

PRESSURE MAINTENANCE

MULTICONTROL MODULAR

EMCM



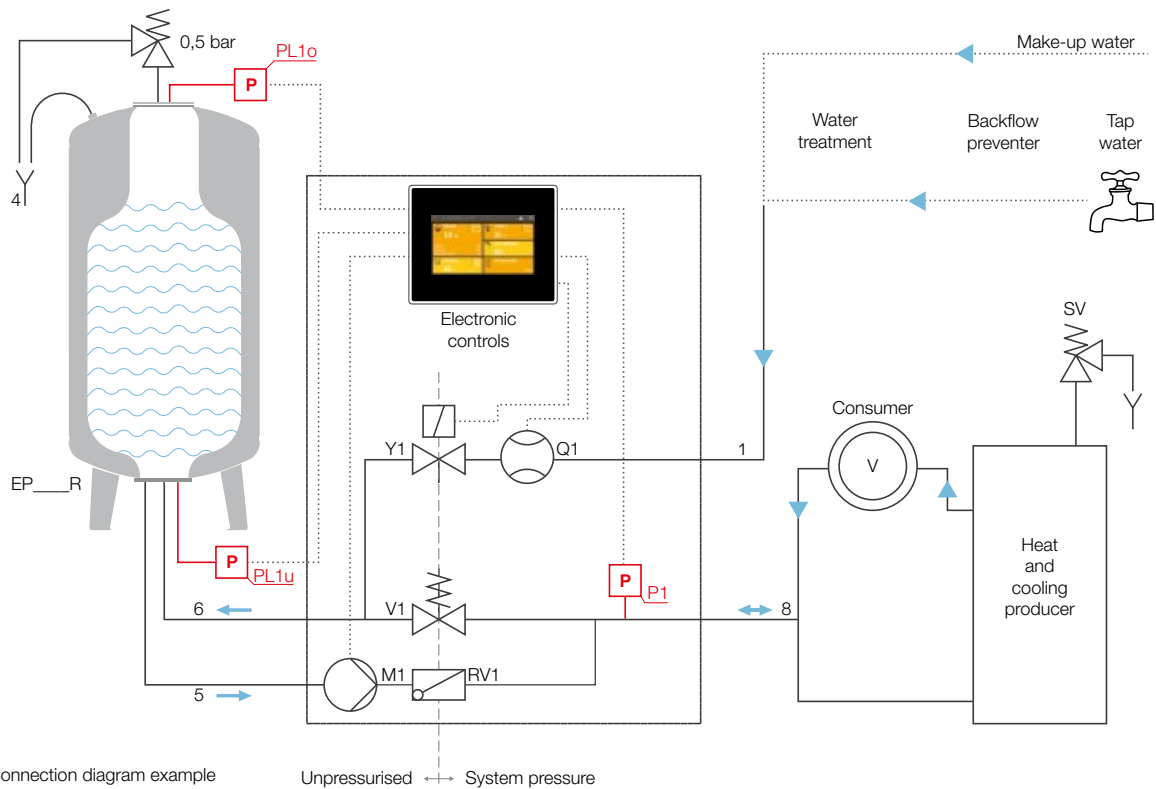
Pressure maintenance

Replenishment

Monitoring

SPIROEXPAND®

CONNECTION DIAGRAM FOR THE SYSTEM



LEGEND

1	Fresh water supply	6	Drain funnel tank safety valve
4	Expansion overflow pipe (from the system return)	8	Expansion pipe
5	Expansion pressure line (to the system return)	9	Pressure step degassing pipe
M1	Pressure maintenance pump	EP_R	Expansion vessel
RV1	Non-return valve	PL1o	Tank pressure transmitter top
V1	Overflow valve	PL1u	Tank pressure transmitter bottom
Y1	Solenoid valve	P1	System pressure transmitter
Y2	Pressure step degassing valve	Q1	Water meter
V1	Water meter	SV	System safety valve

THE PRINCIPLES BEHIND THE MULTICONTROL MODULAR SYSTEM

PRESSURE MAINTENANCE AND EXPANSION

SpiroExpand MultiControl Modular is our range of pressure maintenance units designed for larger systems. These units enable all of the expansion storage volume to be used and keep the pressure at a constant level in closed loop heating and cooling systems. They are manufactured in accordance with the regulations set out in EN12828 and SWKI 93-1. In a modular system, the pressure maintenance units are used in combination with additional external, unpressurized tanks from the product series EP____R(S) (with 0.5 bar safety valve). The number of modules varies according to the size of the system. The painted tanks are made of steel and the volume can be used to its full capacity. For the optimal separation of system water and the atmosphere, the tanks feature special high-quality membranes, which are flanged at both ends and can be replaced when necessary. The control unit utilises compact hydraulics and one or two low-noise pressure maintenance pumps, featuring both the highest quality mechanical shaft sealing and one or two pressure-relief valves, which constantly regulate the pressure and can be mechanically adjusted. The external hydraulic connection are fitted on the right-hand side, and can be switched to the left if needed. The shut-off device is located here, and there is a possibility for isolation from the rest of the system. The temperature of the water entering the system is monitored. For heating and cooling systems, two expansions (Volumina) can be easily operated using automatic levelling.

DEGASSING

Considering the VDI4708 and VDI2035-2 guidelines, Spirotech recommends the use of a separate vacuum degasser, which ensures the best possible degassing performance in heating and cooling systems.

WATER REPLENISHMENT

A refill module to maintain a minimum water level in the expansion tank(s) can be supplied as an option. Once the water level falls below the minimum setting, pressureless expansion tank(s) are automatically topped up with replenishment water. Optionally, the products in the SpiroPure range can be used to treat the replenishment water according to the standards set out in VDI 2035. Water mixed with fluids like glycol has to be treated specially to ensure it can be used safely. This can be achieved by using the solutions from our MultiControl Autofill EMCA range.

CONTROL AND MONITORING

Microprocessors are utilised for the electronic control of all operational processes. The control panel is ergonomically designed, with an illuminated and capacitive touchscreen display. The easy-to-follow instructions are available in many languages. The compact measuring and switch unit has its own casing and is supplied with connection wiring. In the basic version, four status messages are available: malfunction, warning, top-up in operation and system running. Remote monitoring is possible using the MultiControl binary and analog modules, the MultiControl bus modules or the MultiControl web module. The wide-ranging monitoring features also enable the system to be shut down should too much replenishment water enter the system, until a physical check is made. In addition, the capacity of a desalination unit can be measured, enabling it to be replaced at the right moment.

The **MultiControl Modular** comes in 78 possible versions, with twelve possible tank volumes ranging from 200 to 10,000 litres. A number of extensions are possible to increase the volumes.

- **Operational pressure range:** 1.0 – 16 bar.
- **Maximum operating pressure (PN):** 10 - 25 bar.
- **Maximum expansion volume:** 200 – 50,000 litres.
- **Maximum thermal output:** 450 – 100,000 kW.
- **Maximum temperature at point of connection:** 70 °C (over 70°C possible with intermediate / cooling vessel).
- **Maximum safety temperature in the system:** 110 °C.

Further variations and system possibilities are available on request.

FEATURES OF MULTICONTROL MODULAR

Mounting space for the various MultiControl remote monitoring modules. Simple to add later.

The control panel is ergonomically designed, with an illuminated and capacitive touchscreen display.

Separate electronic unit for optimal safety.

In the basic version: 4 status messages are available ("top-up in operation", "warning", "malfunction", "system running"). Possibility of a remote activation of the system using a pre-installed system.

Ideal access to all cable connection points – these can be easily positioned on the other side.

Electrical cable unit for all models with 3 x 400 V mains connection, including main switch (or switches), contactor and pump motor protection.

Shutoff for easy maintenance on the suction side of the pump.

Mounting space for EMCF replenishment module (already installed in this picture), exact measurement with accuracy to the litre, can be combined with water softening.

Temperature measurement of the water flowing to the expansion vessel is included as standard. This can have a number of uses and helps protect against situations harmful for the unit.

Mounting space for EMAE pressure step degassing module (already installed in this picture).

Pressure relief valve, constantly regulating the pressure.

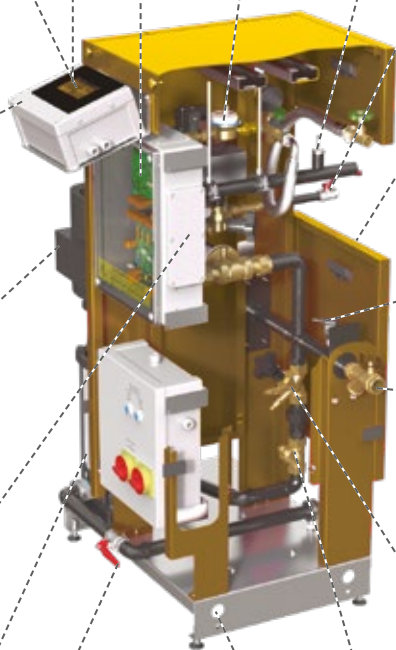
Precise measurement of system pressure.

Expansion pipe to the system, with a generous size and fitted as standard with the necessary shut-off possibilities. The connections are fitted on the left-hand side, and can be switched to the right if needed (as shown in the picture).

Shut-off and regulation valve for hydraulic calibration on the pressure side of the pump.

Soft-sealing angle seat check valve. The check element can be accessed without having to dismantle the entire valve.

Holes for transport aids e.g. for carrying rods.



TECHNICAL DATA

SYSTEM SOLO

SINGLE PUMP SYSTEM 1X100%

- One pressure maintenance pump, designed for 100% of the expansion volume flow
- One mechanical overflow valve, designed for 100% of the expansion volume flow

Example: **EMCM-S2-6.0** with **EMCF-3***

* Already installed in illustration:

1. EMCF-3, volume controlled make up module
2. Expansion line from/to the system return



MULTICONTROL MODULAR SOLO

Type	A	B	C	D	E	F	Connections ["]							W x H x D [mm]	Weight [kg]	
							1*)	2	3	5	6	8	9**			
EMCM-S1-4.0 EMCM-S1-5.6 EMCM-S1-8.1	1,0-4,0 2,0-5,6 4,0-8,1	10	70	1x 230V 50 Hz	0,6 0,6 0,8	10	Rp 1/2	Rp1	Rp1	Rp1	Rp1	-	-			
EMCM-S2-6.0 EMCM-S2-7.8	2,0-6,0 4,0-7,8	16		3x 400V 50 Hz	1,3		Rp 1/2 bzw. Rp 3/4	-	-	R5/4	R1	R1	Rp1	Rp1/2		
EMCM-S3-10.0	4,0-10,0	16			1,7						R6/4					
EMCM-S4-6.2	2,4-6,2	16			2,4						R1					
EMCM-S5-6.2	2,4-6,2	16			1,3						R6/4					
EMCM-S6-6.6 EMCM-S6-10.1	2,4-6,6 6,0-10,1	16			4,2						R1					
EMCM-S7-6.6	2,4-6,6	16			16						R6/4					
EMCM-S0.3-16.0	8,0-16,0	25														
EMCM-S8-16.0	8,0-16,0	25														
EMCM-S9-6.6 EMCM-S9-11.0	2,4-6,6 6,0-11,0	16														

LEGEND

- A max. upper working pressure (bar)
 B max. operating pressure device (PN) (bar)
 C max. temperature at connection point (°C)

- D Voltage (V/Hz)
 E Max. power (kW)
 F Fuse protection (A)

- 1 Make-up line
- 2 Expansion overflow line
- 3 Expansion pressure line
- 5 Suction line

- 6 Overflow line
- 8 Expansion line from/to system return
- 9 Degassing connection

*) Make-up optional, dimension dependent on model (EMCF-1 = 1/2" EMCF-3 = 3/4")

***) MultiControl low pressure degassing module EMAE-1 optional

Technical changes reserved!

TECHNICAL DATA

SYSTEM DUO

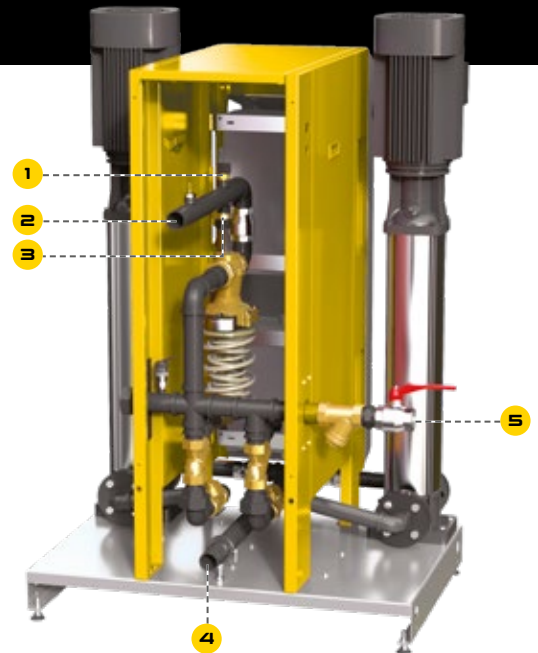
DOUBLE PUMP SYSTEM 2X50%

- Two pressure maintenance pumps, each designed for at least 50% of the expansion volume flow
- One mechanical overflow valve, designed for 100% of the expansion volume flow

„DUO“ stands for a huge range of applications thanks to staggered pump use. In operation energy-saving thanks to load sharing between two pumps.

Example: **EMCM-D8-16.0**

1. Connection for make-up module EMCF-1 or EMCF-3
2. Transfer line to the expansion vessels
3. Connection for degassing module EMAE-1
4. Suction line from the expansion vessel
5. Expansion line from/to the system return



TECHNICAL DATA

SYSTEM DUO TWIN

DOUBLE PUMP/DOUBLE VALVE SYSTEM 2X 50%/2X 100%

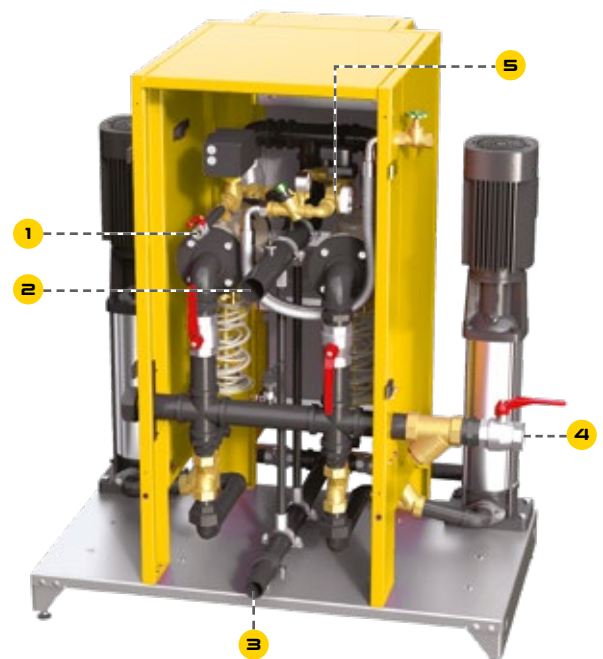
- Two pressure maintenance pumps, each designed for at least 50% of the expansion volume flow
- Two mechanical overflow valves, designed for 100% of the expansion volume flow each

„Twin“ also extends the full failure reserve to the overflow valve, which can be switched manually if required.

E.g.: **EMCM-D4-6.2-twin** with **EMCF-3*** and **EMAE-1***

*Already installed in illustration:

1. Connection for degassing module EMAE-1*
2. Overflow line to the expansion vessels
3. Suction line from the expansion vessels
4. Expansion line from/to the system return
5. Connection for make-up module EMCF-3*



MULTICONTROL MODULAR DUO & DUO TWIN

Type	A	B	C	D	E	F	Connections ["]							W x H x D [mm]	Weight [kg]
							1*	2	3	5	6	8	9**		
EMCM-D1-4.0 EMCM-D1-5.6 EMCM-D1-6.6 EMCM-D1-8.1	1,0-4,0 2,0-5,6 4,0-6,6 6,0-8,1	10	70	1x 230V 50 Hz	1,1 1,1 1,5 1,5	13	Rp½	Rp1	Rp1	Rp1	Rp1	-	-	575 x 1149 x 741	79 79 82,4 85,8
EMCM-D1-4.0-twin EMCM-D1-5.6-twin EMCM-D1-6.6-twin EMCM-D1-8.1-twin	1,0-4,0 2,0-5,6 4,0-6,6 6,0-8,1				1,1 1,1 1,5 1,5										84 84 91 91
EMCM-D2-6.6 EMCM-D2-7.8	2,4-6,6 6,0-7,8	16	70	3x 400V 50 Hz	2,4	10	Rp ½ bzw. Rp ¾	-	-	R5/4	R1	Rp6/4	Rp½	964 x 1370 x 888	150
EMCM-D2-6.6-twin EMCM-D2-7.8-twin	2,4-6,6 6,0-7,8				964 x 1370 x 888	157									
EMCM-D3-10.4	6,0-10,4				964 x 1370 x 888	165									
EMCM-D3-10.4-twin	6,0-10,4				964 x 1370 x 888	173									
EMCM-D4-6.2	2,4-6,2				1142 x 1370 x 1106	214									
EMCM-D4-6.2-twin	2,4-6,2													1142 x 1370 x 1106	230
EMCM-D5-6.2	2,4-6,2				1176 x 1370 x 1134	229									
EMCM-D5-6.2-twin	2,4-6,2				1176 x 1370 x 1134	253									
EMCM-D6-6.6 EMCM-D6-10.1	2,4-6,6 6,0-10,1				1142 x 1370 x 1106	229									
EMCM-D6-6.6-twin EMCM-D6-10.1-twin	2,4-6,6 6,0-10,1													1142 x 1370 x 1106	246
EMCM-D7-6.6	2,4-6,6	1176 x 1370 x 1134	245												
EMCM-D7-6.6-twin	2,4-6,6	1176 x 1370 x 1134	269												
EMCM-D8-16.0	8,0-16,0	1142 x 1466 x 1106	304												
EMCM-D8-16.0-twin	8,0-16,0			1142 x 1466 x 1106	333										
EMCM-D9-6.6 EMCM-D9-11.0	2,4-6,6 6,0-11,0	1176 x 1466 x 1134	307												
EMCM-D9-6.6-twin EMCM-D9-11.0-twin	2,4-6,6 6,0-11,0	1176 x 1466 x 1134	331												

LEGEND

A max. upper working pressure (bar)
 B max. operating pressure device (PN) (bar)
 C max. temperature at connection point (°C)

D Voltage (V/Hz)
 E Max. power (kW)
 F Fuse protection (A)

Technical changes reserved!

- | | |
|---|--|
| <p>1 Make-up line
 2 Expansion overflow line
 3 Expansion pressure line
 5 Suction line</p> | <p>6 Overflow line
 8 Expansion line from/to system return
 9 Degassing connection</p> |
|---|--|

*) Make-up optional, dimension dependent on model (EMCF-1 = ½" EMCF-3 = ¾")

***) MultiControl low pressure degassing module EMAE-1 optional

TECHNICAL DATA

SYSTEM MAXI

DOUBLE PUMP SYSTEM 2X100%

- Two pressure maintenance pumps, each designed for 100% of the expansion volume flow
- One mechanical overflow valve, designed for 100% of the expansion volume flow

„MAXI“ means full performance and failure reserve, as each pump can provide the full volume flow.

Example: **EMCM-M8-16.0** with **EMCF-3**

1. EMCF-3, volume controlled make up module
2. Expansion line from/to the system return



TECHNICAL DATA

SYSTEM MAXI TWIN

DOUBLE PUMP/DOUBLE VALVE SYSTEM 2X100%/2X100%

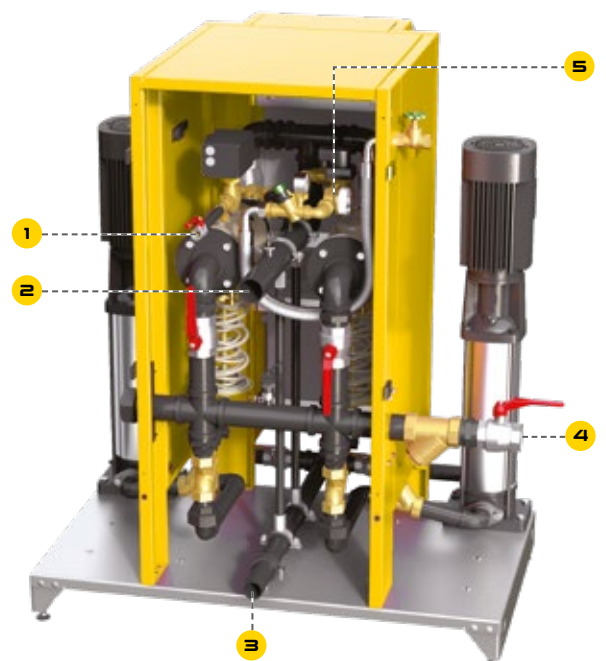
- Two pressure maintenance pumps, each designed for 100% of the expansion volume flow
- Two mechanical overflow valves, designed for 100% of the expansion volume flow each

„twin“ also extends the full failure reserve to the overflow valve, which can be switched manually if required.

E.g.: **EMCM-M4-6.2-twin** with **EMCF-3*** and **EMAE-1***

*Already installed in illustration:

1. Connection for degassing module EMAE-1*
2. Overflow line to the expansion vessels
3. Suction line from the expansion vessels
4. Expansion line from/to the system return
5. Connection for make-up module EMCF*



MULTICONTROL MODULAR DUO & DUO TWIN

Type	A	B	C	D	E	F	Connections ["]							W x H x D [mm]	Weight [kg]
							1*	2	3	5	6	8	9**		
EMCM-M1-4.0 EMCM-M1-5.6 EMCM-M1-8.1	1,0-4,0 2,0-5,6 4,0-8,1	10		1x 230V 50 Hz	1,1	13	Rp 1/2	Rp1	Rp1	Rp1	Rp1	-	-	575 x 1149 x 741	75
EMCM-M1-4.0-twin EMCM-M1-5.6-twin EMCM-M1-8.1-twin	1,1 1,1 1,5				881 x 1149 x 824									75 81,8	
	1,1 1,1 1,5														
EMCM-M2-6.0 EMCM-M2-7.8	2,0-6,0 4,0-7,8	16	70	3x 400V 50 Hz	2,4	10	Rp ½ bzw. Rp ¾	-	-	R5/4	R1	Rp6/4	Rp½	964 x 1370 x 888	147
EMCM-M2-6.0-twin EMCM-M2-7.8-twin	2,0-6,0 4,0-7,8				964 x 1370 x 888									152	
EMCM-M3-10.0	4,0-10,0				964 x 1370 x 888	162									
EMCM-M3-10.0-twin	4,0-10,0				964 x 1370 x 888	167									
EMCM-M4-6.2	2,4-6,2				964 x 1370 x 888	167									
EMCM-M4-6.2-twin	2,4-6,2				964 x 1370 x 888	175									
EMCM-M5-6.2	2,4-6,2				1142 x 1370 x 1106	214									
EMCM-M5-6.2-twin	2,4-6,2				1142 x 1370 x 1106	230									
EMCM-M6-6.6 EMCM-M6-10.1	2,4-6,6 6,0-10,1				964 x 1370 x 888	182									
EMCM-M6-6.6-twin EMCM-M6-10.1-twin	2,4-6,6 6,0-10,1				964 x 1370 x 888	190									
EMCM-M7-6.6	2,4-6,6	1142 x 1370 x 1106	229												
EMCM-M7-6.6-twin	2,4-6,6	1142 x 1370 x 1106	246												
EMCM-M0.3-16.0	8,0-16,0	25			2,4	10			R5/4	R1			964 x 1370 x 888	173	
EMCM-M0.3-16.0-twin	8,0-16,0				964 x 1370 x 888								178		
EMCM-M8-16.0	8,0-16,0				1142 x 1466 x 1106	295									
EMCM-M8-16.0-twin	8,0-16,0				1142 x 1466 x 1106	315									
EMCM-M9-6.6 EMCM-M9-11.0	2,4-6,6 6,0-11,0	16			8,2	25			R6/4	R6/4			1142 x 1466 x 1106	291	
EMCM-M9-6.6-twin EMCM-M9-11.0-twin	2,4-6,6 6,0-11,0				1142 x 1466 x 1106								308		

LEGEND

- A max. upper working pressure (bar)
 B max. operating pressure device (PN) (bar)
 C max. temperature at connection point (°C)

- D Voltage (V/Hz)
 E Max. power (kW)
 F Fuse protection (A)

Technical changes reserved!

- | | |
|---------------------------|--|
| 1 Make-up line | 6 Overflow line |
| 2 Expansion overflow line | 8 Expansion line from/to system return |
| 3 Expansion pressure line | 9 Degassing connection |
| 5 Suction line | |

*) Make-up optional, dimension dependent on model (EMCF-1 = ½" EMCF-3 = ¾")

**) MultiControl low pressure degassing module EMAE-1 optional

TOUCHSCREEN WITH USER-FRIENDLY INTERFACE



The 5-inch touchscreen provides a user-friendly interface that makes it easy to operate and monitor the device. With its clear graphics and intuitive touch controls, it enables simple configuration and real-time monitoring of the operating status. This makes operation easy to understand.

STATUS INFORMATION

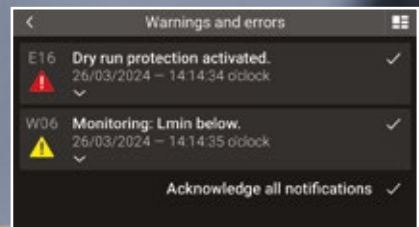
Current status information is visible at first glance even when the screen saver is active.

BASIC DISPLAY

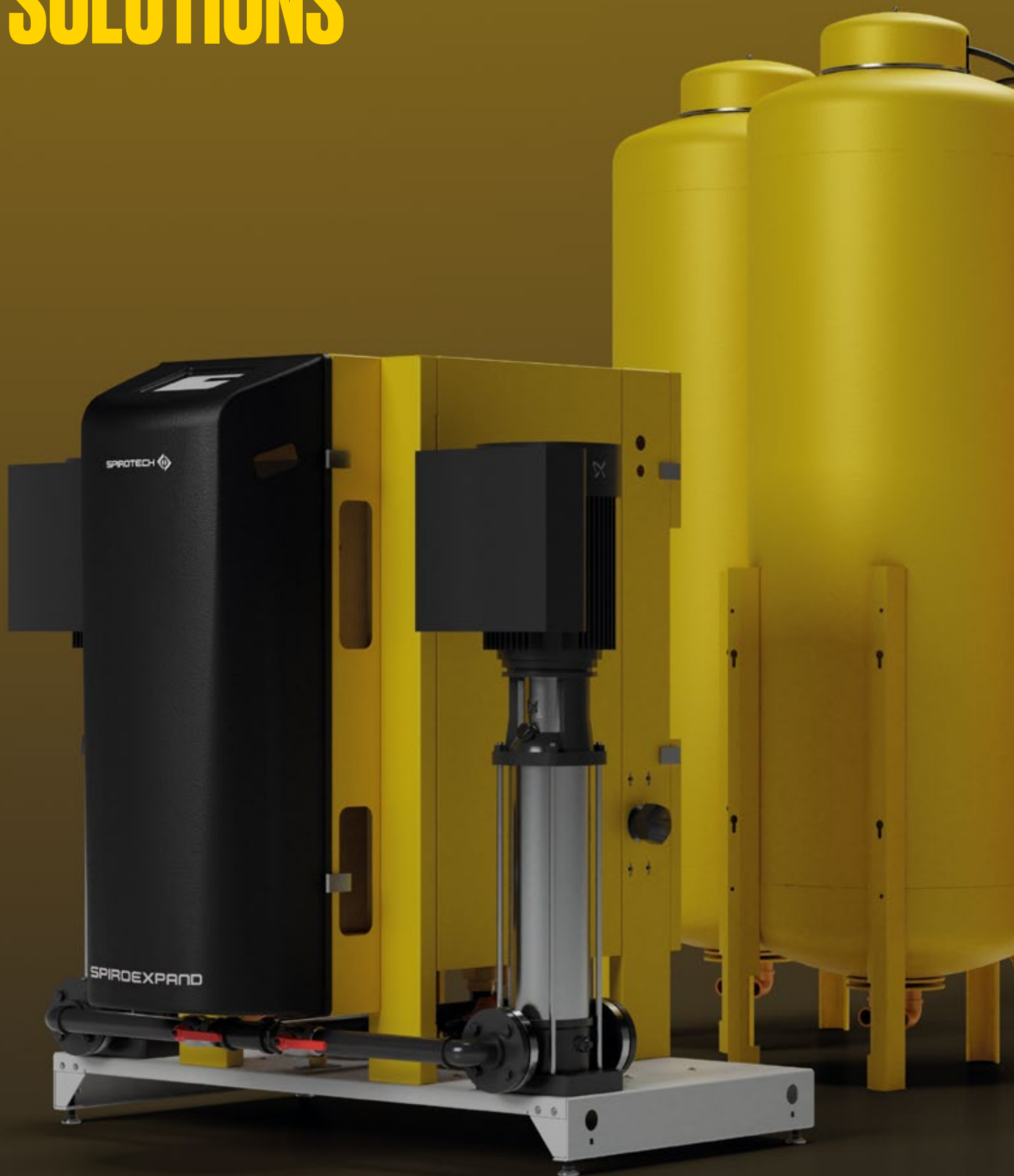
The factory-defined basic display can be individually adapted to the requirements of the system operator. Furthermore, the current status of the accessories (e.g. make-up, water treatment, etc.) is visualized in the basic display.

WARNING AND FAULT MESSAGES

Warning messages are displayed in detail directly on the device with possible causes and remedies.



A FULL RANGE OF SOLUTIONS



TECHNICAL DATA

ADDITIONAL EXPANSION VESSELS EP___R, EP___RS

Additional primary vessels with article numbers EP___R and additional secondary vessels with article number EP___RS for pressureless absorption of the expansion volume.

The built-in high-quality membrane ensures consistent separation of the system and atmosphere.

EP___R expansion vessels are equipped with differential pressure measurement, which allows the current vessel level to be read off the multicontrol control unit at any time. multicontrol devices also offer the option of using 2 level measurements (2x EG-M), e.g. for fail-safe operation

1. Lifting lugs from EP0800R(S) and up
2. Pre-assembled drain funnel for optimum connection of the container safety valve drain line and vessel air side
3. Drains for maintenance purposes
4. Connection to the control unit and other expansion vessels



EP___R(S)
200-500L



EP___R(S)
800L-1500L



EP___R(S)
2000M - 5000M



EP___R(S)
10000M

SPIROEXPAND EXPANSION VESSELS FOR EMCM



Type	Liter	A	B	Connections ["]				Tilt dimension [mm]	Ø	Height [mm]	Clear height above container [mm]	Weight [kg]	
				1	2	3	4						
EP0200R EP0200RS	200	0,5	70	Rp1	Rp1	Rp½"	Geberit DN 50	558	558	500	59		
EP0300R EP0300RS	300										58		
EP0500R EP0500RS	500										62		
EP0800R EP0800RS	800										61		
EP1000R EP1000RS	1000										85		
EP1500R EP1500RS	1500										84		
EP2000R EP2000RS	2000			Rp5/4"	Rp5/4"	Rp3/4"		Geberit DN 50	2157	800	2117	700	161
EP2500R EP2500RS	2500												160
EP3000R EP3000RS	3000												174
EP4000R EP4000RS	4000												173
EP5000R EP5000RS	5000												254
EPX100R EPX100RS	10000												253
EP2500R EP2500RS	2500	Rp6/4"	Rp6/4"	Rp3/4"	Geberit DN 75	3253	1050	3193	1000	350			
EP3000R EP3000RS	3000									349			
EP4000R EP4000RS	4000									435			
EP5000R EP5000RS	5000									434			
EPX100R EPX100RS	10000									505			
EPX100R EPX100RS	10000									504			
EPX100R EPX100RS	10000	DN50	DN50	Geberit DN 75	5460	2088	5318	1000	617				
EPX100R EPX100RS	10000								616				
EPX100R EPX100RS	10000	663											
EPX100R EPX100RS	10000	662											
EPX100R EPX100RS	10000	1450											
EPX100R EPX100RS	10000	1449											

LEGEND

- A max. operating pressure tank (PN) (bar)
 B max. temperature at connection point (°C)
- 1 Transfer line from the control unit
 2 Suction line to the control unit
 3 Gas-side tank connection (under cover)
 4 Container overflow funnel drain connection

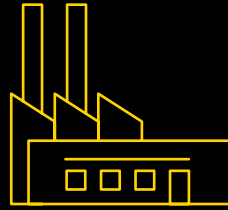
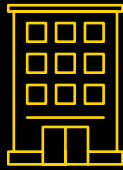
Technical changes reserved!

ACCESSORIES

	Description	Art. No.
	MultiControl post-feed module 1/2" for installation in EMCK, EMCM-_1...9, ETCM	EMCF-1
	Back flow preventer IG 1/2" Back flow preventer with a controllable low pressure zone for products with automatic refill function	TMA05
	SpiroPure Filling unit for the complete desalination of the replenishment water	-
	MultiControl Kompakt bypass set The MultiControl Kompakt bypass set is to use MultiControl units (EMCK, EMCM-_1, ETCM-_1 and EMCC-_1) without automatic pressure step degassing function. Integration in the system is only possible with a connection to the system's return flow. In addition, it is recommended to use the bypass set during maintenance, in order to adjust the pressure without having a connection to the system. Technical details: connection size: R 1", PN10.	EMCB-ZB
	MultiControl low pressure degassing module 1/2" For EMCM/ETCM (excluding models S1, D1 and M1)	EMAE-1
	Modules BUS To connect the pressure maintenance unit with an external control unit and enable the exchange of data.	
	MultiControl Busmodule Modbus TCP	G60.877
	MultiControl Busmodule Modbus RTU RS485	EMCMO
	MultiControl Busmodule Profibus-Standard DP-V0	EMCPB
	MultiControl Busmodule Profinet IO-Device	EMCPN
	MultiControl Extension modules Extension de fonctions : appoints auto. & modules de com. pour maintien de pression SpiroExpand (gammes PicoControl, MultiControl et TopControl)	
	Carte de communication Multicontrol. Report binaire & acquitement à distance	EMCBMR
	Carte de communication Multicontrol. Report binaire à distance	EMCBM
	Carte de communication Multicontrol. Report analogique à distance	EMCAM
	MultiControl web module Web-based control and monitoring of pressure levels. Email notifications of system information, malfunctions and warnings.	EMCWE
	Intermediate cooling vessels in various sizes To regulate the temperature and to protect the system from unacceptable temperature ranges (> 70 °C to 110 °C). Tank sizes from 100 to 3,000 litres, depending on requirements. Custom tanks also possible.	Code article type : ET__T1
	Capeur de température (contact) T2 sur GMP SpiroExpand - Patte de serrage inclus (tuyauterie Ø 15 - 40 mm)	E51950
	MultiControl cable temperature sensor Cable 10 m, including immersion sleeve G 1/2", PN10.	E51951

THE RIGHT PRODUCT AT A GLANCE

A COMPLETE RANGE



EVN/EVU



PICOCONTROL KOMPAKT



MULTICONTROL KOMPAKT



MULTICONTROL MODULAR



TOPCONTROL MODULAR



MAXIMISING PERFORMANCE FOR YOU

Spirotech is a leading expert in improving the efficiency of heating and cooling systems. Our family business has over 60 years of experience in developing solutions for removing and preventing the accumulation of air and sludge deposits in energy systems. Our products save energy, increase comfort, avoid wear and tear and maximise operating periods. Reliable and customer-oriented products that help you get top performance and protect investment in capital assets. We develop high-value solutions with our partners and suppliers that improve the operation of residential and commercial properties. Our comprehensive network of selected importers in over 70 countries means there is always a Spirotech expert near to you.

Heating and cooling systems are highly complex, particularly when they are run in conjunction with other systems and installations. So locating and analysing faults when they occur is never easy, especially with the clock ticking in the event of a system failure. Spirotech is here to support you with practical advice and solutions, helping you to pinpoint causes and rectify them. Please feel free to contact us.

**IF YOU WOULD LIKE TO KNOW
MORE ABOUT OUR SOLUTIONS,
PLEASE VISIT OUR WEBSITE
WWW.SPIROTECH.COM OR
WWW.SPIROTECH.CO.UK**

