital input
CP	Potential free contacts

### LOOSE ACCESSORIES

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

# CHA/TTH/FC 1301-1÷4904-2

MODEL			1301-1	1701-1	2802-1	3502-1	4103-1	4403-1	4904-1	2802-2	3502-2	4904-2
Cooling	Cooling capacity (1)	kW	279	348	554	698	837	1040	1386	554	698	1386
	Absorbed power (1)	kW	75	95	160	193	242	283	387	160	193	387
	EER (1)		3.72	3.66	3.46	3.62	3.46	3.67	3.58	3.46	3.62	3.58
Cooling (EN14511)	Cooling capacity (1)	kW	277	345	551	694	831	1031	1366	551	694	1366
	Absorbed power (1)	kW	77	98	163	198	248	292	407	163	198	407
	EER (1)		3.60	3.52	3.38	3.51	3.35	3.53	3.36	3.38	3.51	3.36
Free-Cooling cycle	SEPR (2)		7.35	7.30	7.13	7.25	7.42	7.43	7.43	7.13	7.25	7.45
	Air temperature (3)	°C	3.0	2.5	1.5	-1.0	0.0	0.5	-1.0	1.5	-1.0	-1.0
	Absorbed power (3)	kW	10.8	14.4	21.6	21.6	25.2	32.4	36.0	21.6	21.6	36.0
Compressor	Quantity	n°	1	1	2	2	3	3	4	2	2	4
	Refrigerant circuits	n°	1	1	1	1	1	1	1	2	2	2
	Capacity steps	n°	Stepless									
Water circuit	Water flow	l/s	14.42	17.98	28.63	36.07	43.26	53.75	71.63	28.63	36.07	71.63
	Pressure drops	kPa	88	103	78	94	101	142	253	78	94	253
	Water connections	DN	100	100	125	125	150	150	150	125	125	150
Electrical characteristics	Power supply	V/Ph/Hz	400/3/50									
	Max. running current	A	173	181	347	347	505	520	678	347	347	678
	Max. starting current	A	25	33	199	199	357	372	530	199	199	530
Unit with pump	Pump available static pressure	kPa	140	125	110	180	150	150	160	110	180	160
	Water connections	DN	100	100	150	150	150	150	200	150	150	200
Sound pressure (4)		dB(A)	69	70	71	71	71	71	72	71	71	72
Weights	Transport weight	Kg	3620	3730	5560	5640	7890	8910	10800	5740	5820	11000
	Operating weight	Kg	3900	4030	6040	6160	8610	9810	11840	6220	6340	12040

DIMENSIONS			1301-1	1701-1	2802-1	3502-1	4103-1	4403-1	4904-1	2802-2	3502-2	4904-2
L	STD	mm	5000	5000	7200	7200	8400	10050	11700	7200	7200	11700
W	STD	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
H	STD	mm	2360	2360	2360	2360	2750	2750	2750	2360	2360	2750

## CLEARANCE AREA

CHA/TTH/FC 1301-1÷4904-2

500 | 1800 | 1000 | 1800



## NOTES

- Chilled water (with ethylene glycol at 30%) from 15 to 10 °C, ambient air temperature 35 °C.
- Seasonal energy efficiency of process cooling at high temperature. According to EU Regulation n. 2016/2281.
- Ambient air temperature at which the cooling capacity indicated in point (1) is reached.
- Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.

FROM 248 KW TO 1456 KW.

# CHA/TTY 1301-1÷5004-2

**A CLASS ENERGY EFFICIENCY AIRCOOLED LIQUID CHILLERS WITH AXIAL FANS, TURBOCOR (MAGNETIC LEVITATION) COMPRESSORS AND FLOODED SHELL AND TUBE EXCHANGER.**



The innovative CHA/TTY 1301-1÷5004-2 **TURBOLINE** units, with R134a refrigerant, are designed to provide an effective solution to highly selective system needs. Efficiency at partial loads, low inrush currents, an excellent silent functioning, reduced weight and the specific design and handling of every manufacturing aspect make the TURBOLINE series the top unit of the range.

The use of TURBOCOR dynamic partial-load oil-free magnetic levitation compressors managed by the TURBOSOFT self-adaptive electronic control, of flooded shell and tube evaporator and innovative heat exchangers, traditional or Microchannel, results in a high energy efficiency with unequalled SEER values, with minimum water content, and an excellent silent functioning. Compared to traditional units, equipped with Screw compressors, TURBOLINE units have low operational costs during their entire operating period, even lower than 50%. Besides, the units are equipped with a WEB MONITORING system for the monitoring and remote management of the units through the GPRS/EDGE/3G/TCP-IP communication protocol. Users enabled to the use of this service can, by using a specific Web page, have access to the Monitoring, Managing and Statistics activities.

Are available as option the new EC Inverter fans with high available static pressure and efficiency.



**The units are compliant to the ErP 2021 Regulation.**

On request, units can be supplied with **R513A** refrigerant (**CHA/TTJ 1301-1÷5004-2**).

## VERSION

**CHA/TTY**

**CHA/TTY/MC**

Cooling only

Cooling only with MICROCHANNEL coils

## FEATURES

- Self-supporting galvanized steel frame protected with additional protection achieved via polyester powder painting.
- Semi-hermetic centrifugal compressors with dual Turbocor turbine, oil free, magnetic rising rotor, thermal protection, continuous capacity adjustment system thanks to built-in INVERTER, automatic anti-cavitation system. The power circuit of the compressor is fitted with a set of electrolytic condensers to control the rising in the event of a power failure, reactor for the power factor correction, EMI filter for electromagnetic compatibility.
- Axial fans directly coupled to an electric motor with external rotor.
- Condenser made of copper tube and aluminium finned coils or aluminium MICROCHANNEL coils.
- High efficiency flooded shell and tube type evaporator, with one or 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 suction, discharge and liquid line.
- Electronic expansion valve.
- Electronic high and low pressure gauges.
- R134a refrigerant. On request R513A refrigerant.
- Electrical board includes: main on-off switch with door lock, fuses, electronic/digital overload device to protect the compressors and thermocontacts for fans, interface relay and terminals for external connections.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation, high and low pressure transducers on cooling circuit and an electrical heater on electrical board.
- TURBOSOFT control and regulation system is fitted with RS485 serial interface and Web Monitoring device for remote monitoring via GPRS/EDGE/3G/TCP-IP network.

## ACCESSORIES

### FACTORY FITTED ACCESSORIES

IM	Automatic circuit breakers
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
PU	Single circulating pump
PD	Double circulating pump
FE	Antifreeze heater for evaporator

FX	Antifreeze heater for evaporator and pipes
FZ	Antifreeze heater for evaporator, single pump and pipes
FH	Antifreeze heater for evaporator, double pump and pipes
TS	Touch screen Interface
IST	Modbus TCP/IP protocol, Ethernet port
ISB	BACnet MSTP protocol, RS485 serial interface
ISBT	BACnet TCP/IP protocol, Ethernet port
ISL	LonWorks protocol, FT-10 serial interface
ISS	SNMP protocol, Ethernet port

IAV	Remote set-point, 0-10 V signal
IAA	Remote set-point, 4-20 mA signal
IAS	Remote signal for second set-point activation
IDL	Demand limit from digital input
CP	Potential free contacts

### LOOSE ACCESSORIES

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

# CHA/TTY 1301-1÷5004-2



MODEL		1301-1	1401-1	1701-1	2201-1	2602-1	3302-1	4002-1	4302-1	4603-1	
Cooling STD version	Cooling capacity (1)	kW	248	282	335	403	509	627	770	929	1075
	Absorbed power (1)	kW	73	81	97	116	145	185	221	274	311
	EER (1)		3.40	3.48	3.45	3.47	3.51	3.39	3.48	3.39	3.46
Cooling STD version (EN14511)	Cooling capacity (1)	kW	247	281	334	402	507	624	767	925	1072
	Absorbed power (1)	kW	74	82	98	117	147	188	224	278	315
	EER (1)		3.32	3.43	3.40	3.42	3.46	3.33	3.43	3.32	3.41
	SEER (2)		4.88	5.06	5.07	5.18	5.14	5.16	5.34	5.29	5.36
	Energy Efficiency (2)	%	192	199	200	204	203	203	211	209	211
Cooling MC version	Cooling capacity (1)	kW	248	282	335	403	509	627	770	929	1075
	Absorbed power (1)	kW	64	73	86	106	132	163	198	243	281
	EER		3.88	3.86	3.90	3.80	3.86	3.85	3.89	3.82	3.83
Cooling MC version (EN14511)	Cooling capacity (1)	kW	248	282	335	403	509	627	770	929	1075
	Absorbed power (1)	kW	64	73	86	106	132	163	198	243	281
	EER (1)		3.88	3.86	3.90	3.80	3.86	3.85	3.89	3.82	3.83
	SEER (2)		4.93	5.11	5.12	5.23	5.19	5.22	5.40	5.34	5.41
	Energy Efficiency (2)	%	194	201	202	206	205	206	213	211	213
Compressor	Quantity	n°	1	1	1	1	2	2	2	2	3
	Refrigerant circuits	n°	1	1	1	1	1	1	1	1	1
	Capacity steps		Stepless								
Evaporator	Water flow	l/s	11.85	13.47	16.01	19.25	24.32	29.96	36.79	44.39	51.36
	Pressure drops	kPa	64	40	40	35	44	56	46	68	46
	Water connections	DN	100	100	100	125	125	150	150	150	150
Electrical characteristics	Power supply	V/Ph/Hz	400/3/50								
	Max. running current	A	168	168	168	262	329	337	509	517	763
	Max. starting current	A	25	25	25	33	186	194	280	288	534
Unit with pump	Pump available static pressure	kPa	150	200	195	165	175	145	155	120	170
	Water connections	DN	100	100	100	125	125	150	150	150	150
Sound pressure	STD version (3)	dB(A)	69	69	69	69	70	70	70	69	70
	MC version (3)	dB(A)	68	68	68	68	69	69	69	68	69
Weights	Transport weight	Kg	2440	2440	2770	2790	3685	4020	4055	5710	6460
	Operating weight	Kg	2510	2510	2900	2920	3825	4170	4225	5910	6680

MODEL		4804-1	5004-1	2602-2	3302-2	4002-2	4302-2	4604-2	4804-2	5004-2	
Cooling STD version	Cooling capacity (1)	kW	1260	1456	509	627	770	929	1075	1260	1456
	Absorbed power (1)	kW	362	433	145	185	221	274	309	362	433
	EER (1)		3.48	3.36	3.51	3.39	3.48	3.39	3.48	3.48	3.36
Cooling STD version (EN14511)	Cooling capacity (1)	kW	1256	1450	507	624	767	925	1072	1256	1450
	Absorbed power (1)	kW	366	439	147	188	224	278	312	366	439
	EER (1)		3.43	3.31	3.46	3.33	3.43	3.32	3.43	3.43	3.31
	SEER (2)		5.40	5.25	5.14	5.16	5.34	5.29	5.36	5.40	5.25
	Energy Efficiency (2)	%	213	207	203	203	211	209	211	213	207
Cooling MC version	Cooling capacity (1)	kW	1260	1456	509	627	770	929	1075	1260	1456
	Absorbed power (1)	kW	328	381	132	163	198	243	279	328	381
	EER		3.84	3.82	3.86	3.85	3.89	3.82	3.85	3.84	3.82
Cooling MC version (EN14511)	Cooling capacity (1)	kW	1260	1456	509	627	770	929	1075	1260	1456
	Absorbed power (1)	kW	328	381	132	163	198	243	279	328	381
	EER (1)		3.84	3.82	3.86	3.85	3.89	3.82	3.85	3.84	3.82
	SEER (2)		5.46	5.31	5.19	5.22	5.4	5.34	5.41	5.46	5.31
	Energy Efficiency (2)	%	215	209	205	206	213	211	213	215	209
Compressor	Quantity	n°	4	4	2	2	2	2	4	4	4
	Refrigerant circuits	n°	1	1	2	2	2	2	2	2	2
	Capacity steps		Stepless								
Evaporator	Water flow	l/s	60.20	69.56	24.32	29.96	36.79	44.39	51.36	60.20	69.56
	Pressure drops	kPa	50	59	44	56	46	68	41	50	59
	Water connections	DN	200	200	125	150	150	150	150	200	200
Electrical characteristics	Power supply	V/Ph/Hz	400/3/50								
	Max. running current	A	658	1002	329	337	509	517	650	658	1002
	Max. starting current	A	515	773	186	194	280	288	507	515	773
Unit with pump	Pump available static pressure	kPa	220	185	175	145	155	120	170	220	185
	Water connections	DN	200	200	125	150	150	150	150	200	200
Sound pressure	STD version (3)	dB(A)	71	71	70	70	70	69	70	71	71
	MC version (3)	dB(A)	70	70	69	69	69	68	69	70	70
Weights	Transport weight	Kg	7430	7640	3700	4250	4270	5820	6690	7570	7850
	Operating weight	Kg	7660	7880	3845	4405	4445	6030	6915	7805	8095

DIMENSIONS		1301-1	1401-1	1701-1	2201-1	2602-1	3302-1	4002-1	4302-1	4603-1	4804-1	5004-1	2602-2	3302-2	4002-2	4302-2	4604-2	4804-2	5004-2
L	STD/MC mm	4000	4000	5000	5000	6200	7200	7200	8400	10050	11100	11100	6200	7200	7200	8400	10050	11100	11100
W	STD/MC mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
H	STD/MC mm	2100	2100	2100	2100	2100	2100	2100	2500	2500	2500	2500	2100	2100	2100	2500	2500	2500	2500

## CLEARANCE AREA

CHA/TTY 1301-1÷5004-2

500 | 1800 | 1000 | 1800



## 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.
  - Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.
- N.B. Data of MC version are specified on technical brochure.



FROM 246 KW TO 1443 KW.

# CHA/TTY/FC 1301-1÷5004-2

**AIRCOOLED LIQUID CHILLERS FREE-COOLING WITH AXIAL FANS, TURBOCOR (MAGNETIC LEVITATION) COMPRESSORS AND FLOODED SHELL AND TUBE EXCHANGER.**



The innovative CHA/TTY/FC 1301-1÷5004-2 **TURBOLINE** units, with R134a refrigerant and FREE-COOLING technology, are designed to provide an effective solution to installation requirements of large areas, both commercial and industrial, where the production of chilled water is required in continuous service throughout the year. The unit, designed with specific attention to every aspect of construction and combined with the use of TURBOCOR dynamic partialization oil-free magnetic levitation compressors - managed by the TURBOSOFT self-adaptive electronic control - and with the use of flooded shell and tube evaporator, achieves a high rate of energy efficiency, with unequalled SEPR values, with minimum water content, and an excellent silent functioning. Depending on outside air temperature, the microprocessor controller manages the functioning in CHILLER, FREE-COOLING or MIXED (both CHILLER and FREE-COOLING) mode. The units are also equipped with a WEB MONITORING system for the monitoring and remote management of the units through the communication protocol GPRS/EDGE/3G/TCP-IP. Users enabled to the use of this service can, by using a specific Web page, have access to the Monitoring, Managing and Statistics activities.

Are available as option the new EC Inverter fans with high available static pressure and efficiency.

**The units are compliant to the ErP 2021 Regulation for process cooling application.**

On request, units can be supplied with **R513A** refrigerant (**CHA/TTJ/FC 1301-1÷5004-2**).



## VERSION

**CHA/TTY/FC**

Cooling only

## FEATURES

- Self-supporting galvanized steel frame protected with additional protection achieved via polyester powder painting.
- Semi-hermetic centrifugal compressors with dual Turbocor turbine, oil free, magnetic rising rotor, thermal protection, continuous capacity adjustment system thanks to built-in INVERTER, automatic anti-cavitation system. The power circuit of the compressor is fitted with a set of electrolytic condensers to control the rising in the event of a power failure, reactor for the power factor correction, EMI filter for electromagnetic compatibility.
- Axial fans directly coupled to an electric motor with external rotor.
- Condenser made of copper tubes and aluminium finned coils combined with FREE-COOLING coils.
- High efficiency flooded shell and tube type evaporator, with one or 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 suction, discharge and liquid line.
- Electronic expansion valve.
- Electronic high and low pressure gauges.
- R134a refrigerant. On request R513A refrigerant.
- Electrical board includes: main on-off switch with door lock, fuses, electronic/digital overload device to protect the compressors and thermocontacts for fans, interface relay and terminals for external connections.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation, high and low pressure transducers on cooling circuit and an electrical heater on electrical board.
- TURBOSOFT control and regulation system is fitted with RS485 serial interface and Web Monitoring device for remote monitoring via GPRS/EDGE/3G/TCP-IP network.

## ACCESSORIES

### FACTORY FITTED ACCESSORIES

IM	Automatic circuit breakers
EC	EC Inverter fans
ECH	EC Inverter fans with high available static pressure
HRT/P	Total heat recovery in parallel
TX	Coil with pre-coated fins
PU	Single circulating pump
PD	Double circulating pump
TS	Touch screen Interface
IST	Modbus TCP/IP protocol, Ethernet port

ISB	BACnet MSTP protocol, RS485 serial interface
ISBT	BACnet TCP/IP protocol, Ethernet port
ISL	LonWorks protocol, FTT-10 serial interface
ISS	SNMP protocol, Ethernet port
IAV	Remote set-point, 0-10 V signal
IAA	Remote set-point, 4-20 mA signal
IAS	Remote signal for second set-point activation
IDL	Demand limit from digital input
CP	Potential free contacts

### LOOSE ACCESSORIES

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

MODEL			1301-1	1401-1	1701-1	2201-1	2602-1	3302-1	4002-1	4302-1	4603-1
Cooling	Cooling capacity (1)	kW	246	281	333	400	495	588	696	869	1046
	Absorbed power (1)	kW	71	80	94	116	143	171	204	257	307
	EER (1)		3.46	3.51	3.54	3.45	3.46	3.44	3.41	3.38	3.41
Cooling (EN14511)	Cooling capacity (1)	kW	244	279	331	397	491	582	690	861	1033
	Absorbed power (1)	kW	73	82	96	119	147	177	210	265	321
	EER (1)		3.34	3.40	3.45	3.34	3.34	3.29	3.29	3.25	3.22
Free-Cooling cycle	SEPR (2)		7.29	7.38	7.07	7.02	7.40	7.19	7.04	7.23	7.04
	Air temperature (3)	°C	-2.5	0.5	-2.9	0.0	-2.8	-2.3	-0.5	-0.2	1.0
	Absorbed power (3)	kW	10.8	10.8	10.8	14.4	18.0	21.6	21.6	25.2	32.4
Compressor	Quantity	n°	1	1	1	1	2	2	2	2	3
	Refrigerant circuits	n°	1	1	1	1	1	1	1	1	1
	Capacity steps	n°	Stepless								
Water circuit	Water flow	l/s	12.69	14.50	17.18	20.64	25.54	30.34	35.91	44.84	53.97
	Pressure drops	kPa	92	97	88	105	115	155	125	144	220
	Water connections	DN	100	100	100	125	125	150	150	150	150
Electrical characteristics	Power supply	V/Ph/Hz	400/3/50								
	Max. running current	A	168	168	168	262	329	337	509	517	763
	Max. starting current	A	25	25	25	33	186	194	280	288	534
Unit with pump	Pump available static pressure	kPa	135	125	115	110	150	140	155	105	160
	Water connections	DN	100	100	100	125	125	150	150	150	150
Sound pressure (4)		dB(A)	68	68	69	69	69	70	70	69	70
Weights	Transport weight	Kg	3040	3200	3600	3700	4620	5150	5500	7700	8800
	Operating weight	Kg	3180	3360	3810	3930	4850	5400	5810	8080	9250

MODEL			4804-1	5004-1	2602-2	3302-2	4002-2	4302-2	4604-2	4804-2	5004-2
Cooling	Cooling capacity (1)	kW	1229	1443	495	588	696	869	981	1229	1443
	Absorbed power (1)	kW	357	425	143	171	204	257	280	357	425
	EER (1)		3.44	3.40	3.46	3.44	3.41	3.38	3.50	3.44	3.40
Cooling (EN14511)	Cooling capacity (1)	kW	1211	1421	491	582	690	861	970	1211	1421
	Absorbed power (1)	kW	375	447	147	177	210	265	291	375	447
	EER (1)		3.23	3.18	3.34	3.29	3.29	3.25	3.33	3.23	3.18
Free-Cooling cycle	SEPR (2)		7.23	7.22	7.40	7.19	7.04	7.23	7.04	7.23	7.22
	Air temperature (3)	°C	1.0	1.0	-2.8	-2.3	-0.5	-0.2	1.5	1.0	1.0
	Absorbed power (3)	kW	36.0	36.0	18.0	21.6	21.6	25.2	32.4	36.0	36.0
Compressor	Quantity	n°	4	4	2	2	2	2	4	4	4
	Refrigerant circuits	n°	1	1	2	2	2	2	2	2	2
	Capacity steps	n°	Stepless								
Water circuit	Water flow	l/s	63.42	74.46	25.54	30.34	35.91	44.84	50.62	63.42	74.46
	Pressure drops	kPa	256	275	115	155	125	144	188	256	275
	Water connections	DN	200	200	125	150	150	150	150	200	200
Electrical characteristics	Power supply	V/Ph/Hz	400/3/50								
	Max. running current	A	658	1002	329	337	509	517	650	658	1002
	Max. starting current	A	515	773	186	194	280	288	507	515	773
Unit with pump	Pump available static pressure	kPa	205	145	150	140	155	105	200	205	145
	Water connections	DN	200	200	125	150	150	150	150	200	200
Sound pressure (4)		dB(A)	70	70	69	70	70	69	70	70	70
Weights	Transport weight	Kg	10000	10300	4700	5400	5700	7800	9100	10200	10500
	Operating weight	Kg	10480	10790	4930	5650	6010	8180	9550	10680	10990

DIMENSIONS			1301-1	1401-1	1701-1	2201-1	2602-1	3302-1	4002-1	4302-1	4603-1
L	STD	mm	4000	4000	5000	5000	6200	7200	7200	8400	10050
W	STD	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200
H	STD	mm	2360	2360	2360	2360	2360	2360	2360	2750	2750

DIMENSIONS			4804-1	5004-1	2602-2	3302-2	4002-2	4302-2	4604-2	4804-2	5004-2
L	STD	mm	11100	11100	6200	7200	7200	8400	10050	11100	11100
W	STD	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200
H	STD	mm	2750	2750	2360	2360	2360	2750	2750	2750	2750

## CLEARANCE AREA

CHA/TTY/FC 1301-1÷5004-2

500 | 1800 | 1000 | 1800



## NOTES

1. Chilled water (with ethylene glycol at 30%) from 15 to 10 °C, ambient air temperature 35 °C.
2. Seasonal energy efficiency of process cooling at high temperature. According to EU Regulation n. 2016/2281.
3. Ambient air temperature at which the cooling capacity indicated in point (1) is reached.
4. Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.