

# Process cooling

## Process Water Cooler MT

This range of cold water kits is designed for production plants in companies producing beverages. The units are of a robust, superior industrial quality and provide a reliable supply of cold water at a consistent temperature for the cooling processes. The water system can be configured as an open or closed system when selecting accessories. The range is complemented by kits available for the water circulation system which ensure simple and reliable connection.

### Features (standard equipment)

- ▶ Water temperature (discharge): -7... 20 °C (glycol brine lower than 5 °C is required!) <sup>1)</sup>
- ▶ Glycol-resistant stainless steel centrifugal pump: approx. 3 bar available pressure; pressure gauge on discharge/flow
- ▶ Insulated stainless steel water tank with level monitor (automatic deactivation in case of inadequate water)
- ▶ Evaporator immersed in the stainless steel tank
- ▶ Refrigerant pressure gauge for high and low-pressure side; R410A refrigerant
- ▶ System/expansion tank, optionally open (standard) or closed design (option) configuration
- ▶ Condensation pressure control for outside temperatures below -5 °C
- ▶ Power supply: 400 V (+/- 10%); 3-PE; 50 Hz
- ▶ Crankcase heating system

### Control:

- ▶ Contained in industrial cabinet; electronic temperature controller
- ▶ Central alarm output
- ▶ Enabling contact input compressor/pump

### Miscellaneous:

- ▶ Emergency stop main switch; phase protection relay
- ▶ Mechanical protection for condenser fin protection
- ▶ Galvanised carbon steel chassis plates, polyester coated
- ▶ Guides for forklift/pallet truck

### Protection rating:

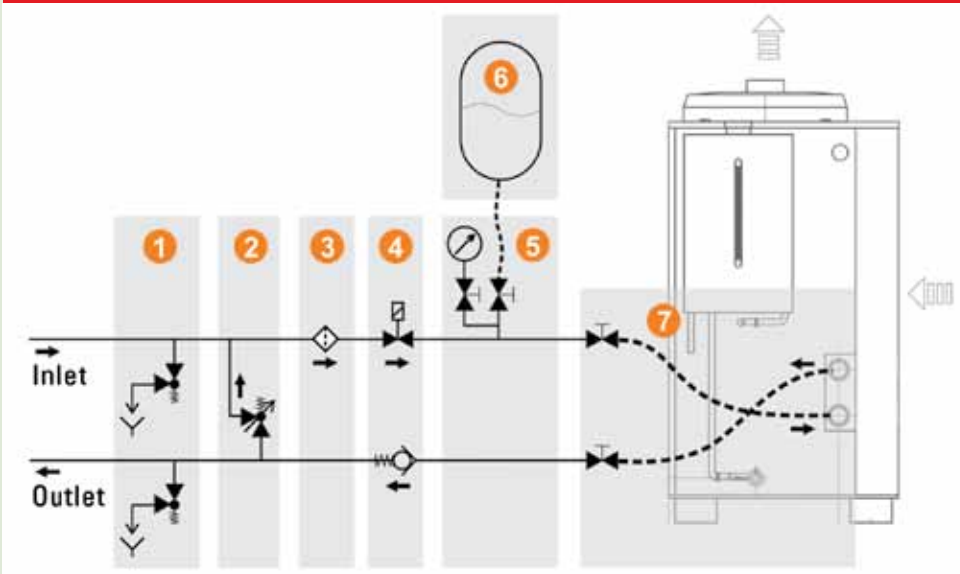
- ▶ IP54 (MT-20: IP44), resistant to water spray
- ▶ Weatherproof design, suitable for outdoor installation

Model	Nominal refrigerating capacity <sup>1)</sup>	For tank volume <sup>4)</sup>	Order no.	Unit price/€
MT-20	7.9 kW	40,000 l.	303.4505	
MT-31	12.6 kW	60,000 l.	303.4506	
MT-51	18.2 kW	85,000 l.	303.4507	
MT-81	29.8 kW	130,000 l.	303.4508	
MT-101	36.1 kW	185,000 l.	303.4509	
MT-121	46.5 kW	230,000 l.	303.4510	
MT-161	50.9 kW	260,000 l.	303.4511	
MT-201	58.4 kW	320,000 l.	303.4512	



- 1) 15/20 °C water, 25 °C air
- 2) 7/12 °C water, 35 °C air
- 3) 7/12 °C water, 25 °C air
- 4) 50% of which simultaneously in fermentation
- 5) MT cooler, P3 pump, on/off fan(s) speed control, full load
- 6) Free space at 10 m distance from condenser side and h=1.6 m
- 7) Axial: For ambient temperatures up to -15 °C (brine operation)
- 8) Only required in non-pressurised systems at a higher level than the machine tank and where air can flow into the water system (e.g. automatic air venting valve, connections for cooling hoses, etc.). Consists of a solenoid valve, non-return valve and all connection fittings
- 9) Max. water volume in system (pipes, cooling plates and other heat exchangers, buffer tank inside and, where appropriate, outside the cooler)
- 10) Consists of a diaphragm expansion tank, safety valve, air vent and automatic refilling system (machine equipment)
- 11) Approved: Tyfocor L and Antifrogen L (25... 50 % concentration)
- 12) It is recommended that, in addition to the compressor acoustic hood option, the fan speed control option should also be reserved
- 13) Consists of reinforced hoses with stainless steel sheathing, non-return valves and transition fittings
- 14) Ensures the prescribed minimum flow, even if all consumers are inactive. Consists of an overflow valve and all required connection fittings
- 15) Always necessary, prevents critical excessive pressure caused by temperature fluctuations in the pipe system if the water contained therein is enclosed through sealed valves. Consists of 2 pressure relief valves and all connection fittings
- 16) Obligatory option if the cooler is intended to be part of a closed pressure system

## Connection Diagram



Connection diagram (schematic diagram). The stipulations in the manufacturer's operating instructions apply.

Other models and options available on request.

Errors and omissions excepted. The manufacturer's technical data applies. Subject to change without notice.

### Legend

1:	Safety valve kit (safety valves, fittings)
2:	Adjustable overflow valve kit (overflow valve, fittings)
3:	Water filter kit (dirt traps, double nipples)
4:	Return flow prevention kit if the system is higher than the machine (solenoid valve, non-return valve, fittings)
5:	Expansion tank connection kit (capped valve, pressure gauge, reinforced hose, fittings)
6:	Expansion tank diaphragm (size depends on system volume)
7:	Refrigerator connection kit (reinforced hoses, ball valves, fittings)

# Cooling Technology

## Technical data for process water cooler MT

Model		MT-20	MT-31	MT-51	MT-81	MT-101	MT-121	MT-161	MT-201
Order no.		303.4505	303.4506	303.4507	303.4508	303.4509	303.4510	303.4511	303.4512
Nominal refrigerating capacity <sup>1)</sup>	kW	7.9	12.6	18.2	29.8	36.1	46.5	50.9	58.4
Refrigerating capacity according to Eurovent requirements <sup>2)</sup>	kW	5.4	8.7	12.8	21.7	26.5	33.7	37	42.5
Refrigerating capacity under autumnal conditions <sup>3)</sup>	kW	6.3	10	14.6	24.6	30.1	38.3	42.4	48.3
Compressor / Circuits		1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/1
No. of fans		1	1	1	1	2	2	2	2
Total air flow rate	m <sup>3</sup> /h	3,150	6,300	6,100	8,150	14,200	12,400	12,400	16,200
Power input / Current consumption / Peak current <sup>5)</sup>	kW/A/A	4.1/7.2/40.1	5.9/10/45.8	8/13/69.9	12/20.2/114.8	14.4/24.6/123.2	18.8/32.5/165	20.7/36.3/204	23.7/39.8/134.4
Water flow rate under pressure (where $\Delta T=5K$ ) <sup>3)</sup>	m <sup>3</sup> /h / bar	0.9 / 2.9	1.5 / 2.9	2.2 / 2.8	3.7 / 2.7	4.5 / 2.6	5.7 / 2.7	6.3 / 2.6	7.2 / 2.7
Available delivery head (for minimum flow)	bar	3	3.1	3	3	2.9	2.8	2.8	2.8
Water connection	Inch	3/4	1	1	1 1/2	1 1/2	1 1/2	1 1/2	2
Water tank capacity	litre	60	115	115	140	255	255	255	350
Sound pressure level <sup>6)</sup>	dB(A)	52.4	53.1	53.1	53.6	54.1	54.1	55	56.3
Width	mm	560	660	660	761	761	761	761	866
Height	mm	795	1,373	1,373	1,437	1,437	1,437	1,437	2,054
Depth	mm	1,284	1,315	1,315	1,862	1,862	1,862	1,862	2,250
Tare weight	kg	204	326	336	475	637	652	666	998
<b>Machine options</b>		<b>Order no.</b>							
Fan speed control option <sup>7)</sup>	recommended	--	303.4550	303.4550	303.4550	303.4550	303.4550	303.4550	303.4550
Remote control option		303.4650	303.4650	303.4650	303.4650	303.4650	303.4650	303.4650	303.4650
Compressor acoustic hood option <sup>2)</sup>		303.4700	303.4700	303.4700	303.4700	303.4700	303.4700	303.4700	303.4701
Commissioning option	recommended	303.4901	303.4901	303.4901	303.4901	303.4902	303.4902	303.4902	303.4902
Annual maintenance option	recommended	303.4952	303.4952	303.4952	303.4952	303.4953	303.4953	303.4953	303.4953
Closed system option <sup>10)</sup>	obligatory <sup>14)</sup>	303.4607	303.4608	303.4608	303.4608	303.4608	303.4608	303.4608	303.4609
<b>Accessories for open systems</b>		<b>Order no.</b>							
Refrigerator connection kit <sup>13)</sup>		304.9111	304.9112	304.9112	304.9113	304.9113	304.9113	304.9113	304.9114
Adjustable overflow valve kit <sup>14)</sup>	obligatory	304.9171	304.9172	304.9172	304.9173	304.9173	304.9173	304.9173	304.9174
Safety valve kit <sup>15)</sup>	obligatory	304.9161	304.9162	304.9162	304.9164	304.9164	304.9164	304.9164	304.9160
Return flow prevention kit <sup>8)</sup>		304.9131	304.9132	304.9132	304.9134	304.9134	304.9134	304.9134	304.9135
Water filter kit	obligatory	304.9140	304.9141	304.9141	304.9143	304.9143	304.9143	304.9143	304.9144
<b>Accessories for closed systems</b>		<b>Order no.</b>							
Refrigerator connection kit <sup>13)</sup>		304.9111	304.9112	304.9112	304.9113	304.9113	304.9113	304.9113	304.9114
Adjustable overflow valve kit <sup>14)</sup>	obligatory	304.9171	304.9172	304.9172	304.9173	304.9173	304.9173	304.9173	304.9174
Safety valve kit <sup>15)</sup>	obligatory	304.9161	304.9162	304.9162	304.9164	304.9164	304.9164	304.9164	304.9160
Water filter kit	obligatory	304.9140	304.9141	304.9141	304.9143	304.9143	304.9143	304.9143	304.9144
Expansion tank connection kit 1"	obligatory	304.9165	304.9167	304.9167	304.9168	304.9168	304.9168	304.9168	304.9169
Expansion tank 24l, 1" 660l <sup>9)</sup>	obligatory	304.6020	304.6020	304.6020	304.6020	304.6020	304.6020	304.6020	304.6020
Expansion tank 50l, 1" 1,250l <sup>9)</sup>	obligatory	304.6021	304.6021	304.6021	304.6021	304.6021	304.6021	304.6021	304.6021
MT-Close safety assembly MT20-MT1002		303.4603	303.4603	303.4603	303.4603	303.4603	303.4603	303.4603	304.4603
<b>Other accessories for all models</b>		<b>Order no.</b>							
Propylene glycol (food safe) 11kg canister		400.0002							
Propylene glycol (food safe) 21kg canister		400.0005							
Propylene glycol (food safe) 31kg canister		400.0001							
Hydrometer for glycol concentration measurement		400.0003							
		<b>IMPORTANT INSTRUCTIONS</b>							
		<ul style="list-style-type: none"> <li>▶ Where pure water is used (without antifreeze additive), all system parts conveying water should be installed frost-protected and emptied completely during the frost period</li> <li>▶ Where glycol is utilised, a product safe for use with food (1) should be selected and a minimum concentration of 25% (recommended min. 35%) achieved.</li> <li>▶ Note the flow direction marked with the arrow during installation of components</li> <li>▶ Components installed outdoors should be protected against UV irradiation, particularly plastic components</li> <li>▶ Observe the pressure calibration instructions to ensure operation free of malfunctions and avoid damage to the machine.</li> <li>▶ Note prescribed system parts. The omission of prescribed system parts can lead to damage to the cooler and other system parts.</li> </ul>							