

PRESSURISATION

MULTICONTROL KOMPAKT

EMCK



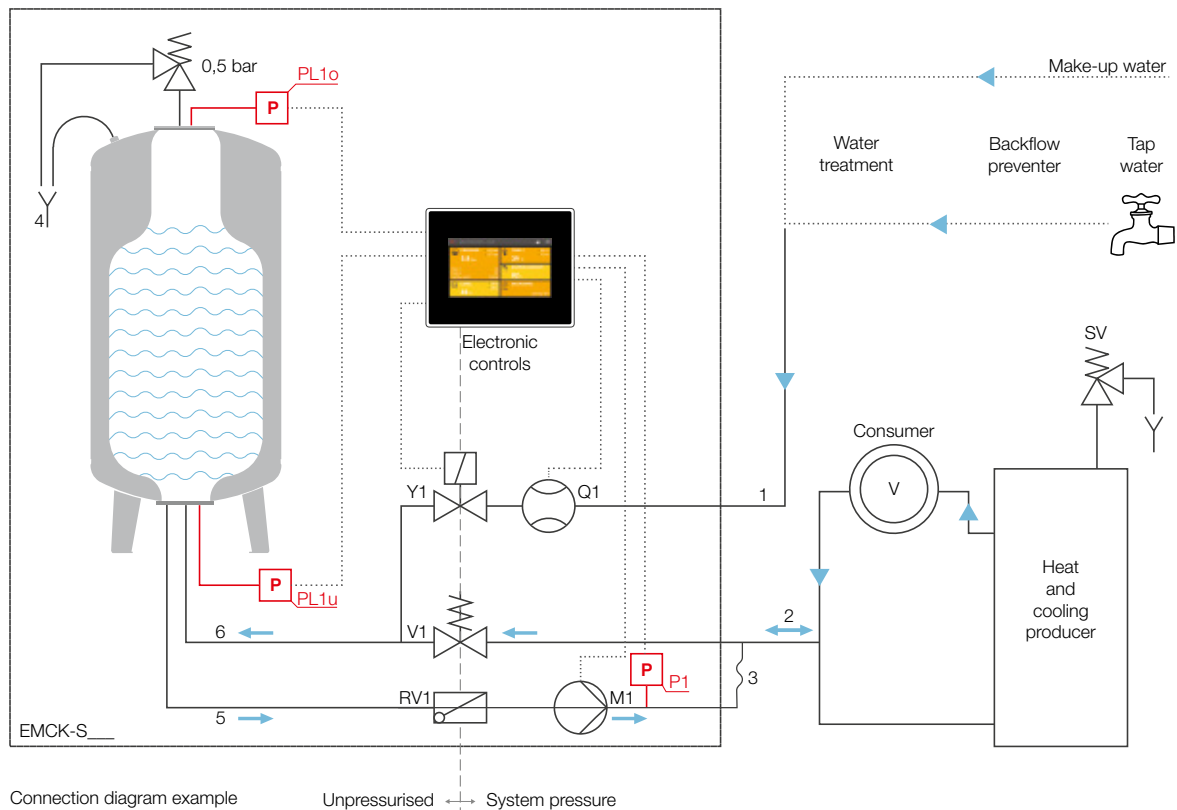
Pressurisation

Replenishment

Monitoring

SPIROEXPAND®

CONNECTION DIAGRAM FOR THE SYSTEM



LEGEND

1	Fresh water supply	4	Drain funnel tank safety valve
2	Expansion line	5	Suction line from the expansion tank
3	Bypass hose	6	Overflow line to the expansion tank
M1	Pressure maintenance pump	PL1o	Tank pressure transmitter top
RV1	Non-return valve	PL1u	Tank pressure transmitter bottom
V1	Overflow valve	P1	System pressure transmitter
Y1	Solenoid valve	SV	System safety valve
Q1	Water meter		

THE PRINCIPLES BEHIND THE MULTICONTROL KOMPAKT SYSTEM

PRESSURE MAINTENANCE AND EXPANSION

SpiroExpand MultiControl Kompakt is a compact pressure maintenance device with a small footprint but a broad working range in the SpiroExpand product range. It enables all of the Expansion storage volume to be used and keeps the pressure within a set range in closed loop heating and cooling systems. Every unit is self-contained, with a self-supporting and sound-absorbing construction. The expansion volume can be increased with additional external, unpressurised expansion tanks from the product series EMCB-Z. The volume in the tank can be used to its full capacity. They are manufactured in accordance with the regulations set out in EN12828 and SWKI 93-1. For the optimal separation of system water and the atmosphere, special high-quality membranes/bags are used, which are flanged on both sides and can be replaced if necessary. The level measurement works with two pressure transmitters connected at the top and the bottom of the vessel, with a 0.5 bar safety valve as a safeguard. 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 are mechanically adjusted. The hydraulic connections come fitted on the right hand side as standard, but can be mounted on the left hand side if required on site. 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 MultiControl Kompakt is monitored.

DEGASSING

An automatic basic low-pressure degassing is built in as standard. It works according to the principle of partial pressure (Henry's law).

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 standard version, four status messages are available: failure, warning, refill 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. Other possibilities for monitoring and checking are also available.

The **MultiControl Kompakt** comes in 90 possible versions, with six possible container volumes: 45, 75, 125, 200, 300 or 500 litres. Two additional containers can be added

- **Operational pressure range:** 1.0 – 8.1 bar.
- **Maximum expansion volume:** 45 – 1,500 litres.
- **Maximum thermal output:** 450 – 2,500 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.
- **Maximum operating pressure (PN):** 10 bar.

Further variations and system possibilities are available on request.

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

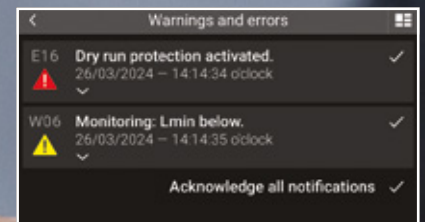
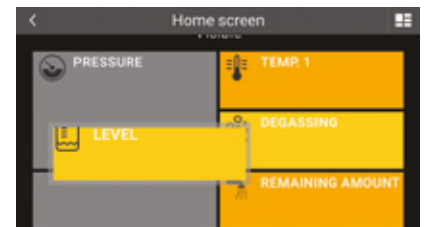
Current status information is visible at first glance even when the screen saver is active.

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.



FEATURES OF MULTICONTROL KOMPAKT

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

- The display can be customized by the user to show relevant measurements / data to meet the user's specific requirements.
- Multilingual display information and menu.

Space for various communication interfaces, such as bus or web module. Simple to add later.

4 status messages are available:

- Malfunction
- Warning
- Refill in operation
- System working

Connection for replenishment module EMCF-1.

High quality horizontal multistage centrifugal pump(s).

Lower tank pressure sensor for level measurement.

Drain valve to drain the vessel.

Upper tank pressure sensor for level measurement.

Expansion tank available in varying sizes – storage volume can at a later stage also be increased by adding up to 2 vessels of the same size.

Tundish to be connected to drain.

Separate electronics unit for optimal safety.

Cable connection is easily accessible – can be installed on the left-hand side if required.

Input connection allowing the unit to be switched off or stopped with an external command.

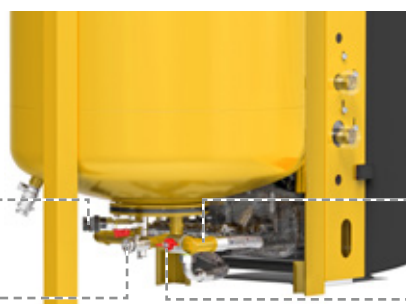
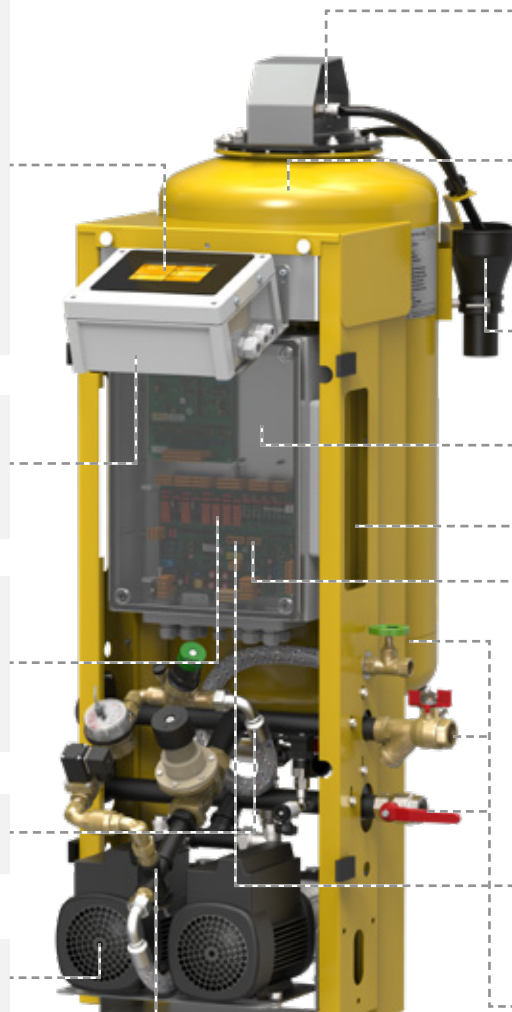
Input connection to enable the unit to respond to an external warning or fault.

Hydraulic connections - can be mounted on the other side on site.

Continuous temperature measurement.

Equipped to be connected to further tanks.

Shut off valve for maintenance.



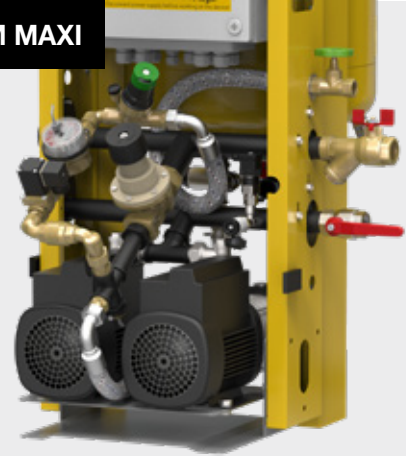
THE SYSTEMS AT A GLANCE

SYSTEM SOLO



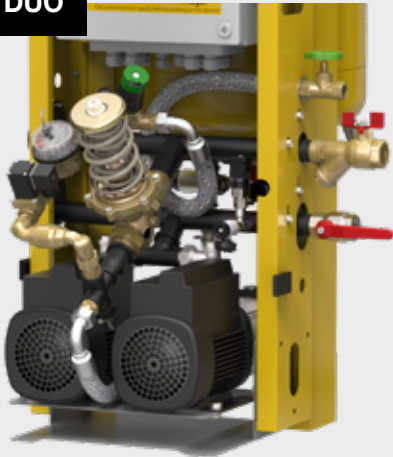
Single pump system, pump and overflow valve designed for 100% of the expansion volume flow.

SYSTEM MAXI



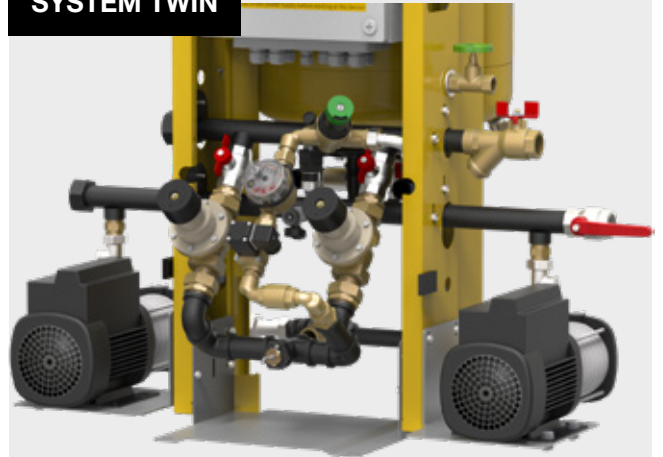
Double pump system, pumps and overflow valve each designed for 100% of the expansion volume flow. 2nd pump provided as fail-safe.

SYSTEM DUO



Double pump system, pumps pump in parallel, thus a larger expansion volume flow can be achieved. The overflow valve is designed for this volume flow.

SYSTEM TWIN



Double valve system, two overflow valves each designed for 100% of the expansion volume flow. (available for the "duo" and "maxi" systems)

TECHNICAL DATA

SYSTEMS

SPIROEXPAND MULTICONTROL KOMPAKT SOLO

Type	A	B	C	D	E	F	Connections ["]				W x H x D [mm]	Weight [kg]
							1*	2	3	4		
EMCK-S45-4.0 EMCK-S45-5.6 EMCK-S45-8.1	1,0-4,0 2,4-5,6 4,0-8,1	10	70	1x 230V 50 Hz	0,6 0,6 0,8	10	Rp ½	Rp1	Rp1	Geberit DN50	574 x 1351 x 728	88 88 92
EMCK-S75-4.0 EMCK-S75-5.6 EMCK-S75-8.1	1,0-4,0 2,4-5,6 4,0-8,1				0,6 0,6 0,8						574 x 1351 x 803	91 91 95
EMCK-S125-4.0 EMCK-S125-5.6 EMCK-S125-8.1	1,0-4,0 2,4-5,6 4,0-8,1				0,6 0,6 0,8						583 x 1369 x 936	95 95 99
EMCK-S200-4.0 EMCK-S200-5.6 EMCK-S200-8.1	1,0-4,0 2,4-5,6 4,0-8,1				0,6 0,6 0,8						583 x 1478 x 936	115 115 119
EMCK-S300-4.0 EMCK-S300-5.6 EMCK-S300-8.1	1,0-4,0 2,4-5,6 4,0-8,1				0,6 0,6 0,8						633 x 1548 x 1026	129 129 133
EMCK-S500-4.0 EMCK-S500-5.6 EMCK-S500-8.1	1,0-4,0 2,4-5,6 4,0-8,1				0,6 0,6 0,8						633 x 2157 x 1026	144 148 148

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 consumption [kW]

F Fuse protection [A]

1 Make-up line

2 Expansion overflow line

3 Expansion pressure line

4 Tundish connection to drain

*) Make-up optional, dimension dependent on model (article no. EMCF-1)

Technical changes reserved!

SPIROEXPAND MULTICONTROL KOMPAKT DUO + DUO TWIN

Type	A	B	C	D	E	F	Connections ["]				W x H x D [mm]	Weight [kg]
							1*)	2	3	4		
EMCK-D45-4.0	1,0-4,0	10	70	1x 230V 50 Hz	1,1	13	Rp ½	Rp1	Rp1	Geberit DN50	574 x 1351 x 728	102
EMCK-D45-5.6	2,4-5,6				1,1							102
EMCK-D45-6.6	2,4-6,6				1,5							109
EMCK-D45-8.1	6,0-8,1				1,5							109
EMCK-D45-4.0-twin	1,0-4,0				1,1						881 x 1351 x 728	110
EMCK-D45-5.6-twin	2,4-5,6				1,1							110
EMCK-D45-6.6-twin	2,4-6,6				1,5							117
EMCK-D45-8.1-twin	6,0-8,1				1,5							117
EMCK-D75-4.0	1,0-4,0				1,1						574 x 1351 x 803	105
EMCK-D75-5.6	2,4-5,6				1,1							105
EMCK-D75-6.6	2,4-6,6				1,5							112
EMCK-D75-8.1	6,0-8,1				1,5							112
EMCK-D75-4.0-twin	1,0-4,0				1,1						881 x 1351 x 803	113
EMCK-D75-5.6-twin	2,4-5,6				1,1							113
EMCK-D75-6.6-twin	2,4-6,6				1,5							117
EMCK-D75-8.1-twin	6,0-8,1				1,5							117
EMCK-D125-4.0	1,0-4,0				1,1						583 x 1369 x 936	109
EMCK-D125-5.6	2,4-5,6				1,1							109
EMCK-D125-6.6	2,4-6,6				1,5							116
EMCK-D125-8.1	6,0-8,1				1,5							116
EMCK-D125-4.0-twin	1,0-4,0				1,1						881 x 1369 x 936	117
EMCK-D125-5.6-twin	2,4-5,6				1,1							117
EMCK-D125-6.6-twin	2,4-6,6				1,5							124
EMCK-D125-8.1-twin	6,0-8,1				1,5							124
EMCK-D200-4.0	1,0-4,0				1,1						583 x 1478 x 936	129
EMCK-D200-5.6	2,4-5,6				1,1							129
EMCK-D200-6.6	2,4-6,6				1,5							136
EMCK-D200-8.1	6,0-8,1				1,5							136
EMCK-D200-4.0-twin	1,0-4,0				1,1						881 x 1478 x 936	137
EMCK-D200-5.6-twin	2,4-5,6				1,1							137
EMCK-D200-6.6-twin	2,4-6,6				1,5							144
EMCK-D200-8.1-twin	6,0-8,1				1,5							144
EMCK-D300-4.0	1,0-4,0				1,1						633 x 1548 x 1026	143
EMCK-D300-5.6	2,4-5,6				1,1							143
EMCK-D300-6.6	2,4-6,6				1,5							150
EMCK-D300-8.1	6,0-8,1				1,5							150
EMCK-D300-4.0-twin	1,0-4,0				1,1						881 x 1548 x 1026	151
EMCK-D300-5.6-twin	2,4-5,6				1,1							151
EMCK-D300-6.6-twin	2,4-6,6				1,5							158
EMCK-D300-8.1-twin	6,0-8,1				1,5							158
EMCK-D500-4.0	1,0-4,0				1,1						633 x 2157 x 1026	158
EMCK-D500-5.6	2,4-5,6				1,1							158
EMCK-D500-6.6	2,4-6,6				1,5							165
EMCK-D500-8.1	6,0-8,1				1,5							165
EMCK-D500-4.0-twin	1,0-4,0				1,1						881 x 2157 x 1026	166
EMCK-D500-5.6-twin	2,4-5,6				1,1							166
EMCK-D500-6.6-twin	2,4-6,6				1,5							173
EMCK-D500-8.1-twin	6,0-8,1				1,5							173

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 consumption [kW]

F Fuse protection [A]

1 Make-up line

2 Expansion overflow line

3 Expansion pressure line

4 Tundish connection to drain

*) Make-up optional, dimension dependent on model (article no. EMCF-1)

Technical changes reserved!

SPIROEXPAND MULTICONTROL KOMPAKT MAXI + MAXI TWIN

Type	A	B	C	D	E	F	Connections ["]				W x H x D [mm]	Weight [kg]
							1*)	2	3	4		
EMCK-M45-4.0 EMCK-M45-5.6 EMCK-M45-8.1	1,0-4,0 2,4-5,6 6,0-8,1	10	70	1x 230V 50 Hz	1,1 1,1 1,5	13	Rp ½	Rp1	Rp1	Geberit DN50	574 x 1351 x 728	101 101 108
EMCK-M45-4.0-twin EMCK-M45-5.6-twin EMCK-M45-8.1-twin	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						881 x 1351 x 728	108 108 115
EMCK-M75-4.0 EMCK-M75-5.6 EMCK-M75-8.1	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5 1,5						574 x 1351 x 803	104 104 111
EMCK-M75-4.0-twin EMCK-M75-5.6-twin EMCK-M75-8.1-twin	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						881 x 1351 x 803	111 111 118
EMCK-M125-4.0 EMCK-M125-5.6 EMCK-M125-8.1	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						583 x 1369 x 936	108 108 115
EMCK-M125-4.0-twin EMCK-M125-5.6-twin EMCK-M125-8.1-twin	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						881 x 1369 x 936	115 115 122
EMCK-M200-4.0 EMCK-M200-5.6 EMCK-M200-8.1	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						583 x 1478 x 936	128 128 135
EMCK-M200-4.0-twin EMCK-M200-5.6-twin EMCK-M200-8.1-twin	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						881 x 1478 x 936	135 135 142
EMCK-M300-4.0 EMCK-M300-5.6 EMCK-M300-8.1	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5 1,5						633 x 1548 x 1026	142 142 149
EMCK-M300-4.0-twin EMCK-M300-5.6-twin EMCK-M300-8.1-twin	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5 1,5						881 x 1548 x 1026	149 149 156
EMCK-M500-4.0 EMCK-M500-5.6 EMCK-M500-8.1	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						633 x 2157 x 1026	157 157 164
EMCK-M500-4.0-twin EMCK-M500-5.6-twin EMCK-M500-8.1-twin	1,0-4,0 2,4-5,6 6,0-8,1				1,1 1,1 1,5						881 x 2157 x 1026	164 164 171

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 consumption [kW]

F Fuse protection [A]

1 Make-up line

2 Expansion overflow line

3 Expansion pressure line

4 Tundish connection to drain

*) Make-up optional, dimension dependent on model (article no. EMCF-1)

Technical changes reserved!

MULTICONTROL KOMPAKT

ADDITIONAL TANKS



Expansion tanks available in varying sizes – can be extended later to include up to two additional tanks.

Draining point for maintenance and sludge removal.

Tundish to be connected to drain.

Drain valve to let out possible condensate.

ADDITIONAL VESSELS EMCB-Z

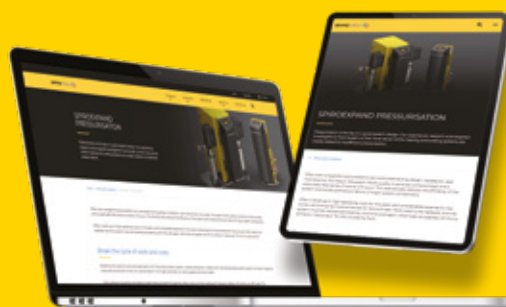
Type	Liter	A	B	C	Connections ["]				Tilt dimension [mm]	Ø [mm]	Height [mm]	Clear height above vessel [mm]	Weight [kg]
					1	2	3	4					
EMCB-Z75	75	0,5	70	-10	Rp ¾	Rp ¾	Rp ½	Geberit DN50	1383	400	1350	500	40,5
EMCB-Z125	125								1418	500	1369		45,5
EMCB-Z200	200								1522	500	1478		56,5
EMCB-Z300	300								1569	600	1545		58,5
EMCB-Z500	500								2197	600	2157		87

LEGEND

A	Max. operating pressure (PN) [bar]	1	Expansion Overflow line	3	Gas balancing line
B	Max. temp. at connection point [°C]	2	Expansion Suction line	4	Tundish connection to drain
C	Min. temp. at connection point [°C]				

OTHER PRODUCTS FROM THE SPIROEXPAND RANGE

- **Pressure maintenance systems:**
PicoControl Kompakt (EPCK), MultiControl Modular (EMCM), TopControl Modular (ETCM), MultiControl Cool (EMCC)
- **Automatic make-up units:**
MultiControl Autofill (EMCA)



Visit our website!

www.spirotech.co.uk/spiroexpand or www.spirotech.com/spiroexpand

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
	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 Kompakt Connection Set The MultiControl Kompakt connection set is used for connecting or looping through the additional EMCB-Zxxx tanks to the main EMCK unit or, if already present, to the connected secondary tank. Connection sizes: Overflow pipe: R 3/4", L = 900 mm Gas connection: R 1/2", L = 1,700 mm	EMCB-ZC
	SpiroPure series Filling units for the complete desalination of the refill water.	-
	Bus modules To connect the pressure maintenance unit with an external control unit and enable the exchange of data.	
	MultiControl Busmodule Modbus TCP	EMCMO-TCP
	MultiControl Busmodule Modbus RTU RS485	EMCMO
	MultiControl Busmodule Profibus-Standard DP-V0	EMCPB
	MultiControl Busmodule Profinet IO-Device	EMCPN
	Expansion modules For SpiroExpand MultiControl, TopControl and PicoControl expansion systems.	
	MultiControl Expansion module analogue remote signaling	EMCAM
	MultiControl Expansion module binary remote message	EMCBM
	MultiControl Expansion module binary remote messages & remote acknowledgment	EMCBMR
	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 3000 litres, depending on requirements. Custom tanks also possible.	ET0100T1 - ET3000T1
	MultiControl Temperature sensor T2 15-40 mm pipe size	E51950
	MultiControl cable temperature sensor Cable 10 m, including immersion sleeve G 1/2", PN10.	E51951

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**

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