

Chiller/Wasserkühlung WRA ErP



Compact, reliable and versatile industrial liquid cooler

WRA ErP

Cooling Capacity 5-50kW

After thousands of WRA units installed worldwide since 1989, the WRA ErP is the next generation of high efficiency chillers specifically designed for industrial process cooling. WRA ErP is the result of a design that has focused on reliability, energy efficiency, extended operating limits and extreme configurability. Thanks to dedicated technological solutions such as oversized heat exchangers, standard electronic expansion valve and new high-efficiency fans, each WRA ErP is characterised by high thermodynamic performance that exceeds the most stringent minimum energy efficiency requirements imposed by the Ecodesign directive from 2021.



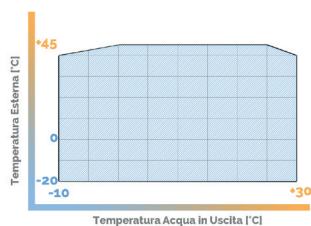
Energy Efficiency

Process chillers operate at high heat loads continuously throughout the year. It is therefore very important that the chiller delivers the highest performance under all operating conditions. All WRA chillers comply with the limits required by ErP2021 - SEPR HT (EU) 2016/2281 - SEPR MT (EU) 2015/1095, making them the best solution for all process applications.



Extended operating limits

Thanks to the dedicated versions and accessories, operation at full load is guaranteed up to +45 °C outside air temperature during the summer season and -20 °C during the winter season in the LT version. The standard WRA units produce chilled water with a maximum evaporator outlet temperature of up to +30 °C; minimum standard temperature +5 °C and -10 °C in the BRINE version.



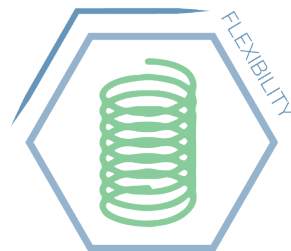
New controller SECBlue LIGHT

The new programmable microprocessor control SECBlue LIGHT, thanks to its new and advanced proprietary logic, guarantees and optimises the operation of all WRAs in the various configurations available. SECBlue LIGHT allows both the remote control of the unit and its integration in RS485 ModBus supervisory BMS systems by means of specific accessories.



New Configurations

The new LT version for low ambient temperature -20 °C, the Brine version for low water outlet temperature T_w -10 °C, and the new version for pressurised hydraulic circuits extend the technical equipment of the WRA range, which is therefore able to satisfy the most varied application requirements, guaranteeing maximum safety of the production process in which the chiller is integrated.



Designed for Process Applications



Machines Tools: spindles, CNC machining centres, milling machines, lathes, EDM, presses, welders, induction machines, water jets, bending machines.



Plastic & Rubber: moulding, extrusion, blow moulding, thermoforming.



Laser: laser and optical source cooling of welding, cutting, marking, medical lasers, 3D printers.



Food: meat processing, pasta/bread production, chocolate industry, dairy industry, coffee production.



Beverage: carbonation of mineral water and soft drinks, fruit juice production, beer.



Enology: temperature control of fermentation processes, clarification, tartaric stabilisation.



Printing: flexographic lines, digital printers, offset, UV systems.



Chemical Pharmaceutical: tank reactor cooling, cosmetics industry, clean rooms, paint production, electroplating.



Medical: MRI, X-ray instrumentation, CT.



Biogas: drying systems for biogas to be fed into cogenerators or for the production of biomethane.

Advanced Technologies for Industrial Process Cooling

Designed for 24/7 industrial use: all units are individually tested at the factory and functionally checked. The use of top brand components and the complete set of safety devices (automatic hydraulic bypass valve, phase monitor, antifreeze sensor, differential pressure switch) guarantee long-term reliability.

Installable outdoor: the electrical panel manufactured in accordance with EN 60204 and with an IP54 degree of protection allows all WRA units to be installed outdoors.

Corrosion Protection: the HDPE plastic tank, the hydraulic circuit and the non-ferrous (stainless steel/polymer) pump are corrosion-free, preserving the purity of the process fluid.

New version for pressurised hydraulic circuits: includes a cylindrical carbon steel hydraulic tank (pmax 4.5barg), thermally insulated, featuring expansion vessel, automatic vent valve, safety valve and drain valve.

LASERPACK: all WRA Laser units are equipped with a LASERPACK regulation system, which integrates a hot gas bypass valve to regulate the cooling capacity and a microprocessor control with an advanced PI algorithm to guarantee a standard hysteresis of $\pm 0.5K$ under variable load conditions. LASERPACK $\pm 0.1K$ version available, which allows the deviation from the target temperature to be limited to a hysteresis of $\pm 0.1K$.

LASERPACK Dual Circuit: thanks to the dual cooling circuit equipped with a three-way modulating valve and a second pump dedicated to the optics hydraulic circuit, this option allows independent control of the operating temperature of the laser source and that of the optics.

Electronic Expansion Valve (mod. 20-5A): equipped with sensors on the refrigerant circuit, it allows to optimise the operation of the refrigerant circuit in any thermal load condition, ensuring maximum efficiency at all times. Thanks to a precise control of subcooling and overheating, it is possible to extend the operating range of the chiller, preserving the reliability of the compressor.

ECOFlow AIR Brushless EC axial fans (option): Permanent magnet EC motors use electronic commutation to detect the position of the rotor and regulate the supply current, thus eliminating the need for mechanical brushes to supply current to the motor windings. The elimination of physical contact reduces internal wear on the fan motor and dramatically increases reliability and reduces energy consumption by up to 30%.

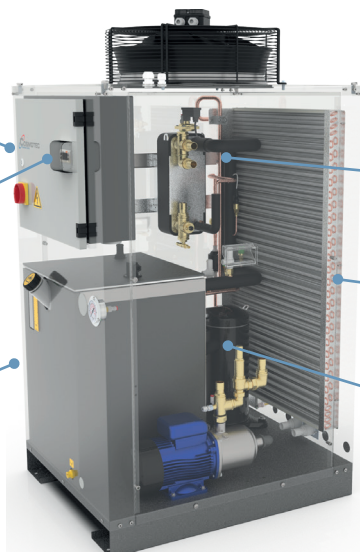


The performance of modern industrial processes is closely affected by variations in their operating temperature and can be compromised by dangerous overheating. The new WRA ErP chillers are designed to provide accurate temperature control of the process fluid and reliable operation in a wide range of industrial applications. All WRA chillers comply with the limits required by ErP2021 - SEPR HT (EU) 2016/2281 - SEPR MT (EU) 2015/1095.

ELECTRICAL PANEL manufactured in accordance with EN60204-1, including: disconnector, numbered electrical cables and standard phase monitor. Standard 50/60HZ dual frequency power supply. Standard IP54 degree of protection (suitable for outdoor installation).

SECBlue LIGHT programmable microprocessor controller

ROBUST AND SELF-SUPPORTING STRUCTURE with galvanised steel panelling, powder-coated RAL7035. All panels are removable and allow easy access to internal components for maintenance operations.



ATMOSPHERIC HYDRAULIC CIRCUIT made of non-ferrous material, equipped with automatic bypass valve. The HDPE storage tank is thermally insulated and equipped with level indicator and front loading and drainage connections. Centrifugal pumps P3/P4/P6/P5 inverter (optional)

ENHANCED OPERATING LIMITS : Twout min/max = +5°/+25°C; Tamb min = -5°/+45°C

REFRIGERATION CIRCUIT manufactured according to the 2014/68/EU directive, it features: scroll compressor; high efficiency plate evaporator; finned coil condenser; thermostatic valve/electronic expansion. Refrigerant fluid R134a/R410A.

Technical Features

Refrigeration Circuit

- Compliance with Ecodesign directive ErP2021 - SEPR HT (EU) 2016/2281 - SEPR MT (EU) 2015/1095
- Hermetic scroll compressors protected by a phase sequence control relay.
- Refrigerant: R134a (mod.13-18) R410A (mod.20-5A)
- New AISI 316 stainless steel brazed plate evaporators, compact size and high efficiency.
- New finned coil condensers protected by a metal anti-particulate filter and with minitubes: refrigerant charge content reduced by about 20%.
- HP high pressure switch with manual reset.
- Thermostatic lamination valve (mod.13-18) Electronic expansion valve (mod.20-5A)
- Low noise axial fan with integrated diffuser.

Non-ferrous atmospheric hydraulic circuit

- NEW dust-tight HDPE inertial tank equipped with visual level indicator, front connections for filling/drainage, overflow and level switch.
- Automatic bronze bypass valve as standard
- High and low pressure safety valve
- Differential pressure switch
- Pressure gauge 0-6 barg

Electrical Panel

- Built in accordance with EN 60204
- IP54 degree of protection: suitable for outdoor installation
- Standard phase monitor
- Potential free contacts: remote ON/OFF; general alarm
- Automatic circuit breakers on electric loads and contactors

Accessories - Kit

- External flow switch
- Aluminium or polyurethane condenser air filter
- Water filters
- Pivoting wheels
- Lifting eyebolts
- Adjustable feet
- Remote control
- RS485 ModBus connection

Microprocessor Controller

The new programmable microprocessor control SECBlue LIGHT manages and optimises the operation of the cooling and hydronic circuits. It adjusts the compressor ON/OFF according to the required water temperature, respecting its minimum operating time.

Main Features

- Tw out and ambient measurement and display
- Antifreeze function to protect the evaporator
- Electronic expansion valve management
- Alarm management: HP; LP; antifreeze; tank level
- Free general alarm contact
- Remote ON/OFF digital input
- LASER function for fine adjustment of process temperature (hysteresis $\pm 0.5K$ or $\pm 0.1K$)
- Dynamic set point function

Versions & Options

- Version with HDPE atmospheric tank
- Version with steel tank and hydraulic pressurised circuit (pmax 4,5barg)
- Version without tank and without pump
- Dual-frequency version 400V/3ph/50Hz -460V/3ph/60Hz
- Brine version for low T water outlet -10°C
- Version for low ambient T -20°C
- LASER version single hydraulic circuit (hysteresis $\pm 0.5K$ or $\pm 0.1K$)
- LASER version with double hydraulic circuit (hysteresis $\pm 0.5K$ or $\pm 0.1K$)
- Stainless steel pump options: P3 standard; P4; P6;
- P5 centrifugal multistage high-pressure inverter pump ECOFlow WATER
- Flow switch
- Under user installation option - check valve + solenoid valve
- Automatic filling for atmospheric / pressurised hydraulic circuits
- Aluminium or polyurethane air filters
- Multi-pole connector option
- Preheating/antifreeze resistor
- Controller option with RS485 card
- External temperature probe 10m long

Technical Data

	WRA13	WRA18	WRA20	WRA25	WRA30	WRA35	WRA50	WRA55	WRA65	WRA80	WRA90	WRA0A	WRA5A
PERFORMANCE @50Hz													
Cooling capacity @50Hz (1) [kW]	4.7	5.9	7.3	8.7	11.8	13.7	16.7	19.0	24.3	28.7	33.1	39.3	47.5
Total power consumption @50Hz (1) [kW]	1.1	1.5	1.9	2.3	2.8	3.3	4.4	4.3	6.2	6.8	7.9	9.1	11.6
Water flow rate evaporator @50Hz (1) [L/min]	13.4	16.8	21.0	24.8	33.8	39.2	47.8	54.5	69.7	82.3	94.9	112.7	136.2
EER (pump excluded) @50Hz (1)	4.2	3.9	3.8	3.7	4.2	4.1	3.7	4.4	3.9	4.3	4.2	4.3	4.1
SEPR HT (3)	5.38	5.42	5.45	5.18	5.52	5.54	5.37	5.56	5.32	5.49	5.09	5.23	5.13
Cooling capacity @50Hz (2) [kW]	3.4	4.4	5.6	6.6	9.0	10.3	12.7	14.2	18.3	21.6	25.0	29.6	36.0
Total power consumption @50Hz (2) [kW]	1.1	1.5	2.0	2.4	2.9	3.4	4.4	4.5	6.1	6.9	7.9	9.1	11.4
Water flow rate evaporator @50Hz (2) [L/min]	9.7	12.5	16.1	18.9	25.8	29.5	36.3	40.7	52.5	61.9	71.7	84.9	103.2
EER (pump excluded) @50Hz (2)	3.0	2.9	2.9	2.7	3.1	3.0	2.9	3.2	3.0	3.2	3.2	3.3	3.1
ELECTRICAL DATA													
Power supply unit [V/Ph/Hz]	400/3/50												
Power supply unit [V/Ph/Hz]	400/3/50 - 460/3/60												
Auxiliary power supply [V/Ph/Hz]	24 VAC												
IP degree of protection	IP54												
TECHNICAL DATA													
Refrigerant	R134a		R410A										
No. of compressors/circuits [#]	1/1												
Number of axial fans[#]	1												
Available head pressure pump P3 @50Hz [barg] (1)	3.0	2.9	2.8	2.5	3.5	3.3	2.9	3.9	3.7	3.4	3.0	3.6	3.4
Maximum absorbed power pump P3 @50Hz [kW]	0.46	0.46	0.46	0.46	0.69	0.69	0.69	1.01	1.01	1.01	1.01	1.7	1.7
Sound pressure level [dB(A)] (4)	37.5	37.5	40.4	40.4	46.9	46.9	47.9	60	60	61	69	67	67
Diameter of hydraulic connections [Rp]	3/4"G	3/4"G	3/4"G	3/4"G	1"G	1"G	1"	1"1/4	1"1/4	1"1/4	1"1/4	1"1/2	1"1/2
Tank volume [dm3]	40	40	40	40	98	98	98	180	180	180	180	180	180
Width [mm]	560	560	560	560	740	740	740	900	900	900	900	1250	1250
Depth [mm]	720	720	720	720	930	930	930	1200	1200	1200	1200	1250	1250
Height [mm]	1290	1290	1310	1310	1550	1550	1550	1950	1950	1950	1950	2050	2050
Weight empty [kg] (5)	133	140	143	145	201	200	204	320	360	390	390	450	470
Operating weight [kg] (6)	178	185	188	190	311	311	314	--	--	--	--	--	--

(1) Data referring to inlet/outlet water temperature 20/15°C, ambient temperature 32°C, @50Hz
(2) Data referring to inlet/outlet water temperature 12/7°C, ambient temperature 35°C, @50Hz
(3) Data declared according to the European Regulation (EU) 2016/2281 for high temperature process chillers
(4) Sound pressure at 10m: average value obtained in a free field on a reflecting plane at a distance of 10m from the unit according to EN ISO 9614-2. Values with tolerance ± 2 dB.
(5) Weight of the unit with tank and P3 pump without options/kit. Tolerance +/-10%.



MBI GmbH

Ubstadter Pfad 5
76694 Forst

Telefon: +49 (0) 7251 - 30 20 408
Telefax: +49 (0) 7251 - 30 20 409

E-Mail: info@mbi-gmbh.de
Webseite: www.mbi-gmbh.de