



NEW!



reflex 'minimat'
- compact pressure maintenance!



reflex 'minimat':

The compact solution for the pressure maintenance

The reflex 'minimat' is the logically consistent completion of the range of Reflex pressurization systems. With respect to the classical systems it closes the gap between the reflex diaphragm pressure expansion vessel and the 'reflexomat' that is equipped with all refinements.

Wherever constant pressure conditions are required and the space is limited due to the equipment the reflex 'minimat' captivates with its quality and the compact design. Not least, the concept is particularly attractive thanks to the cost effectiveness.

The expansion water of the circuit is stored in a pressure vessel that is coated inside. In a gas compartment that is closed towards the water by means of a high-quality butyl diaphragm pressure is generated by a compressor. If the pressure in the water circuit rises, air is let escape from the gas compartment through a solenoid valve. The operation of the compressor and solenoid valve is controlled by a modern control unit that maintains the pressure constantly within limits between +/- 0.1 bar.



**reflex 'minimat':
compact – comfort – compressor**

The new reflex 'minimat' is equipped with a modern control with graphic display that is directly installed on the powder-coated primary vessel. Four different vessel sizes are available. The installed control unit meets pressure-maintaining requirements up to 2 MW in the heating circuit and 4 MW in the cooling circuit. The max. operating pressure is 6 bar.

The result:

'minimat' - comfortable compressor pressure-maintenance in a compact design



reflex 'minimat':
The elastic pressure maintenance within very confined limits (+/- 0.1 bar)

reflex 'minimat'

No dead end in terms of comfort

**Too large, too expensive?
The reflex 'minimat' provides the solution!**

To further automate the 'minimat' operation you can add an automatic, controlled water make-up to the system. The control is performed through the level measurement at the primary vessel.

Even more comfortable: combine the 'minimat' with the reflex 'servitec' spray-tube deaeration. It does not only free the make-up water from dissolved gases, but also ensures that the content water in the system is almost gas-free. Thus, air problems caused by free gas bubbles at system high points, circulation pumps or control valves are reliably avoided.

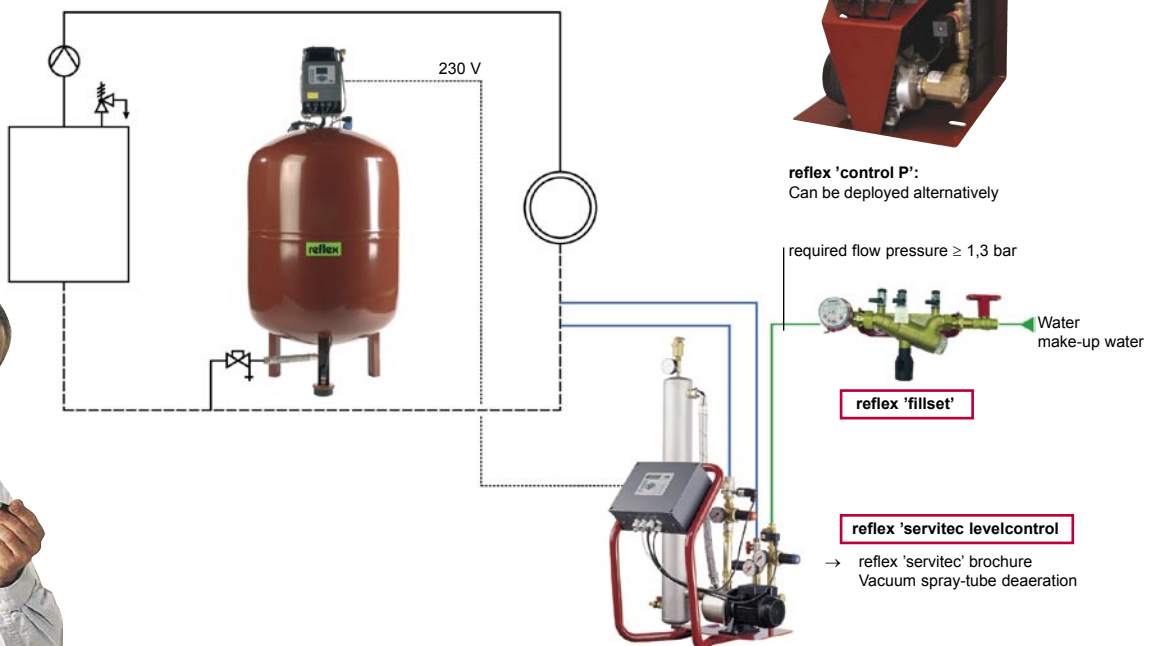
And this is another argument in favour of the combination of 'minimat' and reflex 'servitec': The pressure in the extremely deaerated, bubble-free content water is „cushioned softly“ by the 'minimat'.



reflex 'minimat' with reflex 'servitec'
Water make-up and deaeration

Centralized bleeding and deaeration with built-in water make-up. The complete water make-up and network content water is bled and deaerated centrally. For detailed information please see our 'servitec' brochure.

- ▶ no „air problems“ anymore
- ▶ corrosion is prevented
- ▶ the 'minimat' always provides of a sufficient water reserve



"A 'rigidly' deaerated network and a soft, elastic pressure maintenance – the combination of 'minimat' and 'servitec' is really convincing"



reflex 'minimat' Technology

Technical data

- ▶ max. operating press. : 6 bar
- ▶ max. operating temperature : 70 °C
- ▶ max. flow temperature : 120 °C
- ▶ perm. ambient temperature : 0 - 45 °C
- ▶ degree of protection control box : IP 54
- ▶ electrical power : 0.75 kW
- ▶ voltage : 230 V / 50 Hz
- ▶ sound level : 72 dB
- ▶ system connection : R 1
- ▶ protection of the expansion water from admission of air by means of high-quality butyl diaphragm
- ▶ easy assembly and commissioning by the fitter
- ▶ almost maintenance-free operation
- ▶ controlled water make-up and/or deaeration available as an option
- ▶ high reliability and low cost
- ▶ internationality by means of graphic display
- ▶ 230 V output for the control of an optional water make-up
- ▶ „elastic“ pressure maintenance within narrowest limits (+/- 0,1 bar)
- ▶ standard earthing type plug with 2 m cable; ready for start-up
- ▶ floating output "collective alarm"



	Article-No.	Ø D mm	H mm	h mm	Weight kg
MG 200	7806405	634	1320	135	52
MG 300	7801705	634	1620	135	69
MG 400	7802805	740	1620	135	80
MG 500	7803705	740	1845	135	93

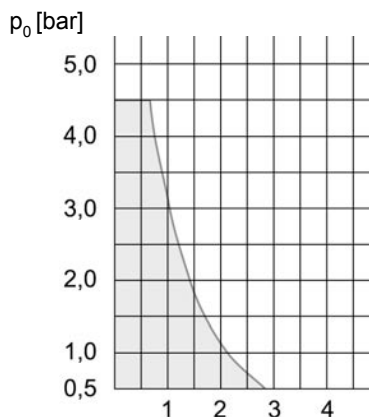
Note:

Article-No. Commissioning : 7945600

Control unit + vessel = MG basic vessel

Calculation example

▶ Performance range 'minimat'



Overall nominal heating capacity of the heat-generating system \dot{Q} / MW

▶ Min. operating pressure p_0 [bar]

$$p_0 \geq \frac{H [m]}{10} + \begin{matrix} 0.2 \text{ bar } [\leq 100 \text{ }^\circ\text{C}] \\ 0.5 \text{ bar } [105 \text{ }^\circ\text{C}] \\ 0.7 \text{ bar } [110 \text{ }^\circ\text{C}] \\ 1.2 \text{ bar } [120 \text{ }^\circ\text{C}] \end{matrix}$$

Protection temperature \uparrow

H = static height

▶ Expansion line

	DN 25 1"	DN 32 1¼"
\dot{Q} / kW Length ≤ 10 m	2100	3600
\dot{Q} / kW Length > 10 m ≤ 30 m	1400	2500

▶ Vessel calculation: Vessel size [l]

$$V_n \geq V_A \times \begin{matrix} 0.031 [70 \text{ }^\circ\text{C}] \\ 0.045 [90 \text{ }^\circ\text{C}] \\ 0.054 [100 \text{ }^\circ\text{C}] \\ 0.063 [110 \text{ }^\circ\text{C}] \end{matrix}$$

Design flow temperature \uparrow

V_n = min. vessel volume

V_A = water content of the system

▶ Example:

$V_A = 8.000$ l $t = 70$ °C

$V_n = 0.031 \times 8.000 = 248$ l

Result: 'minimat' MG 300

- ▶ with respect to cooling water systems up to 30 °C, only 50% of the nominal heating capacity are to be considered for the selection of the control unit (see performance range 'minimat').

Tendering texts, installation,
operating and maintenance instructions ... and more

www.reflex.de

Reflex Winkelmann GmbH + Co. KG

Gersteinstrasse 19
59227 Ahlen
Germany

Phone: +49 23 82 / 70 69 - 0
Fax: +49 23 82 / 70 69 - 558
www.reflex.de