

DAF 516

– NPT threads/ANSI flanges



Differential pressure controllers

With adjustable set-point – for installation in the supply pipe

DAF 516

– NPT threads/ANSI flanges

This compact differential pressure controller for heating and cooling systems is particularly effective in situations requiring high temperatures and/or pressure drop. DAF 516 can be used both on the primary and secondary side in district heating and comfort cooling systems. Rust protection is assured thanks to the electrophoretic painted ductile iron body.

Key features

> Inline design

Inline flow allows high pressure drops without noise.

> Adjustable set-point

Delivers desired differential pressure ensuring accurate balancing.



Technical description

Application:

Heating and cooling systems.
Installation in supply pipe.

Functions:

Differential pressure control
Pre-setting Δp over the load (Δp_L)

Dimensions:

DN 15-125

Pressure class:

DN 15-50: PN 25
DN 65-125: PN 25 / PN 16

Max. differential pressure (Δp_V):

1600 kPa = 16 bar

Setting range:

Δp over the load is adjustable within:
5-30 kPa, 10-60 kPa, 10-100 kPa or
60-150 kPa.

Delivery setting:

DN 15-50: Maximum value (30, 60, 100
resp. 150 kPa).

DN 65-125: Midway min./max. value
(~18, ~35, ~55 resp. ~105 kPa).

Temperature:

Max. working temperature: 150°C
Min. working temperature: -10°C

Media:

Water or neutral fluids, water-glycol
mixtures (0-57%).

Material:

Valve body: Ductile iron EN-GJS-400-15
Membranes and gaskets: EPDM
Adjustment ring: DN 15-50 Ryton PPS,
DN 65-125 R St 37-2 steel.

Surface treatment:

Electrophoretic painting.

Marking:

IMI TA, Size, PN, Material, Kvs/Cvs, Δp
and flow direction arrow.

Connection:

DN 15-50: External threads according to
ISO 228. (Separate connections with NPT
threads.)

DN 65-125: Flanges according to ASME/
ANSI B16.42 Class 150.

Operating function

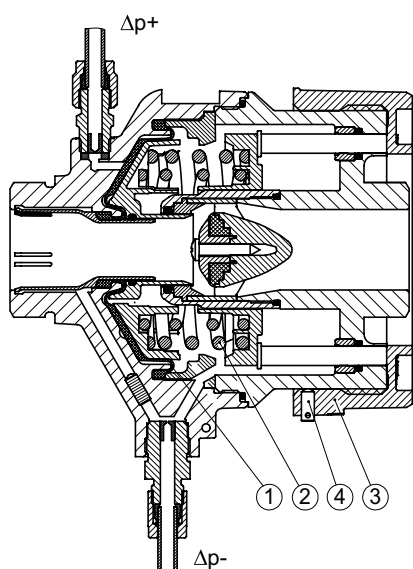
The pressure upstream of the load acts through an external capillary pipe ($\Delta p+$) on the plus side of the membrane (1) and attempts to close the valve.

The pressure downstream of the load acts through an external capillary pipe ($\Delta p-$) in the valve body and attempts, together with the spring (2) force, to open the valve. In this way, the differential pressure over the load is kept constant on the set value.

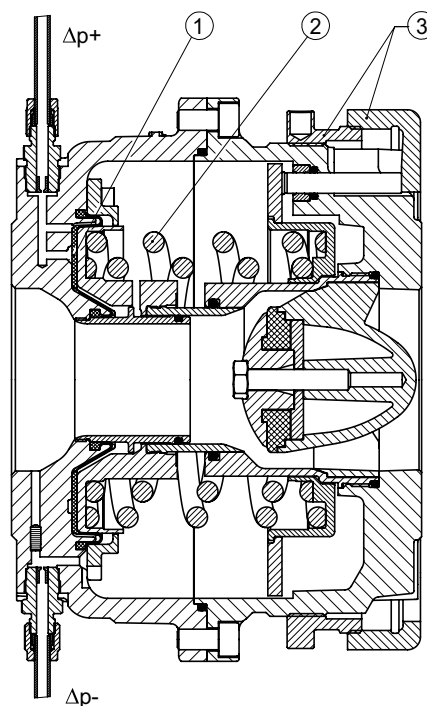
The spring force can be adjusted by turning the adjustment ring (3). Adjustment can be fixed (DN 15-50) by tightening the fixing screw (4).

DAF 516 should be mounted in the supply pipe upstream of the heat exchanger and STAD (STAF) on the return pipe, but downstream of the control valve. Function is the same as for DA 516, except that the pressure downstream the load acts through the another external copper impulse pipe ($\Delta p-$) to the minus side of the membrane. DAF 516 acts in this way as pressure controller (reducing valve) as well.

DN 15-50



DN 65-125

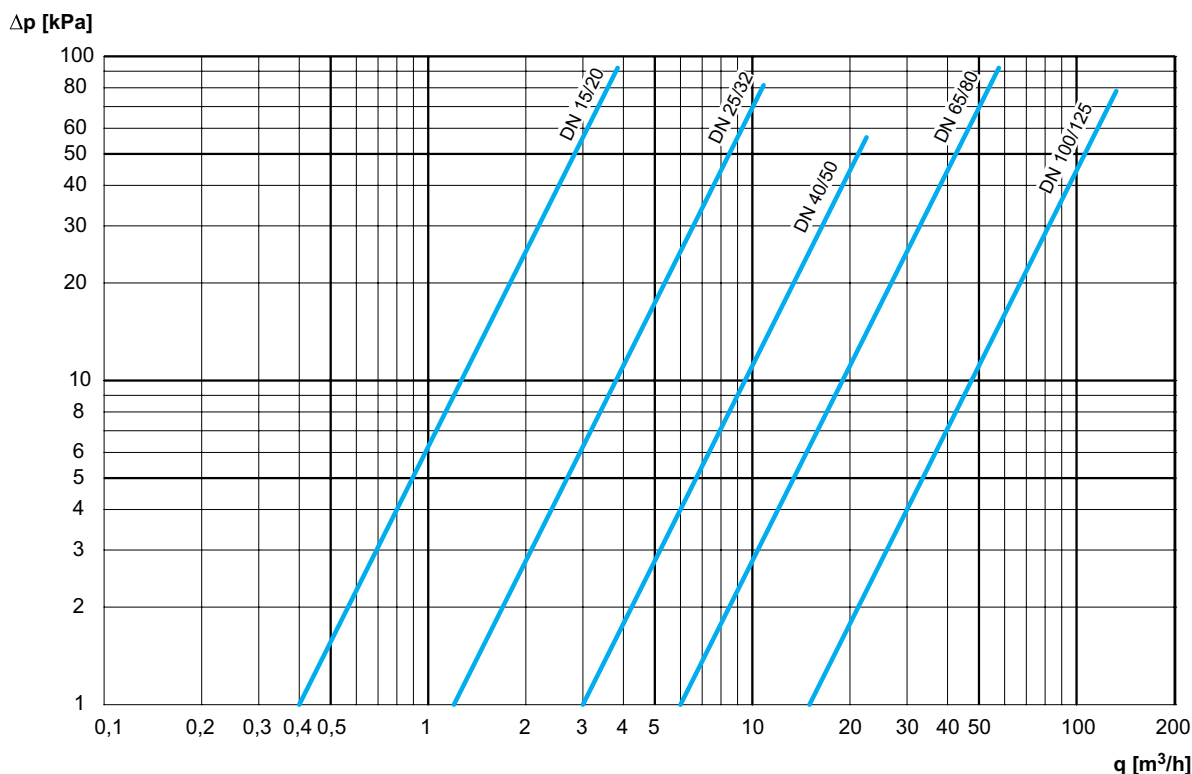


Sizing

1. Select the smallest size for the designed flow according to the diagram.
2. Check that the available Δp is bigger than the pressure drop of the valve at the designed flow.

The pressure drop can be found in the diagram or calculated by the formula:

$$\Delta p = \left(\frac{q}{100 \times Kvs} \right)^2 \quad [\text{kPa, l/h}]$$



Installation

The DAF 516 must be installed in the supply pipe. Flow direction is shown by the arrow (11) on the valve's identification label (10). The best position is horizontal with the venting screws (2) pointing upwards.

Installation of a strainer upstream of the valve is recommended.

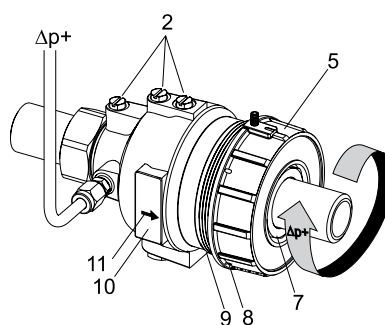
Connect capillary pipe ($\Delta p+$, copper $\varnothing 6 \times 1$) to the pipeline upstream of the load. Connect the other capillary pipe ($\Delta p-$, copper $\varnothing 6 \times 1$) downstream the load.

In case of a horizontal pipeline connect the capillary pipe laterally to prevent air and dirt from entering.

When filling, vent the body by using the venting screws (2).

In case of valves DN 15-50, turn the adjustment ring (5) clockwise until stop to make the nut (7) on the outlet side accessible.

Note: When welding the connections (DN 15-50) the valve must be protected from too high temperature.



Capillary pipe

Before putting into operation, the capillary pipe must be installed.

- Capillary pipe ($\Delta p-$) is connected to the balancing valve STAD/STAF or other suitable point to the pipeline, **downstream** of the load.

- Capillary pipe ($\Delta p+$) is connected to the other suitable point to the pipeline, **upstream** of the load.

Setting

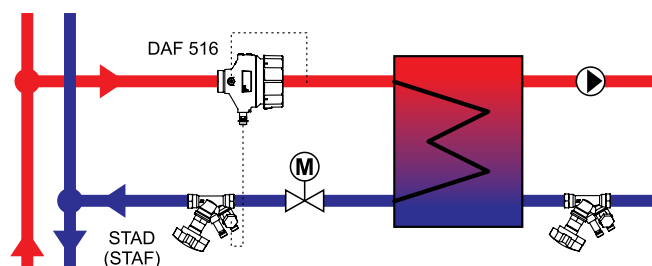
The differential pressure can be adjusted by turning the adjustment ring (5). The preset value can be sealed through the holes (see (8) and (9) under Installation).

| DN | Number of turns | Δp [kPa] change per turn of setting nut/spanner | | | |
|-------|-----------------|---|-------|--------|--------|
| | | 5-30 | 10-60 | 10-100 | 60-150 |
| 15/20 | 10 | 2,6 | 5,1 | 9,3 | 9,3 |
| 25/32 | 14 | 1,8 | 3,6 | 6,6 | 6,6 |
| 40/50 | 15 | 1,7 | 3,3 | 6,0 | 6,0 |
| 65 | 6,5 | 3,8 | 7,7 | 13,8 | 13,8 |
| 80 | 6,5 | 3,8 | 7,7 | 13,8 | 13,8 |
| 100 | 6,5 | 3,8 | 7,7 | 13,8 | 13,8 |
| 125 | 6,5 | 3,8 | 7,7 | 13,8 | 13,8 |

Measure flow and adjust Δp accordingly.

Application example

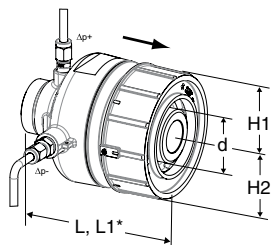
Keeping the differential pressure over a control valve constant



Heat exchanger

DAF 516 should be mounted in the supply pipe upstream of the heat exchanger and STAD (STAF) on the return pipe, but downstream of the control valve. DAF 516 acts in this way as pressure controller (reducing valve) as well.

Articles



DN 15-50

External thread – Separate connections with NPT threads – see “Connections for DN 15-50”.

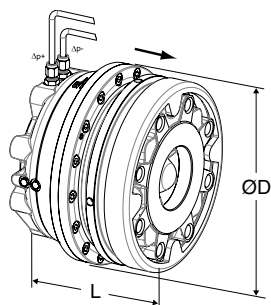
External threads according to ISO 228.

Included: Capillary pipe (Ø6) 2 x 1 200 mm, connection set (G1/2+G3/4) for capillary pipe to e.g. STAD and 2 capillary pipe connections R1/4 (R1/8 mounted on valve).

PN 25

| DN | d | L | L1* | H1 | H2 | Kvs | Kg | EAN | Article No |
|-------------------|--------|-----|-----|----|----|-----|-----|---------------|------------|
| 5-30 kPa | | | | | | | | | |
| 15/20 | G1 | 106 | 116 | 41 | 52 | 4 | 1,5 | 3831112505476 | 52 763-120 |
| 25/32 | G1 1/4 | 125 | 150 | 51 | 57 | 12 | 2,6 | 3831112503953 | 52 763-125 |
| 40/50 | G2 | 162 | 190 | 70 | 75 | 30 | 5,8 | 3831112504042 | 52 763-140 |
| 10-60 kPa | | | | | | | | | |
| 15/20 | G1 | 106 | 116 | 41 | 52 | 4 | 1,5 | 3831112505377 | 52 761-120 |
| 25/32 | G1 1/4 | 125 | 150 | 51 | 57 | 12 | 2,6 | 3831112504134 | 52 761-125 |
| 40/50 | G2 | 162 | 190 | 70 | 75 | 30 | 5,8 | 3831112504196 | 52 761-140 |
| 10-100 kPa | | | | | | | | | |
| 15/20 | G1 | 106 | 116 | 41 | 52 | 4 | 1,5 | 3831112504189 | 52 760-120 |
| 25/32 | G1 1/4 | 125 | 150 | 51 | 57 | 12 | 2,6 | 3831112504004 | 52 760-125 |
| 40/50 | G2 | 162 | 190 | 70 | 75 | 30 | 5,8 | 3831112504103 | 52 760-140 |
| 60-150 kPa | | | | | | | | | |
| 15/20 | G1 | 106 | 116 | 41 | 52 | 4 | 1,5 | 3831112504233 | 52 762-120 |
| 25/32 | G1 1/4 | 125 | 150 | 51 | 57 | 12 | 2,6 | 3831112504141 | 52 762-125 |
| 40/50 | G2 | 162 | 190 | 70 | 75 | 30 | 5,8 | 3831112504158 | 52 762-140 |

*) Length incl adjustment ring.



DN 65-125

Flanges – Do not need any separate connections. Flanges according to ASME/ANSI B16.42 Class 150.

Included: Capillary pipe (Ø6) 2 x 1 500 mm and 2 capillary pipe connections R1/4 (M14x1 mounted on valve).

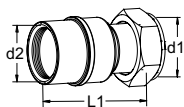
Class 150

| DN | D | L | Kvs | Kg | EAN | Article No |
|-------------------|-----|-----|-----|----|---------------|------------|
| 5-30 kPa | | | | | | |
| 65 | 210 | 160 | 60 | 18 | 3831112529885 | 52 768-665 |
| 80 | 210 | 160 | 60 | 18 | 3831112529922 | 52 768-680 |
| 100 | 320 | 254 | 150 | 58 | 3831112529809 | 52 768-690 |
| 125 | 320 | 254 | 150 | 58 | 3831112529847 | 52 768-691 |
| 10-60 kPa | | | | | | |
| 65 | 210 | 160 | 60 | 18 | 3831112529878 | 52 768-765 |
| 80 | 210 | 160 | 60 | 18 | 3831112529915 | 52 768-780 |
| 100 | 320 | 254 | 150 | 58 | 3831112529793 | 52 768-790 |
| 125 | 320 | 254 | 150 | 58 | 3831112529830 | 52 768-791 |
| 10-100 kPa | | | | | | |
| 65 | 210 | 160 | 60 | 18 | 3831112529861 | 52 768-865 |
| 80 | 210 | 160 | 60 | 18 | 3831112529908 | 52 768-880 |
| 100 | 320 | 254 | 150 | 58 | 3831112529786 | 52 768-890 |
| 125 | 320 | 254 | 150 | 58 | 3831112529823 | 52 768-891 |
| 60-150 kPa | | | | | | |
| 65 | 210 | 160 | 60 | 18 | 3831112529892 | 52 768-965 |
| 80 | 210 | 160 | 60 | 18 | 3831112529939 | 52 768-980 |
| 100 | 320 | 254 | 150 | 58 | 3831112529816 | 52 768-990 |
| 125 | 320 | 254 | 150 | 58 | 3831112529854 | 52 768-991 |

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

→ = Flow direction

Connections for DN 15-50



With internal thread NPT

Threads according to ANSI/ASME B1.20.1-1983.

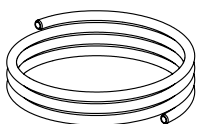
Swivelling nut

| d1 | d2 | L1* | EAN | Article No |
|--------|-----------|-----|---------------|------------|
| G1 1/4 | 1 NPT | 73 | 3831112533394 | 52 751-307 |
| G1 1/4 | 1 1/4 NPT | 80 | 3831112533400 | 52 751-308 |
| G2 | 1 1/2 NPT | 82 | 3831112533417 | 52 751-309 |
| G2 | 2 NPT | 93 | 3831112533424 | 52 751-310 |

*) Fitting length (from the gasket surface to the end of the connection).

Other types of connections (ISO), see international version of DAF 516.

Accessories

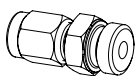


Capillary pipe

Ø6 mm.

2 pcs included in DAF 516.

| L [m] | Ø | DN | EAN | Article No |
|-------|------|--------|---------------|------------|
| 1,2 | 6 mm | 15-50 | 3831112527157 | 52 759-215 |
| 1,5 | 6 mm | 65-125 | 3831112527164 | 52 759-265 |



Capillary pipe connection

For capillary pipe Ø6 mm with R1/4, R1/8 and M14 connection.

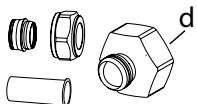
DN 15-50: 2 pcs R1/4 included in

DAF 516 (2 pcs R1/8 mounted on valve).

DN 65-125: 2 pcs R1/4 included in

DAF 516 (2 pcs M14x1 mounted on valve).

| | DN | EAN | Article No |
|-----------|--------|---------------|------------|
| 6 x R1/4 | 15-125 | 3831112527355 | 52 759-201 |
| 6 x R1/8 | 15-32 | 3831112533868 | 52 759-213 |
| 6 x R1/8 | 40-50 | 3831112533875 | 52 759-218 |
| 6 x M14x1 | 65-125 | 3831112535145 | 52 759-214 |



Connection set STAD

Must be used on STAD when connection of Ø6 mm capillary pipe.

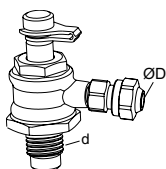
2 transition nipples (G1/2 and G3/4),

1 thrust nut (Ø6), 1 cone (Ø6) and

1 support bush are included in DAF 516,

DN 15-50.

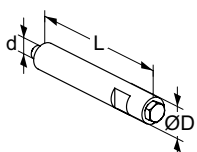
| d | EAN | Article No |
|------|---------------|------------|
| G1/2 | 7318793850003 | 52 762-006 |
| G3/4 | 7318793850102 | 52 762-106 |



Capillary pipe connection with shut-off

For connection of Ø6 mm capillary pipe to STAF/STAF-SG.

| d | D | For DN | EAN | Article No |
|------|---|--------|---------------|------------|
| G1/4 | 6 | 20-50 | 7318793999504 | 52 265-209 |
| G3/8 | 6 | 65-400 | 7318793999405 | 52 265-208 |



Venting extension

Suitable when insulation is used.

Stainless steel/EPDM/Brass.

| d | D | L | EAN | Article No |
|----|----|----|---------------|------------|
| M6 | 12 | 70 | 3831112531727 | 52 759-220 |



Venting screw

Brass/EPDM

| d | EAN | Article No |
|----|---------------|------------|
| M6 | 3831112527980 | 52 759-211 |

