

Differential pressure relief valve Differential pressure relief valve with preset indicator

Tender specification:

Oventrop differential pressure relief valve, max. temperature 248 °F, nominal value infinitely adjustable between 2 and 17 [ft. of head] with preset indicator, lockable presetting.

| | |
|--------|--------------------|
| 3/4" | Item No. 165 98 06 |
| 1" | Item No. 165 98 08 |
| 1-1/4" | Item No. 165 98 10 |

Function:

By installing a differential pressure relief valve, disturbing flow noises are prevented in central heating systems when operating during low demand periods.

A minimum volume of circulating water is maintained in installations with gas fired continuous-flow water heaters at times of "no demand", i.e. when TRV's are closed. The differential pressure relief valve is installed in a bypass pipe between supply and return pipe.

The bypass is opened with the pump head exceeding the set value of the differential pressure relief valve.

Control range: 2 - 17 [ft. of head], factory preset at 6.7 [ft. of head].

Advantages:

- infinitely adjustable presetting
- lockable for all settings
- preset indicator (item no. 108 52 . . only)

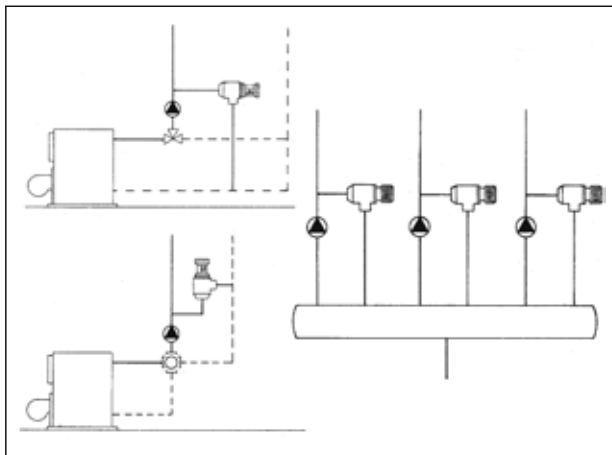
Application:

Central heating systems with circulation pump, max. temperature 248 °F, to avoid flow noises. To maintain a minimum volume of circulating water in central heating systems with gas fired continuous-flow water heaters.

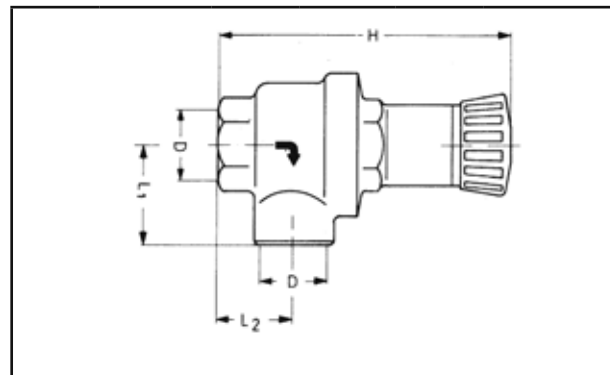
Model:

Body made of bronze/brass, brass bonnet, washer and ring gasket made of EPDM, spring made of stainless steel, all other parts made of brass.

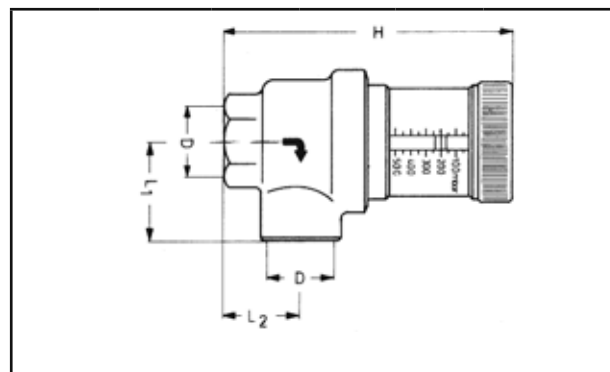
Examples of installation:



Dimensions:

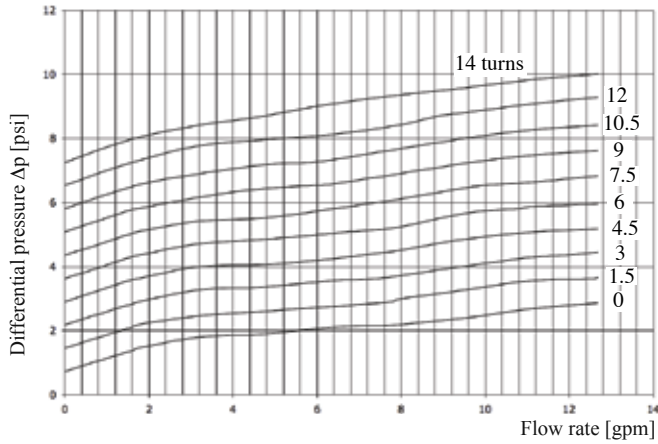


| Size | D | L ₁ | L ₂ | H | Item no. |
|--------|--------|----------------|----------------|------|-----------|
| 3/4" | 3/4" | 1.57 | 1.36 | 4.7 | 108 50 06 |
| 1" | 1" | 1.91 | 1.57 | 5.06 | 108 50 08 |
| 1 1/4" | 1 1/4" | 2.22 | 1.81 | 5.33 | 108 50 10 |

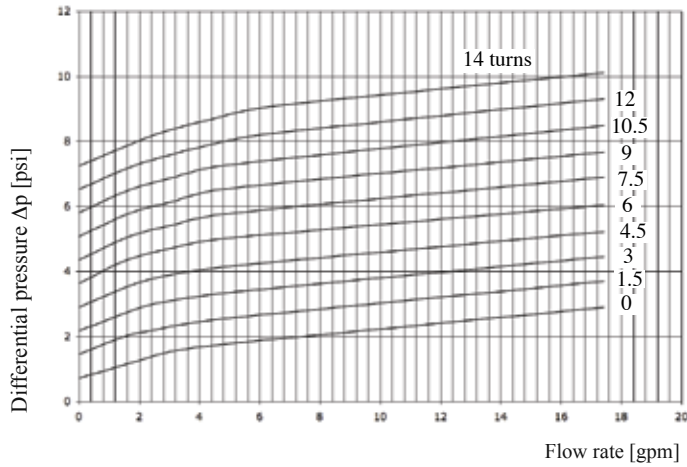


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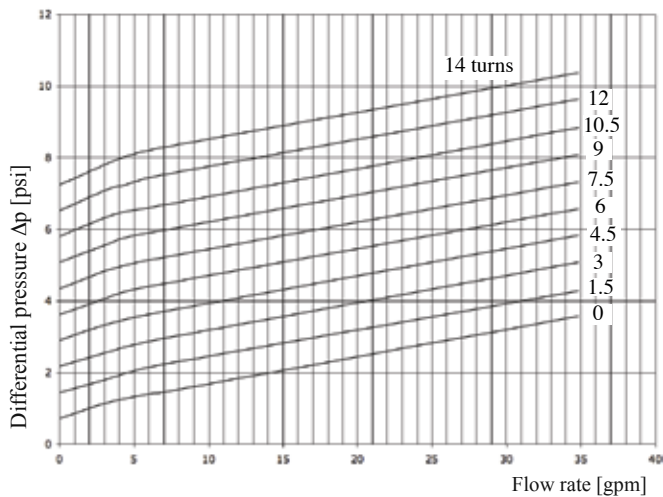
Flow chart for differential pressure relief valve (size 20 mm)
Item no's 108 50 06 and 108 52 06



Flow chart for differential pressure relief valve (size 1 inch)
Item no's 108 50 08 and 108 52 08



Flow chart for differential pressure relief valve (size 32 mm)
Item no's 108 50 10 and 108 52 10



The characteristic lines of both valve types are identical, whereby the required nominal pressure for the valve item no. 108 50 . . is obtained by the number of turns of the hand-wheel, while for the valve item no. 108 52 . . by the adjustment of the preset indicator.

Basic rule for selecting the valve size:

Choice of the bypass pipe and the DPRV * depends on the maximum volume of the excess flow:

Recommendation: Excess flow rate up to 8.7 gpm = 3/4"
Excess flow rate up to 13.5 gpm = 1"
Excess flow rate exceeding 13.5 gpm = 1-1/4"

Valve adjustment:

Loosen the screw of the hand-wheel.

Differential pressure relief valves item no's 108 52 06 / 08 / 10 By turning the hand-wheel, set the required nominal pressure on the indicator scale.

Differential pressure relief valves item no's 108 50 06/08/ 10

Turn the hand-wheel in the direction of the minus sign (-) until stop.

Then, to preset the required nominal pressure, turn the hand-wheel in the direction of the plus sign (+) according to the number of turns taken from the respective flow chart.

By tightening the screw of the hand-wheel, the setting may be locked.

Other applications:

(For instance to maintain a minimum volume of circulating water) The intersection point for the flow rate and the pressure loss is determined. Then from the oblique line which runs through this point, the value of valve preset or the number of turns of the hand-wheel can be read off on the left side.

Temperature controller

Tender specification:

Oventrop temperature controller working without auxiliary energy.

Available with immersion sensor or contact sensor.

For use with two- and three-way valves.

Overheating reliability: 30 K above set value.

Higher values are obtained by turning the hand-wheel to higher figures.

The control range may be limited and locked.

Temperature controller with immersion sensor immersion pocket thread 1/2"

| Control range | Capillary length | Item no. |
|---------------|------------------|-----------|
| 68 - 122 °F | 6.6 ft | 114 00 00 |
| 104 - 158 °F | 6.6 ft | 114 01 00 |
| 158 - 212 °F | 6.6 ft | 114 02 00 |
| 122 - 176 °F | 6.6 ft | 114 03 00 |
| 68 - 122 °F | 16.4 ft | 114 00 51 |
| 104 - 158 °F | 16.4 ft | 114 01 51 |
| 158 - 212 °F | 16.4 ft | 114 02 51 |

Temperature controller

with contact sensor and heat transfer unit

| Control range | Capillary length | Item no. |
|---------------|------------------|-----------|
| 68 - 122 °F | 6.6 ft | 114 20 00 |
| 104 - 158 °F | 6.6 ft | 114 20 51 |
| 86 - 140 °F | 6.6 ft | 114 20 52 |
| 122 - 176 °F | 6.6 ft | 114 20 53 |

Application:

Temperature control for industrial installations, boilers, counter-flow appliances, air heaters, dish washers, oil pre-heaters, air driers, water mixers, condensers, under-floor heating etc.

Other models, e.g. with double sensor or spiral sensor for higher sensitivity on demand.

Mode of operation when used with straight and angle pattern radiator valves, 3/8" - 1-1/4", item no's. 101 ... : With the temperature at the sensor rising, the valve is closed and with the temperature falling, the valve is opened.

Mode of operation when used with three-way diverting valves, item no's. 113 00 06/08/12: With the temperature at the sensor rising, the straight port is closed and the angle port is opened and vice versa. Mode of operation when used with three-way mixing valves, item no's. 113 15 06/08/12: With the temperature at the sensor rising, the straight port is opened and the angle port is closed and vice versa.

Advantages:

- exact regulation of set temperature
- constant temperature control
- high control range
- high overheating reliability
- simple installation and operation
- reliable functioning
- maintenance-free
- solid design
- varied applications

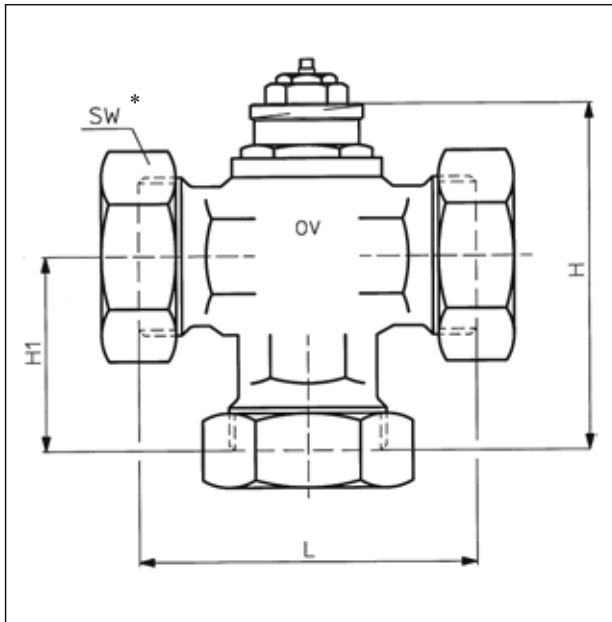


Temperature controller with contact sensor and heat transfer unit



Temperature controller with immersion sensor

Oventrop three-way mixing and -diverting valves:



Three-way mixing valve

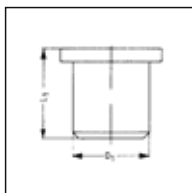
| Size | L | H | H ₁ | SW* | Item no. |
|--------|-----|-----|----------------|-----|-----------|
| 3/4" | 80 | 88 | 47 | 37 | 113 15 06 |
| 1" | 90 | 91 | 50 | 46 | 113 15 08 |
| 1-1/2" | 115 | 106 | 64 | 66 | 113 15 12 |

Three-way diverting valve

| Size | L | H | H ₁ | SW* | Item no. |
|--------|-----|-----|----------------|-----|-----------|
| 3/4" | 80 | 88 | 47 | 37 | 113 00 06 |
| 1" | 90 | 91 | 50 | 46 | 113 00 08 |
| 1-1/2" | 115 | 106 | 64 | 66 | 113 00 12 |

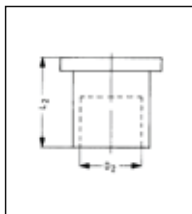
Accessories sets:

One set includes three tailpipes.



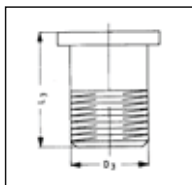
Weldable tailpipes

| Size | D ₁ | L ₁ | Item no. |
|--------|----------------|----------------|-----------|
| 3/4" | 26 | 50 | 113 00 93 |
| 1" | 33 | 60 | 113 00 94 |
| 1-1/2" | 48.5 | 65 | 113 00 96 |



Solder tailpipes

| Size | D ₂ | L ₂ | Item no. |
|--------|----------------|----------------|-----------|
| 3/4" | 15 | 20 | 113 01 92 |
| 3/4" | 18 | 23 | 113 01 93 |
| 3/4" | 22 | 24 | 113 01 94 |
| 1" | 28 | 27 | 113 01 95 |
| 1-1/2" | 35 | 40 | 113 01 96 |
| 1-1/2" | 42 | 32 | 113 01 97 |



Screwed tailpipes

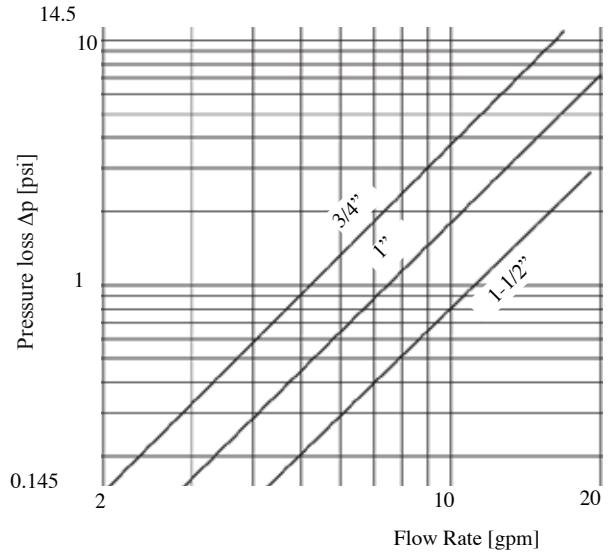
| Size | D ₃ DIN 2999 | L ₃ | Item no. |
|--------|-------------------------|----------------|-----------|
| 3/4" | 1/2" | 32 | 113 02 92 |
| 3/4" | 3/4" | 34 | 113 02 93 |
| 1" | 1" | 40 | 113 02 94 |
| 1-1/2" | 1 1/4" | 40 | 113 02 95 |
| 1-1/2" | 1 1/2" | 40 | 113 02 96 |

Performance data:

Flow chart 1

Temperature controller with three-way mixing and -diverting valves, item no. 113 ...

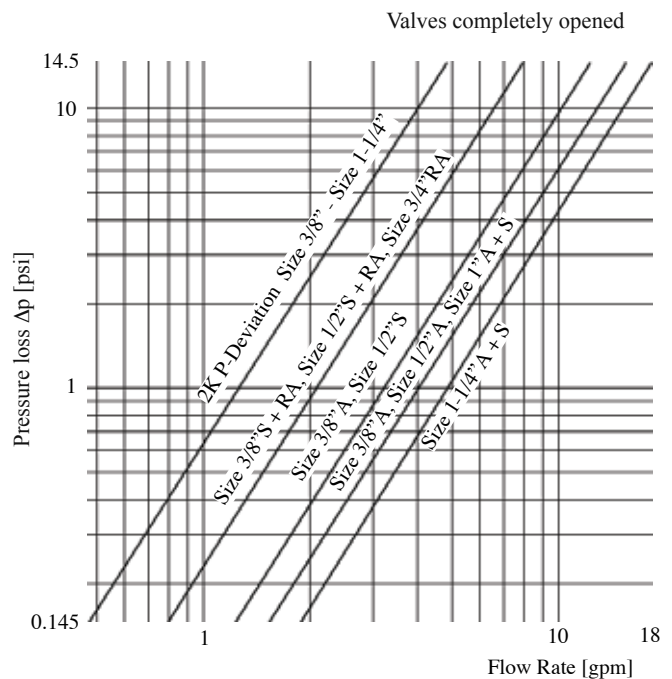
The total flow rate of the valves is indicated.



Permissible pressure difference: 3/4" 750 mbar, 1" 500 mbar, 1/2" 200 mbar (in final position of valve disc, i.e. tight closing).

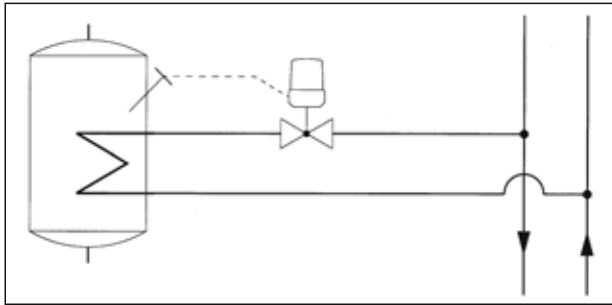
Flow chart 2

Temperature controller with valves, series AZ, angle and straight pattern 3/8"-1/4", item no. 101 ...

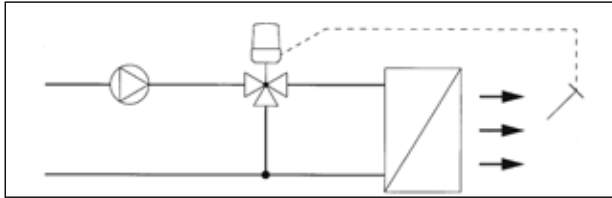


Permissible pressure difference: max. 14.5 psi (tight closing of the valve)

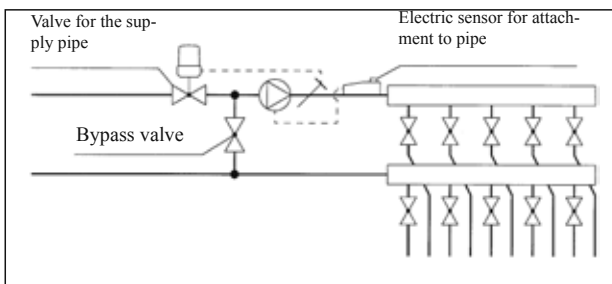
Examples of application:



Heating of domestic water with hot water cylinder



Temperature regulation in air heaters



Flow temperature limiting

Installation as flow temperature limiter in combined radiator- and under-floor heating systems. The installation is carried out according to the above drawing. The valve for the supply pipe and the bypass valve have to be phased.

Installation:

The Oventrop temperature controllers are directly screwed on the valve body. The immersion pocket has to be installed at the designed location. Afterwards, the sensor is introduced and fixed with the screw. As far as the model with contact sensor and heat transfer unit is concerned, the hose clamp supplied with the temperature controller is positioned around the pipe and the former is tightened after having introduced the heat transfer unit with the sensor.

Regulation:

The regulation is carried out with the bypass valve opened. The desired flow temperature is set at the temperature controller. If the flow temperature does not reach the desired value, the bypass valve has to be closed step by step until the set value is reached. The electric sensor for attachment to pipe has to be set at a value being about 5K above the nominal value of the temperature controller.

Presetting of the bypass valves:

First, the valve is closed by means of an allen key and is reopened according to the presetting. The presetting corresponds to the number of turns in opening position.

Bypass valves:

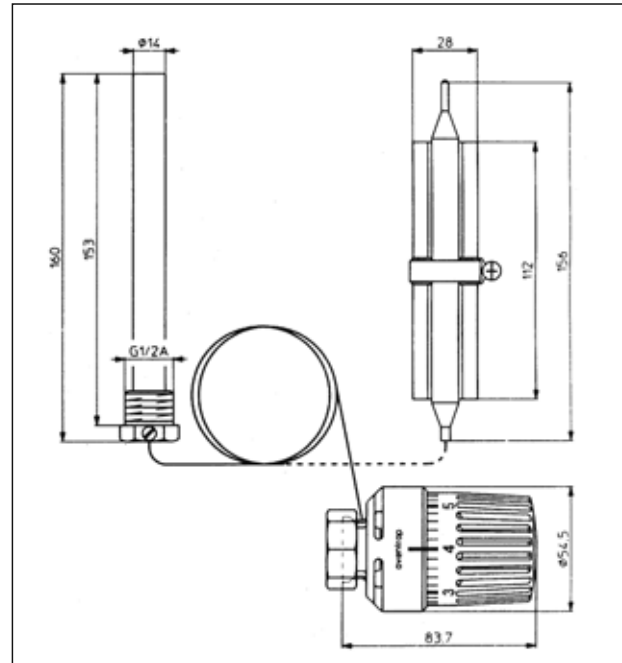
| Size | Item no. |
|------|-----------|
| 1/2" | 102 76 04 |
| 3/4" | 102 76 06 |
| 1" | 102 76 08 |

Dimensions:

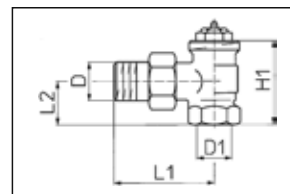
Oventrop temperature controller

with immersion sensor

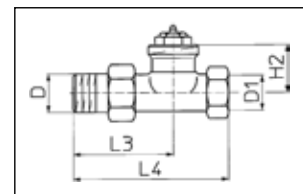
with contact sensor



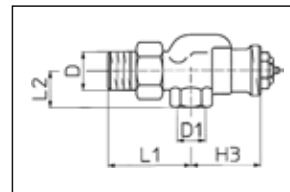
Oventrop valves series "AZ":



Item no. 101 70 . . .



Item no. 101 71 . . .



Item no. 101 72 . . .

| Size | D DIN 2999 | D ₁ DIN 2999 | H ₁ | L ₁ | L ₂ | k _{vs} | Item no. |
|--------|---------------|----------------------------|----------------|----------------|----------------|-----------------|-----------|
| 3/8" | 1/8" | 1/8" | 47.5 | 52 | 22 | 2.8 | 101 70 03 |
| 1/2" | 1/2" | 1/2" | 50 | 58 | 26 | 3.5 | 101 70 04 |
| 3/4" | 1/4" | 1/4" | 53 | 66 | 29 | 3.5 | 101 70 06 |
| 1" | 1" | 1" | 61 | 75 | 34 | 3.5 | 101 70 08 |
| 1-1/4" | 1/4" | 1/4" | 53 | 66 | 29 | 3.5 | 101 00 10 |

| Size | D DIN 2999 | D ₁ DIN 2999 | H ₂ | L ₃ | L ₄ | k _{vs} | Item no. |
|--------|---------------|----------------------------|----------------|----------------|----------------|-----------------|-----------|
| 3/8" | 1/8" | 1/8" | 28.5 | 52 | 85 | 1.8 | 101 71 03 |
| 1/2" | 1/2" | 1/2" | 28.5 | 59 | 95 | 1.8 | 101 71 04 |
| 3/4" | 1/4" | 1/4" | 28.5 | 63 | 106 | 2.8 | 101 71 06 |
| 1" | 1" | 1" | 28.5 | 80 | 125 | 3.5 | 101 71 08 |
| 1-1/4" | 1/4" | 1/4" | 33.5 | 90 | 150 | 4.1 | 101 01 10 |

| Size | D DIN 2999 | D ₁ DIN 2999 | H ₃ | L ₁ | L ₂ | k _{vs} | Item no. |
|------|---------------|----------------------------|----------------|----------------|----------------|-----------------|-----------|
| 3/8" | 1/8" | 1/8" | 41.5 | 52 | 22 | 1.8 | 101 72 03 |
| 1/2" | 1/2" | 1/2" | 40 | 58 | 26 | 1.8 | 101 72 04 |
| 3/4" | 1/4" | 1/4" | 37 | 66 | 29 | 1.8 | 101 72 06 |

Performance data:

Flow chart 3

Bypass valves 1/2", 3/4"

Item no. 102 76 04, 102 76 06

Bypass valve 1"

Item no. 102 76 08

