Flow regulator ”Hydromat Q”

Technical information

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

Tender specification:

The Oventrop flow regulator ”Hydromal Q” for a constant control of the set flow rate is a proportional regulator which works without auxiliary energy.

The nominal flow can be infinitely adjusted, locked and secured as required and can be read-off from the outside at any time. With isolating facility and ball valve for draining and filling, installation in the supply or 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 and diaphragm made of EPDM, PFTE seal.

Max. working pressure p_s: 10 bar (PN 16)
Max. differential pressure: 2 bar
Working temperature t_s: -10 °C up to +120 °C

Flow capacities:		
	DN 15	100 – 800 kg/h
	DN 20	100 – 1200 kg/h
	DN 25	200 – 1900 kg/h
	DN 32	300 – 3000 kg/h
	DN 40	400 – 4000 kg/h

Function:

The Oventrop flow regulators are proportional regulators working without auxiliary energy. They are designed for use in heating or cooling systems to maintain a constant flow within a necessary proportional band. To achieve the set nominal flow, a minimum differential pressure of about 200 mbar is required. The required flow is set at the scale. The diaphragm will hold the differential pressure at a constant rate by moving the valve disc, therefore the flow will not exceed the nominal value.

Advantages:

- high flow capacity
- all functioning components on one level
- infinitely setting of the nominal value between 100 and 4000 kg/h
- very good optical display of the set nominal value
- locking of the nominal value by use of a locking pin
- simple isolation of pipe (additional function)
- installation in the supply or return pipe
- with ball valve for draining and filling of the pipe
- pressure balanced valve disc
- existing balancing valves can be converted to flow regulators

Installation of the regulator:

The Oventrop flow regulator ”Hydromal Q” can be installed in either the supply or 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.

Setting the nominal value:

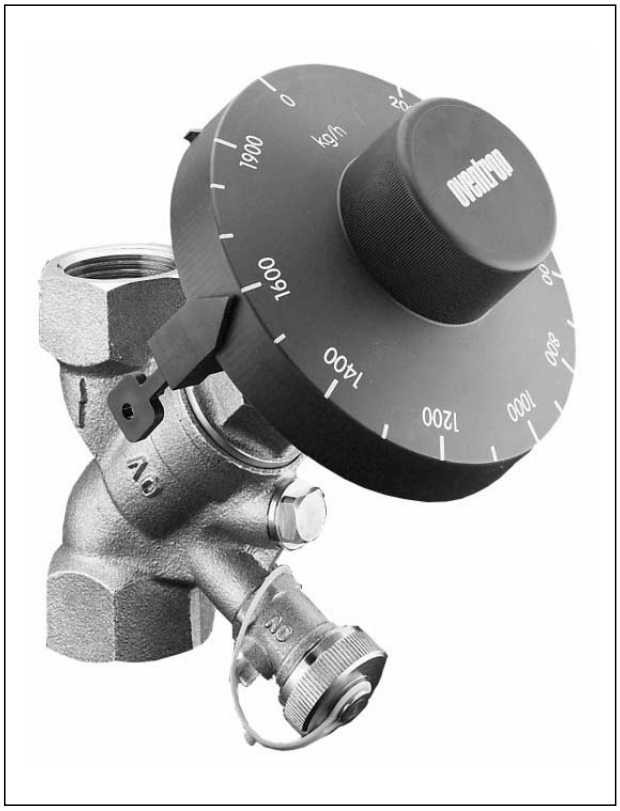
The nominal value of the flow regulator is set at the handwheel. To secure setting, the locking pin is pushed onto the handwheel until it clicks into position. Additionally the locking pin can be lead sealed.

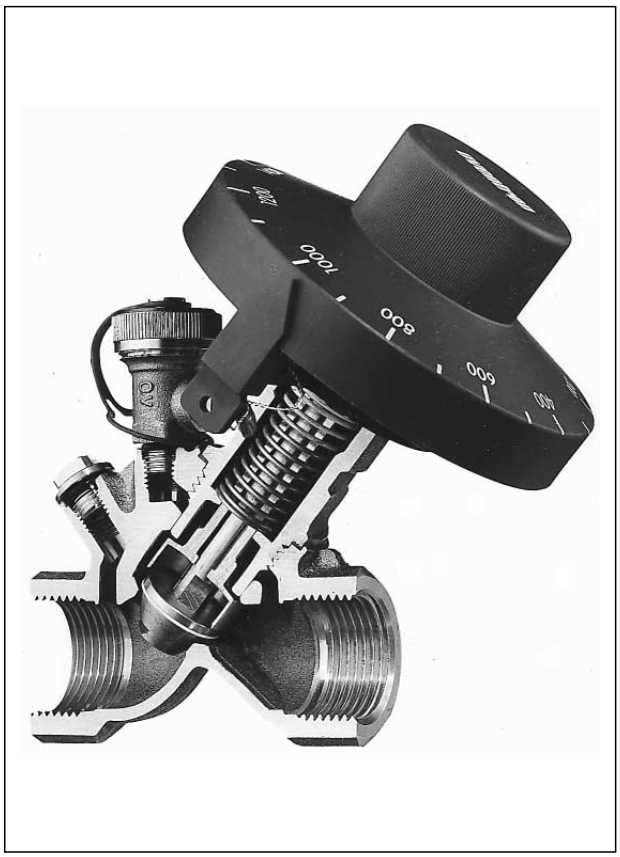
Function of the manual isolation:

The flow regulator may be isolated manually and additionally works as an isolating valve. To isolate the regulator manually, the handwheel has to be turned clockwise until stop. The display will show a ”0” value.

Draining and filling of the installation:

The installation may be drained and filled by use of the ball valve. The hose connection is suitable for a ½" hose.

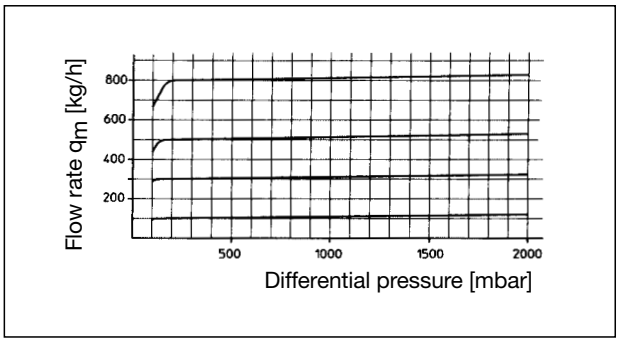




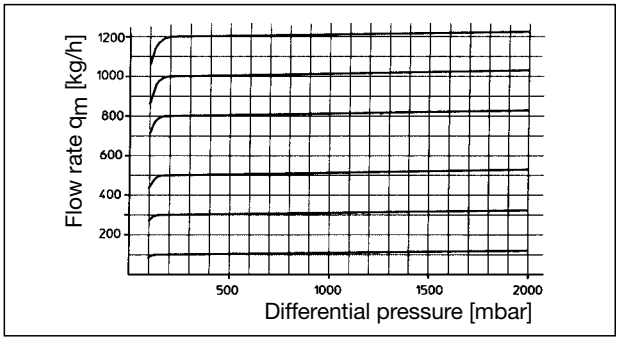
Cut illustration

Performance data:

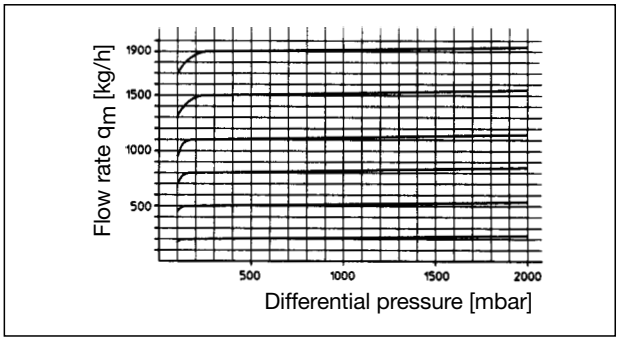
kvs = 0.002 x set value
valid for all sizes
e. g. set value = 1400 kg/h kvs = 0.002 x 1400 = 2.8



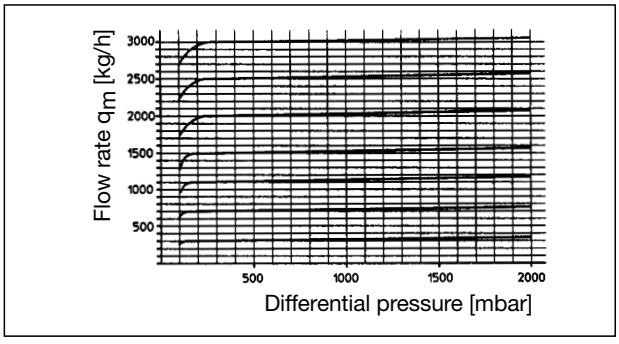
DN 15



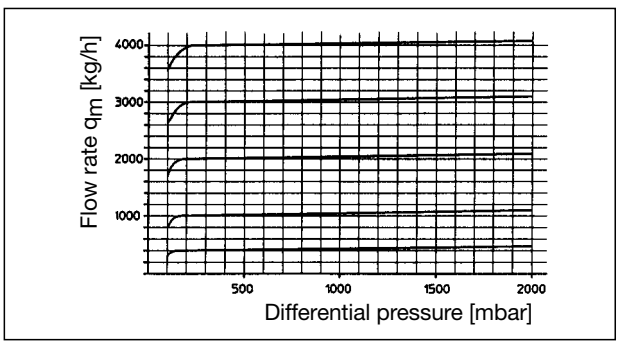
DN 20



DN 25

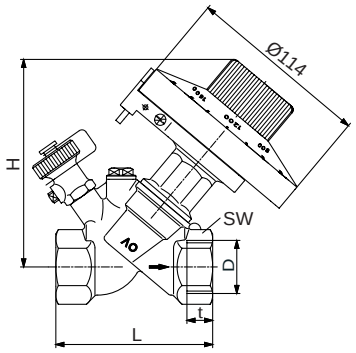


DN 32

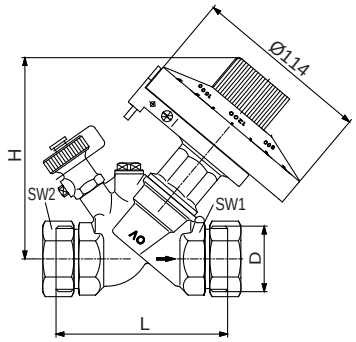


DN 40

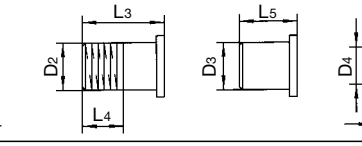
Dimensions:



Item no.	D EN 10226	t	SW*	L	H
106 15 04	Rp ½	13.2	27	80	131
106 15 06	Rp ¾	14.5	32	84	133
106 15 08	Rp 1	16.8	41	97.5	136
106 15 10	Rp 1¼	19.1	50	110	145
106 15 12	Rp 1½	19.1	54	120	150



Item No.	DN	ISO 228	SW_1*	SW_2*	L	H
106 16 04	15	G ¾	27	30	88	131
106 16 06	20	G 1	32	37	93	133
106 16 08	25	G 1¼	41	46	110	136
106 16 10	32	G 1½	50	52	110	145
106 16 12	40	G 1¾	54	58	120	150



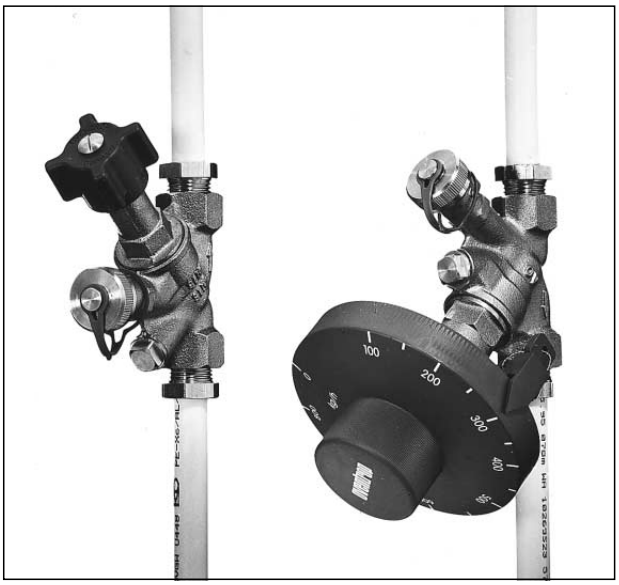
DN	D_1	L_1	L_2	D_2 EN 10226	L_3	L_4	D_3	L_5	D_4 EN 10226	L_6	L_7
15	15	18	12	R ½	31	13.2	20.5	50	Rp ½	37	13.2
20	18	23	15	R ¾	34	14.5	26	50	Rp ¾	39	14.5
20	22	24	17								
25	28	27	20	R 1	40	16.8	33	60	Rp 1	53	16.8
32	35	32	25	R 1¼	46	19.1	41	60	Rp 1¼	55	19.1
40	42	37	29	R 1½	49	19.1	47.5	65			

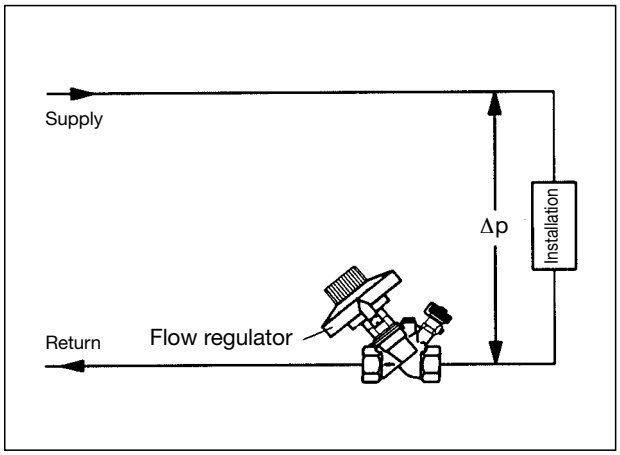
*) SW = spanner size

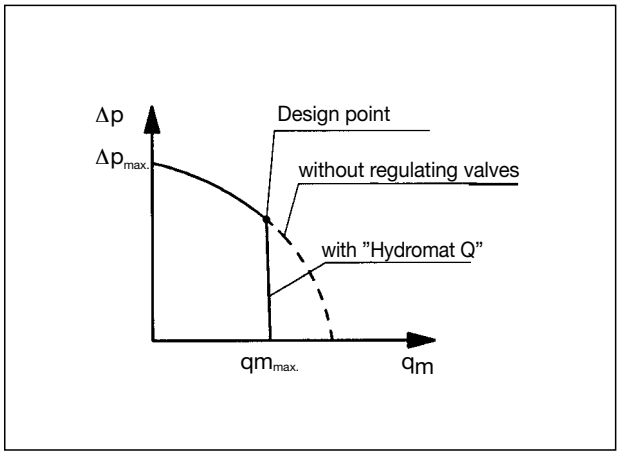
Examples of installation:

”Hydromal Q”/Isolating valve

For the hydronic balancing of the pipework and the calculated design point.
Condition:
The flow rate must be known and the minimum differential pressure must be 200 mbar.
Note:
Simple regulation to the desired nominal value by turning the handwheel.

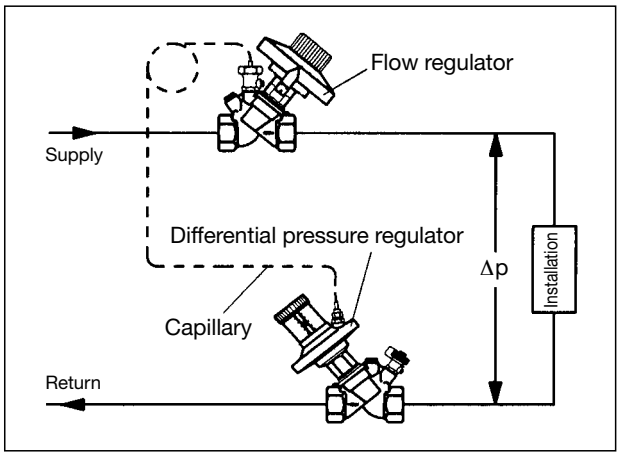


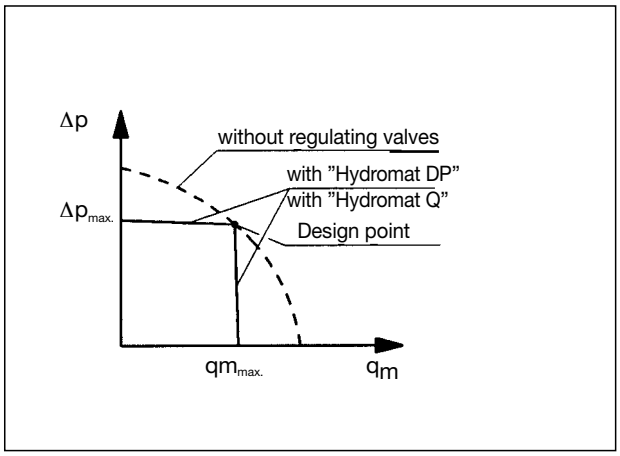




”Hydromal Q”/”Hydromat DP”

Setting and automatic regulation of the flow rate and of the differential pressure in a pipe.
Condition:
Calculation must have been made (i.e. total flow rate of the pipe must be known to find out the correct size of the valve).
Note:
Simple regulation of the required nominal values by turning the handwheel of the flow regulator and the differential pressure regulator.





Example of calculation:

Required: Size ”Hydromat Q”, differential pressure of regulator Δp_Q

Given:

Flow rate of pipe	q_m = 1000 kg/h
Existing differential pressure of the pipe	Δp_Q = 380 mbar
Differential pressure of installation	Δp = 100 mbar

Solution: Size ”Hydromat Q” DN 20
(taken from pressure loss charts DN 15 - DN 40)

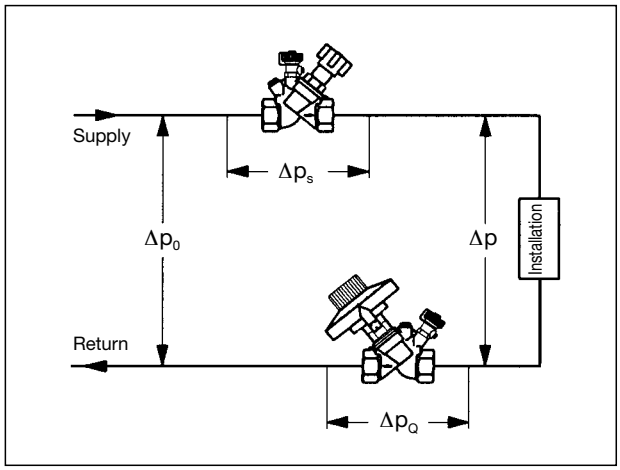
According to the charts, the minimum size of the regulator is chosen for q_m = 1000 kg/h

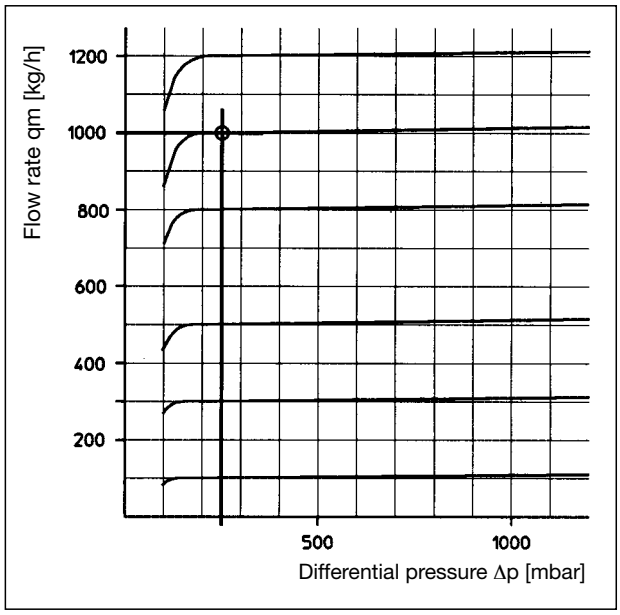
The flow regulator is set to 1000 kg/h.

Differential pressure
Isolating valve Δp_s = 30 mbar
(taken from technical information ”Hydrocontrol” k_V = 5.71)

Differential pressure of regulator
$\Delta p_Q = \Delta p_0 - (\Delta p_S + \Delta p)$
= 380 – (30 + 100) mbar
Δp_Q = 250 mbar

The excess differential pressure which has to be absorbed by the regulator is Δp_Q = 250 mbar. That means that the necessary minimum differential pressure of 200 mbar exists.





Section from chart DN 20

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