



The Oventrop Quality Management System is certified to DIN-EN-ISO 9001

Technical information

Designation:

new "Hydromat DTR" **old** "Hydromat DP"

Differential pressure regulator "Hydromat DTR" Measuring technique "classic"

Tender specification:

Oventrop differential pressure regulator "Hydromat DTR" for a constant control of the set nominal value as proportional regulator working without auxiliary energy.

Infinitely adjustable nominal value between 50 and 300 mbar or 250 and 700 mbar which can be locked and be read-off from the outside at any time. With hidden isolating facility and with ball valve for draining and filling, installation in the return pipe, oblique pattern. Valve disc with soft seal.

Valve body, bonnet and regulator housing made of bronze, valve disc and stem made of brass resistant to dezincification (DZR), O-rings, washer and diaphragm made of EPDM.

Max. working temperature t_s : +120°C

Min. working temperature t_s : -20°C

Max. working pressure p_s : 16 bar

Max. differential pressure: DN 15 – DN 40: 2 bar

DN 50: 3 bar

Length of capillary: 1 m

Differential pressure regulator, both ports female thread according to EN 10226

| Size | kvs | Item no. 50 up to 300 mbar | Item no. 250 up to 700 mbar |
|-------|------|-------------------------------|--------------------------------|
| DN 15 | 2.5 | 106 45 04 | 106 47 04 |
| DN 20 | 5.0 | 106 45 06 | 106 47 06 |
| DN 25 | 7.5 | 106 45 08 | 106 47 08 |
| DN 32 | 10.0 | 106 45 10 | 106 47 10 |
| DN 40 | 15.0 | 106 45 12 | 106 47 12 |
| DN 50 | 34.0 | 106 45 16 | 106 47 16 |

Differential pressure regulator, both ports male thread with collar nut

| Size | kvs | Item no. 50 up to 300 mbar | Item no. 250 up to 700 mbar |
|-------|------|-------------------------------|--------------------------------|
| DN 15 | 2.5 | 106 46 04 | 106 48 04 |
| DN 20 | 5.0 | 106 46 06 | 106 48 06 |
| DN 25 | 7.5 | 106 46 08 | 106 48 08 |
| DN 32 | 10.0 | 106 46 10 | 106 48 10 |
| DN 40 | 15.0 | 106 46 12 | 106 48 12 |
| DN 50 | 34.0 | 106 46 16 | 106 48 16 |

Advantages:

- all functioning components on one level
- infinitely adjustable nominal value
- very good optical display of the set nominal value
- nominal value can be locked
- simple isolation of the pipe
- ball valve for filling and draining of the riser
- pressure balanced valve disc
- existing double regulating and commissioning valves can be converted to differential pressure regulators



Cut illustration

Function:

The Oventrop differential pressure regulators are proportional regulators working without auxiliary energy. They are designed for use in heating or cooling systems to maintain a constant differential pressure within a necessary proportional band. The spring for nominal pressure can be adjusted by use of the nominal value setting device. The outer chamber of the diaphragm regulator must be connected to the capillary, and the capillary to the supply pipe. With the differential pressure in the installation increasing, the valve disc closes down and opens as the differential pressure falls. The excess differential pressure is reduced by the differential pressure regulator, until the set differential pressure in the pipe is reached.

Installation of the regulator:

Oventrop differential pressure regulators "Hydromat DTR" are installed in the return pipe. Installation is possible in any position provided the direction of flow conforms with the direction of the arrow on the valve body. Before installing the regulator into the pipework, it is advisable to flush the latter thoroughly. The installation of an Oventrop "Y" type strainer is recommended. The capillary should be fitted above or horizontal to the supply pipe, but not from underneath where it might be prone to get blocked by dirt particles.

Pressure test of the installation only with the capillary being connected.

Setting the nominal value:

The nominal value of the Oventrop differential pressure regulator is infinitely adjustable. To do so, loosen locking screw and turn handwheel to the desired nominal value. Then retighten locking screw.

Operation of the manual isolation:

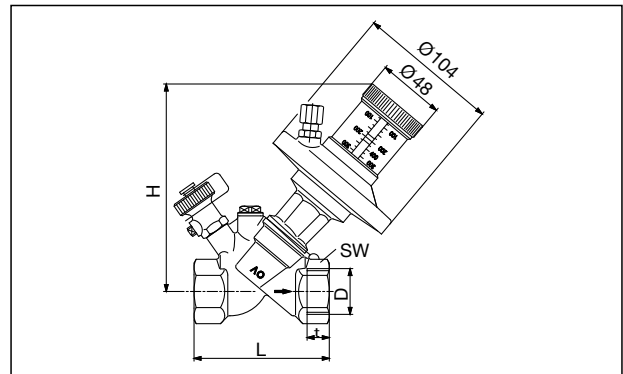
The Oventrop differential pressure regulator "Hydromat DTR" can be closed off manually, e.g. for maintenance works, and thus additionally acts as an isolating valve. To isolate the regulator manually, remove locking screw from the handwheel and close valve with a 3 mm Allen key with the capillary of the upper chamber of the diaphragm regulator being connected to the supply pipe.

If the regulator shall be reopened after servicing, reopen screw fully with the Allen key. A perfect regulation is only possible in this position.

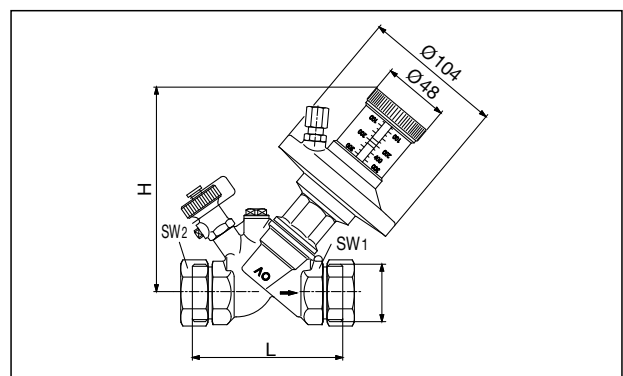
Draining and filling of the installation:

The installation may be drained and filled with the help of the two ball valves. Close the ball valve in the supply pipe before dismantling the capillary. During this operation, a minimum amount of water may escape. Fit 1/2" hoses onto both ball valves and open valves to drain or fill the installation.

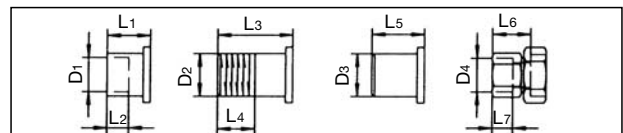
Dimensions:



| Item no. | D EN 102266 | t | SW* | L | H |
|--------------|----------------|------|-----|------|-----|
| 106 45/47 04 | Rp 1/2 | 13.2 | 27 | 80 | 158 |
| 106 45/47 06 | Rp 3/4 | 14.5 | 32 | 84 | 160 |
| 106 45/47 08 | Rp 1 | 16.8 | 41 | 97.5 | 163 |
| 106 45/47 10 | Rp 1 1/4 | 19.1 | 50 | 110 | 172 |
| 106 45/47 12 | Rp 1 1/2 | 19.1 | 54 | 120 | 178 |
| 106 45/47 16 | Rp 2 | 25,7 | 70 | 150 | 210 |



| Item no. | DN | D ISO 228 | SW1* | SW2* | L | H |
|--------------|----|--------------|------|------|-----|-----|
| 106 46/48 04 | 15 | G 3/4 | 27 | 30 | 88 | 158 |
| 106 46/48 06 | 20 | G 1 | 32 | 37 | 93 | 160 |
| 106 46/48 08 | 25 | G 1 1/4 | 41 | 46 | 110 | 163 |
| 106 46/48 10 | 32 | G 1 1/2 | 50 | 52 | 110 | 172 |
| 106 46/48 12 | 40 | G 1 3/4 | 54 | 58 | 120 | 178 |
| 106 46/48 16 | 50 | G 2 3/8 | 65 | 75 | 150 | 210 |



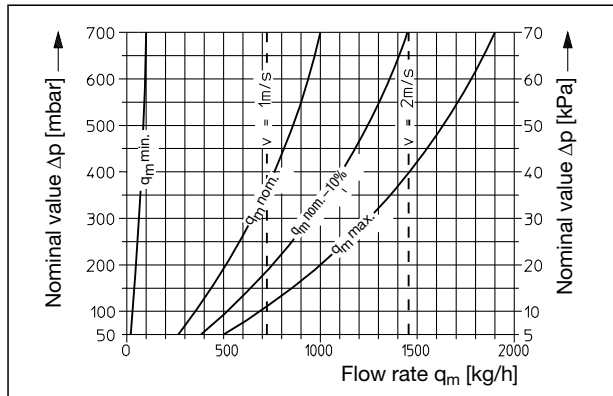
| DN | D1 | L1 | L2 | D2 EN 10226 | L3 | L4 | D3 | L5 | D4 EN 10226 | L6 | L7 |
|----|----|----|----|----------------|----|------|------|----|----------------|----|------|
| 15 | 15 | 18 | 12 | R 1/2 | 31 | 13.2 | 20.5 | 50 | Rp 1/2 | 37 | 13.2 |
| 20 | 18 | 23 | 15 | R 3/4 | 34 | 14.5 | 26 | 50 | Rp 3/4 | 39 | 14.5 |
| 20 | 22 | 24 | 17 | | | | | | | | |
| 25 | 28 | 27 | 20 | R 1 | 40 | 16.8 | 33 | 60 | Rp 1 | 53 | 16.8 |
| 32 | 35 | 32 | 25 | R 1 1/4 | 46 | 19.1 | 41 | 60 | Rp 1 1/4 | 55 | 19.1 |
| 40 | 42 | 37 | 29 | R 1 1/2 | 49 | 19.1 | 47.5 | 65 | | | |
| 50 | 54 | 50 | 40 | | | | 60 | 65 | | | |

* SW = spanner size

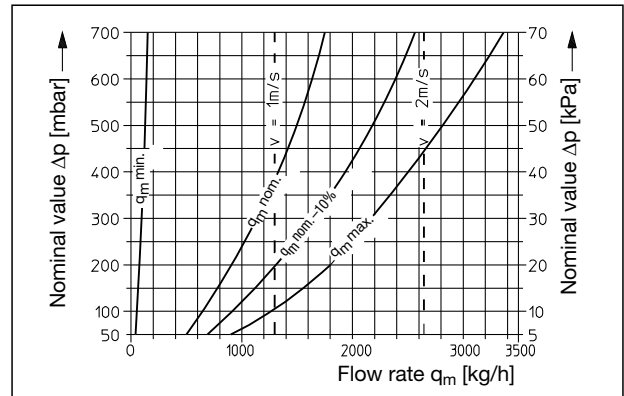
Performance data:

Application range with $\Delta p_0 \geq 2 \times \Delta p$

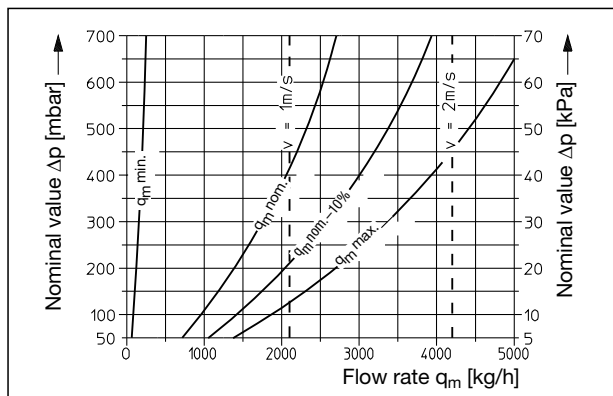
DN 15: kvs = 2.5



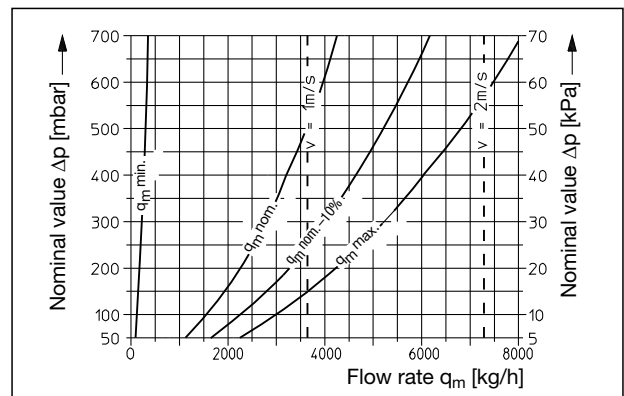
DN 20: kvs = 5.0



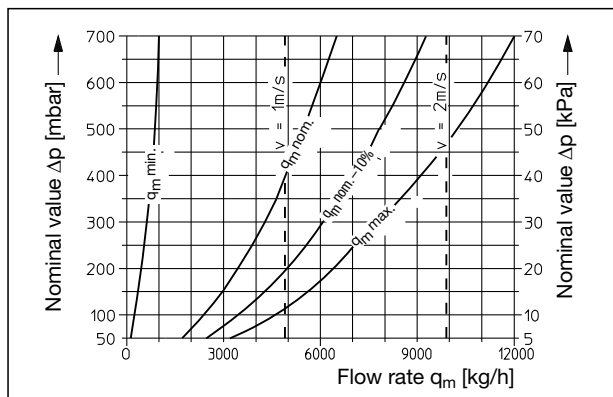
DN 25: kvs = 7.5



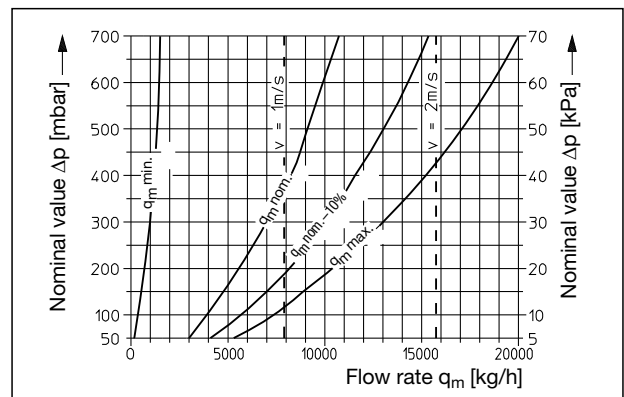
DN 32: kvs = 10.0



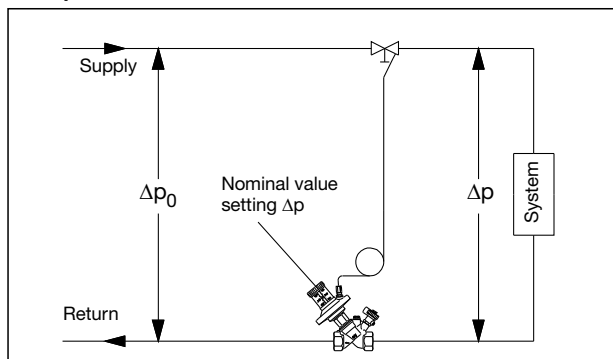
DN 40: kvs = 15.0



DN 50: kvs = 34.0



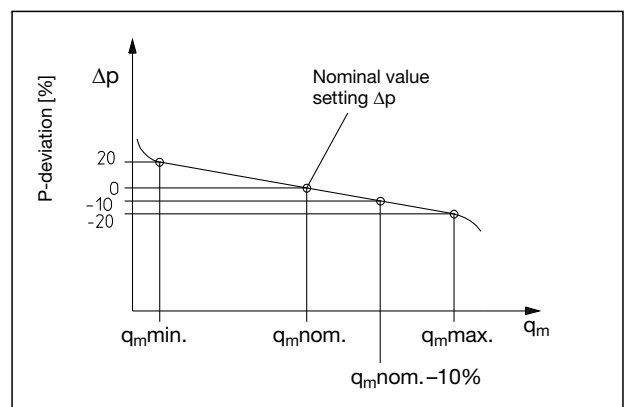
Example of installation:



The recommended application range is determined by the minimum flow rate ($q_{m.min.}$) and the maximum flow rate ($q_{m.max.}$).

The design of the regulator can be made with the help of the above charts. The correct regulator can be determined from the flow rate and the differential pressure. The maximum flow rate to be expected in the system may not exceed that of the regulator ($q_{m.max.}$). As for the curve $q_{m.nom.}$, the differential pressure of the system is identical with the set nominal value.

Lowest P-deviation at medium nominal value setting ($q_{m.nom.}$).



The curve $q_{m.nom.} - 10\%$ shows the values with a P-deviation of -10% .

To guarantee a sufficient valve authority of the differential pressure regulator, Δp should be $\geq 1.5 \times \Delta p$.

Examples of installation:

"Hydromat DTR" / Isolating valve

Setting and automatic regulation of the differential pressure in a riser.

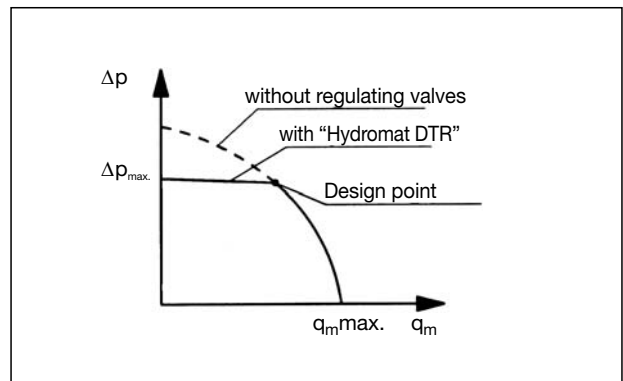
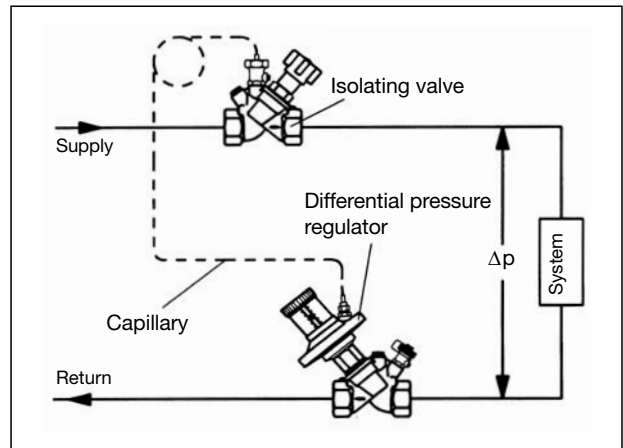
Condition:

Calculation of the flow rate and the corresponding differential pressure of the riser which shall be regulated.

Note:

Simple setting of the desired nominal value by turning the hand-wheel.

(Illustrated isolating valve is not required for hydronic balancing).



"Hydromat Q" / "Hydromat DTR"

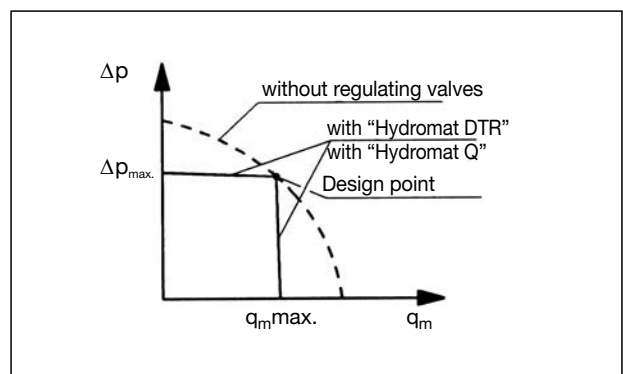
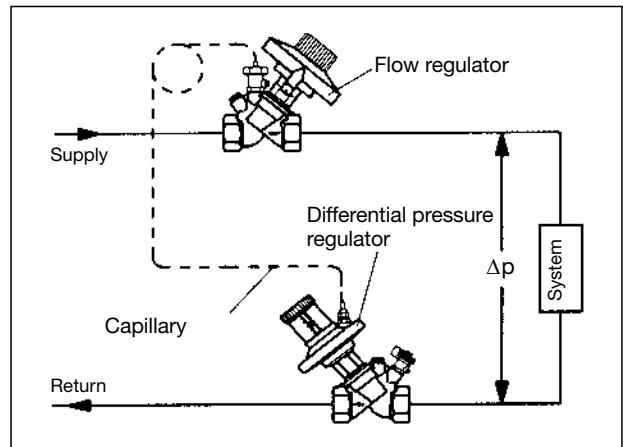
Setting and automatic regulation of the flow rate and the differential pressure in a riser.

Condition:

Calculation must have been made (i.e. total flow rate of the riser which shall be regulated must be known to find out the correct size of the valve.)

Note:

Simple setting of the nominal value by turning the handwheel of the flow regulator and the differential pressure regulator.



Subject to technical modification without notice.

Product group 3
ti 96-1/10/MW
Edition 2012

Printed on paper free from
chlorine bleaching.

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