

PRESSURISATION

MULTICONTROL COOL

EMCC



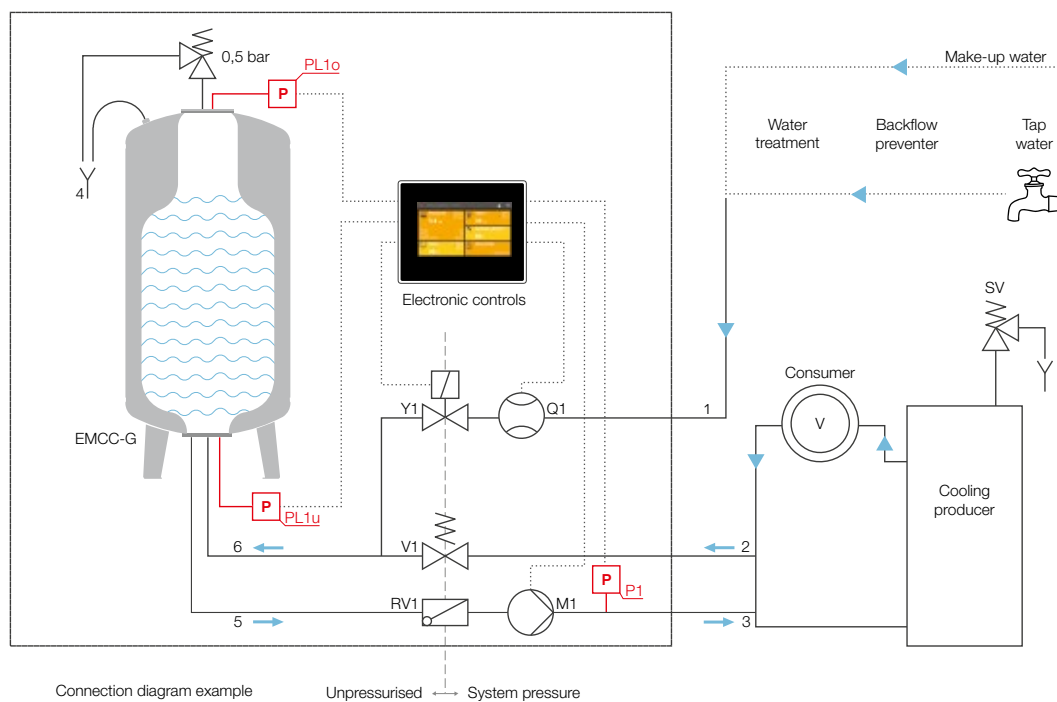
Pressurisation

Replenishment

Monitoring

SPIROEXPAND®

CONNECTION DIAGRAM FOR THE SYSTEM



LEGEND

| | | | |
|-----|--|--------|--|
| 1 | Fresh water supply | 4 | Discharge hopper for vessel safety |
| 2 | Expansion overflow pipe (from the system return) | 5 | Suction line from the expansion vessel |
| 3 | Expansion pressure line (to the system return) | 6 | Overflow line to the expansion vessel |
| M1 | Pressure maintenance pump | EMCC-G | Expansion vessel |
| RV1 | Non-return valve | PL1o | Vessel pressure transmitter top |
| V1 | Overflow valve | PL1u | Vessel pressure transmitter bottom |
| Y1 | Magnetic valve | P1 | System pressure transmitter |
| Q1 | Water meter | SV | System safety valve |

THE PRINCIPLES BEHIND THE MULTICONTROL COOL SYSTEM

PRESSURE MAINTENANCE AND EXPANSION

The MultiControl Cool EMCC is a special pressure maintenance solution for storing the expansion volume and for maintaining a constant pressure in closed chilled water systems.

It is manufactured in accordance with the Pressure Equipment Directive PED 2014/68/EU and complies with EN12828, ÖNORM H12828. Thanks to its design and the use of corrosion-resistant materials in areas prone to condensation, the EMCC series is particularly well-suited for applications in chilled water systems. The self-contained unit is manufactured in a self-supporting, sound-insulating design for modular combination with unpressurised expansion vessels.

For optimum separation of the system medium and atmosphere, a high-quality, double-sided flanged, replaceable bladder is used. The tank itself and the additional vessels are made of stainless steel. The tank level is measured with two precision pressure transmitters on the tank flanges. The 0.5 bar safety valve is used to relieve a build up of pressure, but also ensures the closed pressureless tank is sealed from the atmosphere.

The control unit is designed as a compact hydraulic system. It contains one or two low-noise, multistage centrifugal pumps with high-quality mechanical shaft seals and one or two pressure-proportional, continuously regulating, mechanically adjusted overflow valves.

The hydraulic connections with the necessary shut-offs and the option to isolate from the system are fitted on

the right as standard- but can be swapped over to the other side if required. The temperature of the system medium entering the tank is monitored.

MAKE-UP/REFILL

An optional make-up module is available to control the exact filling quantity of make-up water. The make-up quantity is continuously monitored by means of a water meter (Q1) accurate to the liter and is immediately blocked if the maximum quantity is exceeded (e.g. pipe break).

If special media mixtures (e.g. glycol) are used, we recommend the use of a of a MultiControl AutoFill EMCA.

LOW-PRESSURE DEGASSING

An automatic standard low-pressure degassing system is installed as standard. It works according to the partial pressure principle (Henry's law). We describe this feature as atmospheric degassing, and shouldn't be confused with Vacuum degassing.

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

CONTROL AND MONITORING

The operating unit is ergonomically arranged. It consists of the housing unit with captive touchscreen and integrated computer user software. The compact measuring and switching unit in an enclosed control cabinet design is fully wired. Four potential-free signal contacts (fault, warning, make-up running, device function enabled) are already available as standard. Remote monitoring of the device is possible via MultiControl bus module, web module, analog or binary remote signaling; retrofitting is possible.

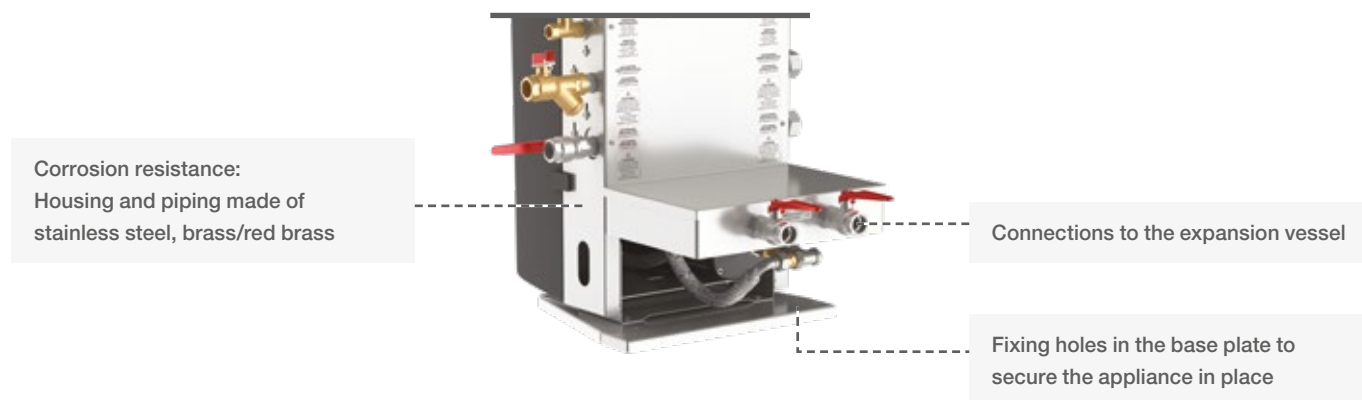
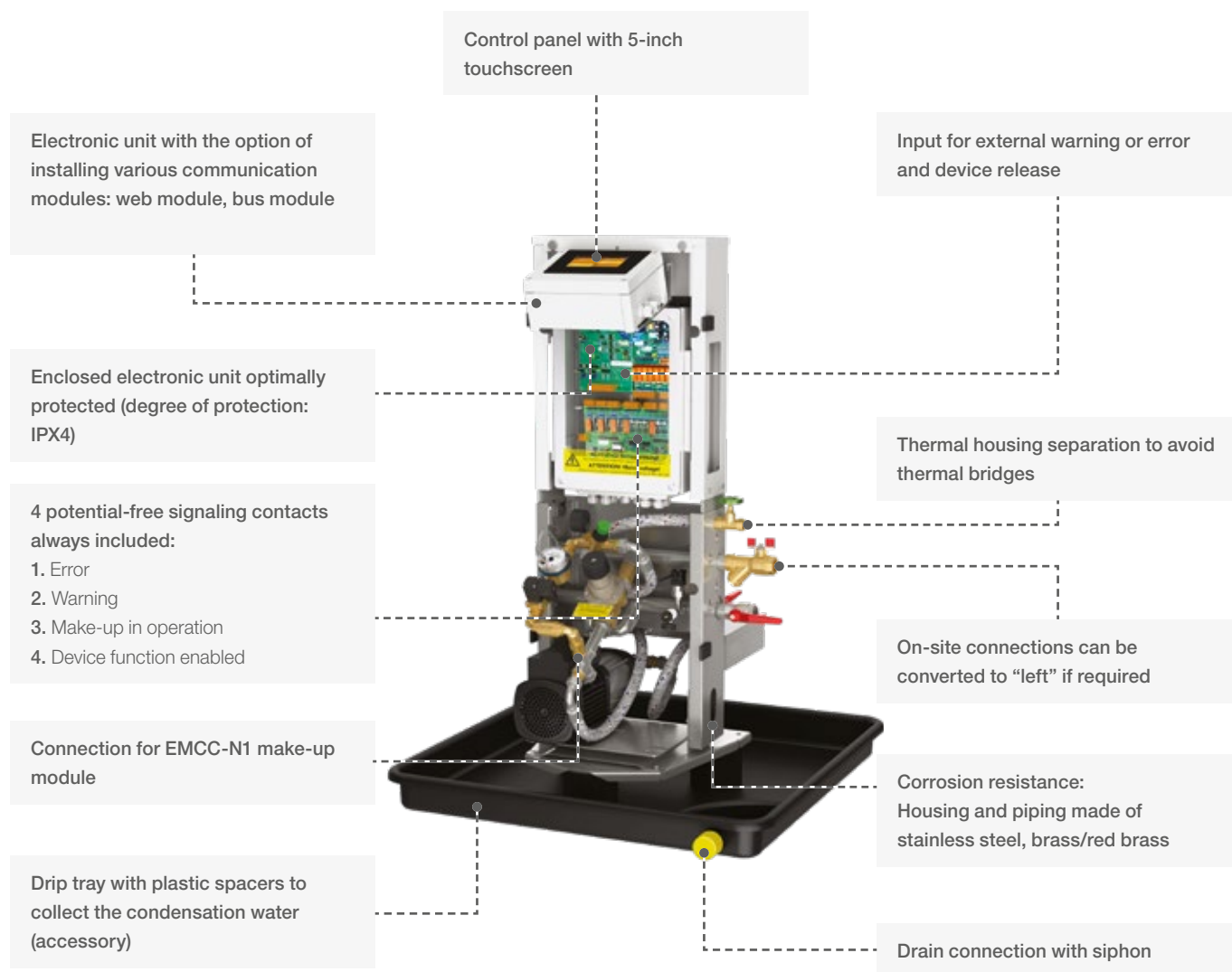
WATER TREATMENT

If no standardised water is available for make-up water, a water treatment make-up module can also be combined, in accordance with **VDI2035** using **SpiroPure** demineralisation units.

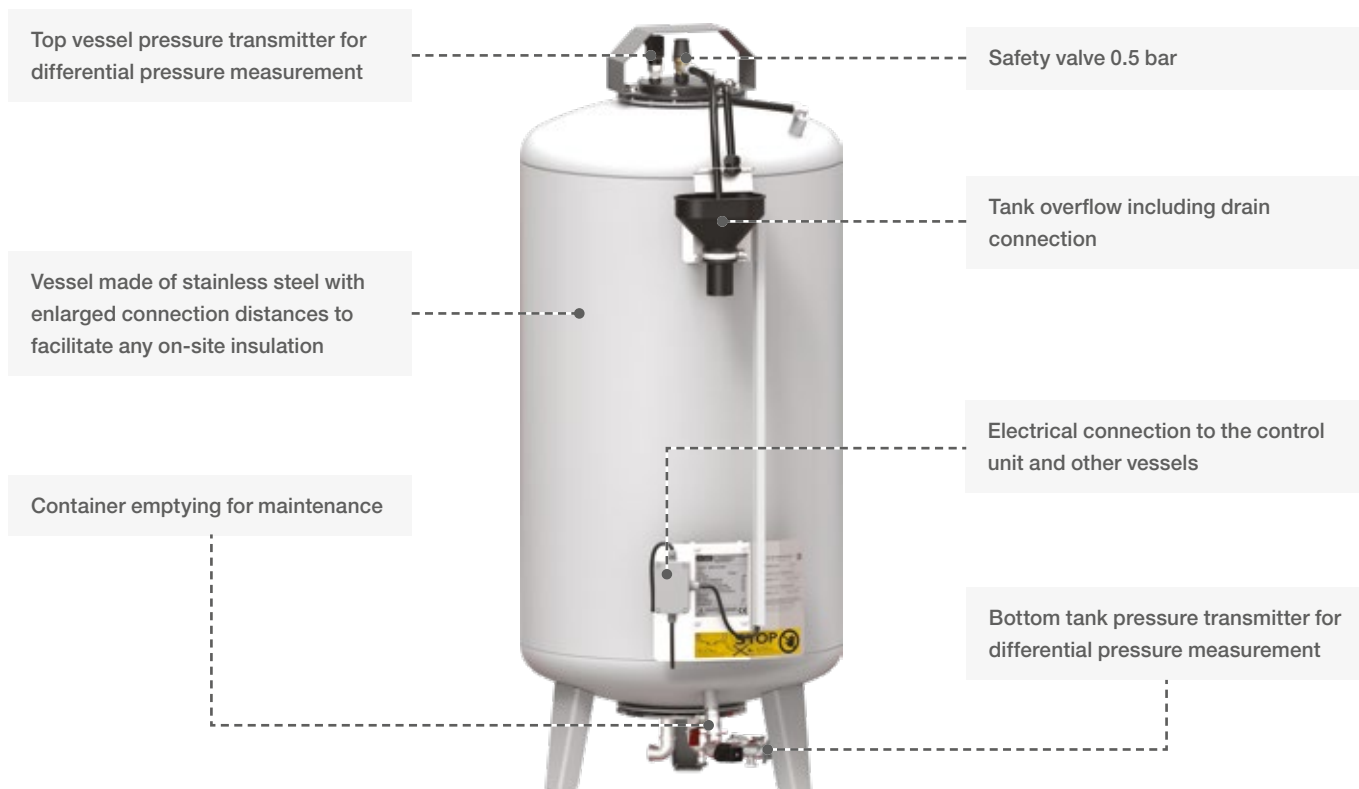
If the capacity of the ion exchanger resin runs out, the electronic monitoring system stops the make-up and prompts you to replace the ion exchanger cartridge.



FEATURES OF MULTICONTROL COOL (EMCC)



FEATURES OF EMCC-G / EMCC-Z



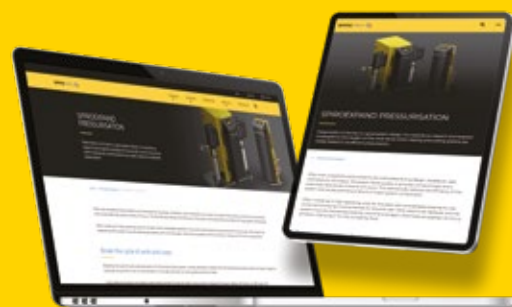
OTHER PRODUCTS FROM THE SPIROEXPAND RANGE

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

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www.spirotech.com/spiroexpand



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

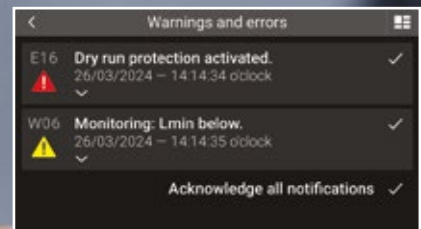
Current status information is visible at first glance even when the screen saver is active.

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 visualised in the basic display.

WARNING AND FAULT MESSAGES

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



TECHNICAL DATA EMCC SYSTEMS



SOLO

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

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.

MAXI

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

SPIROEXPAND MULTICONTROL COOL (EMCC)

| Typ | A | B | C | D | E | F | G | H | Connections ["] | | | | | | | W x H x D [mm] | Tiit dim. [mm] | Weight [kg] | | | | | | | | | | | | | | | |
|-------------|---|----|---|----|-----|------------------|-----|----|-----------------|-----|------|---|------|------|---|---------------------|----------------|-------------|--|--|--|--|--|--|--|--|--|--|--|--|--|------|--|
| | | | | | | | | | 1*) | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | | | | | | | | | | | | |
| EMCC-S1-4.0 | - | 10 | - | 70 | -10 | 1 x 230V 50Hz | 0,8 | 10 | Rp ½ | Rp1 | Rp 1 | - | Rp 1 | Rp 1 | - | 575 x 1244 x 741 | 1177 | 59 | | | | | | | | | | | | | | | |
| EMCC-S1-5.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EMCC-M1-4.0 | | | | | | | 1,5 | 13 | | | | | | | | | | | | | | | | | | | | | | | | 76,5 | |
| EMCC-M1-5.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EMCC-D1-4.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EMCC-D1-5.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

LEGEND

- A Volume [liter]
- B Max. operating pressure device (PN) [bar]
- C Max. operating pressure vessel (PN) [bar]
- D Max. temperature at connection point [°C]

- E Min. temperature at connection point [°C]
- F Voltage [V/Hz]
- G Max. power [kW]
- H Fuse protection [A]

- 1 Make-up line
- 2 Expansion overflow line
- 3 Expansion pressure line
- 4 Discharge hopper for vessel safety

- 5 Suction line
- 6 Overflow line
- 7 Gas side vessel connection

*) Make-up optional, EMCC-N1

TECHNICAL DATA

EMCC-G / EMCC-Z VESSELS

MultiControl Cool EMCC-G expansion vessels are used to accommodate the expansion volume in combination with MultiControl Cool EMCC control units. The expansion volume is stored without pressure and a high-quality bladder ensures consistent separation of the system and atmosphere. The integrated differential pressure measurement allows the current tank level to be read at any time on the control unit.

EMCC-Z additional vessels are used to increase the expansion volume in combination with EMCC-G expansion vessels and are designed without differential pressure measurement.

Due to their design and the use of corrosion-resistant materials in areas prone to condensation, EMCC-G expansion tanks and EMCC-Z auxiliary tanks are particularly suitable for use in chilled water systems.

SPIROEXPAND EMCC-G/EMCC-Z

| Type | Liter | A | B | C | Connections ["] | | | | Tilt dim. [mm] | Ø | Height [mm] | Clear height above vessel [mm] | Weight [kg] | Color |
|------------------------|-------|-----|----|-----|-----------------|-----|-----|------------------|----------------|-----|-------------|--------------------------------|-------------|---------|
| | | | | | 1 | 2 | 3 | 4 | | | | | | |
| EMCC-G125 EMCC-Z125 | 125 | 0,5 | 70 | -10 | RP¾ | RP¾ | RP½ | Geberit DN 50 | 1200 | 500 | 1118 | 500 | 41,5 40 | RAL7035 |
| EMCC-G200 EMCC-Z200 | 200 | | | | | | | | 1430 | 500 | 1360 | | 48,5 47 | |
| EMCC-G300 EMCC-Z300 | 300 | | | | | | | | 1500 | 600 | 1425 | | 56 54,5 | |
| EMCC-G500 EMCC-Z500 | 500 | | | | | | | | 2150 | 600 | 2013 | | 72 70,5 | |

LEGEND

A Max. operating pressure vessel (PN) [bar]

B Max. temperature at connection point [°C]

C Min. temperature at connection point [°C]

1 Overflow line from the control unit

2 Suction line to the control unit

3 Gas-side vessel connection (under cover)

4 Discharge hopper for vessel safety

EXPLANATION OF TYPES

EMCC-D1-5.6

WORKING PRESSURE

Max. upper working pressure

VERSION

S System SOLO

D System DUO

M System MAXI

TYPE

SpiroExpand MultiControl Cool

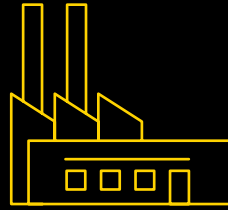
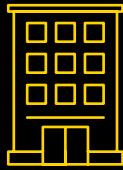


ACCESSORIES

| | Type | Art. No. |
|---|--|---|
|  | <p>EMCC-G connection set</p> <p>The MultiControl Cool connection set EMCC-G enables the hydraulic connection between the MultiControl Cool control unit EMCC-_1 and the MultiControl Cool vessel EMCC-G. Technical details: suction pipe/overflow pipe: R1 R¾ L = 1.300mm</p> | EMCC-G |
|  | <p>EMCC-Z connection set</p> <p>The MultiControl Cool connection set EMCC-Z enables the hydraulic connection between EMCC-G and EMCC-Z resp. EMCC-Z and EMCC-Z (extension). Technical details: water sided/gas sided: R½ L = 1.000 mm</p> | EMCC-Z |
|  | <p>MultiControl Cool Make-up module</p> <p>Make-up module for controlled make-up is used to compensate missing system medium.</p> | EMCC-N1 |
|  | <p>Backflow preventer ½"</p> <p>System separator with controllable low-pressure zone for products with automatic refill function</p> | TMA05 |
|  | <p>MultiControl Kompakt bypass set</p> <p>The MultiControl compact bypass set is for use with MultiControl devices (EMCK, EMCM-_1, ETCM-_1 and EMCC-_1) without automatic pressure stage degassing function. Integration into the system is only possible with a connection to the system return. In addition, it is recommended to use the bypass set for maintenance work in order to adjust the pressure without connecting to the system. Technical data: Connection dimension: R 1", PN10.</p> | EMCB-ZB |
|  | <p>SpiroPure</p> <p>Filling unit for the complete desalination of the replenishment water</p> | |
|  | Busmodules | |
| | Connection of the pressure maintenance system to an external control system for data exchange | |
| | 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 |
|  | <p>MultiControl webmodule</p> <p>Monitoring and remote observation of the pressurization system via Internet web browser. Information, fault and warning messages by e-mail.</p> | EMCWE |
|  | <p>Intermediate cooling vessels in various sizes</p> <p>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.</p> | ET0100T1 - ET3000T1 |
|  | <p>MultiControl contact temperature sensor</p> <p>Including tightening strap (diameter 15 – 40 mm).</p> | E51950 |
|  | <p>MultiControl cable temperature sensor</p> <p>Cable 10 m, including immersion sleeve G ½", PN10.</p> | E51951 |
|  | <p>Drip tray with siphon and plastic spacers to collect condensation water.</p> <p>(50mm) 840 mm x 840 mm</p> | E51995 |
| | <p>Drip tray with siphon and plastic spacers to collect condensation water.</p> <p>(50mm) 1200 mm x 840 mm</p> | E51996 |

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.

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