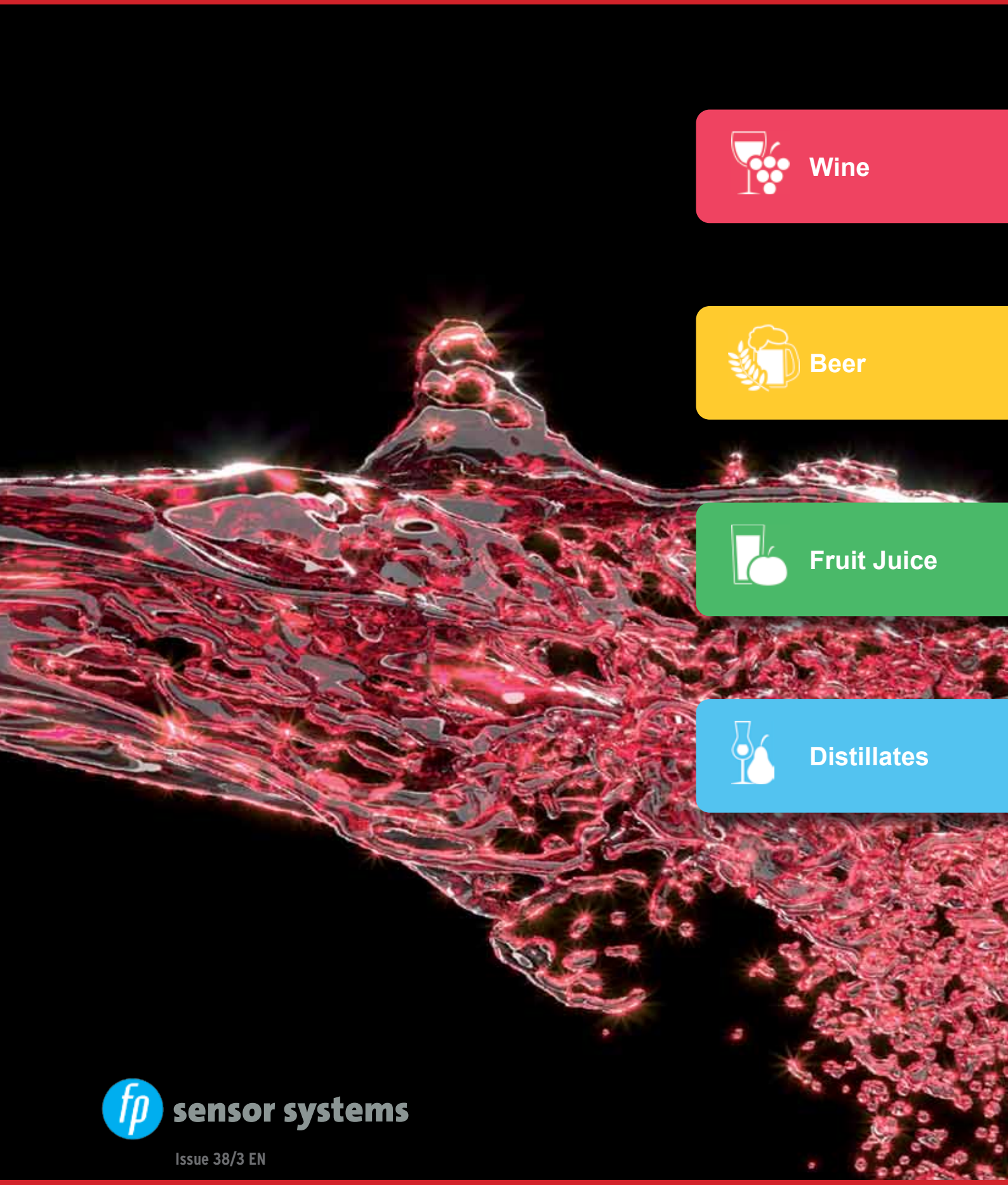
TECHNICAL CATALOGUE



fp sensor systems

Issue 38/3 EN

Contents

Welcome!

Dear readers,

Thank you for the interest you have shown in our company.
The following pages contain a selection of useful and innovative technical products for processes in beverage production.

You can obtain the products presented here from your usual dealer, please refer to the back page for details.
Your dealer will be happy to advise you on application options and other characteristics.

Our catalogue is available for you to download at:

www.fp-sensorsystems.com/catalog.pdf

Suggestions on product improvements and new product ideas are welcome at any time.

We are also capable of designing and producing customised units and systems. Please contact us in this respect.

Your fp sensor systems team

sensor systems

fp sensor systems GmbH
Thomastrasse 10
D-63927 Buergstadt, Germany
www.fp-sensorsystems.com

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!) [11]
- 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

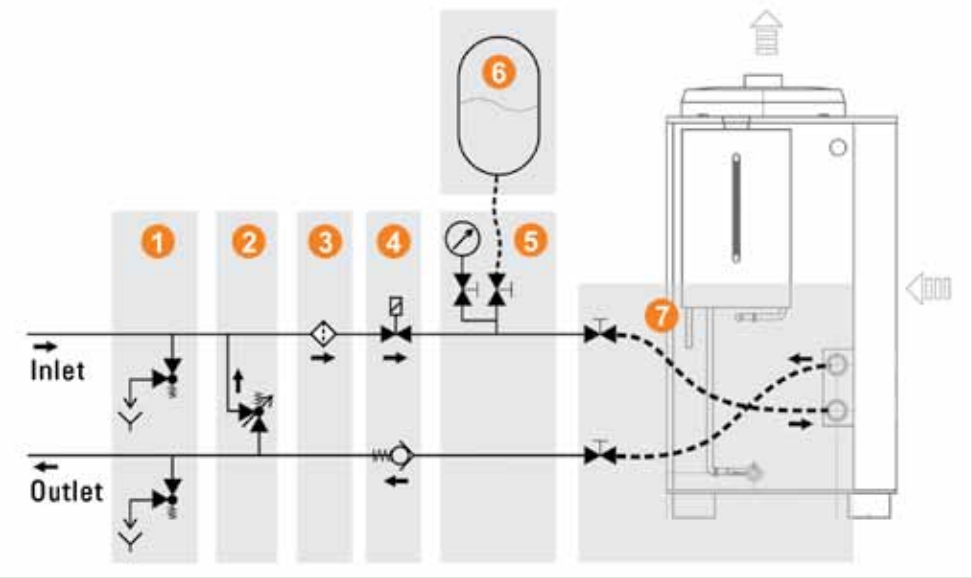
Miscellaneous:
- Emergency stop main switch; phase protection relay
- Mechanical protection for condenser fin protection
- Galvanised carbon steel chassis plates, polyester coated
- Guides for forklift/pallet truck

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

Model	Nominal refrigerating capacity [1]	For tank volume [4]	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-returnvalves 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.

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)

Other models and options available on request.
Errors and omissions excepted. The manufacturer's technical data applies. Subject to change without notice.

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 [1]	kW	7.9	12.6	18.2	29.8	36.1	46.5	50.9	58.4
Refrigerating capacity according to Eurovent requirements [2]	kW	5.4	8.7	12.8	21.7	26.5	33.7	37	42.5
Refrigerating capacity under autumnal conditions [3]	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^3/h	3,150	6,300	6,100	8,150	14,200	12,400	12,400	16,200
Power input / Current consumption / Peak current [5]	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 dT=5K) [3]	m^3/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 [6]	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
Machine options		**Order no.**							
Fan speed control option [7]	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 [12]		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 [10]	obligatory [16]	303.4607	303.4608	303.4608	303.4608	303.4608	303.4608	303.4608	303.4609
Accessories for open systems		**Order no.**							
Refrigerator connection kit [13]		304.9111	304.9112	304.9112	304.9113	304.9113	304.9113	304.9113	304.9114
Adjustable overflow valve kit [14]	obligatory	304.9171	304.9172	304.9172	304.9173	304.9173	304.9173	304.9173	304.9174
Safety valve kit [15]	obligatory	304.9161	304.9162	304.9162	304.9164	304.9164	304.9164	304.9164	304.9160
Return flow prevention kit [8]		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
Accessories for closed systems		**Order no.**							
Refrigerator connection kit [13]		304.9111	304.9112	304.9112	304.9113	304.9113	304.9113	304.9113	304.9114
Adjustable overflow valve kit [14]	obligatory	304.9171	304.9172	304.9172	304.9173	304.9173	304.9173	304.9173	304.9174
Safety valve kit [15]	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 [9]	obligatory	304.6020	304.6020	304.6020	304.6020	304.6020	304.6020	304.6020	304.6020
Expansion tank 50l, 1" 1,250l [9]	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

Other accessories for all models		Order no.
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

IMPORTANT INSTRUCTIONS

- 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
- Where glycol is utilised, a product safe for use with food 11) should be selected and a minimum concentration of 25% (recommended min. 35%) achieved.
- Note the flow direction marked with the arrow during installation of components
- Components installed outdoors should be protected against UV irradiation, particularly plastic components
- Observe the pressure calibration instructions to ensure operation free of malfunctions and avoid damage to the machine.
- Note prescribed system parts. The omission of prescribed system parts can lead to damage to the cooler and other system parts.

Process cooling

Process Water Cooler MT-MINI

Temperature control processes in the beverage industry are subject to increasing requirements in terms of eco-friendliness and quality. The latest generation of cold water chillers for small companies is characterised by a high degree of energy efficiency and reliability. Designed for indoor installation, these systems have a finned tube coil evaporator and a non-ferrous water circuit. A variety of accessory kits for the hydraulic circuit simplify connection to the consumer network.

Features (standard equipment)

- Water temperature (discharge): 0... 30 °C (glycol brine lower than 5 °C is required!) [8]
- Glycol-resistant centrifugal pump (non-ferrous): approx. 3 bar available pressure; pressure gauge on discharge/flow
- Insulated plastic water tank with level monitor
- Evaporator immersed in the atmospheric water tank
- Refrigerant: R134a (MT-MINI-03) or R410A (MT-MINI-05-10)
- Ambient temperature: 5... 45 °C
- Power supply: 230 V/1 Ph/50 Hz (+/- 10%)

Control:

- Integrated in housing with XR60CX processor controller
- Central alarm output
- Enabling contact input compressor/pump

Miscellaneous:

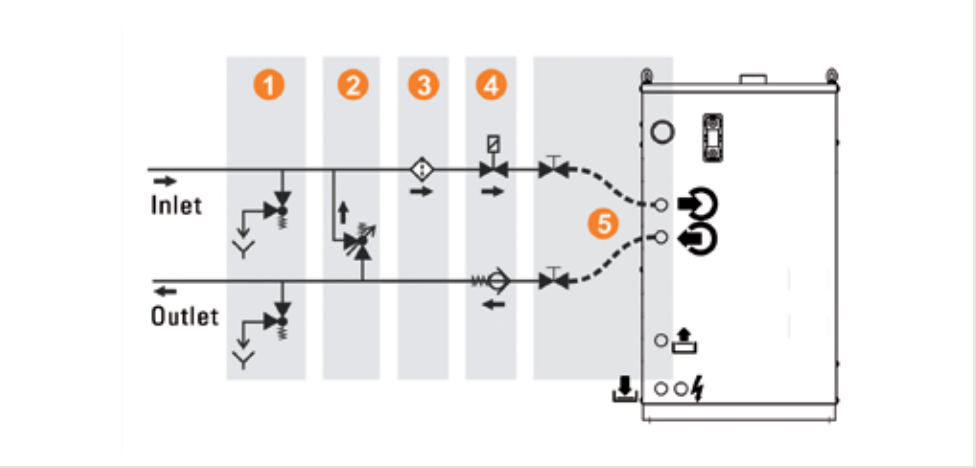
- Emergency stop main switch (MT-MINI-08-10)
- Phase protection relay
- Mechanical protection for condenser fin protection
- Galvanised carbon steel chassis plates, polyester coated
- Guides for forklift/pallet truck, crane eyelets
- Protection rating: IP33, falling water spray

MT-Mini -03 to -05

Model	Nominal refrigerating capacity [1]	For tank volume [4]	Order no.	Unit price/€
MT-MINI-03	1.76 kW	11,800 l.	303.5600	
MT-MINI-05	2.7 kW	18,000 l.	303.5601	
MT-MINI-08	3.43 kW	22,900 l.	303.5602	
MT-MINI-10	4.43 kW	29,600 l.	303.5603	

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) 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.
8) Approved: Tyfocor L and Antifrogen L (25... 30 % concentration)
9) Consists of reinforced hoses with stainless steel sheathing, non-return valves and transition fittings
10) Ensures the prescribed minimum flow, even if all consumers are inactive. Consists of an overflow valve and all required connection fittings
11) 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 safety pressure relief valves and all connection fittings

Connection Diagram



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:	Refrigerator connection kit (reinforced hoses, ball valves, fittings)

Schematic diagram: the manufacturer's specification / operating and installation instructions apply.

Other models and options available on request. Errors and omissions excepted. The manufacturer's technical data applies. Subject to change without notice.

Cooling Technology

Technical data for process water cooler MT-mini					
Model		**MT-MINI-03**	**MT-MINI-05**	**MT-MINI-08**	**MT-MINI-10**
Order no.		**303.5600**	**303.5601**	**303.5602**	**303.5603**
Nominal refrigerating capacity [1]	kW	1.76	2.7	3.43	4.43
Refrigerating capacity pursuant to Eurovent [2]	kW	1.22	1.84	2.33	2.98
Refrigerating capacity under autumnal conditions [3]	kW	1.4	2.1	2.7	3.5
Compressor / Circuits		1 / 1	1 / 1	1 / 1	1 / 1
No. of fans		1	1	1	1
Total air flow rate	m^3/h	900	1,100	1,600	1,500
Power input / Current consumption / Peak current [5]	kW/A/A	0.9 / 4.1 / 15.8	1.6 / 7.5 / 20.3	1.9 / 8.6 / 22	2.3 / 10.1 / 27.3
Water flow rate / under pressure (where dT=5K) [3]	m^3/h / bar	0.2 / 3.0	0.4 / 3.4	0.5 / 3.2	0.6 / 2.8
Available delivery head (for minimum flow)	bar	3.6	3.6	3.6	3.6
Water connection	Rp (inch)	1/2	1/2	1/2	1/2
Water tank capacity	litre	15	15	22	22
Sound pressure level [6]	dB(A)	46	47	47	47
Width	mm	486	486	486	486
Height	mm	623	623	876	876
Depth	mm	660	660	660	660
Tare weight	kg	68	71	97	100
Machine options		**Order no.**			
Optional wheels (2 fixed, 2 steerable)		--	--	303.5620	303.5620
Optional low water temperature to -5 °C		--	--	303.5610	303.5611
Optional tank level switch		303.5630	303.5630	303.5630	303.5630
Accessories for open systems		**Order no.**			
MT-MINI kit, transition 1/2"- 3/4"	obligatory	304.9180	304.9180	304.9180	304.9180
Refrigerator connection kit [9]		304.9111	304.9111	304.9111	304.9111
Adjustable overflow valve kit [10]	obligatory	304.9171	304.9171	304.9171	304.9171
Safety valve kit [11]	obligatory	304.9161	304.9161	304.9161	304.9161
Return flow prevention kit [7]		304.9131	304.9131	304.9131	304.9131
Water filter kit	obligatory	304.9140	304.9140	304.9140	304.9140

Other accessories for all models		Order no.
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

MT-Mini -08 to -10

IMPORTANT INSTRUCTIONS

- 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
- Where glycol is utilised, a product safe for use with food 8) should be selected and a minimum/maximum concentration of 25/ 30% set
- Note the flow direction marked with the arrow during installation.
- Components installed outdoors should be protected against UV irradiation, particularly plastic components
- Observe the pressure calibration instructions to ensure operation free of malfunctions and avoid damage to the machine

Note prescribed system parts.
The omission of prescribed system parts can lead to damage to the cooler and other system parts.

Process cooling

Process Water Cooler LT

The LT series is manufactured in Germany and primarily distinguished by its high level of availability and robustness. These plug-in units are extremely easy to install and commission, and are therefore particularly interesting for small and medium-sized beverage production companies. The water system is designed as an open atmospheric system with an internal bypass and, consequently, can be operated without an external overflow valve.

Features (standard equipment)

- Water temperature (discharge): -8... 15 °C (glycol lower than 7(8) °C is required! [7])
- Stainless steel centrifugal pump: glycol resistant approx. 2.5 bar (opt. 3.0 bar) available pressure
- Pressure gauge on discharge/flow
- Insulated stainless steel water tank with level monitor [6]
- EC fan with continuous speed control
- Condensation pressure control
- Consumers higher (non-return valve and solenoid valve)
- Metal air filter mats
- Power supply: 400 V (+/- 10%); 3-PE; 50 Hz (LT-040/E: 230 V/50 Hz)
- For options, see table under machine options

Control:

- Contained in industrial cabinet; electronic temperature controller
- Central alarm output; enabling contact input Compressor/pump

Miscellaneous:

- Emergency stop main switch
- Selector switch for crankcase heating system /cooling/ heating operation
- Mechanical protection for condenser fin protection
- Crane eyelets
- Casters
- Resistant to water spray, conditionally weatherproof [18]

Model	Nominal refrigerating capacity [1]	For tank volume [5]	Order no.	Unit price/€
LT-040/E (230 V)	5.0 kW	28,000 l.	303.5400	
LT-058/E	5.6 kW	32,000 l.	303.5401	
LT-092/E	9.1 kW	49,000 l.	303.5402	
LT-117/E	11.0 kW	59,000 l.	303.5403	
LT-149/E	14.1 kW	85,000 l.	303.5404	
LT-220/E	20.0 kW	120,000 l.	303.5405	
LT-280/E	25.5 kW	150,000 l.	303.5406	

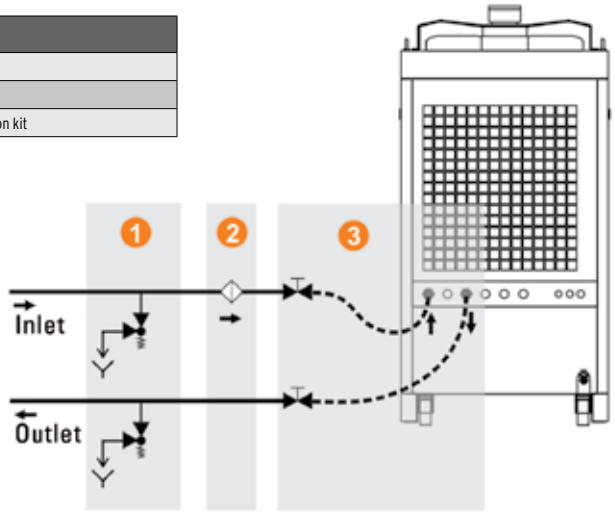
1) 15°C water, 32°C air
2) 7°C water, 35°C air
3) 7°C water, 25°C air
4) Required additional stainless steel housing option
5) 50% of which simultaneously in fermentation
6) Automatic deactivation in case of inadequate water
7) Min. 35% concentration; lower temperatures available on request
8) Free space at 10 m distance
9) Values in brackets ( ) require outdoor installation + stainless steel casing options
10) Weatherproof design for outdoor installation
11) If the electric heater 2.5/4/8 kW option is available, output according to selection
12) Acceptance of the entire refrigerating capacity by a cooling water system should be ensured by the user
13) Automatic deactivation in case of inadequate water
15) Avoids compressor damage in case of anticlockwise 400 V rotating field
16) Consists of reinforced hoses, 1m long, flat sealing connection nipples, seals and ball valves
17) 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 safety pressure relief valves and all connection fittings
18) Roofing/rain protection is provided where glycol is used, due to a risk of dilution by rainwater

Other models and options available on request.

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

Connection Diagram

Legend	
1:	Safety valve kit
2:	Water filter kit
3:	Refrigerator connection kit



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

IMPORTANT INSTRUCTIONS

- 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
- Where glycol is utilised, a product safe for use with food should be selected and a minimum concentration of 25% (recommended min. 35%) achieved
- Note the flow direction marked with the arrow during installation of components
- Components installed outdoors should be protected against UV irradiation, particularly plastic components
- Note prescribed system parts. The omission of prescribed system parts can lead to damage to the cooler and other system parts
- Demineralisation is recommended in the event of high water hardness
- Please observe the minimum water quality specifications in the unit documentation

Cooling Technology

Technical data for process water cooler LT								
Model		**LT-040/E (230 V)**	**LT-058/E**	**LT-092/E**	**LT-117/E**	**LT-149/E**	**LT-220/E**	**LT-280/E**
Order no.		**303.5400**	**303.5401**	**303.5402**	**303.5403**	**303.5404**	**303.5405**	**303.5406**
Nominal refrigerating capacity [1]	kW	5.0	5.6	9.1	11.0	14.1	20.0	25.5
Refrigerating capacity pursuant to Eurovent [2]	kW	3.7	4.2	6.4	7.8	11.2	15.9	19.9
Refrigerating capacity under autumnal conditions [3]	kW	4.1	4.8	7.3	8.8	12.7	17.9	22.4
Operating voltage	V/Hz	230/50	400/50	400/50	400/50	400/50	400/50	400/50
Refrigerant		R513A	R513A	R513A	R513A	R513A	R410A	R410A
Evaporator		Plates	Plates	Plates	Plates	Plates	Plates	Plates
Number of compressors		1	1	1	1	1	1	1
Compressor type		Rotary piston	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
No. of cooling circuits		1	1	1	1	1	1	1
No. of fans		1	1	1	1	1	1	1
Total air flow rate	m^3/h	1,800	2,150	3,400	5,400	5,600	6,400	9,500
Total power input (cooling/heating)	kW	3.0 / 0.37+ [11]	4.0 / 0.75+ [11]	5.2 / 0.75+ [11]	6.5 / 0.75+ [11]	8.2 / 0.75+ [11]	9.2 / 0.75+ [11]	11.8 / 0.75+ [11]
Water flow rate / under pressure (where dT=5K) [3]	m^3/h / bar	0.78 / 2.3	3.6 / 2.7	4.2 / 2.6	4.2 / 2.6	4.8 / 2.5	4.8 / 2.5	4.8 / 2.45
Available delivery head (minimum flow)	bar	3	3	3	3	3	3	3
Opt.: Water flow rate / under pressure (where dT=5K) [3]	m^3/h / bar	-- / --	-- / --	4.2 / 3.1	4.2 / 3.1	4.8 / 3.0	4.8 / 3.0	4.8 / 3.0
Opt.: Available delivery head (minimum flow)	bar	-- / --	-- / --	3.5	3.5	3.5	3.5	3.5
Water connection		R 3/4"ET	R 3/4"ET	R 1"ET	R 1"ET	R 1"ET	R 1"ET	R 1"ET
Water tank capacity	litre	52	70	125	125	235	235	235
Min. water temperature without/with glycol [7]	°C	7/0	7/0	7/0	7/0	7/0	7/0	7/0
Sound pressure level [8]	dB(A)	46	49	51	51	51	52	54
Min. ambient temperature [9]	°C	0 (-20)	0 (-20)	0 (-20)	0 (-20)	0 (-20)	0 (-20)	0 (-20)
Max. ambient temperature	°C	40	40	40	40	40	40	40
IP protection rating		IP54	IP54	IP54	IP54	IP54	IP54	IP54
Electrical connection: 2m cable with connector		Schuko	CEE	CEE	CEE	CEE	CEE	CEE
Width	mm	660	660	680	680	855	855	855
Height (with casters)	mm	1,110	1,330	1,950	1,950	1,670	2,070	2,070
Depth	mm	625	662	680	680	1,125	1,360	1,360
Approx. tare weight	kg	170	180	250	260	350	400	470
Machine options		**Order no.**						
Heating option 2.5kW		303.5420	--	--	--	--	--	--
Heating option 4kW		--	303.5421	303.5421	303.5421	303.5421	303.5421	303.5421
Heating option 8kW		--	303.5422	303.5422	303.5422	303.5422	303.5422	303.5422
Phase control relay option [15]	recommended	--	303.5430	303.5430	303.5430	303.5430	303.5430	303.5430
Stainless steel casing option		303.5440	303.5441	303.5442	303.5442	303.5443	303.5443	303.5443
Outdoor installation option [4] [10]		303.5460	303.5461	303.5461	303.5461	303.5461	303.5462	303.5462
Low-noise design option		303.5450	303.5450	303.5451	303.5451	303.5452	303.5452	303.5452
Remote control station option		303.5470	303.5470	303.5470	303.5470	303.5470	303.5470	303.5470
Reinforced cold water pump option		--	--	303.5490	303.5490	303.5490	303.5490	303.5490
Automatic water replenishment option		303.5480	303.5480	303.5480	303.5480	303.5480	303.5480	303.5480
Water-cooled design option		on request	on request	on request	on request	on request	on request	on request
Heating recovery option		on request	on request	on request	on request	on request	on request	on request
Accessories		**Order no.**						
Refrigerator connection kit [16]		304.9115	304.9115	304.9116	304.9116	304.9116	304.9116	304.9116
Safety valve kit [17]	obligatory	304.9161	304.9161	304.9162	304.9162	304.9162	304.9162	304.9162
Water filter kit	obligatory	304.9140	304.9140	304.9141	304.9141	304.9141	304.9141	304.9141
Propylene glycol (food safe) 11kg canister		400.0002	400.0002	400.0002	400.0002	400.0002	400.0002	400.0002
Propylene glycol (food safe) 21kg canister		400.0005	400.0005	400.0005	400.0005	400.0005	400.0005	400.0005
Propylene glycol (food safe) 31kg canister		400.0001	400.0001	400.0001	400.0001	400.0001	400.0001	400.0001
Hydrometer for determining glycol concentration		400.0003	400.0003	400.0003	400.0003	400.0003	400.0003	400.0003

Process control

Fermentation Temperature Control System Clip

The Clip control system is positioned directly on the tank in an immersion sleeve. This means that direct indication and operation is possible in the cellar. The standard bus system integrated in the controller facilitates linking to the PC and use of the software available as an accessory (option). The robust stainless steel controller housing is a water protected design suitable for the harsh everyday conditions encountered in cellars.

206.0022
206.0201

Clip features

- Temperature range -9.9... 99.9 °C
- 6m connecting cable with open-ended cable
- LED display for target and actual value
- LEDs for CO_2 intensity, output status, operating mode,
- Unit °C/°F
- 24 V/50 Hz supply voltage
- Power input 2 VA
- 2 relay outputs for heating + cooling, 20 VA each,
- Integrated bus system for PC connection
- Probe shaft length 170 mm for installation in immersion shaft sleeves
- Integration in immersion shaft sleeve with M12x1.5mm internal thread

Designation	Details	Order no.	Unit price/€
CLIP SET 1	Starter SET, each consisting of 1x: 206.0022, 206.0070, 304.0014, 300.0350, 300.0112	206.8003 S	
CLIP-SET-KH	Starter SET with DN15 motor ball valve consisting of 1x in each case: 206.0022, 206.0070, 304.0001, 300.0180	206.8002 M	
CLIP	With open-ended cable 6 m	206.0022	
CLIP PLUG	With 6 m cable and 7-pole angular connector	206.0201	
TR-100	24 VAC transformer for 5 solenoid or 9 motor valves MBV	206.5001	
TR-200	24 VAC transformer for 10 solenoid or 18 motor valves MBV	206.5002	
KD-7-STD-1B	Terminal box wiring	206.0070	
SD-7-STD-1B	Socket wiring	206.0071	
PSM-1A/B	Pump control relay for KD/SD-7-STD-1A/B	001.0215	

For accessories for solenoid valves, motor valves, dirt traps and immersion shaft sleeves, see pages 14 and 15

S M 206.5001
206.5002

S 300.0350

M S

304.0001
304.0014

S 300.0112

206.0071

S M 206.0070

001.0215

M 300.0180

Cube-KD Fermentation Temperature Control System

Control unit with integrated terminal box for fixed installation close to the tank. Cables for the 24VAC supply and bus cables can be carried out/bridged. The temperature probe, solenoid and motor valves can be directly connected. No other wiring position is required.

Cube-KD features

- Temperature range -9.9... 99.9°C
- LED display for target and actual value
- LEDs for CO_2 intensity, output status, operating mode,
- Unit °C/°F
- 2 relay outputs for heating + cooling, 20 VA each
- Integrated bus system for PC connection
- 24 V/50 Hz supply voltage
- Power input 2 VA
- Terminal box integrated in unit with terminal strips, 2.5mm²
- 24 VAC supply and bus cables can be bridged
- Robust plastic controller housing, membrane keypad, cable glands
- Unit ready for connection, integrated cable glands with strain relief
- Water-protected design, IP65

Designation	Design	Order no.	Unit price/€
CUBE-KD	CUBE fermentation temperature control system with integrated terminal box	206.0105	
TF 5 - 8	Temperature probe, 8m long, M12 cable gland	202.0021	
TF 5 - 15	Temperature probe, 15m long, M12 cable gland	202.0022	
TR-100	24 VAC transformer for 5 solenoid or 9 motor valves MBV	206.5001	
TR-200	24 VAC transformer for 10 solenoid or 18 motor valves MBV	206.5002	

For accessories for solenoid valves, motor valves, dirt traps and immersion shaft sleeves, see pages 14 and 15

202.0021
202.0022

CUBE-MV-TR/CEE+ and CUBE-KH-TR/CEE Fermentation Temperature Control System

Fully assembled control unit for affixing to the tank and direct connection with the cooling water circuit.

Features

- Temperature range -9.9... 99.9 °C
- Safe operation, thanks to 24 VAC safety extra-low voltage (SELV)
- IP65 protection against water jets
- Double display for target and actual value
- Constructed on a stable stainless steel 1.4301 base plate
- 8 m temperature probe cable
- Stable hook for suspension on the tank or wall
- Robust plastic controller housing, membrane keypad
- Permanent fixture: Solenoid valve with 1/2" dirt trap or 1/2" motor ball valve
- Unit ready for connection

Designation	Design	Order no.	Unit price/€
CUBE-MV-CEE+	10 m connecting cable with CEE connector 24 VAC, solenoid valve	206.0116	
CUBE-MV-TR+	6m connecting cable with connector transformer 230 V / 50 Hz, Solenoid valve	206.0115	
CUBE-KH-CEE	10 m connecting cable with CEE connector 24 VAC, motor ball valve	206.0121	
CUBE-KH-TR	6m connecting cable with connector transformer 230 V / 50 Hz, motor ball valve	206.0120	

Note: Always use the temperature probe with an immersion shaft sleeve for reasons of hygiene and reliability!

206.0115
206.0116

201.0034

206.0120
206.0121

206.5003
206.5004

201.0033

201.0035
201.0036

CEE Plug&Play Accessory

Connection system 24 V AC, ready for connection, for terminal-free, flexible connection and operation of the CUBE-MV-TR/CEE+ and Cube-KH-TR/CEE fermentation temperature control systems in winemaking facilities and wineries.

Features

- Safe operation, thanks to 24 V AC safety extra-low voltage (SELV)
- Resistant to water spray, IP54
- Speedily convertible
- Expandable as desired

Designation	Details	Order no.	Unit price/€
TR-100-CEE	Transformer 24 VAC with CEE connection socket for 5 CUBE-MV-CEE or 9 CUBE-KH-CEE	206.5003	
TR-200-CEE	Transformer 24 VAC with CEE connection socket for 10 CUBE-MV-CEE or 18 CUBE-KH-CEE	206.5004	
CEE-KV	Crossconnect 24V, 3-pole	201.0034	
CEE-VK-5	5m CEE extension cable, 24V, 3-pole	201.0035	
CEE-VK-10	10 m CEE extension cable, 24 V, 3-pole	201.0036	
CEE-WST-3	CEE wall socket, 24V, 3-pole	201.0033	

See page 15 for immersion shaft sleeve accessory

CUBE-PLUG Fermentation Temperature Control System

Fully assembled control unit with stainless steel hook for mobile use via the 7-pole plug-in system with bus capability.

Features

- Temperature range -9.9... 99.9 °C
- Safe operation, thanks to 24 V AC safety extra-low voltage (SELV)
- Double display for target and actual value
- Robust plastic controller housing, membrane keypad
- Stable hook for suspension on the tank or wall
- IP65 protection against water jets,
- 8 m temperature probe cable for target and actual

Designation	Design	Order no.	Unit price/€
CUBE-Plug	6m connecting cable, 7-pole angular connector, probe	206.0101	
SD-7-STD-1B	Socket wiring	206.0071	
PSM-1A/B	Pump control relay for KD/SD-7-STD-1A/B 1x required in each case for cooling and heating	001.0215	

For accessories for solenoid valves, motor valves, dirt traps and immersion shaft sleeves, see pages 14 and 15

206.0101

206.0071

001.0215

Process control

CUBE-CABINET Fermentation Temperature Control System

The new CUBE-CABINET control system in a stainless steel housing is the ideal solution for centralised control of fermentation processes in a winery. The integrated CUBE series control units have separate displays for the simultaneous indication of target and actual values and a visual display indicating the fermentation intensity. This improves clarity and operability. Other status signal lights indicate the operating mode, valve outputs and CO_2 and MOX functions, which ensure that the vintner has complete control of the treatment processes. The control cabinet can be linked to the office PC via the standard integrated bus system using a data cable (max. 1,200 m). Processes can be influenced, controlled and documented using the database-supported WMA software (Wine Maker's Assistant).

CUBE-CABINET features

- Temperature range -9.9... 99.9°C
- LED display for target and actual value
- LEDs for CO_2 intensity, output status, operating mode, unit °C/°F
- Stainless steel cabinet (1.4301)
- 2 relay outputs for heating + cooling, 20 VA each
- Integrated bus system for PC connection
- Unit ready for connection with integrated 24 V AC power supply unit
- Integrated relay (floating contact) for cold water kit requirement
- Power supply from the mains grid, connected to 230 V/50 Hz
- Water-protected design, IP65
- Units for 10 and 20 tanks, arranged next to each other in as many rows as required

Designation	Details	Order no.	Unit price/€
CUBE-BIU	Integrated controller module for CUBE-CABINET	206.0550	
CUBE C-10 INOX	Switch cabinet for 10 CUBE-BIU units	206.0551	
CUBE C-20 INOX	Switch cabinet for 20 CUBE-BIU units	206.0552	
CUBE C-10 INOX SET	CUBE C-10 INOX incl. 10 controllers and 10 probes, 8 m	206.0553	
CUBE C-20 INOX SET	CUBE C-20 INOX incl. 20 controllers and 20 probes, 8 m	206.0554	
TF 5 - 8	Temperature probe, 8m long, M12 cable gland	202.0021	
TF 5 - 15	Temperature probe, 15m long, M12 cable gland	202.0022	
KD-FOX-1	Terminal box for probe and valve for one tank	206.0061	
KD-FOX-2	Terminal box for probes and valves for two tanks	206.0062	

For accessories for solenoid valves, motor valves, dirt traps and immersion shaft sleeves, see pages 14 and 15

Dimensions (W x H x D):
CUBE-C-10: 380 x 600 x 210 mm
CUBE-C-20: 600 x 600 x 210 mm

Fermentation Temperature Control System FOX

The FOX fermentation process control system combines reliable 19" module technology with innovative control technology, which reflects the latest research findings. Integration of two separate displays for simultaneous indication of target and actual values and visual display of the fermentation intensity are new elements which improve clarity and operability. The control cabinet can be linked to the office PC via the standard integrated bus system using a data cable (max. 1,200 m). Processes can be influenced, controlled and documented using the database-supported WMA software (Wine Maker's Assistant).

FOX features

- Temperature range -9.9... 99.9 °C
- LED display for target and actual value
- LEDs for CO_2 intensity, output status, operating mode, unit °C/°F
- 19" module housing for 10/20/30/40/50 tanks (steel, plastic coated)
- 2 relay outputs for heating + cooling, 20 VA each
- Integrated bus system for PC connection
- Unit ready for connection with integrated 24 V AC power supply unit
- Integrated relay (floating contacts) for cold and hot water pump
- Integrated alarm relay (floating contacts) for alarm forwarding
- Power supply from the mains grid, connected to 230 V/50 Hz
- Protection rating: IP54 (resistant to water spray)

Designation	Design	Order no.	Unit price/€
FOX-PIU	Plug-in unit for FOX system	206.0023	
C-10	Switch cabinet for 10 FOX-PIU units	206.0501	
C-20	Switch cabinet for 20 FOX-PIU units	206.0502	
C-30	Switch cabinet for 30 FOX-PIU units	206.0503	
C-40	Switch cabinet for 40 FOX-PIU units	206.0504	
C-50	Switch cabinet for 50 FOX-PIU units	206.0505	
TF 5 - 8	Temperature probe, 8m long, M12 cable gland	202.0021	
TF 5 - 15	Temperature probe, 15m long, M12 cable gland	202.0022	
KD-FOX-1	Terminal box for probe and valve for one tank	206.0061	
KD-FOX-2	Terminal box for probe and valve for two tanks	206.0062	

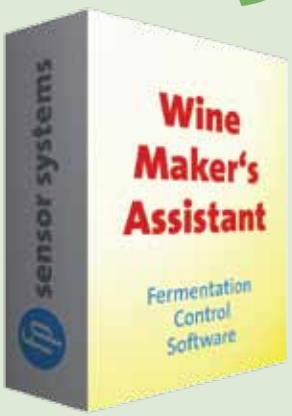
For accessories for solenoid valves, motor valves, dirt traps and immersion shaft sleeves, see pages 14 and 15

206.0503

Dimensions (W x H x D):
C-10: 600 x 212 x 373 mm
C-20: 600 x 345 x 373 mm
C-30: 600 x 478 x 373 mm
C-40: 600 x 612 x 373 mm
C-50: 600 x 746 x 373 mm

206.0023

WMA (“Wine Maker‘s Assistant”) software



You can make a professional and centrally controllable system out of your individual tank controllers with this innovative software. It integrates all type FOX, CLIP and CUBE controllers. You can archive your data from the fermentation process with the database-supported solution, allowing you to comprehend later how your wines were created. A range of extremely useful additional functions facilitate working with the program considerably, e.g. the cellar ground plan, simple system configuration, group actions and much more.

WMA features

- Display functions: current temperature values and target values, status of outputs, alarm and error outputs
- Visualisation: Graphic display of temperature values over time, graphic depiction of the fermentation graph and additional measurement values over time, freely editable cellar views, individual tank display
- Documentation/Archiving/Analysis: Input of wine batch information (e.g. location, grape, intended quality level)
- Input of process data (e.g. yeast type, yeast addition...)
- Input of notes during the process (with time stamp)
- Finalisation, recording, loading and display of finished batches

Configuration: Input of tank names with assignment of controller addresses, alarm procedures
Measuring frequency adapts automatically to the measurement dynamics, saving memory space.
Safety functions: Protection of program against unauthorised changes - direct blocking of changes possible on controller.

Designation	Details	Order no.	Unit price/€
BUS converter SET	Interface converter RS485/USB with cable	500.0014	
LAN converter SET	Interface converter RS485/LAN	500.0103	
Wine Maker‘s Assistant full version	Full version for up to 16 tanks	500.0030	
Wine Maker‘s Assistant Add-On4	Additional module for a further 4 tanks in each case	500.0031	

DM35 density measurement unit

The 4.0 fermentation control from fp sensor systems helps reduce the workload during the tight grape harvesting schedule. Data carriers (RFID tags) mounted on the wine tanks can be read with the DM35 measurement unit, thus facilitating selection of the tank number and desired measuring method. A density value recorded with the unit can therefore be assigned to a tank without any error. For example, a vintner can record all density values of the tanks in his cellar in a single run once a day and transmit the data wirelessly to the PC via the integrated bluetooth interface. The data is processed further there, with the sugar content and breakdown rate being automatically calculated and a fermentation graph created.

WMA features

- Measurands: Density: 0.001 g/cm³ [1) 2)]
- Measuring range: Density: 0.0 to 3.0 g/cm³; Temperature: 0.0 ... 40.0 °C
- Accuracy: Density: 0.001 g/cm³ [1)]; temperature: 0.2 °C
- Ambient temperature: -10... +50 °C
- Sample volume: 2 ml
- Protection rating: IP54
- Dimensions: LxWxH=245x103x126 mm
- Weight: approx. 660 g
- Scope of delivery: DM35, suction tube, transport case, batteries, Allen key, operating instructions

Designation	Details	Order no.	Unit price/€
DM35	Density measurement unit	206.6150	
DM-RFID	RFID tag	206.6151	
DM-BT	Bluetooth USB adapter	206.6152	
DM-HS	Hand loop	206.6153	

1) Viscosity <300 mPa*s, density <2 g/cm³
2) Further measurands; alcohol tables; sugar/extract tables; API functions; H_2SO_4 tables; 10 programmable customer-specific parameters

Actuators / Accessories

MV Solenoid Valve Accessories

Solenoid valves are a core functional element in temperature control units which need to meet high operational reliability requirements, as a system failure has far-reaching consequences. This is why we can offer you a prodcut of the highest quality, made in Germany. Valves are reliably deactivated as of a differential pressure of 0.3 bar. Use of a dirt trap in front of each valve is indispensable if reliable operation is to be assured. Please observe the selection table below when choosing the right size.

Features

- Brass valve body
- Internal thread on both sides
- Closed when not energised
- Pre-pressure 0.3 bar

Designation	Design	Order no.	Unit price/€
MV-24-1/2"-MS-DN13	Solenoid valve 1/2" DN13, 24 VAC	300.0350	
MV-24-3/4"-MS-DN25	Solenoid valve 3/4" DN25, 24 VAC	300.0357	
MV-24-1"-MS-DN25	Solenoid valve 1" DN25, 24 VAC	300.0358	
MV-KAB 3m, LED, Var, 24V	Solenoid valve cable with socket, length 3m	300.0112	

300.0350
300.0357
300.0358

300.0112

Valve Selection acc. to Tank Size

Nominal diameter	Ferm. cooling only	With timing
1/2" DN13	up to 18,000 litres	up to 7,500 litres
3/4" DN25	up to 65,000 litres	up to 26,000 litres
1" DN25	up to 80,000 litres	up to 32,000 litres

Precondition: Minimum water differential pressure on tank connection 1 bar;
Pressure drop on valve < 0.15 bar

KH/MA-24 Motor Ball Valve Accessories

Motor ball valves represent an alternative to solenoid valves when it comes to avoiding pressure surges in the water system. Use of a dirt trap is recommended.

Features

- Brass valve body
- Motor drive 24 V/50 Hz; power input 2 VA
- IP 54 protection rating
- Actuating time 120s
- Integrated emergency adjustment
- Connecting cable 1.2 m

Designation	Design	Order no.	Unit price/€
KH-1/2"-DN15	Bottom ball valve part 1/2", DN15	300.0203	
KH-3/4"-DN20	Bottom ball valve part 3/4", DN20	300.0202	
KH-1"-DN25	Bottom ball valve part 1", DN25	300.0204	
MA-24	Motor drive for KH-x"	300.0210	

Larger models available on request

300.0210

300.0203
300.0202
300.0204

MBV Motor Ball Valve Accessories

Features

- Nickel-plated brass valve body
- Pressure range/max. differential pressure: 16 bar/6 bar
- Integrated emergency adjustment
- Valve characteristic: linear
- Leakage rate: 0.01 %
- Rel. humidity: 0... 80 % rH non-condensing
- Ambient temperature range: 0... +55 °C
- Operating voltage: 24 V AC
- Adjustment time: 30 s/90°
- Operating/Standby power input: 9 VA/0.5 VA
- Protection rating: IP65
- Connecting cable: H03VV-F 5x0.5mm²; length 3m

Designation	Design	Order no.	Unit price/€
MBV-24-1/2"-MS-NI-DN15	1/2", DN15, fluid temperature: 5... 110 °C	300.0180	
MBV-24-3/4"-MS-NI-DN20	3/4", DN20, fluid temperature: 5... 110 °C	300.0181	
MBV-24-1"-MS-NI-DN25	1", DN25, fluid temperature: 5... 110 °C	300.0182	
MBV-24-1/2"-MS-NI-HL-DN15	1/2", DN15, fluid temperature: -10... 80 °C	300.0183	
MBV-24-3/4"-MS-NI-HL-DN20	3/4", DN20, fluid temperature: -10... 80 °C	300.0184	
MBV-24-1"-MS-NI-HL-DN25	1", DN25, fluid temperature: -10... 80 °C	300.0185	

Please order the dirt trap separately

300,0180 to 300,0185

ZA-RT Motor Ball Valve Accessories

This extremely robust and reliable motor valve is the ideal control actuator for temperature control units in wineries and the beverage industry. It can be regarded as a high-end unit due to its solid design and high-quality material characteristics.

Features

- Valve body: stainless steel (1.4408)
- Operating voltage: 24 V/50 Hz; +/-10%
- Power input: 15 W / 30% ED / cos phi = 0,75
- Operating temperature: -10... +55 °C
- Media temperature: -20... +120 °C
- Adjustment time: 7... 13 s/90 °
- Protection rating: IP65
- Auxiliary limit switch: each 1U, 4... 230 V AC/DC; 10 mA... 5 A max
- Integrated emergency adjustment with position indicator
- Connection: DIN43650 socket (scope of delivery)

300,0130 to 300,0132

Designation	Details	Order no.	Unit price/€
ZA-RT-24-1/2"-VA	1/2", DN15	300.0130	
ZA-RT-24-3/4"-VA	3/4", DN20	300.0131	
ZA-RT-24-1"-VA	1", DN25	300.0132	

Please order the dirt trap separately
Larger models available on request

SF Brass/Stainless Steel Dirt Trap Accessories

Designation	Details	Order no.	Unit price/€
SF-1/2"-MS	1/2" DN15, brass with internal thread on both sides	304.0014	
SF-3/4"-MS	3/4" DN20, brass with internal thread on both sides	304.0015	
SF-1"-MS	1" DN25, brass with internal thread on both sides	304.0016	
SF-1 1/4"-MS	1 1/4" DN32, brass with internal thread on both sides	304.0017	
SF-1/2"-VA	1/2" DN15, stainless steel (1.4408) with internal thread on both sides	304.0250	
SF-3/4"-VA	3/4" DN20, stainless steel (1.4408) with internal thread on both sides	304.0251	
SF-1"-VA	1" DN25, stainless steel (1.4408) with internal thread on both sides	304.0252	
SF-1 1/4"-VA	1 1/4" DN32, stainless steel (1.4408) with internal thread on both sides	304.0253	

Larger models available on request

304,0014 to 304,0017

304,0250 to 304,0253

TSH Immersion Shaft Sleeve Accessories

Designation	Details	Order no.	Unit price/€
TSH-230-S	Immersion shaft sleeve 3/8" ET, M12x1.5mm IT, 1.4301, screw-in design	301.0006	
TSH-230-W	Immersion shaft sleeve, weldable, M12x1.5mm IT, 1.4301	301.0007	
TSH-230-HF	Immersion shaft sleeve, tapered wooden thread, M12x1.5mm IT, 1.4404	301.0029	
TSH-230-NW20-S	Immersion shaft sleeve NW20, M12x1.5mm IT, 1.4301, screw-in design	301.0030	
TSH-230-1/2"-S	Immersion shaft sleeve 1/2" ET, M12x1.5mm IT, 1.4301, screw-in design	301.0031	
TSH-230-ZLK	Mobile immersion shaft sleeve for bunghole valve M12x1.5mm IT, 1.4301	301.0033	
TSH-230-NW10-S	Immersion shaft sleeve NW10, M12x1.5mm IT, 1.4301, screw-in design *)	301.0034	
TSH-230-NW10/Clip-S	Immersion shaft sleeve NW10, M12x1.5mm IT, 1.4301, screw-in design	301.0035	

*) Only suitable for cable probe TF-5-8/15 or dial thermometer ZTM-80, not for Clip

Heat exchanger

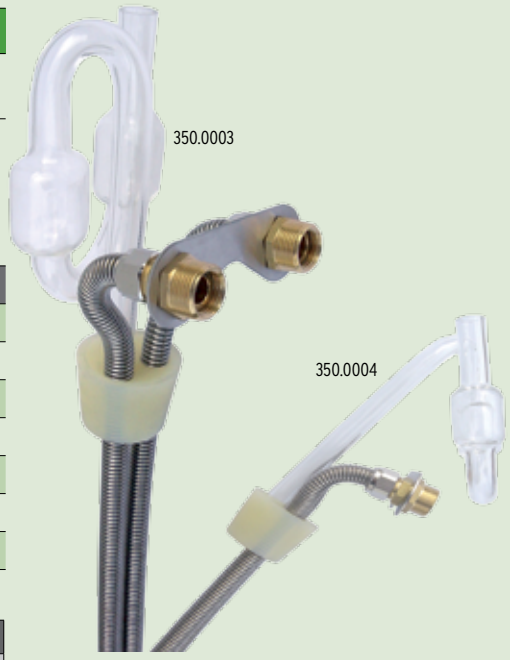
Cooltube CT Cooling Hose

This cooling hose is designed for flexible laying in existing stainless steel tanks or wooden barrels without a fixed integrated heat exchanger.

Features

- Hose material stainless steel (1.4404), AISI316L, polished surface
- Max. operating pressure 4 bar
- With silicone fermentation plug
- Connections: 3/4" external thread

Accessories: Fermentation tube attachment 0° or 45°



Designation	Overall length	Tank size	Order no.	Unit price/€
CT10	1,000 mm	10 hl *)	302.0150	
CT20	2,000 mm	20 hl *)	302.0151	
CT30	3,000 mm	30 hl *)	302.0152	
CT40	4,000 mm	40 hl *)	302.0153	
CT50	5,000 mm	50 hl *)	302.0154	
GRA-0 fermentation tube attachment 0°			350.0003	
GRA-45 fermentation tube attachment 45°			350.0004	

*) Standard situation: Fermentation temperature 18 °C, flow temperature 7 °C, return flow temperature 12 °C

Cooltube cooling hose technical data

Cooling hose	Type	CT10	CT20	CT30	CT40	CT50
	Order no.	302.0150	302.0151	302.0152	302.0153	302.0154
For tank volumes up to *)	hl	10	20	30	40	50
Overall length L	mm	1,000	2,000	3,000	4,000	5,000
Overall hose length 2xL	mm	2,000	4,000	6,000	8,000	10,000
Nom. diameter	inch	1/2	1/2	1/2	1/2	1/2
Surface	m^2	0.18	0.35	0.53	0.70	0.88
Connection pitch	mm	60	60	60	60	60
Pipe thread length 3/4"	mm	12	12	12	12	12
Fermentation plug size: Øtop; Øbottom; heightmm		60; 50; 45	60; 50; 45	60; 50; 45	60; 50; 45	60; 50; 45

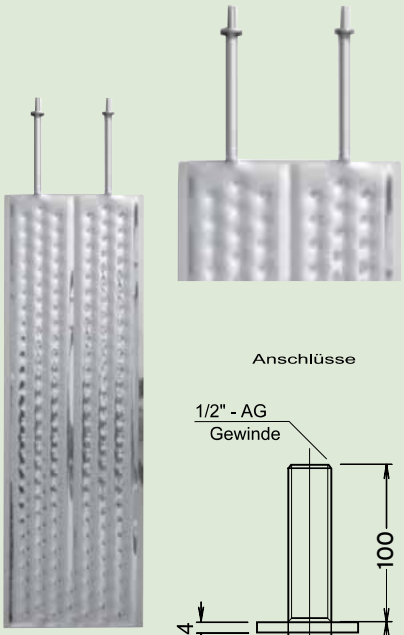
*) Standard situation: Fermentation temperature 18 °C, flow temperature 7 °C, return flow temperature 12 °C

Stainless Steel Cooling Plates HE

High-quality plate heat exchanger for installation in closed wine tanks or use in open vessels.

Features

- Material 1.4404 (V4A)
- Connection tube 1/2" with flange disc and thread *)
- Double welded (roll-seam and WIG welded)
- Max. operating pressure 4bar
- Electropolished surface (for improved potassium bitartrate detachment)
- Design index -G: connections on short side, **fitting from above**
- Design index -S: connections on long side, **lateral fitting**
- Suitable for screwing in or welding



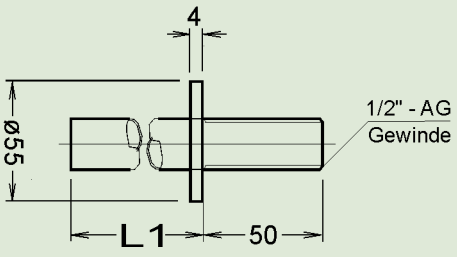
Designation	Tank capacity	Dimensions [mm]	L1 [mm]	Tube pitch (centre-centre) [mm]	Order no.	Unit price/€
HE500-G	3,200 l. **)	LxW=500x370	200	200	302.0001	
HE750-G	4,800 l. **)	LxW=750x370	200	200	302.0002	
HE1000-G	6,400 l. **)	LxW=1,000x370	200	200	302.0003	
HE1250-G	8,000 l. **)	LxW=1,250x370	200	200	302.0004	
HE1500-G	9,600 l. **)	LxW=1,500x370	200	200	302.0005	
HE1750-G	11,200 l. **)	LxW=1,750x370	200	200	302.0006	
HE2000-G	12,800 l. **)	LxW=2,000x370	200	200	302.0007	
HE2500-G	16,000 l. **)	LxW=2,500x370	200	200	302.0008	
HE3000-G	19,200 l. **)	LxW=3,000x370	200	200	302.0009	

*) Tube connection cross section 1/2" suitable for tanks up to 30,000 litres
**) Standard situation: Fermentation temperature 18 °C, flow temperature 7 °C, return flow temperature 12 °C

Designation	Tank capacity	Dimensions [mm]	L1 [mm]	Order no.	Unit price/€
HE500-S	3,200 l. **)	LxW=500x370	56	302.0029	
HE750-S	4,800 l. **)	LxW=750x370	56	302.0030	
HE1000-S	6,400 l. **)	LxW=1,000x370	56	302.0031	
HE1250-S	8,000 l. **)	LxW=1,250x370	56	302.0032	
HE1500-S	9,600 l. **)	LxW=1,500x370	56	302.0033	
HE1750-S	11,200 l. **)	LxW=1,750x370	56	302.0034	
HE2000-S	12,800 l. **)	LxW=2,000x370	56	302.0035	
HE2500-S	16,000 l. **)	LxW=2,500x370	56	302.0036	
HE3000-S	19,200 l. **)	LxW=3,000x370	56	302.0037	

Designation	Tank capacity	Dimensions [mm]	L1 [mm]	Order no.	Unit price/€
HE250-150-S	650 l. **)	LxW=250x150	56	302.0089	
HE500-150-S	1,300 l. **)	LxW=500x150	56	302.0090	
HE750-150-S	1,950 l. **)	LxW=750x150	56	302.0091	
HE1000-150-S	2,600 l. **)	LxW=1,000x150	56	302.0092	
HE1250-150-S	3,200 l. **)	LxW=1,250x150	56	302.0093	
HE1500-150-S	3,850 l. **)	LxW=1,500x150	56	302.0094	

Anschlüsse



Accessories

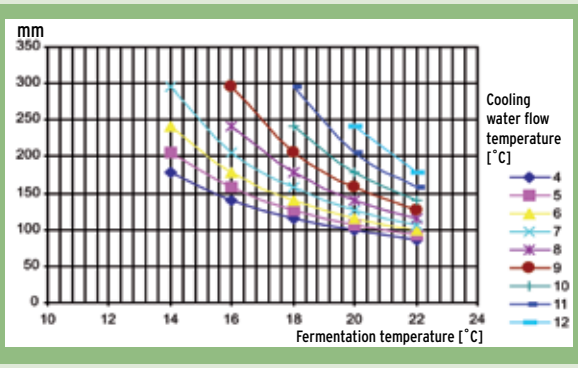
Designation	Details	Order no.	Unit price/€
BS-1/2	Fixing kit: 2 nuts, 2 washers, 2 food-safe seals	304.9000	
AS-1/2	Compensation kit: 8 PTFE wedges, 6 food-safe seals	304.9001	

*) Tube connection cross section 1/2" suitable for tanks up to 30,000 litres
**) Standard situation: Fermentation temperature 18 °C, flow temperature 7 °C, return flow temperature 12 °C

Stainless Steel Cooling Plates Size Selection

Plate length per 1,000 litres must (fermentation cooling only)

Applies for plate width 370 mm



Tube Cooler for Bunghole Valve RK

Tube heat exchanger for system integration in a standardised bunghole valve on beverage containers.

Features

- Material: stainless steel (1.4301), AISI304, polished surface
- Direct fit for standard bunghole valve K/M Gr. 37
- With tube diameter/material thickness: 36 mm / 2 mm
- Max. operating pressure 6 bar, test pressure 10 bar

Designation	Details	L [mm]	d [mm]	Inlet	Outlet	Order no.	Unit price/€
RK8	Tube heat exchanger	800	36.0	IT 1/2"	IT 1/2"	302.0193	
RK10	Tube heat exchanger	1,000	36.0	IT 1/2"	IT 1/2"	302.0191	
RK12	Tube heat exchanger	1,200	36.0	IT 1/2"	IT 1/2"	302.0192	
RK14	Tube heat exchanger	1,400	36.0	IT 1/2"	IT 1/2"	302.0194	

Heat exchanger

Coaxial Cooling Hose CTK

The heat exchanger hose with coaxial design is particularly suitable for use with confined bungholes in stainless steel tanks or wooden barrels.

Features

- Hose material stainless steel (1.4404), AISI316L
- Polished surface
- Max. operating pressure 4bar

Accessories: Fermentation gas bushing with silicone plugs
Fermentation tube attachments 0° or 45°

Designation	Details	Overall length	Tank size / Size	Order no.	Unit price/€
CTK10+	Coaxial cooling hose	1,000 mm	10 hl *)	302.0140	
CTK20+	Coaxial cooling hose	2,000 mm	20 hl *)	302.0141	
CTK30+	Coaxial cooling hose	3,000 mm	30 hl *)	302.0142	
CTK40+	Coaxial cooling hose	4,000 mm	40 hl *)	302.0143	
CTK50+	Coaxial cooling hose	5,000 mm	50 hl *)	302.0144	
GDF-1	CO2 gas bushing		Ø top/Ø bottom/height = 55/45/48 mm	304.9010	
GDF-2	CO2 gas bushing		Ø top/Ø bottom/height = 60/50/50 mm	304.9011	
GDF-3	CO2 gas bushing		Ø top/Ø bottom/height = 70/60/50 mm	304.9012	
GRA-0	Fermentation tube attachment 0°		Ø fermentation tube attachment = 20 mm shaft	350.0003	
GRA-45	Fermentation tube attachment 45°		Ø fermentation tube attachment = 20 mm shaft	350.0004	

*) Standard situation: Fermentation temperature 18°C, flow temperature 7°C, return flow temperature 12°C

Technical data

Cooling hose	Type	CTK10+	CTK20+	CTK30+	CTK40+	CTK50+
	Order no.	302.0140	302.0141	302.0142	302.0143	302.0144
For tank volumes up to *)	litre	10	20	30	40	50
Overall length L	mm	1,000	2,000	3,000	4,000	5,000
Nom. diameter/diameter	DN/mm	25/32	25/32	25/32	25/32	25/32
Surface	m^2	0.18	0.35	0.53	0.70	0.88
Cold water flow connections	inch	1/2" IT	1/2" IT	1/2" IT	1/2" IT	1/2" IT
Cold water return flow connections	inch	1/2" IT	1/2" IT	1/2" IT	1/2" IT	1/2" IT

*) Standard situation: Fermentation temperature 18°C, flow temperature 7°C, return flow temperature 12°C

BarrelCooler BC - Plug&Play

The new barrel cooler combines a flexible stainless steel cooling hose with a fermentation control system to form a compact unit. The unit is placed directly on a wooden barrel or tank and connected to the cold water circuit via a connection system. The previous setup time required for connecting individual units together is dispensed with as a result. The integrated unit carrier forms the basis for the bracket of the control unit, plug and cooling hose. The immersion shaft sleeve firmly connected to the unit carrier takes care of integrated temperature recording and stabilises the complete unit.

Features (standard equipment)

- Hose material stainless steel (1.4404), AISI316L, polished surface
- Max. operating pressure 6 bar, test pressure 10 bar
- Sturdy unit carrier with suspension hooks made of stainless steel (1.4301)
- Integrated silicone FDA fermentation plug (2 sizes)
- Integrated fermentation tube attachment with insect protection filter
- Flow/return flow connections via GK couplings

Designation	Overall length	Tank size	Plug Øtop / Øbottom / height	Medium neck size	Order no.	Unit price/€
BC10-55/47-TR	1,000 mm	10 hl *)	55 / 47 / 40 mm	51 mm	302.0120	
BC10-55/47-CEE	1,000 mm	10 hl *)	55 / 47 / 40 mm	51 mm	302.0125	
BC10-60/50-TR	1,000 mm	10 hl *)	59.5 / 50.5 / 45 mm	55 mm	302.0130	
BC10-60/50-CEE	1,000 mm	10 hl *)	59.5 / 50.5 / 45 mm	55 mm	302.0135	

*) Standard situation: Fermentation temperature 18 °C, water temperature 7 °C
Special lengths and designs available on request

Must Cooler MK

This newly developed must cooler enables the achievement of an efficient and flexible cooling system configuration in autumn. Well water, tap water or process water from a cold water kit can be used as cooling sources. The must cooler is ideal for the rapid cooling of must after pressing, warm grapes or recooling red must.

Features:
- Very high cooling effectiveness
- Adapts perfectly to spatial conditions in a winery
- Combines 2 functions: product conveyance and product cooling
- Simple to handle and clean
- Easy to transport and ideal for compact storage
- Very cost-effective in comparison to plate and tube bundle heat exchangers
- Also suitable for heating wine and must
- Must inlet connection: NW65 Mt
- Must outlet connection: NW65 Vt
- Cooling water intake connection: 3/4" IT
- Cooling water discharge connection: 3/4" ET

Internal corrugated tube:
- Stainless steel (1.4404), AISI316L, polished surface
- Max. operating pressure 4 bar, also suitable for tank and wine press vat cooling

Fittings:
- Stainless steel (1.4301), electropolished surface

External beverage hose:
- PVC beverage hose NW65 with spiral
- Food-safe for conveying beverages

Accessories:
- Adapters (translations) to 32Mz, 38Pf, WKN, NW40 40 mâcon and 50 mâcon

Designation	Material		Order no.	Unit price/€
MK8000-NW65	see above		302.0400	
Adapter 32Mz Mt x NW65 Vt	1.4301	D	301.0220	
Adapter 38 Pf Mt x NW65 Vt	1.4301	D	301.0221	
Adapter WKN Mt x NW65 Vt	1.4301	D	301.0222	
Adapter NW40 Mt x NW65 Vt	1.4301	D	301.0223	
Adapter NW65 Mt x 32Mz Vt	1.4301	D	301.0224	
Adapter NW65 Mt x 38Pf Vt	1.4301	D	301.0225	
Adapter NW65 Mt x WKN Vt	1.4301	D	301.0226	
Adapter NW65 Mt x NW40 Vt	1.4301	D	301.0227	
Adapter 40 mâcon Mt x NW65 Vt	1.4301	F	301.0228	
Adapter NW65 Mt x 40 mâcon Vt	1.4301	F	301.0229	
Adapter 50 mâcon Mt x NW65 Vt	1.4301	F	301.0230	
Adapter NW65 Mt x 50 mâcon Vt	1.4301	F	301.0231	

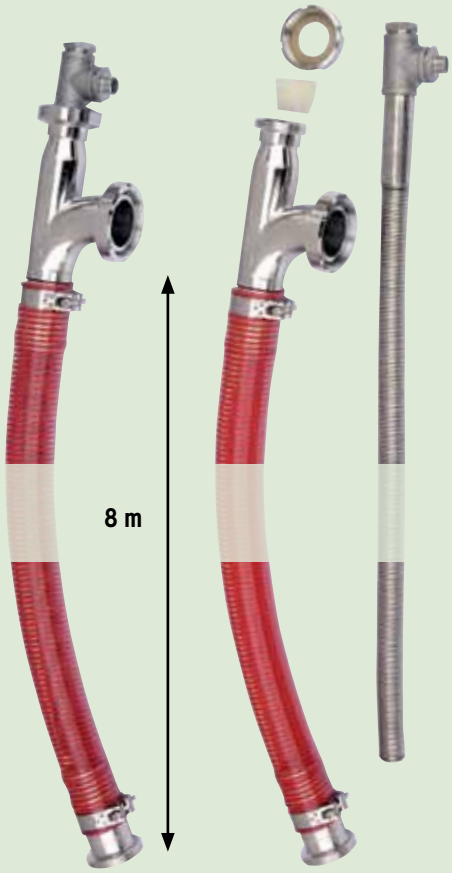
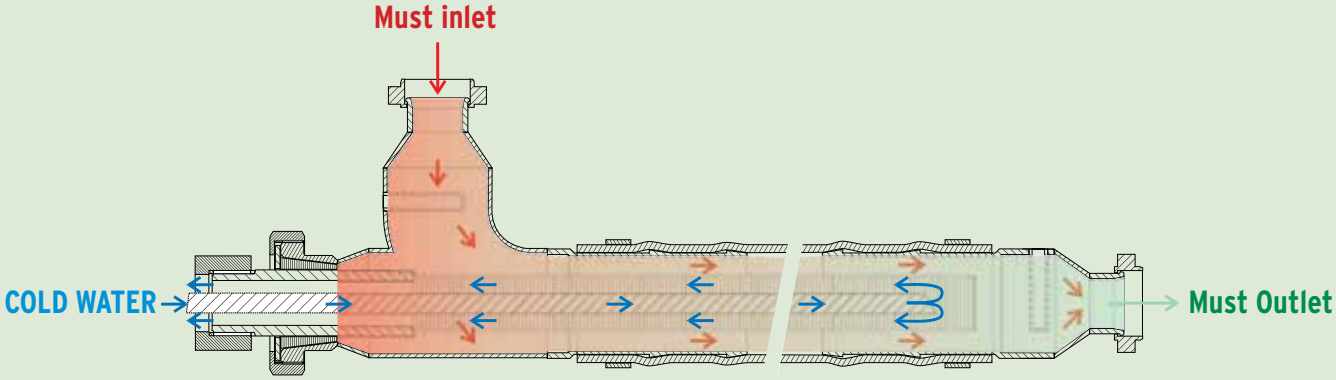


Table of exemplary performance data

Must			Water		Output
Flow [l/h]	Intake temperature [°C]	Discharge temperature [°C]	Flow [l/h]	Intake temperature [°C]	[kW]
3,000	45	30	2,000	13	47
2,000	37	25	3,800	11	25
3,000	27	22	2,000	13	16



Continuous Flow Coolers

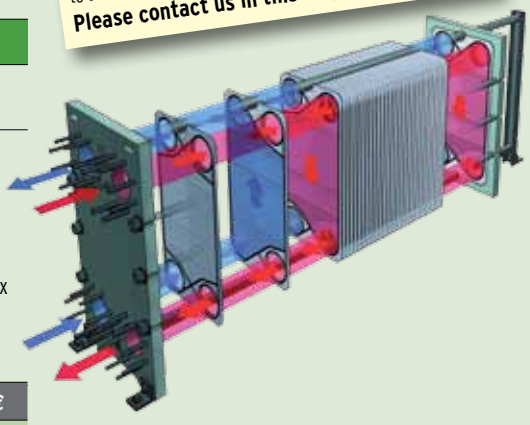
Should this modular system not meet your requirements, or not completely, we can also design a unit to suit your individual needs.
Please contact us in this respect.

DRW Plate Heat Exchanger for Cooling Must, Juice and Beer

Users in the beverage industry can select the unit best suited to their requirements with this modular system of sealed heat exchangers.

Features:

- Plate material: 1.4404 or 316L (V4A)
- Seal material: NBR (Food Grade)
- Max. operating pressure: 10 bar
- Operating temperature range: 5... 95 °C *)
- Connections: Threaded coupling (external thread) acc. to DIN 11851
- Solid content: Max. 3-5 % of volume with max. particle size 1 mm
- Standard frame: Steel ST52-3; primer coat; Top coat RAL7001 (silver grey) or RAL6011 (reseda green) or RAL5010 (gentian blue); Special paint finishes: available on request
- High-quality frame (1.4571): PWÜx-0.5-xx to PWÜx-10-xx PWÜx-20-xx: All-round sealed cladding 1.4301; Core: S355J2
- Options: Splash guard, ring spanner



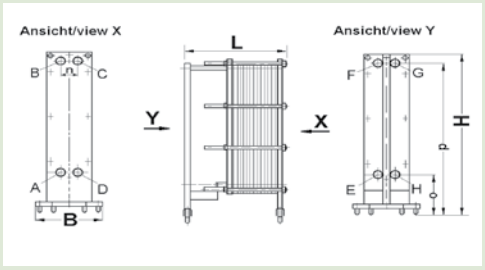
Designation	Details	Order no.	Unit price/€
PWÜ1-0,5-ST	PWÜ; painted steel frame; 500 l/h; cooling 40 °C => 20 °C	302.0550	
PWÜ1-0,5-VA	PWÜ; stainless steel frame; 500 l/h; cooling 40 °C => 20 °C	302.0551	
PWÜ1-2-ST	PWÜ; painted steel frame; 2,000 l/h; cooling 40 °C => 20 °C	302.0552	
PWÜ1-2-VA	PWÜ; stainless steel frame; 2,000 l/h; cooling 40 °C => 20 °C	302.0553	
PWÜ1-5-ST	PWÜ; painted steel frame; 5,000 l/h; cooling 40 °C => 20 °C	302.0554	
PWÜ1-5-VA	PWÜ; stainless steel frame; 5,000 l/h; cooling 40 °C => 20 °C	302.0555	
PWÜ1-10-ST	PWÜ; painted steel frame; 10,000 l/h; cooling 40 °C => 20 °C	302.0556	
PWÜ1-10-VA	PWÜ; stainless steel frame; 10,000 l/h; cooling 40 °C => 20 °C	302.0557	
PWÜ1-20-ST	PWÜ; painted steel frame; 20,000 l/h; cooling 40 °C => 20 °C	302.0558	
PWÜ1-20-VA	PWÜ; stainless steel frame 1.4571; 20,000 l/h; cooling 40 °C => 20 °C	302.0559	
PWÜ2-0,5-ST	PWÜ; painted steel frame; 500 l/h; cooling 25 °C => 10 °C	302.0560	
PWÜ2-0,5-VA	PWÜ; stainless steel frame 1.4571; 500 l/h; cooling 25 °C => 10 °C	302.0561	
PWÜ2-2-ST	PWÜ; painted steel frame; 2,000 l/h; cooling 25 °C => 10 °C	302.0562	
PWÜ2-2-VA	PWÜ; stainless steel frame 1.4571; 2,000 l/h; cooling 25 °C => 10 °C	302.0563	
PWÜ2-5-ST	PWÜ; painted steel frame; 5,000 l/h; cooling 25 °C => 10 °C	302.0564	
PWÜ2-5-VA	PWÜ; stainless steel frame 1.4571; 5,000 l/h; cooling 25 °C => 10 °C	302.0565	
PWÜ2-10-ST	PWÜ; painted steel frame; 10,000 l/h; cooling 25 °C => 10 °C	302.0566	
PWÜ2-10-VA	PWÜ; stainless steel frame 1.4571; 10,000 l/h; cooling 25 °C => 10 °C	302.0567	
PWÜ2-20-ST	PWÜ; painted steel frame; 20,000 l/h; cooling 25 °C => 10 °C	302.0568	
PWÜ2-20-VA	PWÜ; stainless steel frame 1.4301; 20,000 l/h; cooling 25 °C => 10 °C	302.0569	

*) Caution: There is a risk of damage to the unit caused by frost if the product or water temperatures are too low

Technical data for PWÜ1 plate heat exchanger					
Cooling of product from 40 °C to 20 °C (water from 5 °C to 10 °C)					
Model (painted steel frame)	PWÜ1-0,5-ST	PWÜ1-2-ST	PWÜ1-5-ST	PWÜ1-10-ST	PWÜ1-20-ST
Model (stainless steel frame)	PWÜ1-0,5-VA	PWÜ1-2-VA	PWÜ1-5-VA	PWÜ1-10-VA	PWÜ1-20-VA
Heat flow [kW]	11	45	440	220	445
Must/juice/beer flow rate [l/h]	500	2,000	5,000	10,000	20,000
Water flow rate [l/h]	1,900	7,600	19,000	38,000	76,000
Must/water pressure loss [bar]	0.2 / 0.3	0.2 / 0.7	0.2 / 0.7	0.2 / 0.9	0.2 / 0.9
Connections acc. to DIN 11851	DN 32	DN 32	DN 50	DN 50	DN 65
Width [mm]	300	300	340	340	380
Height [mm]	730	730	1,026	1,026	1,261
Depth [mm]	365	365	610	610	615
Approx. tare weight [kg]	60	70	150	170	250

Cooling Technology

Technical data for PWÜ2 plate heat exchanger					
Cooling of product from 25 °C to 10 °C (water from 5 °C to 10 °C)					
Model (painted steel frame)	PWÜ2-0,5-ST	PWÜ2-2-ST	PWÜ2-5-ST	PWÜ2-10-ST	PWÜ2-20-ST
Model (stainless steel frame)	PWÜ2-0,5-VA	PWÜ2-2-VA	PWÜ2-5-VA	PWÜ2-10-VA	PWÜ2-20-VA
Heat flow [kW]	8	33	83	220	330
Must/juice/beer flow rate [l/h]	500	2,000	5,000	10,000	20,000
Water flow rate [l/h]	1,400	5,700	14,000	28,000	57,000
Must/water pressure loss [bar]	0.1 / 0.3	0.2 / 0.7	0.2 / 0.7	0.2 / 0.9	0.2 / 0.9
Connections acc. to DIN 11851	DN 32	DN 32	DN 50	DN 50	DN 65
Width [mm]	300	300	340	340	380
Height [mm]	730	730	1,026	1,026	1,261
Depth [mm]	365	365	610	610	615
Approx. tare weight [kg]	60	70	160	190	280



A: Water inlet; B=Water outlet;
C: Product inlet; D=Product outlet

Dimensional drawing (we reserve the right to make technical changes after award of contract!)

Heat Exchangers to Customer Specifications

We can supply you with heat exchangers for process temperature control to meet your individual specifications. Please tell us your requirements and we will develop the optimum solution for you.

FPH Mobile Heating Unit

It is frequently necessary to introduce heat in a targeted manner during beverage production processes. FPH series electric heating units provide you with adequate volumes of hot water. The water temperature can be preselected on the electronic temperature controller. The integrated stainless steel centrifugal pump ensures that consumers are supplied with a generously designed delivery head.

Features

- Operating voltage: 400/50 Hz (alternating current)
- Open stainless steel tank with 80 litres capacity
- Stainless steel centrifugal pump: 2.5m3/h@3.2bar
- Control: electronic for consistent media temperature *)
- Safety: Water level monitor and overheating protection
- Overpressure system: Bypass control
- Mobile on casters
- Integrated filter as pump protection
- Dimensions: W x D x H=510 x 450 x 435 mm
- Weight: approx. 45 kg

Designation	Details	Order no.	Unit price/€
FPH 9	9 kW heating capacity	302.1003	
FPH 18	18 kW heating capacity	302.1004	
FPH 24 *)	24 kW heating capacity	302.1005	

*) FPH 24 heating control only

Continuous Flow Coolers

DRW Double Pipe Heat Exchanger for Cooling Must, Juice and Beer

This tube-in-tube heat exchanger cools or heats beverages gently to the desired target temperature during production. The high-quality and durable unit can be completely dismantled and is easy to clean.

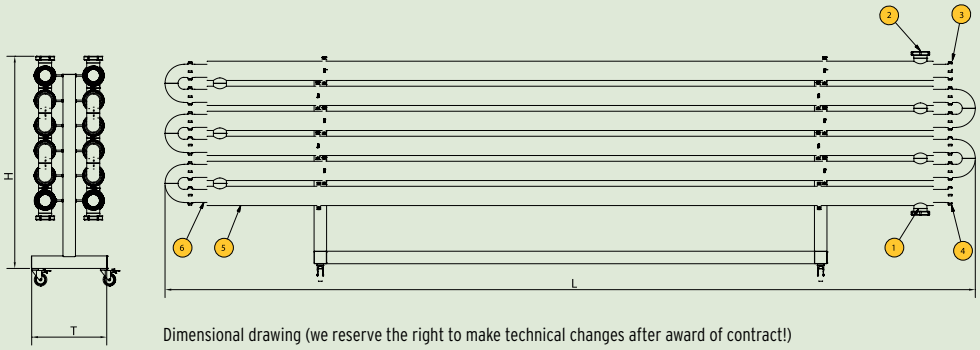
Features:

- Material: Stainless steel (1.4301) or AISI304
- Seal material: NBR (food grade)
- Max. operating pressure: 6 bar
- Operating temperature range: 5... 90 °C *)
- Connections: Threaded coupling (external thread) acc. to DIN 11851
- Fixing: Wall frame or mobile frame

Designation	Details	Order no.	Unit price/€
DRW-1-FG	DRW; mobile frame; 2,000 l/h; cooling 25 °C => 15 °C	302.0600	
DRW-1-WG	DRW; wall frame; 2,000 l/h; cooling 25 °C => 15 °C	302.0601	
DRW-2-FG	DRW; mobile frame; 5,000 l/h; cooling 25 °C => 15 °C	302.0602	
DRW-2-WG	DRW; wall frame; 5,000 l/h; cooling 25 °C => 15 °C	302.0603	
DRW-3-FG	DRW; mobile frame; 8,000 l/h; cooling 25 °C => 15 °C	302.0604	
DRW-3-WG	DRW; wall frame; 8,000 l/h; cooling 25 °C => 15 °C	302.0605	
DRW-4-FG	DRW; mobile frame; 10,000 l/h; cooling 25 °C => 15 °C	302.0606	
DRW-4-WG	DRW; wall frame; 10,000 l/h; cooling 25 °C => 15 °C	302.0607	
DRW-5-FG	DRW; mobile frame; 15,000 l/h; cooling 25 °C => 15 °C	302.0608	
DRW-5-WG	DRW; wall frame; 15,000 l/h; cooling 25 °C => 15 °C	302.0609	
DRW-6-FG	DRW; mobile frame; 20,000 l/h; cooling 25 °C => 15 °C	302.0610	
DRW-6-WG	DRW; wall frame; 20,000 l/h; cooling 25 °C => 15 °C	302.0611	

*) Caution: There is a risk of damage to the unit caused by frost if the product or water temperatures are too low

Should this modular system not meet your requirements, or not completely, we can also design a unit to suit your individual needs.
Please contact us in this respect.



Dimensional drawing (we reserve the right to make technical changes after award of contract!)

1. Water inlet
2. Water outlet
3. Product inlet
4. Product outlet

Technical data for DRW double pipe heat exchanger						
Cooling of product from 25 °C to 15 °C (water from 5 °C to 10 °C)						
Model with mobile frame	DRW-1-FG	DRW-2-FG	DRW-3-FG	DRW-4-FG	DRW-5-FG	DRW-6-FG
Model with wall frame	DRW-1-WG	DRW-2-WG	DRW-3-WG	DRW-4-WG	DRW-5-WG	DRW-6-WG
Must/juice/beer flow rate [l/h]	2,000	5,000	8,000	10,000	15,000	20,000
Water flow rate [l/h]	4,000	9,500	15,200	19,000	28,400	38,400
Heat flow [kW]	23	55	88	110	165	223
Outer tube diameter [mm] (5)	60	85	104	104	129	154
Inner tube diameter [mm] (6)	40	53	70	70	85	104
Pipe length [m]	6	6	6	6	6	6
Number of pipes [units]	4	6	10	10	12	12
Number of rows [units]	1	1	1	2	2	2
Product connections DIN 11851 (3) (4)	DN32	DN50	DN65	DN65	DN80	DN100
Water connections DIN 11851 (1) (2)	DN32	DN50	DN65	DN65	DN80	DN100
Approx. length [mm] (L)	6,300	6,300	3,300	6,300	6,300	6,300
Approx. height [mm] (H)	900	1,250	1,650	1,350	1,650	1,850
Approx. depth [mm] (D)	400	400	500	500	600	800
Approx. tare weight [kg]	150	320	480	570	950	1,160

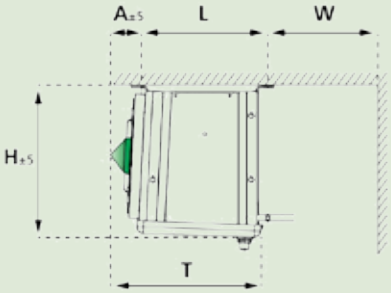
Room Cooling

Room Air Cooler RLK

Use your existing cooler in the warm months as well and ensure that optimum storage temperatures are created for your valuable wines. The utilisation and benefit of your investment in a cooling unit is considerably enhanced as a result, while simultaneously contributing to the maintenance of the quality of your wines. These room air coolers represent the latest technology the sector has to offer. A new degree of efficiency is achieved with optimised heat exchangers. The fans can be pivoted to facilitate easy cleaning of the fans and heat exchanger fins.

Features:

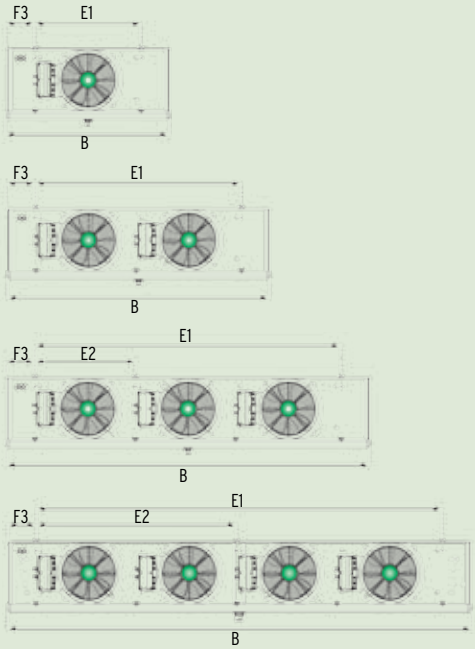
- Smooth aluminium housing with high-quality food-safe powder coating
- Easy to clean
- Fan plate tilted 3° towards drip tray



Designation	Output / Room size	No. of fans	Outer dimensions [mm]	Order no.	Unit price/€
RLK31	1.8 kW / 130 m³ *)	1	427 x 960 x 425	302.0046	
RLK32	3.3 kW / 260 m³ *)	2	427 x 1550 x 425	302.0047	
RLK33	5.3 kW / 390 m³ *)	3	427 x 2140 x 425	302.0048	
RLK34	6.9 kW / 520 m³ *)	4	427 x 2730 x 425	302.0049	
WIRE-RLK32	RLK32 option: Wiring of 2 fans in terminal box			302.0250	
WIRE-RLK33	RLK33 option: Wiring of 3 fans in terminal box			302.0251	
WIRE-RLK34	RLK34 option: Wiring of 4 fans in terminal box			302.0252	

*) Reference values for 15°C air temperature and 7/10°C water temperature for the usual conditions.
Can deviate, depending on the insulation, the occurrence of heat in the room, direct sunlight and similar.

Technical data	RLK31	RLK32	RLK33	RLK34
H [mm]	427	427	427	427
W [mm]	960	1,550	2,140	2,730
T [mm]	425	425	425	425
L [mm]	360	360	360	360
E1 [mm]	620	1,210	1,800	2,390
E2 [mm]	-	-	590	1,180
F [mm]	170	170	170	170
A [mm]	78	78	78	78
W [mm]	200	200	200	200
Tare weight [kg]	21	35	49	63
Water connection	1/2"	3/4"	3/4"	1"
Condensate drain	3/4"	3/4"	3/4"	1 1/4"
Fan power	230	230	230	230
Fan output [W] per fan	65	65	65	65



CUBE-NET-230V Room Temperature Controller

This room temperature controller has an integrated terminal box and can both cool and heat, perfectly complementing the control technology program for fermentation cooling. It can be connected directly to the 230 V AC mains power. RLK series room temperature controllers can be directly actuated, while the unit can be integrated in the fermentation control system bus.

Features:

- Displays for target and actual value
- 230 V AC supply
- Bus system for communication with the PC (Wine Maker's Assistant software accessory)
- Heating/cooling outputs 230 V AC/16 A and 24VAC/0.7A
- Connections via 5x KVS M16 (low voltage) and 2x M20 (mains voltage)

Designation	Design	Order no.	Unit price/€
CUBE-NET-230V	Room temperature controller	206.0107	
TF 5 - 8	Temperature probe, 8m, M12 cable gland	202.0021	

For accessories for solenoid valves, motor valves and dirt traps, see pages 14 and 15

Humidification

General Information on Air Humidification in Beverage Production

Safe product creation in a wooden barrel to the highest levels of quality can only be ensured through a consistent and adequately high humidity level in the storage cellar. In addition to controlled temperature, the humidity setting is a further parameter for the creation of ideal maturing conditions for the final product.

Inadequately low humidity leads to a relatively severe evaporation of the product in the ambient air in the cellar. This volumetric loss can no longer be compensated for. If the wooden barrel is not refilled promptly, detrimental microbacterial changes may occur in the event of air coming into direct contact with the surface of the liquid. These can even lead to spoilage of the product.

For this reason, it is imperative that wooden barrel cellars be kept at a constant humidity level within the range of 70... 80 % relative humidity. One additional positive side effect is the enhanced preservation of wooden barrels.

Optimum humidity is also important during storage of filled bottles, particularly for the cork. This dries out if the humidity is too low, its tension is eroded and liquid can leak out.

307,0001 to 307,0004

HYS HygroSens Pneumatic Humidification System

The HYS HygroSens pneumatic humidification system was developed specifically for use in wooden barrel cellars and wine bottle stores. The system requires a water and compressed air connection and an actuator signal for the integrated solenoid valve. Domestic water pressure should be reduced to a pressure of 1... 2 bar using a pressure regulator, and water from the domestic water mains should be pre-filtered with a 5 micrometre filter prior to being fed in. Compressed air should be provided from a compressor (oil separator required) to operate the system. This compressed air should have a pre-pressure within the range of 3... 10 bar. A pressure regulator with a pressure gauge (0... 6 bar) is integrated in the humidification unit itself, and this can be used to set the humidification capacity, which is governed by the configuration pressure.

Features

- Micro-atomisation of drinking water without Water treatment *
- Compact design - simple installation - self-installation
- Modular system - easily expanded
- Outputs configurable through nozzle selection **
- Humidifying output variable from 110 to 2,000 m^3 room air **
- Suitable for ceiling and wall mounting (pivot through 90°)
- Humidifying output variable from 500 to 2,000 m^3 room air
- Humidity regulator fitted conventionally in unit or electronically (externally)
- Dimensions: LxHxD=220x320x190 mm
- Solenoid valve for compressed air 24 V AC/DC
- 3-pole connecting cable with connector included in scope of delivery
- Comprehensive installation accessories

Model	Designation	for room volumes up to approx.	Order no.	Unit price/€
HYS-1 ***	Pneumatic humidification unit 1 x 4.5 kg/h	500 m^3	307.0001	
HYS-2 ***	Pneumatic humidification unit 2 x 4.5 kg/h	1,000 m^3	307.0002	
HYS-3 ***	Pneumatic humidification unit 3 x 4.5 kg/h	1,500 m^3	307.0003	
HYS-4 ***	Pneumatic humidification unit 4 x 4.5 kg/h	2,000 m^3	307.0004	
BD-1.0	Humidifier nozzle 1.0 kg/h	110 m^3	307.0010	
BD-3.0	Humidifier nozzle 3.0 kg/h	335 m^3	307.0011	
BD-4.5	Humidifier nozzle 4.5 kg/h	500 m^3	307.0005	
HYS-ST100	Humidistat integrated in HYS-X incl. 24 VAC power supply		307.0008	
HYS-MC	Digital humidity regulator incl. 24 VAC power supply		307.0009	
SDA	Pivoting nozzle adapter		307.0006	
DRN	Nozzle cleaning needle		307.0007	

* For pure drinking water with water hardness < 10 °dH poorer water qualities and greater degrees of hardness require an upstream water treatment plant

** BD-1.0, BD-3.0 or BD-4.5 freely selectable

*** Water hose connection to humidification units with click system

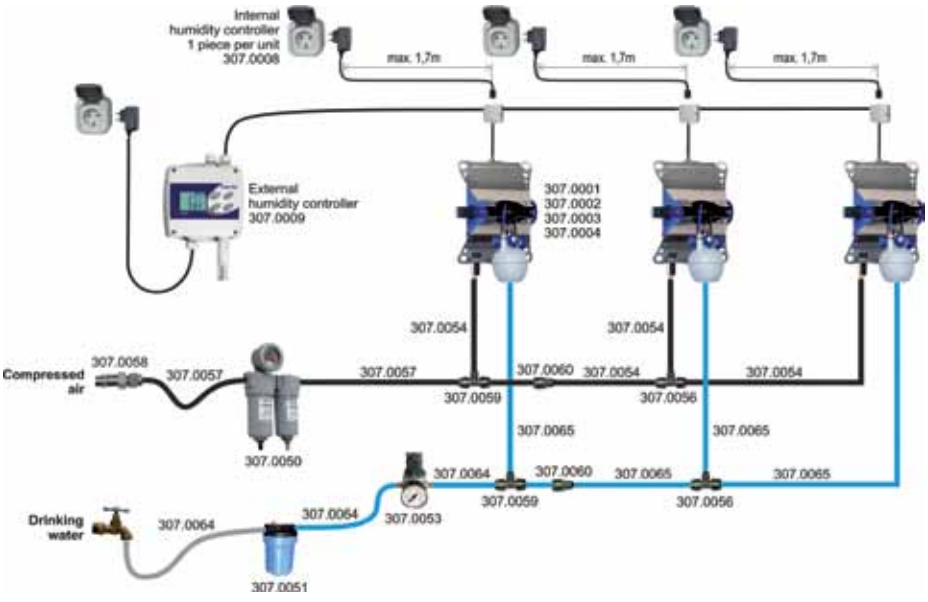
307.0006

307.0009

Accessories	Designation	Order no.	Unit price/€
WAF-5U	Water filter 5" incl. filter 5 micrometres; direct connection on both sides PAS-10/8 BU	307.0051	
WAF-FE	Spare filter element 5 micrometres for WAF-5U	307.0052	
WAF-A-10/8	Water filter connection ET 3/8" x 10/8	307.0062	
WAF-A-6/4	Water filter connection ET 3/8" x 10/8	307.0061	
DRM-0/10	Pressure regulator for water 0... 10 bar; direct connection on both sides with PAS-10/8	307.0053	
PAS-10/8-BU	PA hose 10/8 mm (blue) for water 1 roll = 50 running metres (minimum order quantity)	307.0064	
PAS-6/4-BU	PA hose 6/4 mm (blue) for water 1 roll = 50 running metres (minimum order quantity)	307.0065	
DLF	Pneumatic filter set incl. hose adapter 10/8	307.0050	
DLA-10/8	Pneumatic adapter for hose connection 10/8 to HYS	307.0058	
DLA-6/4	Pneumatic adapter for hose connection 6/4 to HYS	307.0055	
PAS-10/8-BK	PA hose 10/8 mm (black) for air 1 roll = 50 running metres (minimum order quantity)	307.0057	
PAS-6/4-BK	PA hose 6/4 mm (black) for air 1 roll = 50 running metres (minimum order quantity)	307.0054	
T-10/8	T-piece 3 x 10/8 mm for water and air	307.0063	
T-6/4	T-piece 3 x 6/4 mm for water and air	307.0056	
T-2x10/8 - 1x6/4	T-piece 2 x 10/8 1x6/4 mm for water and air	307.0059	
RED-10/8 - 6/4	Reduction 10/8 to 6/4	307.0060	

Technical data					
Model		HYS-1	HYS-2	HYS-3	HYS-4
Order no.		**307.0001**	**307.0002**	**307.0003**	**307.0004**
No. of nozzles	[items]	1	2	3	4
Humidification capacity ****	[kg/h]	1/3/4.5	2/6/9	3/9/13.5	4/12/18
Air consumption *****	[Nl/min]	9/27/40	18/54/80	27/54/120	36/107/160
Water intake pressure range	[bar]	1... 2 (max.)	1... 2 (max.)	1... 2 (max.)	1... 2 (max.)
Air intake pressure range	[bar]	3... 10 (max.)	3... 10 (max.)	3... 10 (max.)	3... 10 (max.)
Voltage/Frequency/Output	[V/Hz/W]	24/50/2	24/50/2	24/50/2	24/50/2

****The humidification capacity is set on the spray station pneumatic regulator
***** at 3 bar



Digital mini benchtop refractometers

The MA885 measures the density of grape juice in the °Brix, °Oechsle and °KMW units. The MA885 function is based on measurement of the refractive index of a solution. Measurement of the refractive index is both simple and speedy. It provides the vintner with an accepted method for recording the sugar content of grape juice. Calibration is realised easily with deionised or distilled water. In addition to eliminating measurement uncertainties that are peculiar to optical refractometers, the digital refractometer is also light and easy to transport, making it suitable for use in the field. The device uses internationally recognised unit conversions and compensates for temperature during operation. In addition to a battery status indicator and other helpful symbols, the temperature is simultaneously shown as a measurement value on the display.

Features

- Double LCD
- Automatic temperature compensation
- Uncomplicated commissioning and storage
- Battery operation with low power display
- Automatic deactivation after 3 min. inactivity
- Single-point calibration with distilled or deionised water
- IP65 protection rating (resistant to water spray)
- Reliable measurement values after approx. 1.5 seconds

Designation	Dimensions [mm]	Weight [g]	Order no.	Unit price/€
MA885	192 x 102 x 67mm	420	206.6300	

Technical data			
Measuring range *)	0-230°Oe/50%Brix/42°KMW	Enclosure material	ABS
Resolution	1°Oe/0.1%Brix/0.1°KMW	Protection rating	IP65
Accuracy	+/- 1°Oe/0.2%Brix/0.2°KMW	Battery	1 x 9V AA (included)
Light source	Yellow LED	Battery service life	Approx. 5000 measurements
Measurement time	Approx. 1.5 sec.	Autom. deactivation	After 3 min. inactivity
Min. sample volume	100 µl	Dimensions	192 x 102 x 67 mm
Temperature compensation	Automatic from 10 °C to 40 °C	Weight	420g

*) Other units on request

Metrology

NEPTUN wLUX battery LED work lamp

This battery LED tubular lamp can be used as both a mobile and stationary light. It can be secured in the workplace using the extendable and rotatable suspension hook. Moreover, it can also be attached in different positions to ferromagnetic metal surfaces using its three integrated magnets. The device can be used outdoors and in a wet environment, thanks to its innovative design. In addition to the main light at the front, an additional spotlight in the cover enables a variety of operational applications. The NEPTUN wPAD charging pad set is required to charge the NEPTUN wLUX lamp (order separately).

Features

- Handy - robust - light
- IP68 watertight (lamp)
- Wireless and contactless magnetic field battery charging, therefore: no contact corrosion/soiling/wear
- High luminosity (6 power LED): 55... 500 lumen (dimmable)
- Additional spotlight in cover: 300 lumen
- Powerful lithium-ion battery: 3.7V / 2,600mAh
- Operation time of main light / spotlight: approx. 3 or 10 hrs. / 9.5 hrs.
- Charging duration: approx. 4.5 hrs.
- LED charge indicator for signalling battery charge status
- Pivoting foot with holding magnet
- 2 powerful holding magnets at rear of lamp
- Battery without memory effect
- No deep discharging, as deactivation is electronic
- Battery reactivation following long period of non-use
- Scope of delivery: lamp
- Operating instructions DE - EN - FR - IT - ES

Designation	Dimensions [mm]	Weight [g]	Order no.	Unit price/€
Neptun wLux	256 x 56 x 39	375	207.0016	

207.0016

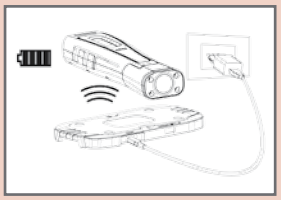
NEPTUN wPAD wireless charging panel and accessories

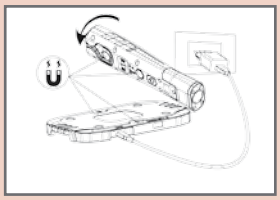
The NEPTUN wPAD set consists of a charging panel, charger and USB connection cable and enables contactless charging of a NEPTUN wLUX battery LED work lamp. The charging base enables dynamic charging of the lamp. The NEPTUN wLUX lamp is required for operation of the NEPTUN wPAD charging panel set (order separately).

Features

- 4 fixing holes for mounting on surfaces
- Wireless and contactless magnetic field battery charging, therefore: no contact corrosion/soiling/wear
- Signal LED as charging indicator
- Power supply: 230V/50Hz
- Scope of delivery: charging panel, power supply 230V/1A, USB connection cable
- Operating instructions DE - EN - FR - IT - ES

Designation	Dimensions [mm]	Weight [g]	Order no.	Unit price/€
Neptun wPad	175.5 x 100 x 13.5	183	207.0015	





Charging panel
207.0015

Power supply 230V/1A
207.0018

USB connection cable
207.0019

AL101 work lamp with LED technology

AL101 features

- Safety cellar lamp with 24 VAC safety extra-low voltage
- Robust galvanised protection cage and E27 socket
- 5m supply cable H07RN-F 2 x 1mm² with 2-pole CEE connector
- IP54 resistant to water spray

TR-20-CEE transformer features

- Robust safety plug transformer 230/24VAC/20VA
- 6m outgoing cable H05RN-F 2x0.75, 3-pole 24VAC CEE coupling
- Integrated thermal cutoff fuse

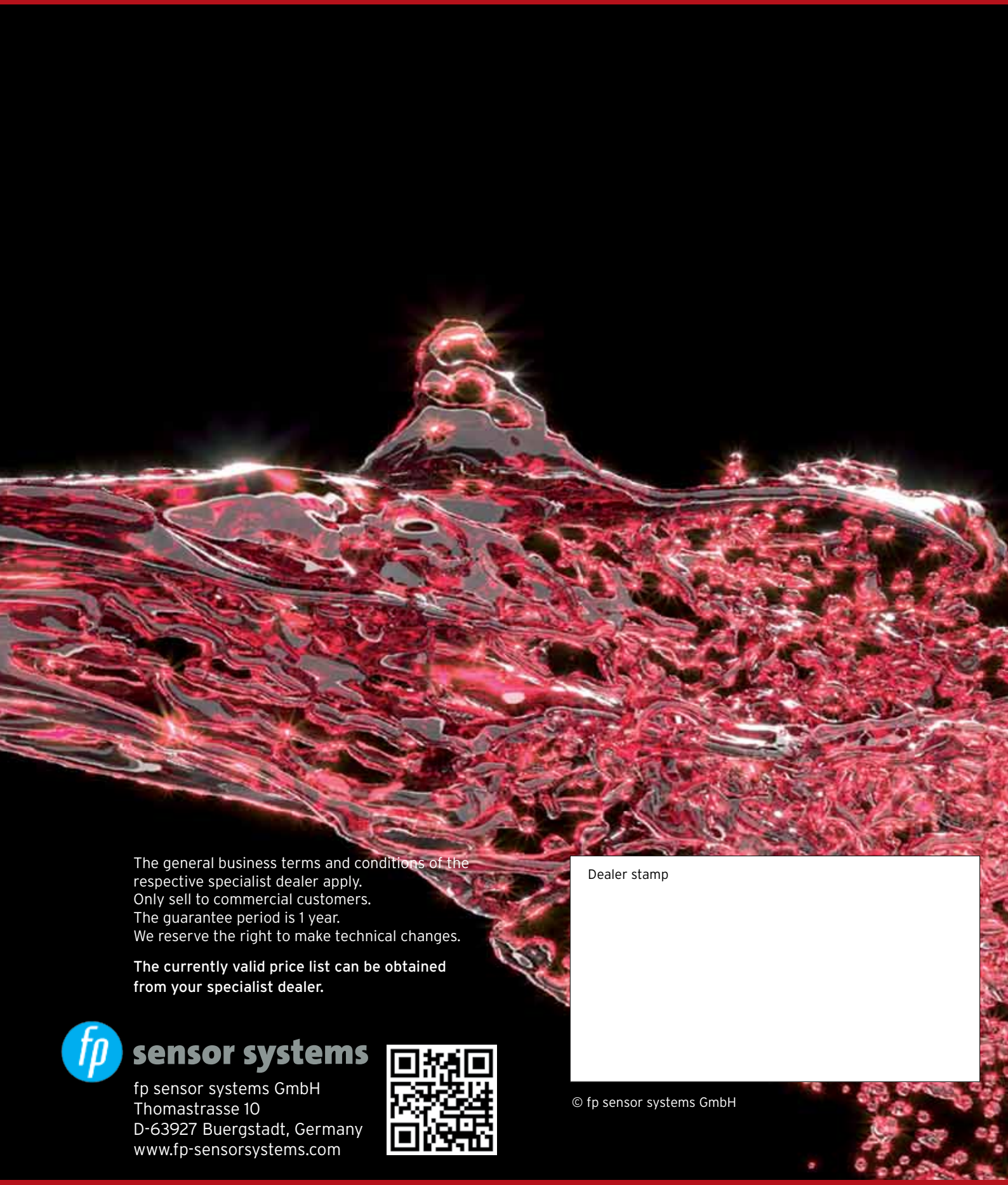
Designation		Order no.	Unit price/€
AL101-CEE *)	Work lamp with CEE connector	207.0058	
TR-20-CEE	Safety transformer with CEE cable coupling 24V, 20VA	206.5007	
EL-LED24-9	LED lamp 24V, 9VA, E27, 2.700K, >800lm, Ra>80	207.0204	
AL-101-EG	Replacement glass for AL-101 work lamp	207.0104	

*) Delivered without illuminant

206.5007

207.0058

www.fp-sensorsystems.com/catalog.pdf



The general business terms and conditions of the respective specialist dealer apply.
Only sell to commercial customers.
The guarantee period is 1 year.
We reserve the right to make technical changes.

The currently valid price list can be obtained from your specialist dealer.

Dealer stamp

fp sensor systems

fp sensor systems GmbH
Thomastrasse 10
D-63927 Buergstadt, Germany
www.fp-sensorsystems.com