Grundfos MINI MONOPRESS and **MINI DUOPRESS** are compact packaged mini pressurisation units for large domestic and light commercial heating and cooling systems, and are suitable for a maximum cold fill pressure of 2.4 bar.

A pressurisation unit is used to automatically maintain the system pressure in a pressurised heating or chilled water system, in place of a manual filling loop. A pressurisation unit eliminates the need for end user involvement in the operation of the system. A pressurisation unit can also be used where the mains water pressure is insufficient to pressurise the system.

The Grundfos range of MINI pressurisation units are available in single and twin pump arrangements, for single phase 240V 50Hz operation. The units are housed in a white powder coated painted steel casing, designed for wall mounting. A 50mm diameter 0 to 6 bar pressure gauge is located on the front for indication of system pressure. Incorporated within the casing is a small 4.5 litre cold water storage with Type AB Air gap designed in accordance with the Water Byelaws Regulations. The self priming piston pump can generate pressures up to 2.4 bar, and is capable of a maximum flow rate of 80 l/h at 2.5 bar.

The standard MINI MONOPRESS and DUOPRESS units have high and low pressure switches, with volt free contacts, mounted within the unit for interlocking to the system controls.
A basic version of the MINI MONOPRESS is available without volt free contacts.

OPERATION

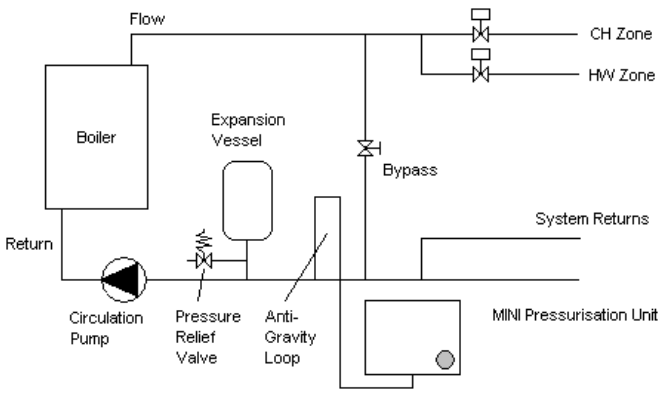
The pump is controlled directly by the control pressure switch. The control pressure switch has an adjustment for the cut-in pressure setting. The differential pressure setting is fixed and approximately 0.4 bar. The pump is stopped when the pressure is 0.4 bar above the cut-in pressure. The twin pump DUOPRESS has a manual pump selector switch for selecting the duty pump, however the duty pump must be changed over manually.

The MINI pressurisation units do not incorporate an expansion vessel to accommodate changes in the volume of the system.

An externally located expansion vessel must be installed of the correct size. The expansion vessel is sized according to the system volume, cold fill pressure, maximum working pressure and system operating temperature. The Grundfos range of GT expansion vessels are suitable for use with either heating or chilled water systems.

The MINI pressurisation units are not suitable for filling a system, filling should be carried out using the mains water supply, as the pump is rated for 30 minutes continuous operation.

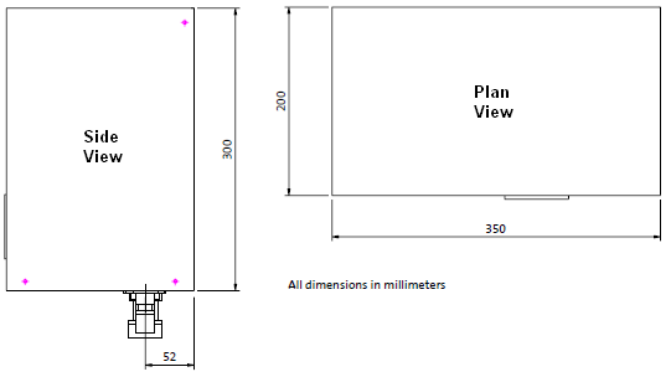
TYPICAL APPLICATION



FEATURES

- **Compact unit**
- **Twin and single pump option**
- **Integral cold water storage tank**
- **High & low pressure alarms contacts**
- **Single phase operation**
- **System pressure gauge**

DIMENSIONS (mm) & WEIGHT



Net weight: Dry: 8.5 kg, Filled: 13 kg

PUMPED LIQUIDS

Potable water, rain water or other clean, thin, non-aggressive liquids not containing solid particles or fibres.

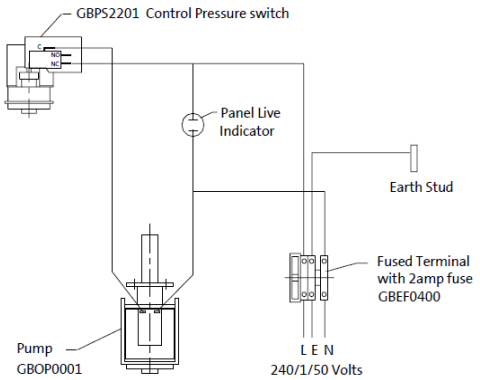
For larger commercial systems and higher cold fill pressures, the Grundfos range of IMPRESS microprocessor controlled pressurisation units are available.

INSTALLATION

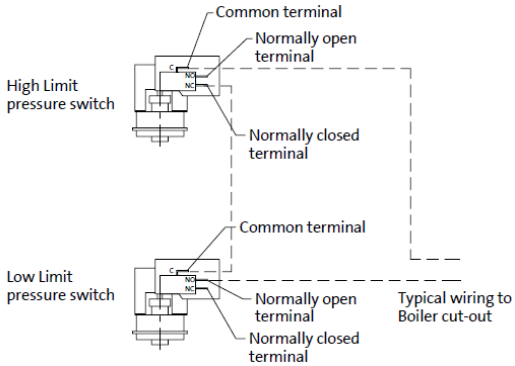
1. The MINI Pressurisation unit should be sited in a dry, well ventilated but frost-free position, where it will not be subjected to extremes of temperature.
2. The unit should be installed on a solid vertical surface to adequately support its weight, and to help reduce noise/vibration, allow adequate space for access.
3. The environment should be non-aggressive and the atmosphere non-explosive.
4. Attention should be given to the possibility of water leakage from the unit during commissioning or service activities, in order to prevent possible damage to the surrounding area.
5. An anti-gravity loop with a minimum height of 2m must be installed, without pipe work insulation.
6. The system should be initially filled via a quick fill loop before operating the unit. The pump is not intended for filling systems.
7. The appropriate inlet restrictor should be fitted according to the incoming mains water pressure.

Minimal maintenance of the unit is required. Periodically the unit should be check for proper operation and for leaks.

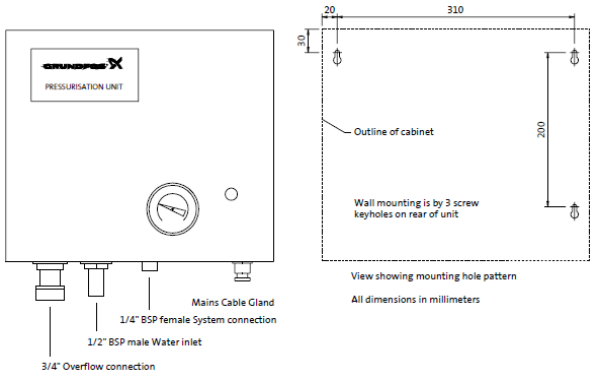
INTERNAL WIRING: MINI MONOPRESS



WIRING OF HIGH & LOW PRESSURE SWITCHES



WATER & ELECTRICAL CONNECTIONS



TECHNICAL DATA: PUMP

Mains voltage:	220-240 V, single phase, 50 Hz
Voltage tolerances:	-10%/+10%
Power consumption:	26 watts
Full load current:	0.2 amps
Outlet pressure max:	2.4 bar max
Enclosure class:	IP 42
Liquid temperature:	0 °C to +40 °C
Ambient air temperature:	0 °C to +40 °C
Sound pressure level:	60 d(B)A
Continuous running time:	30 minutes max

TECHNICAL DATA: PRESSURE SWITCH

Contact rating:	15 amps
Adjustment range:	0.7 bar to 6.0 bar
Liquid temperature:	40 °C max

SYSTEM CONNECTIONS

Mains water inlet:	½" bsp male, max 5 bar
Overflow connection:	¾" (22mm) compression
System connection:	¼" bsp female

PRODUCT CODES

240V 1ph 50Hz

Model	No. of Pumps	Without VFC	With VFC
MINI MONOPRESS	1	MMP50801	MMP50802
MINI DUOPRESS	2	-	MDP50802

EXPANSION VESSEL SIZING

The expansion vessel is sized according to the system volume, cold fill pressure, maximum working pressure and mean system operating temperature.

Example calculation for heating system

System volume = 150 litres (where the system volume is not known, an estimate of 12 litre per kW output can be used), Cold fill pressure = 1.5 bar, Maximum working pressure = 2.5 bar, Operating liquid flow temperature = 82 °C.

The cold fill pressure is the static height of the system above the expansion vessel in bar + 0.2 bar. For a 13m height, the static pressure is 13 ÷ 10.2 = 1.27 bar, the cold fill pressure is then 1.27 + 0.2 = 1.47 bar. The vessel size is given by:

$$\text{Volume (litres)} = \frac{\text{expansion factor} \times \text{system volume}}{1 - \frac{\text{(cold fill pressure + 1)}}{\text{(max working pressure + 1)}}}$$

Expansion Factor according to Flow Temperature

60 °C	70 °C	75 °C	80 °C	82 °C	85 °C
0.017	0.023	0.026	0.029	0.031	0.033

The expansion factor is selected according to the liquid flow temperature.

$$\text{Volume (litres)} = \frac{0.26 \times 150}{1 - \frac{(1.5 \text{ bar} + 1)}{(2.4 \text{ bar} + 1)}}$$

$$\text{Volume (litres)} = \frac{0.26 \times 150}{1 - 0.735}$$

$$\text{Volume (litres)} = \frac{39}{0.265} = \textbf{147 litres}$$

The next larger size expansion vessel should be chosen.
The expansion vessel calculation must be carried out in accordance with BS 7074: Part 1 and 2: 1989.
The precharge pressure must be set to the cold fill pressure.

Ref: GBPC0004, Rev: 0.2, Date: 0911