

ZEUS

Turbocor Chiller

The New
Frontier
of **Chilling**



EUROKLIMAT®
Cooling System Solutions

Range

Three different versions



Water Cooled



Air Cooled



Free Cooling

R134a R513A **44 models 270÷4200 kW**

HFO
1234ze **18 models 230÷2340 kW**

- Models suitable to high condensing temperature
- Wide customization

EER up to 6.00 | ESEER up to 9.69 | IPLV up to 10.51

R134a R513A **13 models 250÷1400 kW**

HFO
1234ze **14 models 190÷1280 kW**

- Full capacity for air temperature up to 45°C
- Modular V shape condenser with microchannels coils & EC fans
- Low Noise & Extra Low Noise versions available

EER up to 3.72 | ESEER up to 5.30 | IPLV up to 6.08

R134a R513A **250÷1400 kW**

HFO
1234ze **190÷1280 kW**

- Free cooling version of air cooled chillers
- Widest exploitation of free cooling for the greatest savings

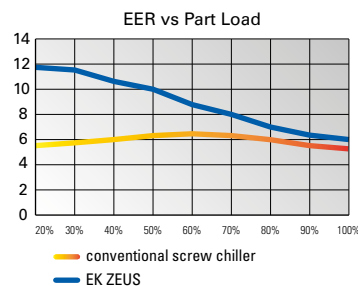
Benefits

The Revolutionary
Technological Choice



Lowest Operating Costs

Great Energy savings for both water and air cooled versions



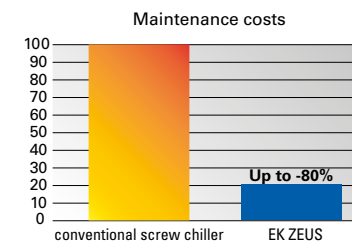
Low Noise

Extremely silent:
Lw < 88 dB (A) @ 270 kW
Lw < 97 dB (A) @ 4200kW



Low Maintenance & Installation Costs

- Low refrigerant content
- NO inrush current (<2A)
- NO oil changes
- NO oil reservoirs
- NO issues due to oil return
- NO reduction of heat transfer
- NO friction on bearings
- Easiest accessibility
- Auto-diagnosis features



High Reliability

- Top quality components
- Full serviceability
- Compressors redundancy
- Remote control

Benefit for the main applications



Process Cooling

- Greatest levels of ROI, thanks to intensive use
- Redundancy to ensure equipment operability
- Low maintenance costs
- Fast restart capability
- Lower costs for cables and generators
- Unbeatable performances at partial loads and/or higher design chilled water temperature



Comfort Cooling

- Best energy performances for strongly variable cooling demand
- Short pay-back periods
- Highest level of comfort
- Low noise impact

Main features

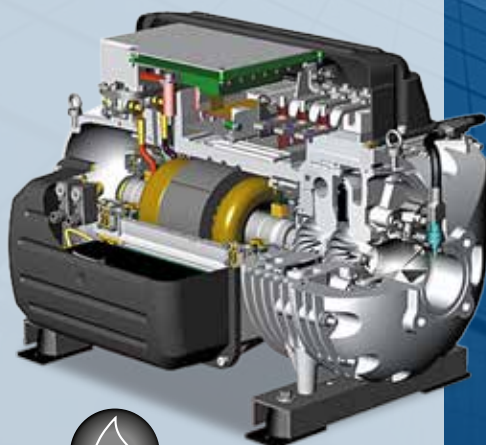
Only cutting-edge technology

TURBO



Oil free, double stage centrifugal compressors are the heart of the chiller

- High-efficient
- Extremely silent
- Lightweight
- No-inrush current ($< 2 \text{ A}$)



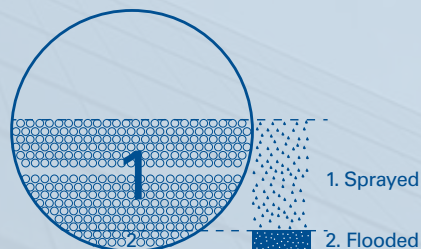
OIL FREE

FL SPRAY



Flooded evaporator with patented "spray system" offers great performances at all loads and some unique features:

- High heat transfer (approach $< 1.0 \text{ K}$)
- Reduced refrigerant content ($\sim 70\%$)
- Low water pressure drops
- Water flow modulation allowed



S & T



Water cooled uses S&T condensers are made of high efficiency tubes

- High heat transfer (approach $< 1.2 \text{ K}$)
- 2-Passes or 4-passes
- Low water pressure drops
- Water boxes as option
- Marine version as option



Main features

Only cutting-edge
technology

MCX



Air cooled & free cooling chillers are equipped with microchannels coils

- Extremely low refrigerant content
- Higher heat transfer & lower air pressure drops
- High resistance against corrosion
- Lightweight & fully recyclable



EC FAN



To exalt air performances of air cooled & free cooling chillers, ZEUS Turbocor chillers uses axial EC fans with outlet diffuser as standard:

- Higher air volume
- Top efficiency
- Extremely silent



ECO



In many models, high-efficiency BPHEs are combined to each compressor:

- Low refrigerant pressure drops
- Up to +12% in chiller capacity
- Up to +8% in chiller efficiency



ExV



For a perfect control of the refrigerant flow, ZEUS Turbocor chillers adopt:

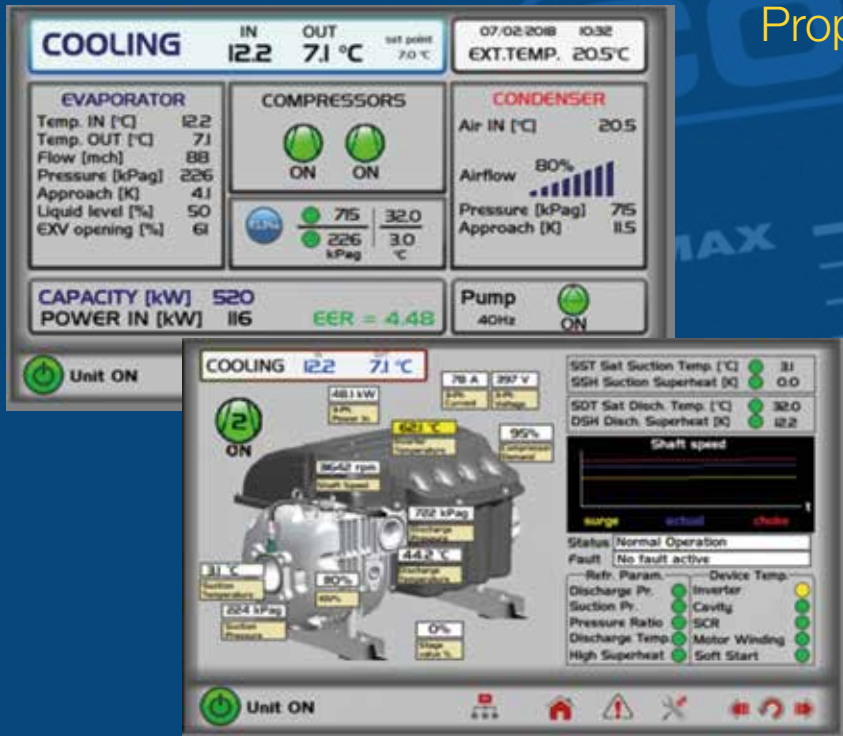
- Single or twin electronic expansion valve
- PID controller
- Perfect liquid level control in all conditions



Advanced Control

Maximum focus
on efficiency

Proprietary software
& HW layout



Main Features

ZEUS Turbocor chillers are equipped with an advanced proprietary software.

Hardware architecture reflects the need of advanced performances:

- Main PLC for chiller control
- Additional PLC for compressors management
- Individual Drivers for EXVs
- Touch screen display 7"

All devices are fed by UPS, allowing the fastest restart of the machine after a power outage.

- Easy integration of additional devices:
 - centrifugal VSD pumps
 - condensing control valves
 - cooling towers / dry coolers / hybrid coolers
- Automatic strategies to start and manage the machine at severe operating conditions
- Advanced functionality of self-diagnosis: each component is constantly monitored with respect to its optimal behavior
- High connectivity features for BMS integration & remote control
- These features facilitate the commissioning of the chiller and grant the best conduction of the machine both in terms of reliability either performances.

Main applications

Solutions
for every need

Shopping centres



Hospitals and clinics



Laboratories



Offices and business centres



Cinemas and theatres



Factories



Hotels



Data Center



School & University



ZEUS

Water Cooled



R134a

Refrigerant
R134a | GWP=1.430

R513A

Refrigerant
R513A | GWP=573

Compressors	Models	Cooling capacity		Nr. circuits		Max Dimensions			Operating weight		Sound power		MOC ⁽¹⁾	
nr.	nr.	kW				mm			kg		Lw dB(A)		A	
		min.	max	min.	max	L	W	H	min.	max	min.	max	min.	max
1	8	270	700	1	1	2.410	1.360	1.930	1.835	2.520	88	91	140	215
2	8	540	1.400	1	2	3.570	1.565	2.045	2.810	4.205	90	93	275	425
3	6	1.140	2.100	1	1	4.825	1.740	2.160	4.470	5.480	91	94	515	635
4	8	1.080	2.800	1	2	4.825	1.825	2.230	4.555	6.650	92	95	545	845
5	7	1.350	3.500	1	1	4.825	1.975	2.350	5.280	7.825	92	96	680	1.055
6	7	1.860	4.200	1	2	6.315	2.030	2.350	6.525	10.000	93	96	815	1.265

⁽¹⁾ Maximum Operating Current, referred to standard voltage 400 V / 3 ph / 50 Hz

Please refer to ZEUS Turbocor Chiller Selection Software for detailed data sheet and performances at the desired design operating conditions.

HFO
1234zeRefrigerant
R1234ze | GWP<1

Compressors	Models	Cooling capacity		Nr. circuits		Max Dimensions			Operating weight		Sound power		MOC ⁽¹⁾	
nr.	nr.	kW				mm			kg		Lw dB(A)		A	
		min.	max	min.	max	L	W	H	min.	max	min.	max	min.	max
1	3	230	390	1	1	2.410	1.270	1.985	1.770	2.130	86	88	100	155
2	3	460	780	1	2	3.570	1.385	2.100	2.430	3.205	89	91	195	305
3	3	690	1.170	1	1	4.825	1.560	2.100	3.060	3.950	91	92	290	455
4	3	920	1.560	1	2	4.825	1.680	2.220	4.050	4.885	92	93	385	605
5	3	1.150	1.950	1	1	4.825	1.795	2.310	4.530	5.785	93	94	480	755
6	3	1.380	2.340	1	2	6.315	1.680	2.220	5.360	7.200	93	95	575	905

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Capacity and energy performances referred to standard conditions

- Evaporator 12.0/7.0 °C, pure water, FF=0.018 m² / K / kW
- Condenser 30.0/35.0 °C, pure water, FF=0.043 m² / K / kW

ENERGY EFFICIENCY

Energy Efficiency Ratio UNI EN 14511-2013: **5.32 ÷ 6.00** kW/kW
ESEER UNI EN 14511-2013: **8.10 ÷ 9.69** kW/kW
IPLV AHRI 550/590-2011: **9.64 ÷ 10.51** kW/kW
NPLV AHRI 551/591-2011: **9.46 ÷ 10.26** kW/kW

OPERATING LIMITS

Outlet chilled water outlet temperature: 4÷20 °C
 Max condenser inlet temperature: depending on models (refer to Technical Catalogue)

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Water Cooled

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Air Cooled
Free Cooling



R134a

Refrigerant
R134a | GWP=1.430

R513A

Refrigerant
R513A | GWP=573

Compressors	Models	Cooling capacity		Nr. circuits		Unit's length ⁽¹⁾		Operating weight ⁽²⁾		Sound power ⁽³⁾		MOC ⁽⁴⁾	
nr.	nr.	kW				mm		kg		Lw dB(A)		A	
		min.	max	min.	max	min.	max	min.	max	min.	max	min.	max
1	4	250	410	1	1	3.335	4.445	2.545	3.175	90	93	160	245
2	4	500	820	1	2	5.555	8.890	3.945	5.665	93	96	315	490
3	1	1.230	1.230	1	1	11.110	11.110	7.655	7.655	97	97	730	730
4	3	1.000	1.400	1	2	10.000	13.335	7.265	9.345	96	98	620	945

⁽¹⁾ All units having: Width: 2100mm Height: 2525mm⁽²⁾ Air Cooled series (refer to Technical Catalogue for Free Cooling machines series)⁽³⁾ Standard configuration. **Low Noise** and **Extra Low Noise** versions available (see Technical Catalogue for details)⁽⁴⁾ Maximum Operating Current, referred to standard voltage 400 V / 3 ph / 50 Hz

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nr.	nr.	kW				mm		kg		Lw dB(A)		A	
		min.	max	min.	max	min.	max	min.	max	min.	max	min.	max
1	4	190	320	1	1	2.225	3.335	2.055	2.585	89	92	115	175
2	4	380	640	1	2	4.445	6.665	3.405	4.705	92	95	225	355
3	1	960	960	1	1	8.890	8.890	6.790	6.790	96	96	530	530
4	4	760	1.280	1	2	8.890	13.335	6.630	8.855	96	98	450	705

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ENERGY EFFICIENCY

Energy Efficiency Ratio UNI EN 14511-2013: **3.23 ÷ 3.72** kW/kW
ESEER UNI EN 14511-2013: **4.59 ÷ 5.30** kW/kW
IPLV AHRI 550/590-2011: **5.44 ÷ 6.08** kW/kW
NPLV AHRI 551/591-2011: **5.31 ÷ 5.90** kW/kW

OPERATING LIMITS

Outlet chilled water outlet temperature: 4÷20 °C
 Max air DB temperature: 45 °C at full capacity, 50 °C at reduced capacity

ZEUS

Air Cooled
Free Cooling



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Cooling System Solutions

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