MULTICONTROL
KOMPAKT

PRESSURE MAINTENANCE

SPIROEXPAND®

Pressure maintenance

Replenishment

Monitoring

CONNECTION DIAGRAM FOR THE SYSTEM

1 Replenishment water intake

2 The expansion pressure relief pipe for the system return flow should be at least DN2

3 The pressure pipe for the system return flow should be at least DN25

4 Tank safety valve for the draining funnel

5 Suction pipe from the expansion tank

6 Pressure relief pipe to the expansion tank

7 Tank gas connection DN25

ADVANTAGES OF SPIROEXPAND KOMPAKT

Spirotech's compact MultiControl versions combine air removal and dirt separation with SpiroExpand MultiControl Kompakt, for use with heating, cooling and cold-water systems. Operators and owners enjoy the following advantages:

- The compact unit saves space (installed on the tank).
- Considerable reduction in maintenance and operating costs for pumps, control valves, heat exchangers etc.
- Longer life span for piping and components in the building.

THE PRINCIPLES BEHIND THE MULTICONTROL KOMPAKT SYSTEM

PRESSURE MAINTENANCE AND EXPANSION

SpiroExpand MultiControl Kompakt is the most flexible pressure-maintenance device in the SpiroExpand range. It enables all of the expansion volume to be used and keeps the pressure at a constant level in closed heating, cooling and air-conditioning systems. Every unit is self-contained, with a self-supporting and sound-absorbing construction. The units are used in combination with external, unpressurised expansion tanks from the product series EMCB-Z, with max. 0.5 bar. 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 container membranes are used, which are flanged on both sides and can be replaced when necessary. The level gauge works with two pressure transmitters fixed to the flanges, with a 0.5 bar safety valve as a safeguard. The control unit utilises compact hydraulics. A centrifugal pump uses 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 ex-works hydraulic connections 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 separation 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

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 control the exact level of the make-up water can be supplied as an option. Once the water level falls below the minimum setting, the unpressurised container EMCB-G is automatically topped up with degassed replenishment water, before this water enters the system. Optionally, the products in the SpiroPure range can be used to treat the replenishment water according to the standards set out in VDI 2035. The maximum pressure of water entering the system is 5.0 bar, and the maximum temperature for this water is 70°C. 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 easily-legible 4-line 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 text message module, the MultiControl bus module or the MultiControl web module. Other possibilities for monitoring and checking are also available.

System variants for SpiroExpand MultiControl Kompakt
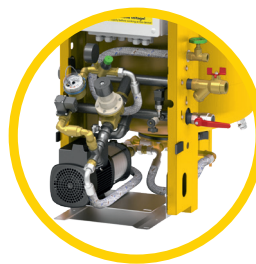
Single pump system

Double pump system

The **MultiControl Kompakt** comes in 104 possible versions, with 5 possible container volumes: 75, 125, 200, 300 or 500 litres. Two further containers can be added
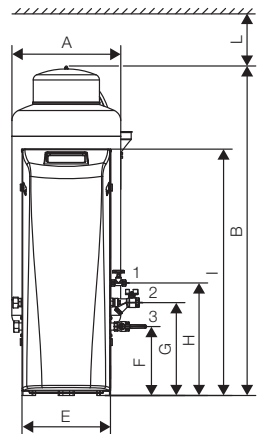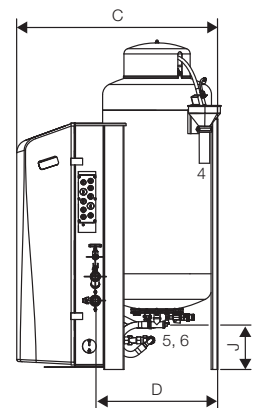
- Operational pressure range: 1.0 – 8.1 bar.
- Maximum expansion volume: 75 – 1,500 litres.
- Maximum thermal output: 450 – 2,500 kW.
- Maximum temperature at point of connection: 70°C (over 70°C possible with auxiliary tank).
- Maximum safety temperature in the system: 110°C.
- Maximum operating p ressure (PN): 10 bar.

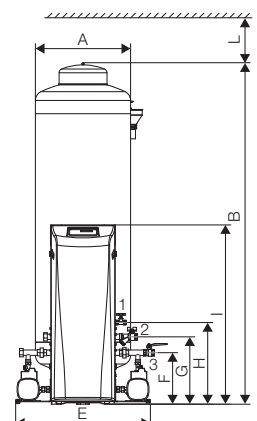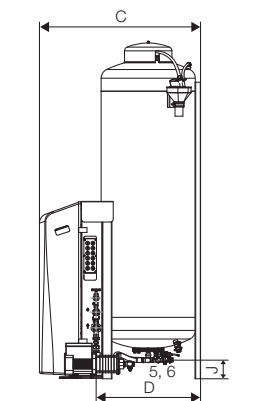**Further variations and system possibilities are available on request.**

TECHNICAL DATA FOR MULTICONTROL KOMPAKT

		MultiControl Kompakt							EMCM-S1 / EMCM-D/M1(-Dual pump system)
		EMCK-S45 / EMCK-D45(-Dual pump system) / EMCK-M45(-Dual pump system)	EMCK-S75 / EMCK-D75(-Dual pump system) / EMCK-M75(-Dual pump system)	EMCK-S125 / EMCK-D125(-Dual pump system) / EMCK-M125(-Dual pump system)	EMCK-S200 / EMCK-D200(-Dual pump system) / EMCK-M200(-Dual pump system)	EMCK-S300 / EMCK-D300(-Dual pump system) / EMCK-M300(-Dual pump system)	EMCK-S500 / EMCK-D500(-Dual pump system) / EMCK-M500(-Dual pump system)		
Nominal capacity [l]		45	75	125	200	300	500	–	
Max. operating pressure for the unit (PN) [bar]		–							
Max. operating pressure for the tank [bar]		0.5						–	
Max. temperature at point of connection [°C]		70							
Tilted height for installation [mm]		1,500	1,500	1,500	1,500	1,600	2,180	–	
Voltage [V/Hz]		230/50							
Max. performance [kW]		Type — EMCK-___/EMCM-_1 - 4,0 + 5,6 — S: 0.6, D: 1.1, M: 1.1; EMCK-___/EMCM-_1 - 6,6 + 8,1 — S: 0.8, D: 1.5, M: 1.5							
Fuse protection [A]		S: 10 D + M: 13							
Dimensions [mm]	A	400	400	500	500	600	600	150	
	B	1,375	1,375	1,405	1,515	1,577	2,130	225	
	C	725	800	940	925	1,026	1,030	746	
	D	365	440	570	560	665	670	366	
	E	S, D, M: 406 D-/M-Dual pump system: 850							
	F	317							
	G	427							
	H	517							
	I	1,130							
	J	340	340	345	205	205	120	–	
	L	500							
Weight [kg]									
S (4.0 + 5.6/8.1)		88/93	91/96	95/100	115/120	129/134	144/149	62/66	
D (4.0 + 5.6)		102 106/112	105 109/115	109 113/119	129 133/139	143 147/153	158 162/168	76 83	
D-Dual pump system (4.0 + 5.6)		110 114/117	113 117/120	117 121/124	137 141/144	151 155/158	166 170/173	84 91	
M (4.0 + 5.6/8.1)		101/111	104/114	108/118	128/138	142/152	157/167	82/89	
M-Dual pump system (4.0 + 5.6/8.1)		108/115	111/118	115/122	135/142	149/156	164/171	88/95	
Connections									
Replenishment water	1	Rp ½"							
Pressure relief pipe	2	Rp 1"							
Expansion pressure pipe	3	Rp 1"							
Tank overflow	4	Geberit DN50						–	
Suction pipe	5	Rp ¾"						Rp 1"	
Pressure relief pipe	6	Rp ¾"						Rp 1"	

EMCK-S, EMCK-D, EMCK-M

EMCK-D-/M-Dual pump system

Technical data subject to change

FEATURES OF
MULTICONTROL
KOMPAKT

Control panel with a 4-line, easy-to-read, illuminated display with LEDs to show status information at a glance.

- The standard display information can be customised. Up to 6 data settings can be chosen from a wide range of measurements.
- Multilingual display information and menu.

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

4 status messages are available:
- Malfunction
- Warning
- Top-up in operation
- System running

Connection for replenishment module EMCF-1.

Tank pressure transmitter for differential pressure measurement.

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

Tank overflow pipe with drainage connection.

Separate electronic unit for optimal safety.

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

Input terminal to allow the unit to be switched on from outside the system.

Input terminal to allow the unit to react to an external warning or malfunction.

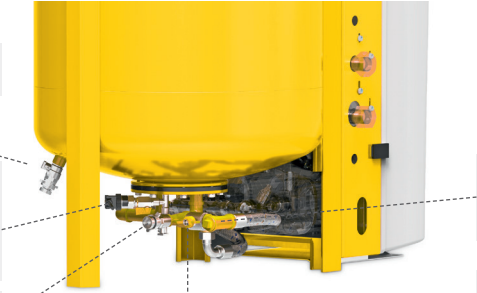Connection ports / points - can be positioned on the other side.

Continuous temperature control.

Shutoff for easy maintenance.

Tank pressure transmitter for differential pressure measurement.

Draining valve.

Equipped to be connected to further tanks.

Shutoff for easy maintenance.

MULTICONTROL KOMPAKT – ADDITIONAL TANKS

Tank pressure transmitter for differential pressure measurement.
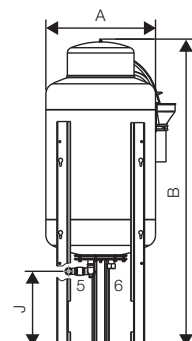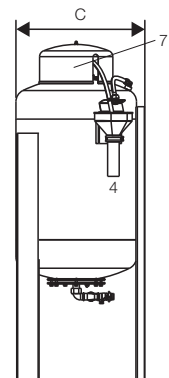
Tank overflow pipe for drainage connection.

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

Draining point for maintenance or sludge removal.

Shutoff for easy maintenance.

		EMCB-Z75	EMCB-Z125	EMCB-Z200	EMCB-Z300	EMCB-Z500
Nominal capacity [l]		75	125	200	300	500
Nominal tank pressure [bar]		0.5				
Max. temperature at point of connection [°C]		70				
Dimensions [mm]	A	400	400	500	600	600
	B	1,375	1,405	1,515	1,577	2,130
	C	430	535	530	630	640
	J	340	345	205	205	120
Tilted height [mm]		1,500	1,500	1,630	1,700	2,250
Weight [kg]		49	57	66	80	95
Connections						
Tank overflow	4	Geberit DN 50				
Suction pipe	5	Rp ¾"				
Pressure release pipe	6	Rp ¾"				
Gas connection point (under the cover cap)	7	Rp ½"				

ACCESSORIES

	Type		Article number
	Replenishment water module		
	MultiControl ½"		EMCF-1
	Backflow preventer		
	MultiControl ½"		TMA05
	MultiControl Kompakt bypass set The MultiControl Kompakt bypass set is for use with MultiControl units **without** an automatic low-pressure 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 to join the EMCB-Z additional tanks with the main unit EMCK, providing the pressure release pipe and gas connection. It can also be used to link a series of EMCB-Z additional tanks with the one before it. **Connection sizes:** Überströmleitung: R ¾", L=900 mm, gas connection: R ½", L=1.700 mm.		EMCB-Z
	SpiroPure Homefill Filling unit for the complete desalination of the replenishment water.		G61.556
	Bus modules To connect the pressure maintenance unit with an external control unit and enable the exchange of data.		
	MultiControl Busmodul Profibus	Profibus-Standard DP-V0	EMCPB
	MultiControl Busmodul Modbus	RTU RS485	EMCMO
	MultiControl Busmodul Profinet	Profinet IO-Device	EMCPN
	MultiControl text message module Notification of malfunctions and warnings by text message to as many as five telephone numbers. It is also possible to choose the type of operation programme, and to get a record of malfunction and warning notifications.		EMCSM
	MultiControl web module Web-based control and monitoring of pressure levels. Email notifications of system information, malfunctions and warnings.		EMCWB
	Auxiliary tanks 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.**		Depends upon the size
	MultiControl contact temperature sensor including tightening strap (diameter 15 – 40mm).		E51950
	MultiControl cable temperature sensor Cable 10 m, including immersion sleeve G ½", PN10.		E51951

SPIROTECH

MAXIMISING PERFORMANCE FOR YOU

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concepts for flow technology

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