

**SPIROPRESS®**



VACUUM DEGASSING &  
PRESSURISATION SOLUTIONS  
FOR HEATING, COOLING AND  
PROCESS SYSTEMS



COMMERCIAL | INDUSTRY

# Total Solutions

Our experience, research and targeted investigations have taught us that the majority of issues within H&V systems are closely related to poor pressurisation. Often even very simple issues are overlooked during design, installation and maintenance. As a result, the quality of the system fluid is seriously compromised and a potentially fatal series of events will occur. This dramatically reduces the efficiency of the system and also causes premature failure of major system components. Often it ends up in high operating costs for the plant and considerable expense for the owner and annoying inconveniences for the end user. Components need to be replaced and the system must be cleaned persistently and time and again chemicals are applied. All this to achieve a "status quo" for the circulating fluid.

*This constant cycle of work and costs can be broken!*

## Breaking the cycle starts with the pressurisation system

A poorly designed, installed and/or maintained pressurisation system can lead to negative pressures around the circuit. Air can be drawn in through Automatic Air Vents, gaskets and micro leaks. High pressure situations can lead to water being emitted through the safety valves and then the subsequent frequent addition of further raw refill water. The introduction of fresh oxygen rich water depletes any level of corrosion inhibitors that may be present). The onset of corrosion is then inevitable, and the cycle continues:

- Air constantly gets into the system
- Corrosion starts to occur
- Dirt & sludge begin to build up
- The system is cleaned and treated...



Corrosion inhibitors do not affect the content of inert gases such as nitrogen and carbon dioxide that are present in large volumes and reduce the operating efficiency of the system.

## Pressurisation: The bedrock of good system design

A good pressurisation regime creates the conditions for a system to operate efficiently and reliably and ensures that the required minimum pressures are achieved across the whole system.

## So good pressurisation solves and prevents all the problems?

If only that were true! It doesn't make other measures redundant. It surely puts things in the right perspective. What you should aim for is "Hydronic Stability".

## Hydronic Stability

Hydronics is the use of fluid as the heat-transfer medium in heating and cooling systems. What happens to the fluid while operating the system is a dynamic process. Hydronic Stability means that at any location in the system, at any given time, the fluid can do what it must do: transfer heat or cold!

In order of importance, the critical factors for Hydronic Stability are:

1. Design
2. Temperature
3. Pressure
4. Air content
5. Dirt content
6. Chemical composition

In existing installations, design is a fixed given. Temperature is the key parameter. It is not actually affected by the other factors, but the efficiency of having the right temperature at the right spot, most certainly is.

That leaves 4 important factors that are highly interdependent. If not enough attention is paid to one factor, extra efforts must be made in the following one(s) to compensate. This leads to recurrent symptom fighting instead of thorough tackling the root cause.

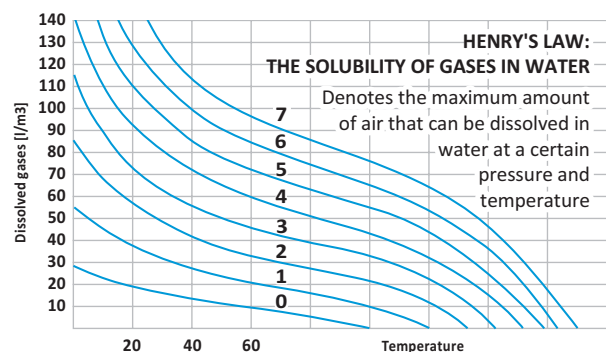
### Pressure:

Firstly, get the Design, Installation & Maintenance of the pressurisation system correct. It ensures that the system can do what it is designed for: to transfer hot or cold water to all locations.

Secondly, if you must add any refill water it is essential to remove free and dissolved air before the water is fed into the system. This is easily achieved through the SpiroVent Superior "Combined Vacuum Degassers & Pressurisation Units".

### Air content:

Even if the pressurisation is perfectly in order, air will always play a disruptive part. Initial deaeration after (re)filling provides only a limited solution. Due to physical laws (most important, Henry's Law) & other causes (micro leaks, diffusion) proper, constant deaeration is indispensable. In case of poor pressurisation, preventive deaeration is in vain. Air problems will occur constantly and will destroy the efficiency of the installation.



## Dirt content

The origination of dirt particles can never be completely prevented. The tedious and costly consequences surely can. Next to that, dirt can also originate from initial instalment or maintenance. Excessive air content will lead to rapid fouling of the system with all time and money consuming consequences.

## Chemical composition and treatment

The quality of the system fluid is also an important factor for the efficient functioning of a system. The fluid should be regarded as a system component and treated as such. Therefore it should not only be carefully selected but also properly maintained. Next to that, chemicals are used to flush systems to undo them from any impurities, or to close or prevent micro leaks.

If excessive dirt is present, treatment and cleaning with chemicals must take place far more often.

All above factors together determine the Hydronic stability in a system. If one of the factors is not attended properly, extra efforts must be taken in the following step in the stability process.

## Creating Hydronic Stability in practice

Currently it is typical for different companies to be responsible for:

- Pressurisation.
- Deaeration & Dirt Separation.
- Chemicals.



Clearly this is a problem because of differing levels of knowledge between the often opposing companies, varying quality of product and frequently a misunderstanding of the inter-relationship of these elements.

When introduced to a problem site, Spirotech engineers are conversant with all critical factors of Hydronic Stability. Subsequently they are able to offer the correct advice, with only the end users interest in mind.

A frequently heard remark: "there is a constant problem with air, even though the correct Deaeration solution has been installed". We are invariably able to deduce and rectify any underlying error with the Pressurisation system in either:

- The Design
- The Installation
- The Maintenance



## Another one:

"We don't need a Deaerator, we have Automatic Air Vents"

An automatic air vent only allows for the displacement of free air when filling a system. Once the system is circulating, "AAV's" are unable to remove any of the entrained or dissolved gases.

## Benefits of Hydronic Stability

- Correct, positive pressure throughout the system at all times.
- Air levels reduced to the absolute minimum.
- System cleanliness.
- Minimal chemical treatment and its associated costs.
- Maximum efficiency of all components within the system.
- Reduced operating costs.
- Maximized system life.
- Fewer problems, headaches and call-backs.

## How can Hydronic Stability be realised?

- An integrated approach to the design of all elements, preferably from a single company thus avoiding any conflicts of interest.
- The correct understanding and application of the current standards.
- Detailed, accurate specification, strictly enforced.
- Quality products backed by clear and long Guarantees.



# Total Solutions

## Introducing Spirotech Total Solutions

### Achieve & Maintain Hydronic Stability

What are the steps in achieving Hydronic Stability?

With New or Refurbishment projects particular attention must be paid to correct design, installation and then the on-going maintenance.

With problematic systems, establish the fault & rectify. Use Chemicals to clean and treat the system together with water analysis to confirm a good health of the circulating fluid has been achieved.

Then direct attention to the essential maintenance of the pressurisation system as this is where most problems begin.

And always use Vacuum degassing equipment to remove dissolved air (oxygen) from the make-up water before adding it into the system.

**SPIROPRESS<sup>®</sup>**  
Pressurisation Range

**SPIROVENT<sup>®</sup>**  
Deaerators & Degassers

**SPIROTRAP<sup>®</sup>**  
Dirt Separators

**SPIROPLUS<sup>®</sup>**  
Chemicals

**SPIROCARE<sup>®</sup>**  
Analysis and Advice



# SpiroPress range

## SpiroPress Fill

- Primarily for use on smaller systems with relatively low pressures and volumes.
- The SpiroPress Fill [SPF] range offers the choice of a simple mechanical auto fill unit or a wall hung pumped fill unit.
- Both systems are used to provide make up water and are used in conjunction with an independent fixed gas cushion type expansion vessel. The pumped fill unit (R6) is equipped with an electronic regulation, ensuring a constant monitoring of the pressure and is equipped with a fill volume check and limit (if required). It will give an error message when the added volume is too high according to the settings. The mechanical Autofill is generally used when sufficient mains water pressure is guaranteed and no check on refill volume is required. It can be perfectly used for initial filling of a system during the venting of radiators.
- 2 sizes of Backflow preventers (RPZ) are offered as part of the fill range for inclusion on other systems that require compliance with the water bylaws.
- Deaeration and Dirt Separation must be provided independently.

## SpiroPress Control

- For use on systems generally up to (but not limited to) 300,000 litres. The SpiroPress Control [SPC] range offers the choice of 4 units available to cover the Pressure range from 1 bar to 16 bar.
- All units are used to provide both full Vacuum Degassing of the system water and essentially all make up water is also degassed prior to entry into the system offering substantial long term protection to the system.
- All units are used in conjunction with an independent fixed gas cushion type expansion vessel.
- Dirt Separation must be provided independently.



## SpiroPress MultiControl

- For use on systems generally with large volumes and pressures and also if space is limited and traditional fixed gas cushion type vessels are difficult to accommodate.
- The SpiroPress MultiControl [SPMC] range offers a multitude of units to cover all system volumes and pressures up to 16 bar.
- Special units are also available upon request for systems operating at higher pressures.
- All units incorporate a spring operated expansion valve that benefits the system by providing a very soft and sympathetic action when compared to open/shut electronic type valves.
- These units may be used as a stand-alone complete pressurisation solution although to maximise longevity of system components and to offer optimum protection to the circulating fluid Spirotech strongly recommend using in conjunction with the appropriate SpiroPress Control [SPC] unit to provide both full Vacuum Degassing of the system water and essentially all make up water is also Degassed prior to entry into the system.
- Degassing (see above paragraph) and Dirt Separation must be provided independently.

# SpiroPress Fill - Technical Data



SpiroPress Fill	
Model No.	R6
System Pressure [bar]	1 - 6
Temperature of system fluid [°C]	0 - 90
Refill Volume [l/h]	0 - 330
Ambient Temperature [°C]	0 - 40
Dimensions HxWxD [mm]	490 x 340 x 340
Dry Weight [kg]	17
Supply Voltage [V]	230 ± 10%
Power Consumption [Watt]	380
Degree of Protection [IP]	X4D
Article Number	MR0650



SpiroPress Fill Compact	
Model No.	RC
System Pressure [bar]	0.2 – 4.0
Max Temperature [°C]	60
Refill Volume [l/h]	2650
Ambient Temperature [°C]	0 - 40
Dimensions HxWxD [mm]	182 x 250 x 80
Dry Weight [kg]	1.6
Article Number	TMA15

SpiroPress Fill Compact is a simple but effective automatic fill unit that uses water mains pressure to (re-)fill the system. It includes a backflow preventer, pressure reducing valve and water meter. The pressure settings can be set manually.



Backflow Preventer		
Model No.	TMA05 ½"	TMA06 ¾"
System Pressure [bar]	0 – 10	0 - 10
Max Temperature [°C]	60	60
Max. Flow rate [m3/h]	3.5	4.2
Dimensions HxWxD [mm]	263 x 227 x 80	263 x 227 x 80
Dry Weight [kg]	1.6	1.6
Article Number	TMA05	TMA06

# SpiroPress Control - Technical Data



SpiroVent Superior S4A-R	
Model No.	S4A-R
Max. System Volume [m <sup>3</sup> ]	25
System Pressure [bar]	1 – 4.5
Temperature of system fluid [°C]	0 - 90
Fluid Degassed [l/h]	70
Max. Refill Volume [l/h]	50
Ambient Temperature [°C]	0 - 40
Dimensions HxWxD [mm]	490 x 340 x 340
Dry Weight [kg]	16
Supply Voltage [V]	230 ± 10%
Power Consumption [Watt]	100
Degree of Protection [IP]	X4D
Common Fault	VFC
Refill on/off by external device	5VDC (out)
Supply Healthy Signal	Requires BMS module*
Refill in Operation	Requires BMS module*
Article Number	MA04R50



Spirovent Superior S6R & S6R2		
Model No.	S6A-R	S6A-R2P
Max. System Volume [m <sup>3</sup> ]	300	300
System Pressure [bar]	1 – 6	1 - 6
Temperature of system fluid [°C]	0 – 90	0 - 90
Fluid Degassed [l/h]	1,000	1,000
Max. Refill Volume [l/h]	500	500
Ambient Temperature [°C]	0 – 40	0 - 40
Dimensions HxWxD [mm]	880 x 590 x 350	880 x 590 x 350
Dry Weight [kg]	59	67
Supply Voltage [V]	230 ± 10%	230 ± 10%
Power Consumption [Watt]	800	1300
Degree of Protection [IP]	X4D	X4D
Common Fault	VFC	VFC
Refill on/off by external device	5VDC (out)	5VDC (out)
Notification "in operation" to BMS	VFC	VFC
Activate Refill by BMS	24VAC (in)	24VAC (in)
Enable/Disable from BMS	24VAC (in)	24VAC (in)
Supply Healthy Signal	Requires BMS module*	Requires BMS module*
Refill in Operation	Requires BMS module*	Requires BMS module*
Article Number	MA06R50	MA06P50



Spirovent Superior S10 & S16		
Model No.	S10A-R	S16A-R
Max. System Volume [m <sup>3</sup> ]	300	300
System Pressure [bar]	5 – 10	9 - 16
Temperature of system fluid [°C]	0 – 90	0 - 90
Fluid Degassed [l/h]	1,000	1,000
Max. Refill Volume [l/h]	600	550
Ambient Temperature [°C]	0 – 40	0 - 40
Dimensions HxWxD [mm]	1272 x 744 x 400	1272 x 744 x 400
Dry Weight [kg]	79	92
Supply Voltage [V]	3 x 400	3 x 400
Power Consumption [Watt]	1150	2250
Degree of Protection [IP]	X4D	X4D
Common Fault	VFC	VFC
Refill on/off by external device	5VDC (out)	5VDC (out)
Notification "in operation" to BMS	VFC	VFC
Activate Refill by BMS	24VAC (in)	24VAC (in)
Enable/Disable from BMS	24VAC (in)	24VAC (in)
Supply Healthy Signal	Requires BMS module*	Requires BMS module*
Refill in Operation	Requires BMS module*	Requires BMS module*
Article Number	MA10R50	MA16R50

\* Please see page 8 for information on BMS Module

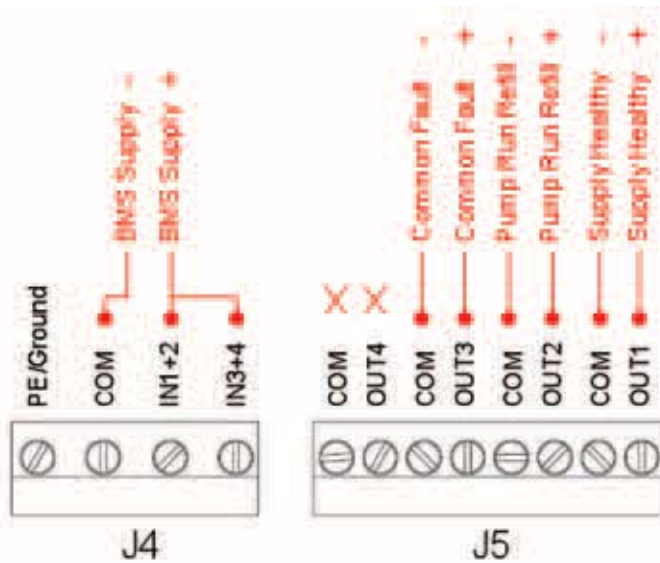
# Spiopress Control - Accessories

## BMS Module:

The BMS module is a facility for Superiors enabling the following additional signals for Building Management Systems are available:

- **Supply Healthy:** Indication that supply voltage is connected to the Superior.
- **Pump Run Refill:** Indication that refill is active (Refill versions only).
- **Common Fault:** Indication that Superior has an error  
(Normally open or Normally closed adjustable).

BMS module	
Ambient Temperature [°C]	0 - 40
Supply Voltage [V]	230 ± 10%
Common Fault	VFC
Supply Healthy	VFC
Refill in Operation	VFC



There is a specific module for the S4 and one suitable for S6/S10 and S16. Please refer to our Technical Support for more information and availability.



# SpiroPress Control - Expansion Vessels



## HW Series:

### Applications

Hydronic expansion

### Features

- High grade butyl diaphragm.
- CE, Gost approved.
- Two part polyurethane, epoxy primed paint finish.
- Leak free O-ring sealed air valve cap.
- Comprehensive testing.
- Max Operating Pressure 10 bar.
- Max temperature 99°C.
- Sizes 2 - 150 Litre.



## GC Series:

### Applications

Booster systems, thermal expansion, heating expansion, Irrigation systems, hydraulic hammer arresting

### Features

- Patented CAD2 diaphragm technology.
- NSF Standard 61, CE/PD, WRAS, ACS, Gost approved.
- Stainless steel water connection.
- Condensation reducing design.
- Two part polyurethane, epoxy primed paint finish.
- Leak free air valve cap sealed with closed cell foam.
- Comprehensive testing.
- No maintenance.
- Max Operating Pressure 10 Bar.
- Max temperature 90°C.
- Sizes 200 - 450 Litre.
- WRAS approved.



## SF Series:

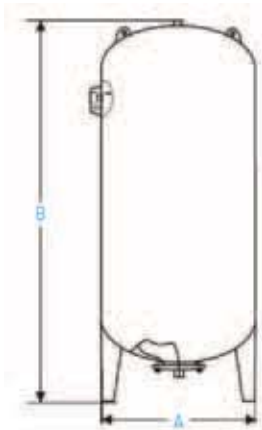
### Applications

Booster systems, thermal expansion, irrigation systems, hydraulic hammer arresting

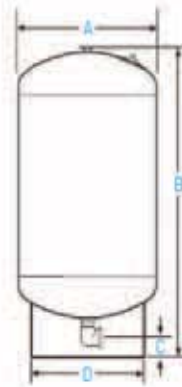
### Features

- Replaceable membrane.
- Built-in pressure gauge (Models SF100-SF10,000).
- CE approved.
- New colour: Almond RAL 1013.
- Available in 10, 16 & 25 bar pressure rating.
- Max temperature 90°C.
- Sizes 750 - 10,000 Litre.

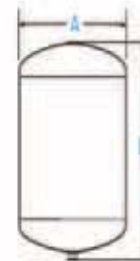
# Vessels - Technical Data



**SF Series**  
750 – 5000 l.



**GC Series**  
200 – 450 l.



**HW Series**  
2 – 150 l.

Expansion vessel										Wall brackets	
Article no.	Model	Operating Pressure [bar]	Nominal Volume [l]	Connection Size [bsp]	Ø A [cm]	Height B [cm]	Height C [cm]	Ø Base D [cm]	Weight [kg]	Article no.	Model
EV0002F	HW2	10	2	3/4"	12.7	18.3	N/A	N/A	1		
EV0008F	HW8	10	8	3/4"	20.3	31.7	N/A	N/A	2.6	EB0008	BR200
EV0012F	HW12	10	12	3/4"	24.4	36.6	N/A	N/A	3.2	EB0012	BR230
EV0018F	HW18	10	18	3/4"	27.9	36.8	N/A	N/A	4.3	EB0018	BR280
EV0024F	HW24	10	24	3/4"	29.2	44.4	N/A	N/A	5.6	EB0024	BR290
EV0035F	HW35	10	35	3/4"	31.8	48.1	N/A	N/A	7	EB0035	BR320
EV0060F	HW60V	10	60	3/4"	38.8	62.6	N/A	N/A	12.3	EB0060	BR390
EV0080F	HW80V	10	80	3/4"	38.8	79	N/A	N/A	16.7	EB0060	BR390
EV0100F	HW100V	10	100	1"	43	80.4	N/A	N/A	18.9		
EV0150F	HW150V	10	150	1"	43	107	N/A	N/A	26		
EV0200F	GC200	10	200	1 1/4"	53.3	103.3	5.7	44.6	34		
EV0250F	GC250	10	250	1 1/4"	53.3	121.2	5.7	44.6	40		
EV0300F	GC300	10	300	1 1/4"	53.3	150	5.7	44.6	48		
EV0450F	GC450	10	450	1 1/4"	66	152.9	5.7	54.2	75		
EV0750R	SF750	10	750	2"	74	195	N/A	N/A	110		
EV1000R	SF1000	10	1000	2"	80	220	N/A	N/A	165		
EV1500R	SF150010V	10	1500	2"	96	240	N/A	N/A	250		
EV2000R	SF200010V	10	2000	2"	110	245	N/A	N/A	370		
EV3000R	SF300010V	10	3000	2 1/2"	120	280	N/A	N/A	550		
EV4000R	SF400010V	10	4000	3"	145	310	N/A	N/A	655		
EV5000R	SF500010V	10	5000	3"	145	370	N/A	N/A	830		

## EV\*\*\*\*R articles (or SF models) also benefits from:

- Built-in pressure gauge on air side.
- Available as 16 bar & 25 bar rating.
- Available as Horizontal units.
- Interchangeable Membrane.
- 750 & 1000 litre vessels can be supplied with EPDM Membrane.
- Details on 10,000 litre available on request.

# Notes on Design

**Pressurisation is a critical part of the system, where all components need to be analysed to create the correct design.**

Through correct design and application the minimum pressure at any point on the system will be 0.3bar under all operating conditions (according EN12828).

Consideration must be given to the;

- System volume.
- The minimum and maximum operating temperatures.
- The percentage of any Glycol within the system.
- The maximum pressure rating of all system components.
- The location of the connection point for the expansion vessel – defined as the **“Neutral point”**.
- The Safety Valve lift pressure.
- The adequate calculation and selection of the required expansion vessel volume.
- Vessel reserve.

## System Volume

This can be accurately measured by filling via a water meter. Alternatively this can be estimated from the kW rating of the system or by calculating and adding together known pipework and component/plant volumes for the whole system.

## Temperatures

The minimum & maximum temperatures should take into account both operating conditions and also ambient conditions for when the plant is offline.

## Expansion Vessels - Fixed Diaphragm Type



## Glycol

The higher the percentage of Glycol (antifreeze), the higher the Co-efficient of expansion should be used in the pressurisation calculations. The result is that the calculated volume of expanded water will be higher and the required expansion vessel/s size will be larger.

## The Neutral Point

This is the most important point on the system as all pressurisation calculations are determined at this location. All other pressures are then calculated relative to the Neutral point.

The Neutral Point is always the position at which the expansion vessel/s is connected to the system.

In almost all situations the Neutral point should be on the suction side of the circulating pump and particularly on heating systems on the return pipework in order to reduce the temperature experienced by the expansion vessels.

## Safety Valve Lift Pressure

The initial lift pressure is calculated at the Neutral point. It is important to calculate the actual lift pressure required by taking into account any difference in static head relative to the Neutral point, any frictional losses of the pipework and also the effect of pump head, should the pump be located between the Neutral point and the Safety Valve.

A Safety valve that is of incorrect rating may open under maximum load conditions and lose fluid from the system; subsequently the pressurisation unit may be adding raw untreated (oxygen rich) water on a frequent basis thus compromising the integrity of the system fluid.

## The maximum pressure rating of all components

The manufacturer's maximum pressure figures for all components should be consulted and then taking into account the location of the component (i.e. a radiator) relative to the Neutral point, the final max pressures for the components can be determined.

# Notes on Design

## Expansion Vessels

These are frequently and incorrectly treated as a “commodity” and purchased purely on price. There is a tendency in the industry to install the smallest possible expansion vessel/s; subsequently the calculated expansion volume is often “rounded down” to the next applicable vessel size.

Therefore the vessel is immediately too small and the longevity of the vessel and possibly the system is reduced.

EN12828 provides more safety factors than other design standards and this combined with selecting the next vessel size above the calculated volume, together with a quality Butyl membrane will ensure the longest possible lifespan of the expansion vessel.

Multiple Expansion vessels should always be of the same size and preferably manufacture, also they should be installed at the same height within the system.

## Vessel reserve

This is defined as the minimum amount of water required in the vessel under all operating conditions and it is there to provide hydraulic backpressure to stabilise system operating pressures. If the vessel is designed incorrectly and the water reserve is inadequate, there may not be any water in the vessel, subsequently the stability of system pressures is compromised and the system will react as if there is no vessel installed.

The correct calculation and accurate setting of cold fill and vessel Pre-charge pressures will ensure that the required vessel reserve is established.

According EN12828 Vessel Reserve is taken as .5% of system volume and this is subsequently added to the calculated expansion volume when determining Expansion Vessel sizes.

## Expansion Pipe sizing

The resistance offered by the connecting pipe work between the expansion vessel/s and the system must be sized so as to provide as little resistance to flow as possible. This is often overlooked with the consequence that high frictional losses prevent the correct the operation of the expansion vessel/s. Please refer to the graph on page 13 that provides guidance on how to correctly size this pipework.

## Pre-Charge Pressure

For the Expansion vessel to operate correctly the vessel Pre-Charge Pressure (air cushion) must be adjusted specifically for the system on which the expansion vessel is installed. The Pre-Charge pressure is established by ensuring the vessel is drained of all water and the water connection is open to atmospheric pressure.

The Pre-Charge pressure is then adjusted by increasing or decreasing the “air side pressure” via the Schrader valve on the top of the vessel. The Pre-Charge pressure should be equal to the static height of the system (measured from the centre line of the vessel) to the highest part of the system plus 0.2 bar.

## Cold Fill Pressure

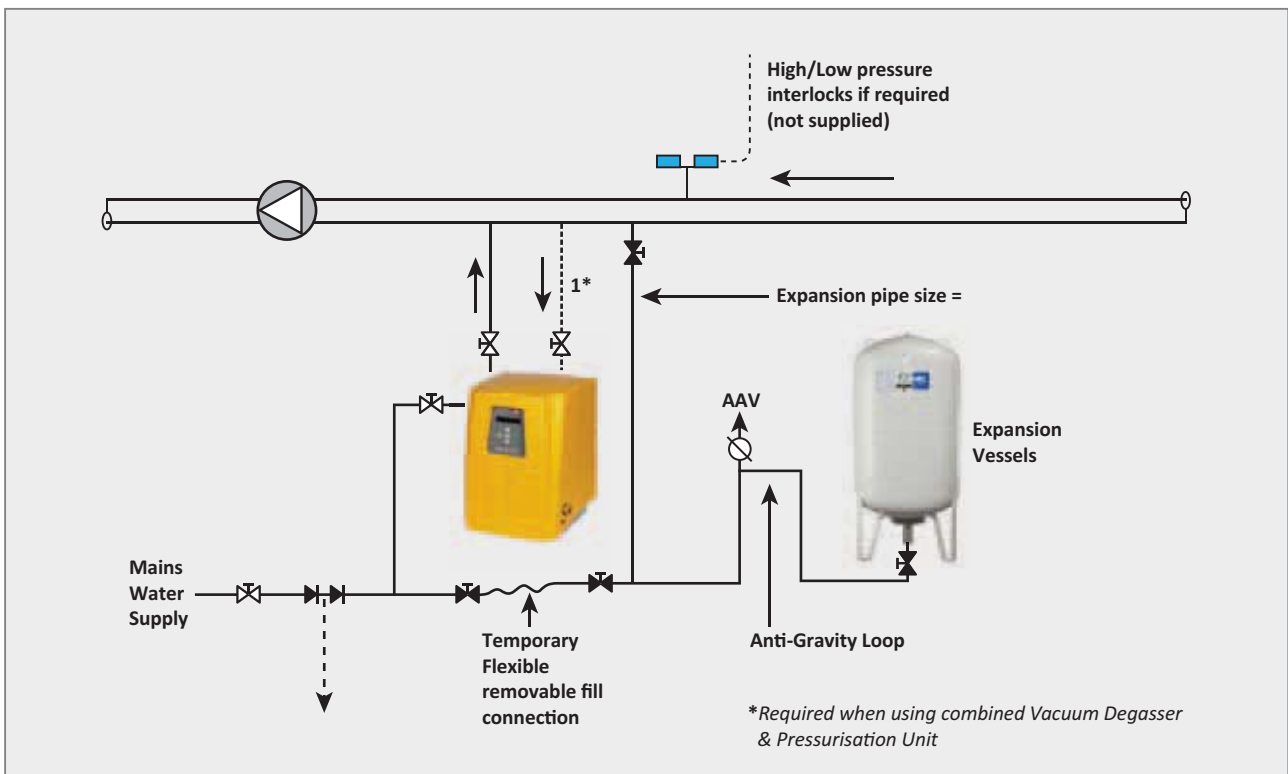
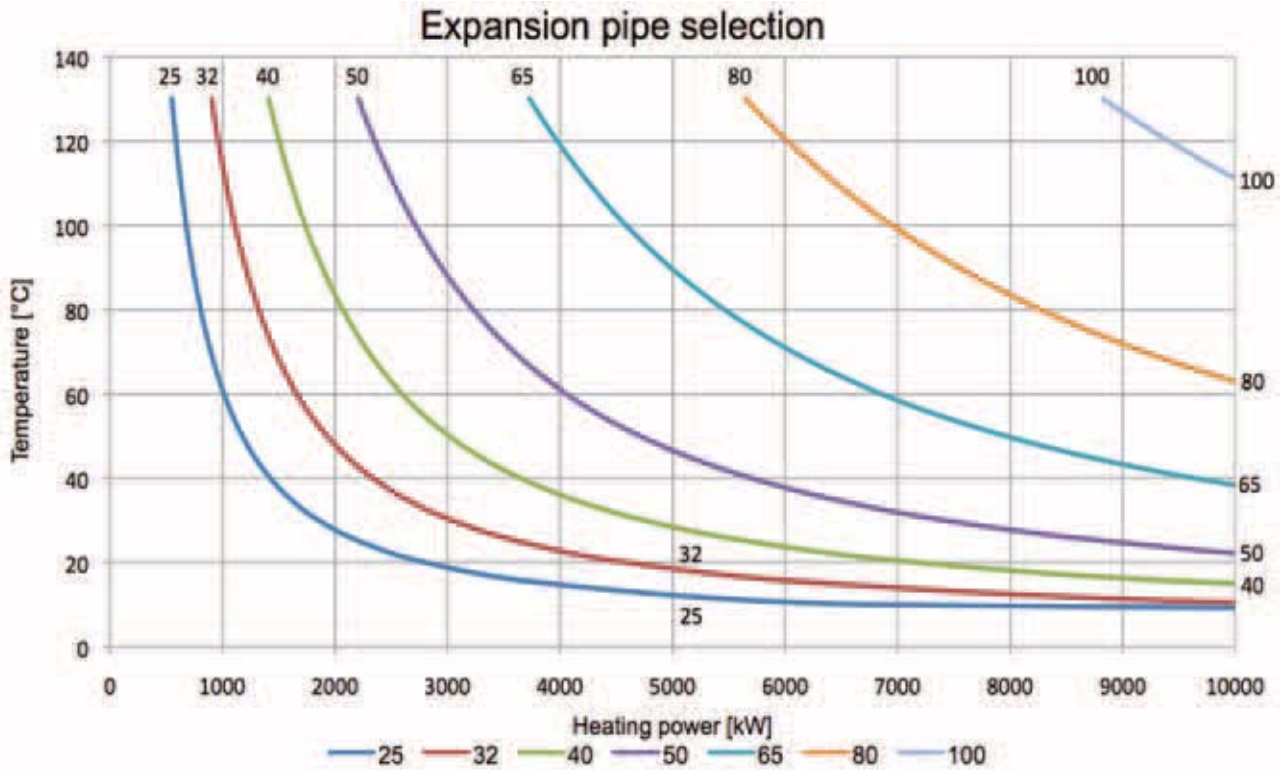
This may also be known under other names such as “Start Pressure”, “Lower working pressure” etc. but essentially it is the pressure recorded adjacent to the Neutral point at which the filling process is stopped. The cold fill pressure must be higher than the Pre-Charge Pressure in order for water to flow into the vessel. The Cold fill pressure is generally around .3 bar higher than the Vessel Pre-Charge.

## High / Low Pressure Interlocks

If there is a requirement to provide High or Low pressure interlocks that are to shut down the plant in the event of fault conditions, these should always be supplied and installed independently of the Pressurisation system.

The Pressurisation refill unit is not necessarily a critical part of the plant and if for any reason the Pressurisation refill unit is taken offline for repairs and/or maintenance the system is still able to function in the interim period.

# Notes on Design



# SpiroPress MultiControl - The Systems

The MultiControl Series consists of 2 product types;

## MultiControl Kompakt (MCK):

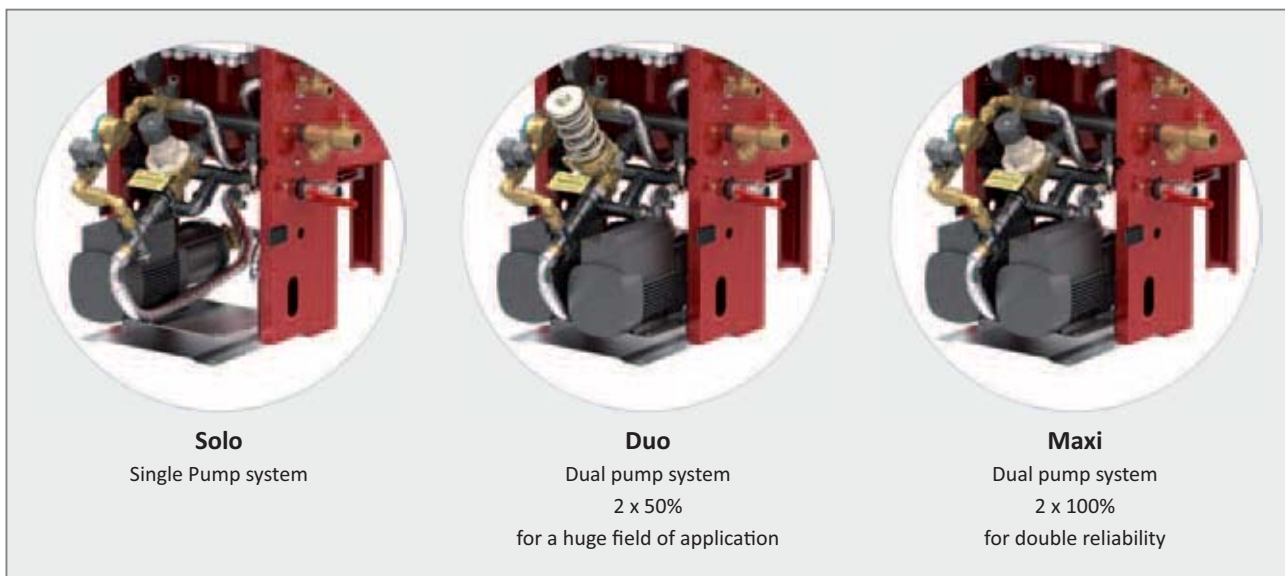
- The compact unit with the built on vessel.
- The vessel size ranges from 75 litres up to 500 litres.
- Up to 2 additional vessels may be added external to the unit providing a maximum capacity of 1500 litres.

## MultiControl Modular: (MCM):

- The Stand-alone unit that may be linked to a multiple number of vessels.
- Almost limitless vessel capacity.

Both Kompakt and Modular are available in various configurations as follows

## The systems ...



### Solo

Single Pump system

- One pressurisation Pump for 100% of the expansion flow.
- One Overflow Valve for 100% of the expansion flow.

Example MCM-S2-6.0

### Duo

Dual Pump System

- Two pressurisation Pumps for 50% of the expansion flow.
- One Overflow Valve for 100% of the expansion flow.
- Duo stands for a huge field of application due to staggered pump utilisation. This also is energy efficient and energy saving due to load distribution to two pumps.

Example MCM-D8-16.0

### Maxi

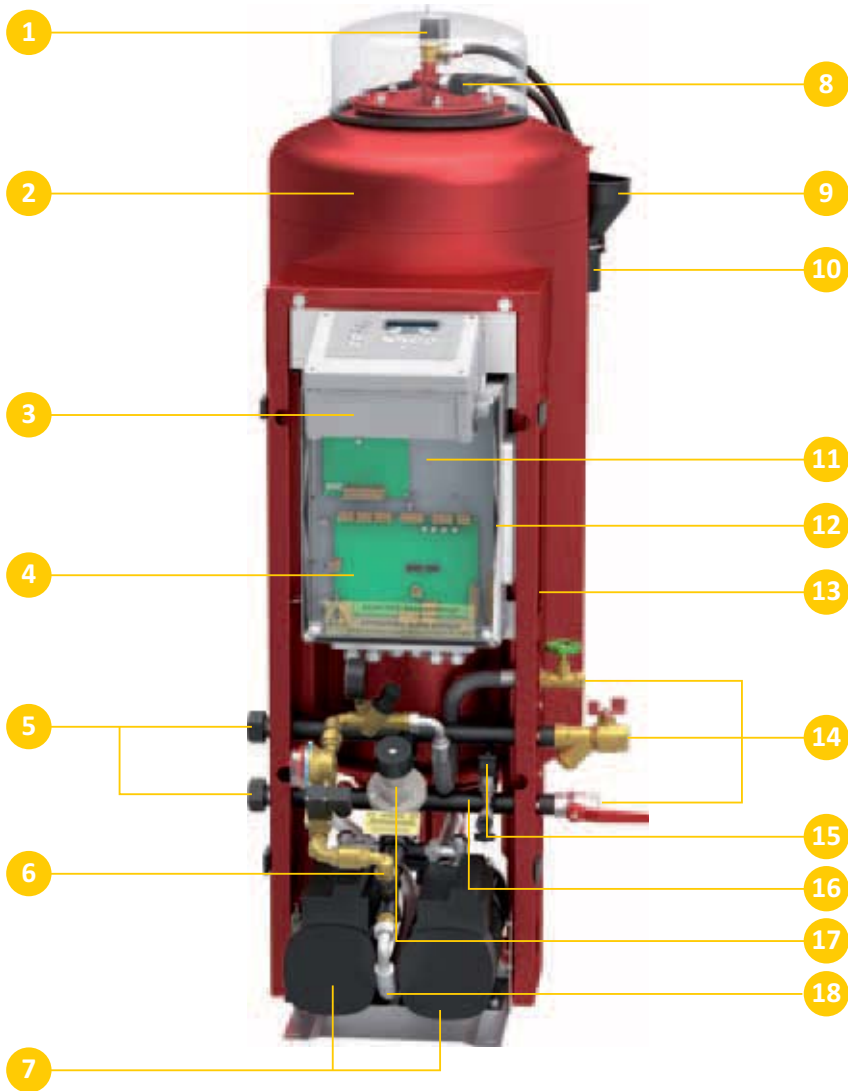
Dual pump system 2x 100%

- Two pressurisation pumps: 100% of the expansion flow each.
- Maxi means full power reserve and pump fail-safe, since each pump is able to provide the full expansion flow.

Example: MCM-M3-10.0

# MultiControl Kompakt - Built on Vessel

The details...  
example: MCK-D200-5.6



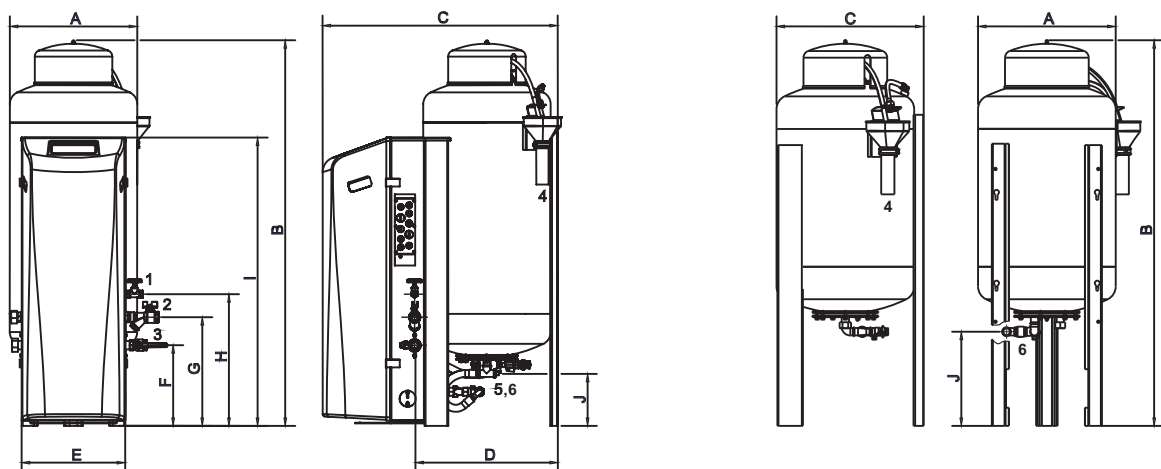
1. Expansion vessel safety valve: 0.5bar for vessel safeguarding.
2. Pressure expansion vessel (max. 0.5bar): best possible separation of plant media and atmosphere and prevention of gas diffusion by built-in vessel membrane and lowest possible vessel pressure.
3. Ergonomically designed operator panel with illuminated four-line character

4. Standard equipment already contains 3 potential free signalling contacts ("makeup in operation", "warning", "fault").
5. Prepared for left side connection, additionally usable during initial operation for setting working pressure without being connected to the rest of the system.

6. Connection point for makeup module (already mounted in this picture), litre accurate measuring and combinable with water softening.
7. Energy-saving due to yet more efficient pumps with reduced electrical power consumption (multi-stage rotary pump with highest class floating-ring type shaft seal).
8. Vessel pressure transmitter for level measurement.
9. Ex works pre-assembled discharge hopper for vessel safety valve.
10. Easy hydraulic connection due to pre-assembly.
11. Installation space for optional analog signalling and binary signalling expansion-modules.
12. Enclosed electronic unit, optimally protected.
13. Perfect accessibility for all on-site cable connections, easily convertible to left side if required during on site mounting.
14. Connections for on-site piping with pre-assembled shut off devices using large dimensions, also easily convertible to left side if required during on site mounting.
15. Precision plant pressure measurement.
16. Well-thought-out compact hydraulics providing best possible accessibility for service purposes.
17. Proportional to plant pressure steadily regulating overflow valve.
18. In series temperature measurement of media streaming into the expansion vessel for extended applicability and preventing from possible problematic operating states.

# MultiControl Kompakt - Technical Data

Type		Elko-mat eder multicontrol																		
		Kompakt MCK					Additional vessels MCB-Z													
		MCK-S75	MCK-D75	MCK-M75	MCK-S125	MCK-D125	MCK-M125	MCK-S200	MCK-D200	MCK-M200	MCK-S300	MCK-D300	MCK-M300	MCK-S500	MCK-D500	MCK-M500	MCB-Z75	MCB-Z125	MCB-Z200	MCB-Z300
Nominal content	litre	75	125	200	300	500	75	125	200	300	500									
Nominal pressure device (PN)	bar	10																		
Nominal pressure vessel (PN)	bar	0,5																		
Max. temperature at plant connection	°C	70																		
Insertion: tip dimension	mm	1500	1500	1630	1700	2250	1500	1500	1630	1700	2250									
Voltage	V/Hz	230/50																		
Max. electrical power	kW	4,0+ 5,6; 0,6 / 1,1 / 1,1 6,6; 0,8 / 1,5 / 1,5																		
Fuse protection	A	S: 10 D+M: 13																		
Dimensions	A mm	400	500	500	600	600	400	500	500	600	600									
	B mm	1375	1405	1515	1577	2130	1375	1405	1515	1577	2130									
	C mm	800	940	925	1026	1030	430	535	530	630	640									
	D mm	440	570	560	665	670														
	E mm			406																
	F mm				317															
	G mm				427															
	H mm				517															
	I mm				1130															
	J mm		340	345	205	205	120	340	345	205	205	120								
Weight	solo (4.0+5.6 / 6.6)	kg	91 / 93	95 / 97	115 / 117	129 / 131	144 / 146													
	duo (4.0+5.6 / 6.6)	kg	105 / 109	109 / 113	129 / 133	143 / 147	158 / 162	42	46	67	80	96								
	maxi solo (4.0+5.6 / 6.6)	kg	104 / 108	108 / 112	128 / 132	142 / 146	157 / 161													
Connections	1 "	Rp1/2																		
	2 "	Rp1																		
	3 "	Rp1																		
	4 mm	Geberit DN50																		
	5 "	Rp3/4																		
	6 "	Rp3/4																		



1. makeup module 2. expansion overflow pipe 3. expansion pressure pipe 4. discharge hopper 5. suction pipe 6. overflow pipe

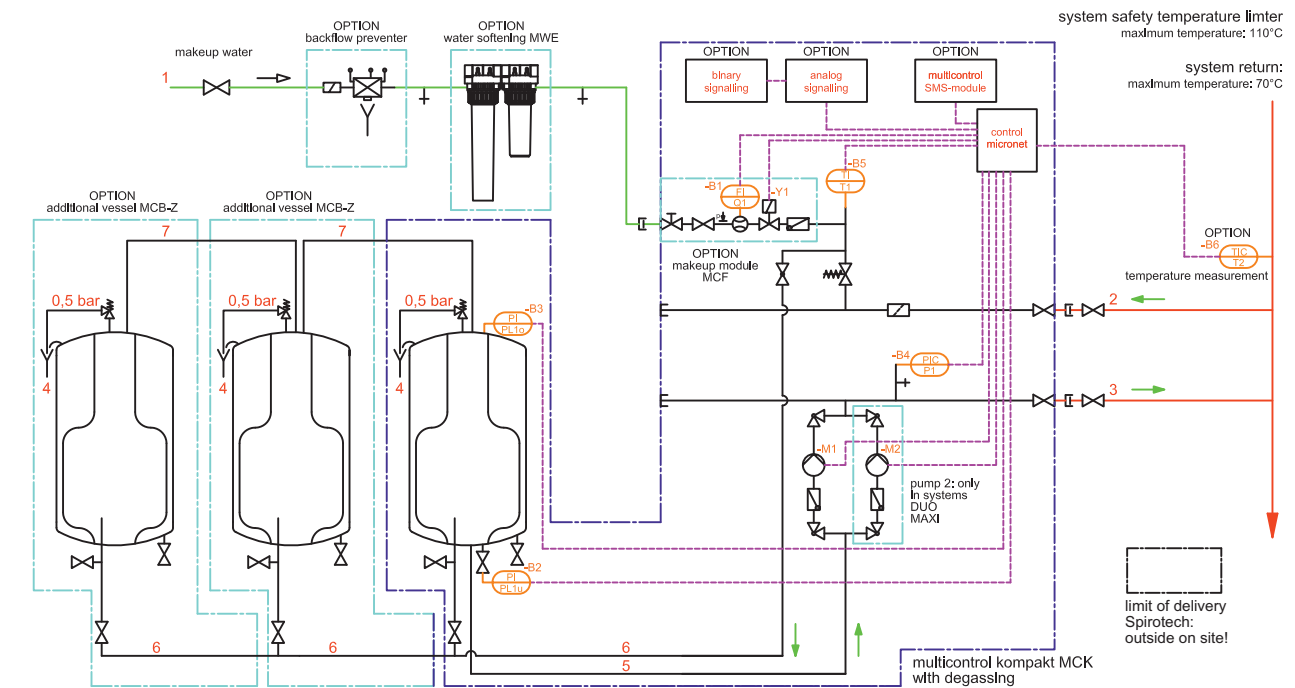
Technical data subject to change without notice!



# MultiControl Kompakt - Hydraulic Integration

## The integration ...

Below an example hydraulic scheme, showing the integration into the system. The water-side connection of additional vessels to the main expansion vessel now is adequate with only one pipe due to the optimised vessel construction. Which means less on site effort with the modular version. Also now two main vessels (each with its own level measurement) are possible for increased reliability if necessary.



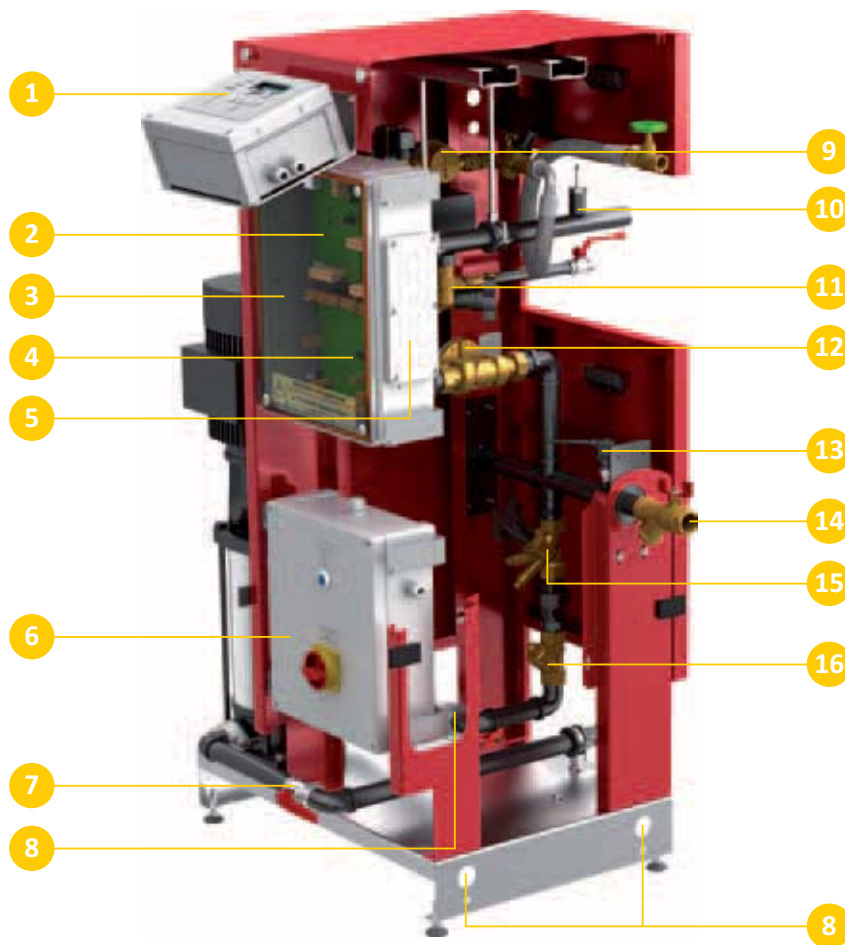
Version: V04-2011/01

1. Makeup water.
2. Expansion overflow pipe (from system return).
3. Expansion pressure pipe (to system return).
4. Discharge hopper for vessel safety valve
5. Suction pipe (from expansion vessel).
6. Overflow pipe (to expansion vessel).
7. Gas side vessel connection.

# SpiroPress MultiControl - Modular

The details...

example: MCM-S2-6.0 including MCF-1 and MAE



1. Ergonomically designed operator panel with illuminated four-line character display and well-thought-out operational concept in many languages.
2. Installation space for optional analog signalling and binary signalling expansion-modules .
3. Enclosed electronic unit, optimally protected.

4. Standard equipment already contains 3 potential free signalling contacts ("makeup in operation", "warning", "fault").
5. Perfect accessibility for all on-site cable connections, easily convertible to left side if required during on site mounting.
6. Electrical load circuit for all devices using 3 x 400V~ mains supply, including main switch(es), contactor(s) and pump motor protector.

7. At pump's suction side: shutoff device for optimal maintainability.
8. Expansion joint including detachable screw connections for easiest possible handling during maintenance.
9. Mounting place for makeup module (already mounted in this picture), litre accurate measuring and combinable with water softening.
10. In series temperature measurement of media streaming into the expansion vessel for extended applicability and preventing from possible problematic operating states.
11. Mounting place for MAE degassing module (already mounted in this picture).
12. Proportional to plant pressure steadily regulating overflow valve.
13. Precision plant pressure measurement.
14. Expansion pipe with pre-assembled shut off device using large dimension, standard position „left” but also easily convertible to right side if required during on site mounting (as pictured).
15. At pump's pressure side: shutoff device and regulating valve for perfect hydraulic alignment if required.
16. Soft sealing Y-type check valve, valve core accessible without demounting the valve.
17. Handling aid, e.g. for pushing through transport bar or pipe.

# SpiroPress Modular - Twin: For Maximal Backup

## MultiControl Modular Twin

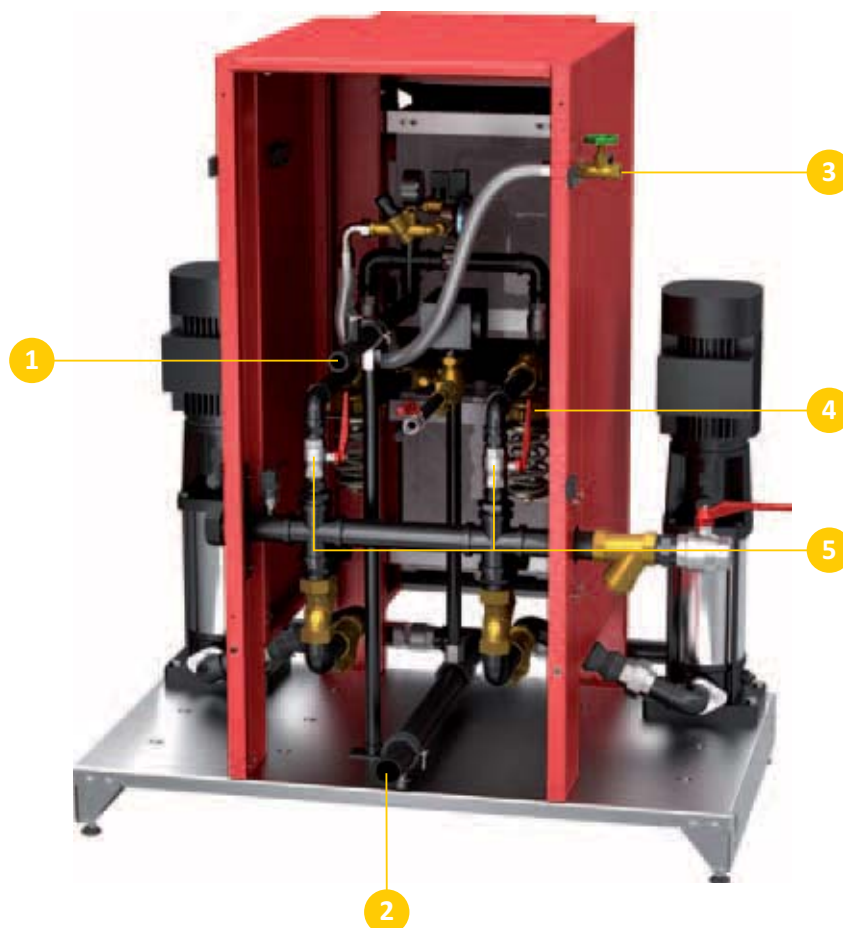
### Dual Valve System

Twin - dual valve system 2x 100% (only with systems duo and maxi).  
Two pressurisation pumps (duo: 50%, maxi: 100% of the expansion flow each).

Two overflow valves for 100% of the expansion flow each.

Twin provides a built-in second fail-safe overflow valve, which is switched manually in case of fault.

Example: MCM-M4-6.2-twin including MCF-1 (Make up module).



1. Overflow pipe to expansion vessel(s).
2. Suction pipe from expansion vessel(s).
3. Makeup.
4. Two independent, proportional to plant pressure steadily regulating overflow valves (only one is in operation while the other one's input side shutoff device is closed).
5. Input side shutoff devices at each overflow valve for perfect operational reliability: one overflow valve remains in operation while maintaining the other one.

**Note: The Twin is not available on the Kompakt range.**

# MultiControl Kompakt - Technical Data

## System Solo

Type	Elko-mat eder multicontrol														
	Modular solo														
	MCM-S1-4,0	MCM-S1-5,6	MCM-S1-6,6	MCM-S2-6,0	MCM-S2-7,8	MCM-S3-10,0	MCM-S4-6,2	MCM-S5-6,2	MCM-S6-6,6	MCM-S6-10,0	MCM-S7-6,6	MCM-S8-16,0	MCM-S9-6,6	MCM-S9-11,0	
Max. upper working pressure	bar														
	1,0-4,0	2,0-5,6	4,0-6,6	2,0-6,0	4,0-7,8	4,0-10,0	2,4-6,2	2,4-6,2	2,4-6,6	4,0-10,0	2,4-6,6	8,0-16,0	2,4-6,6	6,0-11,0	
Nominal pressure device (PN)	bar														
	10			16				25		16					
Max. temperature at plant connect	°C														
	70														
Voltage	V/Hz														
	1X 230 V			3X 400 V											
	50 Hz														
Max. electrical power	kW														
	0,6	0,6	0,6	1,3	1,7			2,4		4,2					
Fuse protection	A														
	10			10		10				16					
Connections	1") "														
	Rp1/2														
	2") "														
	Rp1														
	3") "														
	Rp1														
	5") "														
	Rp1			R1			R5/4								
	Rp1			R1			R6/4		R1		R6/4		R1		R6/4
	8") "														
	-			R1			R6/4								
	9") "														
	-														
	Rp1/2														



## System Duo

Type	Elko-mat eder multicontrol																									
	Modular duo																									
		MCM-D1-4.0	MCM-D1-5.6	MCM-D1-6.6	MCM-D2-6.0	MCM-D2-7.8	MCM-D2-6.0-twin	MCM-D2-7.8-twin	MCM-D3-10.4	MCM-D3-10.4-twin	MCM-D4-6.2	MCM-D4-6.2-twin	MCM-D5-6.2	MCM-D5-6.2-twin	MCM-D6-6.6	MCM-D2-10.1	MCM-D6-6.6-twin	MCM-D2-10.1-twin	MCM-D7-6.6	MCM-D7-6.6-twin	MCM-D8-16.0	MCM-D8-16.0-twin	MCM-D9-6.6	MCM-D9-11.0	MCM-D9-6.6-twin	MCM-D9-11.0-twin
Max. upper working pressure	bar	1,0-4,0	2,0-5,6	4,0-6,6	2,4-6,6	6,0-7,8	2,4-6,6	6,0-7,8	6,0-10,4	6,0-10,4	2,4-6,2	2,4-6,2	2,4-6,2	2,4-6,2	2,4-6,6	6,0-10,1	2,4-6,6	6,0-10,1	2,4-6,6	2,4-6,6	8,0-16,0	8,0-16,0	2,4-6,6	6,0-11,0	2,4-6,6	6,0-11,0
Nominal pressure device (PN)	bar	10											16		25		16									
Max. temperature at plant connect	°C	70																								
Voltage	V/Hz	1 x 230 V				3 x 400 V																				
		50 Hz				50 Hz																				
Max. electrical power	kW	1,1	1,1	1,5	2,4		3,2				4,6				8,2											
Fuse protection	A	13		10				13				16				25										
Connections	1*) "	Rp1/2													Rp1/2 bzw. Rp3/4											
	2 "	Rp1													-											
	3 "	Rp1													-											
	5 "	Rp1		R5/4				R6/4																		
	6 "	Rp1		R1				R6/4		R2		R6/4		R2		R5/4		R2								
	8 "	-		R6/4				R2		R6/4		R2		R6/4		R2										
	9**) "	-		Rp1/2																						

1...makeup module 2...expansion overflow pipe 3...expansion pressure pipe 5...suction pipe 6...overflow pipe 8...expansion pipe from/to system return 9...degassing pipe  
 \*) makeup optional, dimension depending on model (MCF-1...Rp1/2 MCF-3...Rp3/4)  
 \*\*) degassing module MAE optional  
 Technical data subject to change without notice!

## System Maxi

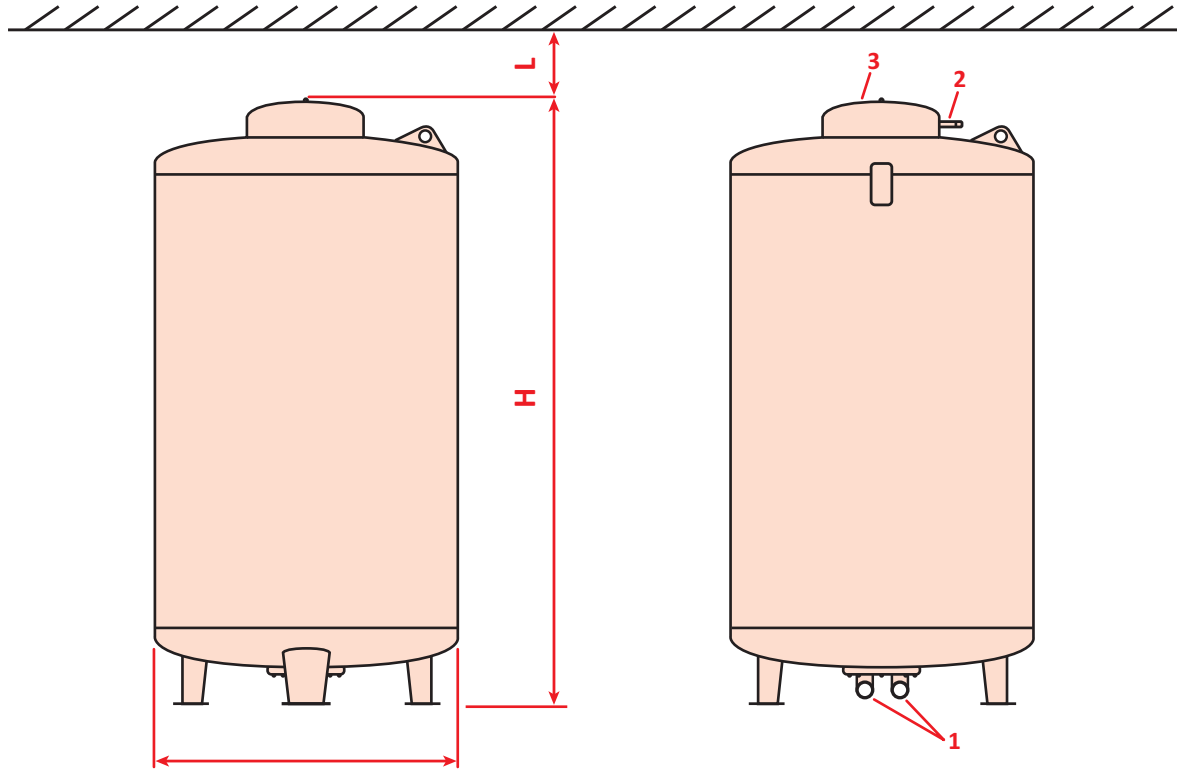
Type	Elko-mat eder multicontrol																									
	Modular duo																									
		MCM-M1-4.0	MCM-M1-5.6	MCM-M1-6.6	MCM-M2-6.0	MCM-M2-7.8	MCM-M2-6.0-twin	MCM-M2-7.8-twin	MCM-M3-10.4	MCM-M3-10.4-twin	MCM-M4-6.2	MCM-M4-6.2-twin	MCM-M5-6.2	MCM-M5-6.2-twin	MCM-M6-6.6	MCM-M2-10.1	MCM-M6-6.6-twin	MCM-M2-10.1-twin	MCM-M7-6.6	MCM-M7-6.6-twin	MCM-M8-16.0	MCM-M8-16.0-twin	MCM-M9-6.6	MCM-M9-11.0	MCM-M9-6.6-twin	MCM-M9-11.0-twin
Max. upper working pressure	bar	1,0-4,0	2,0-5,6	4,0-6,6	2,0-6,0	4,0-7,8	2,0-6,0	4,0-7,8	4,0-10,0	4,0-10,0	2,4-6,2	2,4-6,2	2,4-6,2	2,4-6,2	2,4-6,6	4,0-10,0	2,4-6,6	4,0-10,0	2,4-6,6	2,4-6,6	8,0-16,0	8,0-16,0	2,4-6,6	6,0-11,0	2,4-6,6	6,0-11,0
Nominal pressure device (PN)	bar	10											16		25		16									
Max. temperature at plant connect	°C	70																								
Voltage	V/Hz	1 x 230 V				3 x 400 V																				
		50 Hz				50 Hz																				
Max. electrical power	kW	1,1	1,1	1,5	2,4		3,2				4,6				8,2											
Fuse protection	A	13		10				13				16				25										
Connections	1*) "	Rp1/2													Rp1/2 bzw. Rp3/4											
	2 "	Rp1													-											
	3 "	Rp1													-											
	5 "	Rp1		R5/4				R6/4																		
	6 "	Rp1		R1				R6/4		R1		R6/4		R1		R6/4										
	8 "	-		R6/4				R6/4		R1		R6/4		R1		R6/4										
	9**) "	-		Rp1/2																						

1...makeup module 2...expansion overflow pipe 3...expansion pressure pipe 5...suction pipe 6...overflow pipe 8...expansion pipe from/to system return 9...degassing pipe  
 \*) makeup optional, dimension depending on model (MCF-1...Rp1/2 MCF-3...Rp3/4)  
 \*\*) degassing module MAE optional  
 Technical data subject to change without notice!

# SpiroPress MultiControl

## The Vessels - Technical Data

### EG(Z) - Expansion Containers



Primary Vessels							
Article no.	Model	Dia	Height	Overflow/Refill	S Valve Drain	Cross Conn	Head Room
EG200	EP0200R	500	1.375	1"	1/2"	1/2"	500
EG300	EP0300R	600	1.45	1"	1/2"	1/2"	500
EG500	EP0500R	600	2.16	1"	1/2"	1/2"	500
EG800	EP0800R	800	2	1"	1/2"	1/2"	500
EG1000	EP1000R	90d	2	1"	1/2"	1/2"	500
EG1500	EP1500R	1.05	2.15	1 1/4"	1 1/4"	1/2"	500
EG2000	EP2000R	1.2	2.2	1 1/4"	1 1/4"	1/2"	500
EG2500	EP2500R	1.05	3.15	1 1/4"	1 1/4"	3/4"	700
EG3000	EP3000R	1.2	3.2	1 1/4"	1 1/4"	3/4"	700
EG4000	EP4000R	1.4	3.4	1 1/2"	1 1/2"	3/4"	1
EG5000	EP5000R	1.5	3.45	1 1/2"	1 1/2"	3/4"	1
EG10000	EPX100R	1.7	5.6	2"	2"	3/4"	1

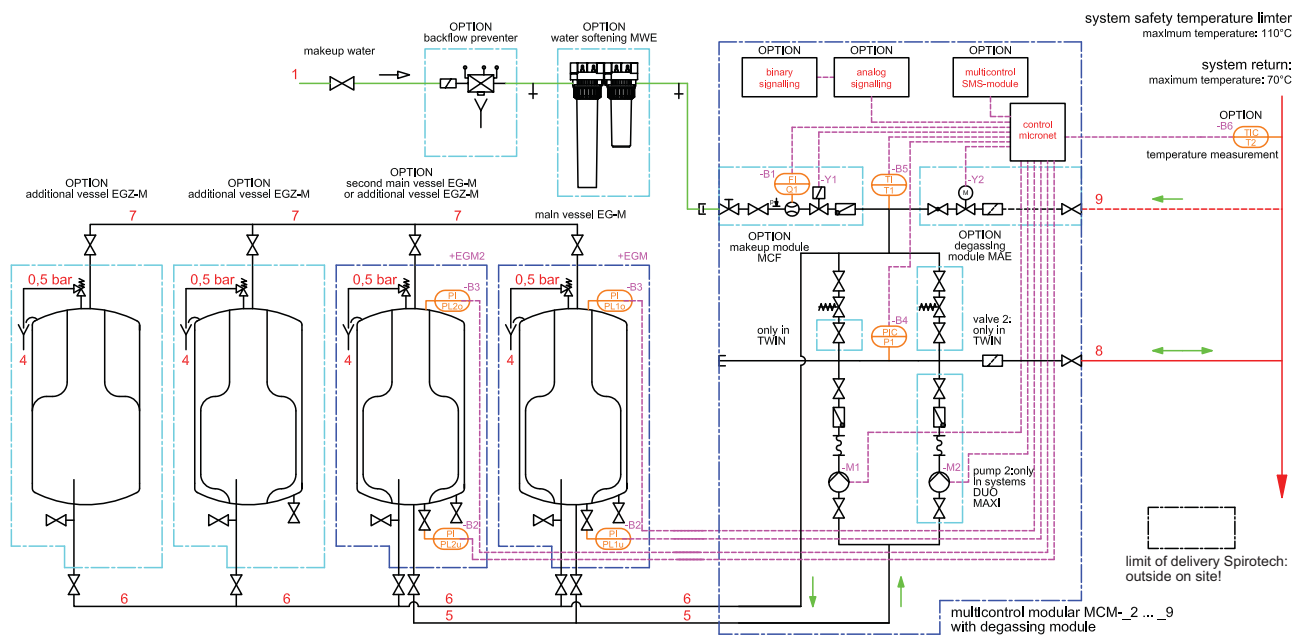
Secondary Vessels	
Model no.	Article No.
EGZ200	EP0200RS
EGZ300	EP0300RS
EGZ500	EP0500RS
EGZ800	EP0800RS
EGZ1000	EP1000RS
EGZ1500	EP1500RS
EGZ2000	EP2000RS
EGZ2500	EP2500RS
EGZ3000	EP3000RS
EGZ4000	EP4000RS
EGZ5000	EP5000RS
EGZ10000	EPX100RS

1. Expansion & Return pipe
2. Connection for vessel safety valve
3. Gas sided connection under hood
- L. Clearance required above vessel

# SpiroPress MultiControl Hydraulic Integration

## The integration ...

Below an example hydraulic scheme, showing the integration into the system. The water-side connection of additional vessels to the main expansion vessel now is adequate with only one pipe due to the optimised vessel construction. Which means less on site effort with the modular version. Also now two main vessels (each with its own level measurement) are possible for increased reliability if necessary.



- 1...makeup water
  - 2...expansion overflow pipe (from system return) (MCM-1-\_\_\_ only)
  - 3...expansion pressure pipe (to system return) (MCM-1-\_\_\_ only)
  - 4...discharge hopper for vessel safety valve
  - 5...suction pipe (from expansion vessel)
  - 6...overflow pipe (to expansion vessel)
  - 8...expansion pipe from/to system return (MCM-2-...\_9)
  - 9...degassing pipe\*
- \*Only required when using optional degassing module.



### SPIROLIFE Exceptional Guarantee

Spirotech's Exceptional Guarantee Terms!

- 20** Brass Products  $\leq 110^{\circ}\text{C}$ :  
20 years
- 5** Steel Products and  
Brass Products  $>110^{\circ}\text{C}$ :  
5 years
- 2** Vacuum Degassers:  
2 years

**Conditions:**

Correct selection, installation, maintenance and use of the products, in accordance with our regulations, data sheets and user manuals. Our guarantee does not cover normal wear and tear. Please also see our general terms and conditions.

## Spirotech: accessories, additives and advice

Spirotech designs and produces innovative total solutions for conditioning fluids in HVAC and process systems. Our products and services reduce faults and wear, less maintenance is required, performance is improved and energy consumption is reduced.

Spirotech is deservedly regarded as the only real specialist in the world. Leading manufacturers of system components recommend Spirotech products on account of their high standard of quality and the company's vision on product development and process improvement.

Thanks to a very extensive international network of suppliers, users all over the world enjoy the benefits of our products and services every day.

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