



# compresso

Principles | Range | Benefits

# Principles

Compresso is a precision pressurisation system with compressors for heating, solar and chilled water-systems. It is especially suitable in situations where compactness and precision are required. The system capacity range lies between pressurisation with Statico and Transfero [»» Technical guide: Pressure.](#)

## The principle

### Pressurisation

Compresso is precision pressurisation within  $\pm 0.1$  bar. The pressure is measured on the air side with the *pressure sensor* **PS** and compared to the calculated target value of the *BrainCube control*. In the event of a pressure drop, the compressor switches *on*; in the event of increasing pressure, the relief valve *opens* and releases air. In systems with 2 compressors and 2 relief valves, switching is load-dependent and alternating with the same precision.

The prerequisite for pressurisation is a minimum water level in the primary vessel = water reserve. The water level is measured at the *measuring foot* **US**, evaluated in the *BrainCube* and displayed graphically. A drop below the minimum water level is displayed.

### Expansion

#### Heating up →

If the temperature in the system rises, the expansion water flows into the *airproof butyl bag* of the primary vessel. The air cushion is thus compressed and the pressure increases. The relief valve opens when the target value *is exceeded*.

#### Cooling →

If the temperature in the system drops, expansion water flows back from the *airproof butyl bag* into the system. The air cushion is then relieved and the pressure drops. The compressor switches on when the pressure drops below the target value.

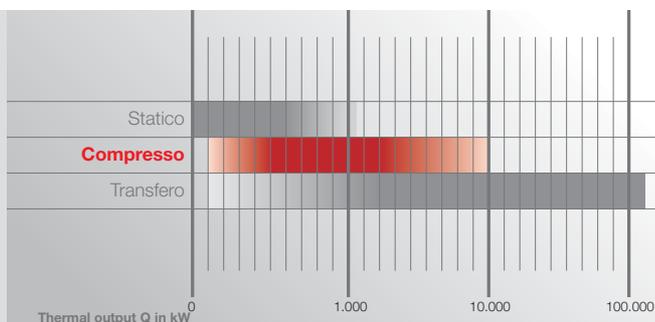
Pressurisation with compressors is a principle which has been proven a thousand times over. It combines the convenience of classic fixed gas cushion vessels with the precision and dynamics of external pressure generation.

### Benefits

- Precision pressurisation with the closest pressure tolerances within  $\pm 0.1$  bar.
- Compact design. Almost the entire vessel volume is available for water absorption.
- Natural resilience. Pressure variations occur in a slow and controlled manner.
- Highest operating safety. In the event of a power failure, emergency operation with a Statico type function is possible.
- Special advantages of Compresso [»» Page 6.](#)

02

### Powerful



Compresso – the best choice in the medium capacity range!

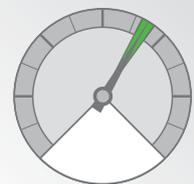
### Compact



Acceptance: 0...100%

The volumes of the airproof butyl bag and vessel are almost identical, i.e. 100% acceptance without over-expansion!

### Precise

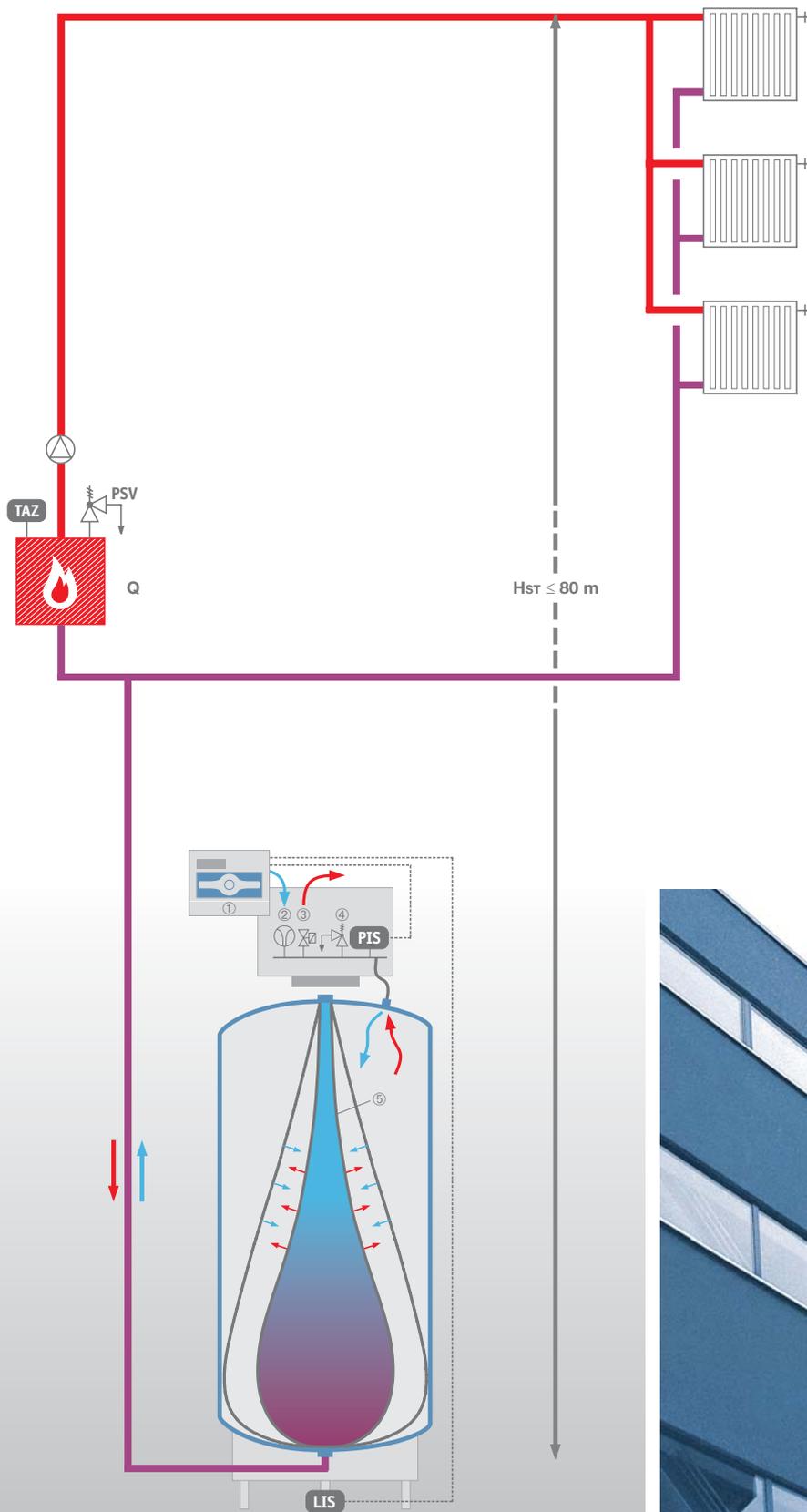


Pressure tolerance:  $\pm 0.1$  bar

Precision pressurisation  $\pm 0.1$  bar with extremely high natural resilience.

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## PRESSURISATION



The switching pressure points for the cut-in pressure of the compressor  $p_a$  and the opening pressure of the relief valve  $p_e$  are calculated by the BrainCube from the following criteria:

$H_{ST}$  | m Static height

$TAZ$  | °C Limiting temperature

### Compresso TecBox

- ① BrainCube control
- ② compressor, cut-in pressure  $p_a$
- ③ relief valve, opening pressure  $p_e$
- ④ safety valve, admissible pressure Compresso
- PIS pressure transducer

### Compresso primary vessel

- ⑤ airproof butyl bag
- LIS measuring foot for content

### Compresso secondary vessel

optional (not illustrated)



# Components

The newly developed Compresso C model series is the future-oriented interpretation of the legendary Pneumatex Automats. Compresso consists of a TecBox, a primary vessel and optional secondary vessels. With the extremely quiet operation of the silenrun compressors and the multifunctional intelligence of the BrainCube control, Pneumatex is raising the standards once again.

## TecBox **Compresso TecBox with 1 or 2 compressors** CF | C | CX

The TecBox consists of the pneumatics and the BrainCube control.

The intelligence of the newly developed BrainCube is unrivalled. It controls and monitors all processes for precision pressurisation and fillsafe water make-up. With its self-explanatory menu navigation, illuminated 8-line graphical display and encoder, operation is groundbreakingly easy and simple to understand. [» Extract BrainCube](#)

The pneumatics and compressor are housed in a high-quality casing. In the C 10, this is made from galvanised sheet steel. Practical carrying handles make transport and assembly easy. The plastic casing of the larger C20 is designed to be a soundproofed hood. All of the pneumatic connections to the primary vessel necessary for assembly are included in the delivery scope.

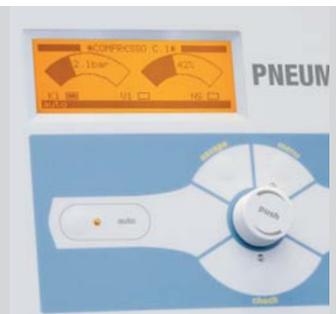
## Vessels **Compresso primary and secondary vessels** CU | CUE | CG | CGE

The necessary vessel volume can be divided between a primary vessel and additional optional secondary vessels. The primary vessel is equipped with a measuring foot for content measurement. The content indicator is a graphical display on the BrainCube. The primary vessel is connected to the TecBox on the air side. The secondary vessels are connected in series to the primary vessel. The connection elements are included in the delivery.

The airtight butyl bag forms the heart of all Compresso vessels. In countless practical applications and laboratory tests, it has proven its extraordinary diffusion tightness. This is a must, especially with compressor systems. The airtight butyl bags mean that gases remain outside and no diffusion can occur. [» Extract airtight](#)

**Combination and extension** Compresso can be combined as fully automatic units with Pleno water make-up systems and Vento degassing systems. The hydraulics and the BrainCube controls are adjusted to each other. They can be intelligently interconnected to extend capacity or operate in a Master-Slave relationship. [» Brochure Pleno](#) | [Brochure Vento](#) | [Extract BrainCube](#)

## Concise Self-explanatory



BrainCube – easy, clear graphical presentation of pressure and content: analogue | digital.



Braincube speaks your language. You are guided through the menu by self-explanatory information. Easy to operate, it intelligently controls all operational processes.

# compresso

## PRESSURISATION



TecBox Compresso C10 F  
Vessels Compresso CU | CUE



TecBox Compresso C20

TecBox Compresso C10  
Vessels Compresso CG | CGE

For systems according to EN 12828,  
CE-certified according to PED/DEP 97/23/EC

### Compresso TecBox

up to 15,000 kW

C – with 1 or 2 compressors |

CX – for external air supply

CF – space saving on the primary vessel

C | CX - variable in front or adjacent to the primary vessel

### Compresso vessels

CU | CUE – 200-800 litres | 6 bar

CG | CGE – 300-5,000 litres | 6, 10 bar interior-coated

## Silent, compact and precise

Compresso is compliant with the Pneumatex silentrun standard. Since the C10 can barely be heard with a sound level of only 59 dB(A), it can even be used in noise-sensitive areas. The Compresso C20 is larger but almost as quiet thanks to its sound-proofed hood.

The twin design of the compressors is appealing due to its unique efficiency. With precision and silent running, it supplies power in the tightest of spaces.

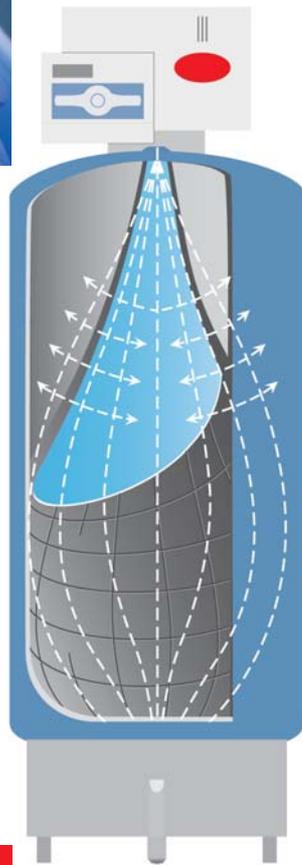
The long-life, proven design ensures reliable, almost maintenance-free operation with very low operating costs and long service life.

**silentrun**

The silent Compresso

# Advantages of **PNEUMATEX**<sup>®</sup>

## BrainCube



### **BrainCube – intelligent and easy to operate**

The BrainCube is the heart of the complete Pneumatex system technology. Its futureproof design guarantees:

- easiest operation via an encoder
- self-explanatory menu navigation
- fully automatic self-optimising operation
- updating via software updates, multiple languages
- memory function
- RS 485 interface and 2 volt-free outputs

Optional:

- ComCube interface expansion with 6 inputs and 9 outputs
- Master-Slave and intelligent switching of individual systems

The illuminated 8-line graphical display to show all relevant parameters as well as the digital and analogue display of pressure and content is a particularly noticeable feature.

» Extract BrainCube

### **silentrun – The silent Compresso**

With its low sound level, Compresso can barely be heard. Noise – a serious disadvantage of classic compressor systems – is a thing of the past. With its silentrun operation, the Compresso can even be used in noise-sensitive areas. This means silent running and power in the tightest of spaces.

### **airproof – Your safeguard against diffusion**

In compressor systems, the total separation of the water and air space in the expansion vessel is vitally important. Pneumatex therefore protects the expanded water in the airproof-butyl bag, optimally against the entry of gas. Experience in countless systems has shown: airproof is the best safeguard against diffusion. Pneumatex guarantees the traditional airproof standard by means of in-house manufacturing and independent quality control procedures. It comfortably exceeds the requirements of DIN 4807 T3. A 5-year warranty underlines the high quality standards.

» Extract airproof

### **fillsafe – Your guarantee of pressure**

Compresso can be combined with Pleno and Vento water make-up systems. EN 12828 recommends their use as a pressurisation monitoring device. They automatically ensure a stable water reserve and thus guarantee the pressurisation function. All of the functions for controlled water make-up are already integrated into the BrainCube controls. This includes the monitoring of leaks, as well as electronic checking of the make-up quantity, make-up time and make-up frequency.

» Brochure Pleno | Brochure Vento

*silent*run

*air*proof

*fill*safe

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## PRESSURISATION

### A case for Pneumatex

Typical practical example

480 kW   27 m	<b>Heat output   static height</b>
approx. 1 m <sup>2</sup>	<b>max. available space</b>
4 bar	<b>permissible operating pressure</b>
< 65 dB(A)	<b>max. noise level</b>

An administrative building needs to be renovated and also expanded with a second stage. The heating system will be completely renewed and prepared for the later expansion. The system had previously been run with an open header tank. The permissible operating pressure of the heating system could therefore be maintained despite the static height of 27 m. However, no space for pressurisation was provided in the heating room.

Directly above the boiler room, there are conference rooms and offices, which means that *silent* operation is required.

The heating system is to be monitored and serviced in future by a maintenance company. The monitoring of the operating states of the system will therefore be performed at an external remote location.

To *minimise operating costs*, the pressure monitoring according to EN 12828 and the venting of the entire system must therefore be automatic, ensuring the highest reliability *and* quality.

### Solution

#### Compresso Unit = TecBox C 10.1 F + CU 300.6 vessel

- ▶ over 1,200 kW | 27 m
- ▶ only approx. 0.75 m<sup>2</sup>, incl. safety distances on vessels up to 800 l
- ▶ up to 6 bar, precision pressurisation  $\pm 0.1$  bar
- ▶ 59 dB(A)

Thanks to the performance reserve of the TecBox, the pressurisation is designed in advance for the later planned extension of the heating system: at 27 m, the TecBox supports a capacity of over 1,200 kW. With a required footprint of only around 0.75 m<sup>2</sup> the system is nevertheless very compact and with precision pressurisation  $\pm 0.1$  bar can satisfy the narrow pressure and space requirements.

With its noise level of 59 dB(A), the silentrun Compresso can even be used in a noise-sensitive environment.

With its data inputs and outputs and an RS 485 interface, the Brain-Cube opens up many possibilities for connections to an external control room.

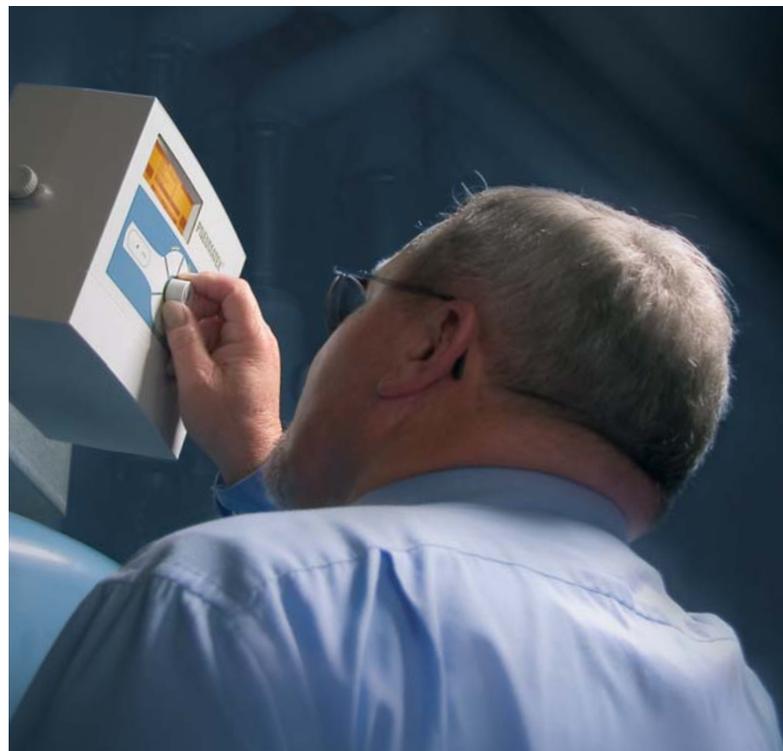
The airtight butyl bag prevents the diffusion of gases into the heating water. The water make-up and central degassing is performed by a Vento VP which communicates with the Compresso via the BrainCube control. The fillsafe make-up monitoring ensures additional operational safety.

### Quality and passion

With the «Advantages of Pneumatex», the new Compresso C series completely redefines compressor pressurisation. The renowned Swiss quality, precision and reliability are an ever-present reassurance.

The philosophy "take something good and make it even better" is consistently pursued at Pneumatex. These quality requirements are met thanks to the passion of our employees. In personal contact with our customers, we exchange opinions, answer questions and develop solutions. Our specialists are always at your disposal as your reference people. Personally – on site!

That's why it makes sense to partner with Pneumatex.



| swiss made | **Pneumatex – Dynamic Water Management**

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*Dynamic Water Management*