



General

TA-SHUNT is a range of shunt valve groups which meet most requirements.

Examples of applications where TA-SHUNT is suitable:

- Radiator systems
- Floor heating systems
- Ventilation heat exchangers
- Heating and cooling systems
- Heat re-cycling systems etc.

Technical description

Applications:

TA-SHUNT is made for the following types of control circuits:

1. Constant flow in primary and secondary circuit.
2. Variable flow in primary circuit and constant flow in secondary circuit.
3. Variable flow in primary circuit and constant flow in secondary circuit for installations without a main pump.
4. Constant flow in primary and secondary circuit and where the control valve loads the secondary circuit, so-called Norwegian coupling.
5. Water-borne heat recycling with variable flow in the air inlet circuit and constant flow in the outlet air circuit.
6. Variable flow in primary circuit and constant flow in secondary circuit (SABO coupling).
7. Variable flow in primary circuit and constant flow in secondary circuit. Keeping the differential pressure over a control valve constant.

TA-SHUNT can be used in systems with up to 50% glycol content.

Pressure class:

PN 6

All components in the shunt valve group are classified to at least PN 6. If PN 10 is needed, please specify this when ordering.

Temperature:

Max media temperature: 95°C

Min media temperature: -10°C

Certain pumps require special versions.

Union dimension:

DN 20 - 100

Gate and ball valves:

DN 20-50: TA 500 Ball valve

DN 65-100: TA 60 Gate valve

Balancing valves:

DN 10-50 STAD

DN 65-100 STAF

DN 15-100 STAP

Control valves:

2-way: V222, V241.

3-way: V321, V341.

Kvs control valves:

0,25 - 160 in the Renard series.

Pipe packages:

DN 20-50 according to ISO 65 (Carbon steel tubes suitable for screwing in accordance with ISO 7/1).

DN 65-100 pressure vessel pipes, seamless Stainless steel or copper pipe packages can be tendered on request.

Thermometers:

Graduated 0-120°C for heating. -40°C - +40°C for cooling/recycling.

Insulation:

Heating: Non-combustible mineral wool

Cooling: Armaflex condensate insulation

Protective box:

DN 20-100: Plastic-coated sheet metal box.

Circulation pump:

TA-SHUNT can be equipped with Grundfos, WILO, Flygt etc. pumps as standard.

Non-return valve:

With spring-loaded valve disc.

General

TA-SHUNT is made in all sizes from DN 20 to DN 100. In addition to the basic types, shunt valve types can be made to customer specification, such as larger than DN 100. Installation can be done in different ways, which gives considerable flexibility. Shunt valve groups can be installed upside down, for example. You just have to remember that the control valve spindle must never point downwards.

Shunt valve groups up to DN 50 are connected by means of pipe threads. DN 65 and larger are connected by means of flanged joints.

NOTE! Mating flanges are supplied for flanged joints.

Control valves

The shunt valve groups are designed for use with TAC AB control valves, but can also be ordered with other makes.

The specifications are found in the documentation provided by each make.

Control equipment and actuators for control valves are not included.

Balancing

Primary and secondary circuits return pipes are provided with TA's balancing valves, STAD up to DN 50 and STAF as from DN 65. The valves have measurement points, draining (STAD) and also function as shut-off valves. When used for balancing and controlling media flow, please refer to the separate catalogue for STAD, STAF.

To keep the differential pressure over a control valve constant, STAP/STAD(STAF) are used. See Principle coupling 7.

Shut-offs

Primary and secondary circuits inlet connections are provided with shut-off valves. For DN 20-50, shunt valve groups for heat are provided with ball valves with a raised lever. Shunt valve groups for cooling are provided with geared ball valves.

DN 65-100 are provided with ball-type gate valves.

Measurement connections:

The shunt valve groups are provided with measurement connections on the primary and secondary circuits inlet pipes, to permit measurement of available pressure and pressure drop in connected circuits.

Pump

TA-SHUNT is normally delivered with a circulation pump for the secondary circuit. The pump is installed in the supply pipe outside the box, but inside the shut-off valve. The location outside the box makes the pump easily accessible for service or repair, and the pump motor gets good cooling, which also ensures longer endurance.

Threaded pumps are supplied ready installed in the valve groups. Flanged pumps are not mounted when supplied, in order to avoid making the valve groups unnecessarily bulky and heavy. Installation has been prepared by TA, however, and is easy to do on site with the installation components provided.

Shunt valve groups can also be supplied, prepared for pump installation, which means that the installation components accompany the pump. Finally, shunt valve groups can be supplied without either pumps or preparation for pumps.

Insulation - box

Shunt valve groups from DN 20 to DN 100 are insulated as standard with non-flammable mineral wool for heating systems and with Armaflex condensation insulation on shunt valve groups intended for refrigerant transmission systems.

External valves with couplings or flanges are not insulated.

The shunt valve groups are provided with a plastic-coated sheet metal box, which is easy to dismantle for inspection.

Mounting

A bracket for wall mounting is included as standard for all shunt valve groups. DN 65 and larger also have muffs underneath for support feet, if used. A floor mounting stand is available as an option, but the muffs for support legs are then omitted.

Type plate

A self-adhesive type plate is fixed to the front of the box. The type plate includes the following:

- Pos specifies the section of the installation which the shunt valve group serves
- Type gives the characteristic data of the shunt valve group
- Year of manufacture
- Max pressure and temperature
- Pump type and data are specified for pumps delivered with the shunt valve group
- Principle coupling is given, with a connection diagram

Document pocket

There is an A5-format document pocket on the rear of the shunt valve group.

Non-return valve

In shunt valve groups where a non-return valve is included, it consists of a spring-loaded valve disc with low opening pressure and low forward pressure drop.

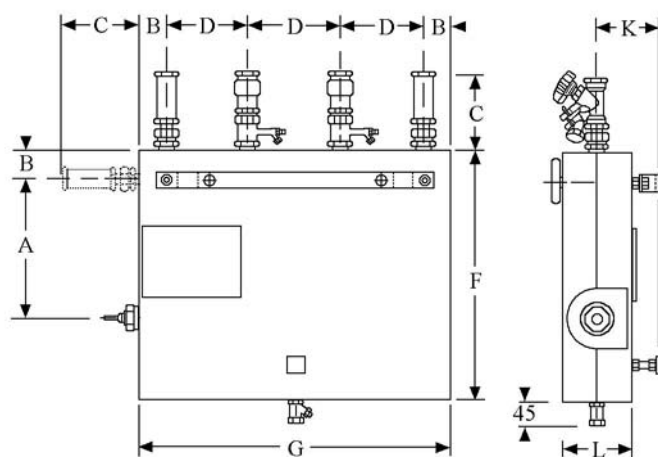
Thermometers

4 thermometers are installed in each shunt valve group. The thermometers for heating are graduated 0-120°C and for cold/heat recycling they are graduated -40°C - +40°C.

Draining

The shunt valve groups are equipped with a separate drain device, SAV with R1/2 for hose connection. If the shunt valve group is installed so that the SAV is uppermost, it can be used for venting.

Dimension sketch



Shunt valve group DN	A	B	C	D	F	G	K	L	Weight*** kg
20	150	35	145	120	310	430	90	100	9
25	170	45	170	170	415	600	100	110	17
32	170	45	190	170	415	600	100	110	20
40	220	55	200	220	530	770	120	140	30
50	220	55	250	220	530	770	120	140	37
65	230	75	350	230	640	840	165	200	90-130
80	280	80	380	280	780	1000	180	230	180-230
100	310*	110	420	310	900	1150	200	260	210-280
	400**								

Dimensions can vary, depending on version. If the relevant dimensions have to be verified, please contact closest sales office.

*) 2-way control valve

**) 3-way control valve

***) Excl pump

Valve table - control valves

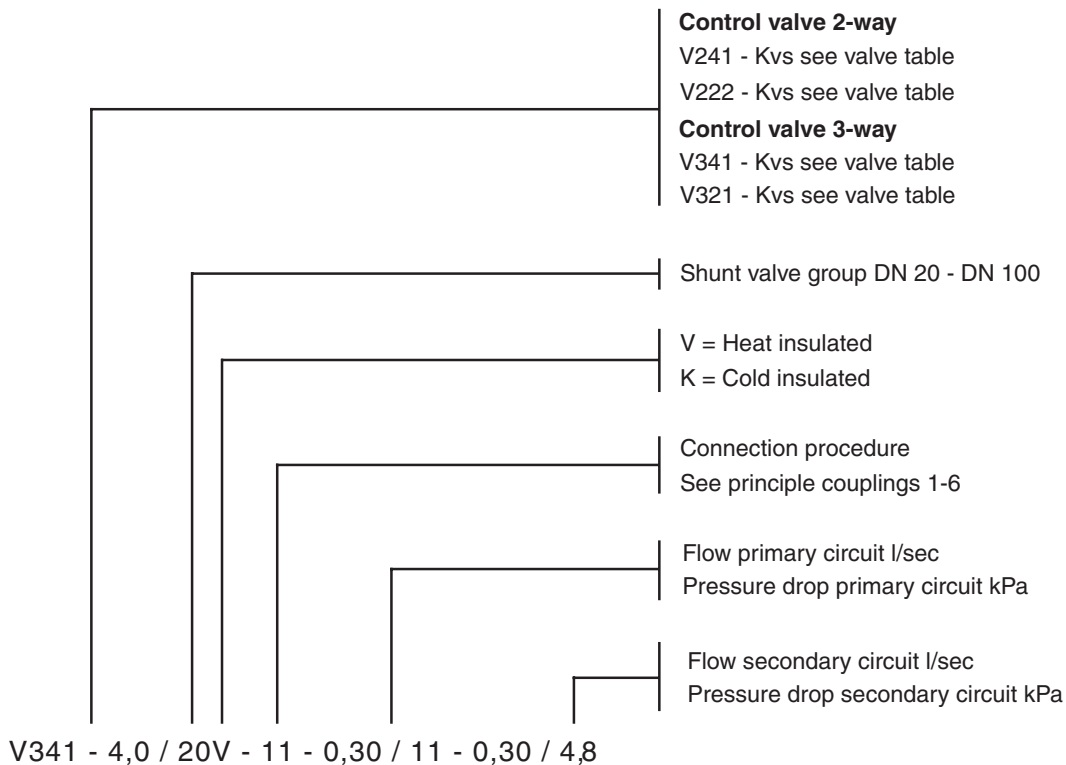
2-way valves

Designation	Characteristic	Kvs	DN	TA No
V241	EQM	0,25	15	54 241-115
"	"	0,40	15	54 241-215
"	"	0,63	15	54 241-315
"	"	1,0	15	54 241-415
"	"	1,6	15	54 241-515
"	"	2,5	15	54 241-615
"	"	4,0	15	54 241-715
"	"	6,3	20	54 241-820
"	"	10	25	54 241-725
"	"	16	32	54 241-532
"	"	25	40	54 241-540
"	"	38	50	54 241-550
V222	EQ%	63	65	54 222-665
"	"	100	80	54 222-780
"	"	160	100	54 222-990

3-way valves

Designation	Characteristic	Kvs	DN	TA No
V341	EQM-Komp	1,6	15	54 341-515
"	"	2,5	15	54 341-615
"	"	4,0	15	54 341-715
"	"	6,3	20	54 341-820
"	"	10	25	54 341-725
"	"	16	32	54 341-532
"	"	25	40	54 341-540
"	"	38	50	54 341-550
V321	EQ%-Komp	63	65	54 321-665
"	"	100	80	54 321-680
"	"	160	100	54 321-690

Coding template



Calculation example

DN 20

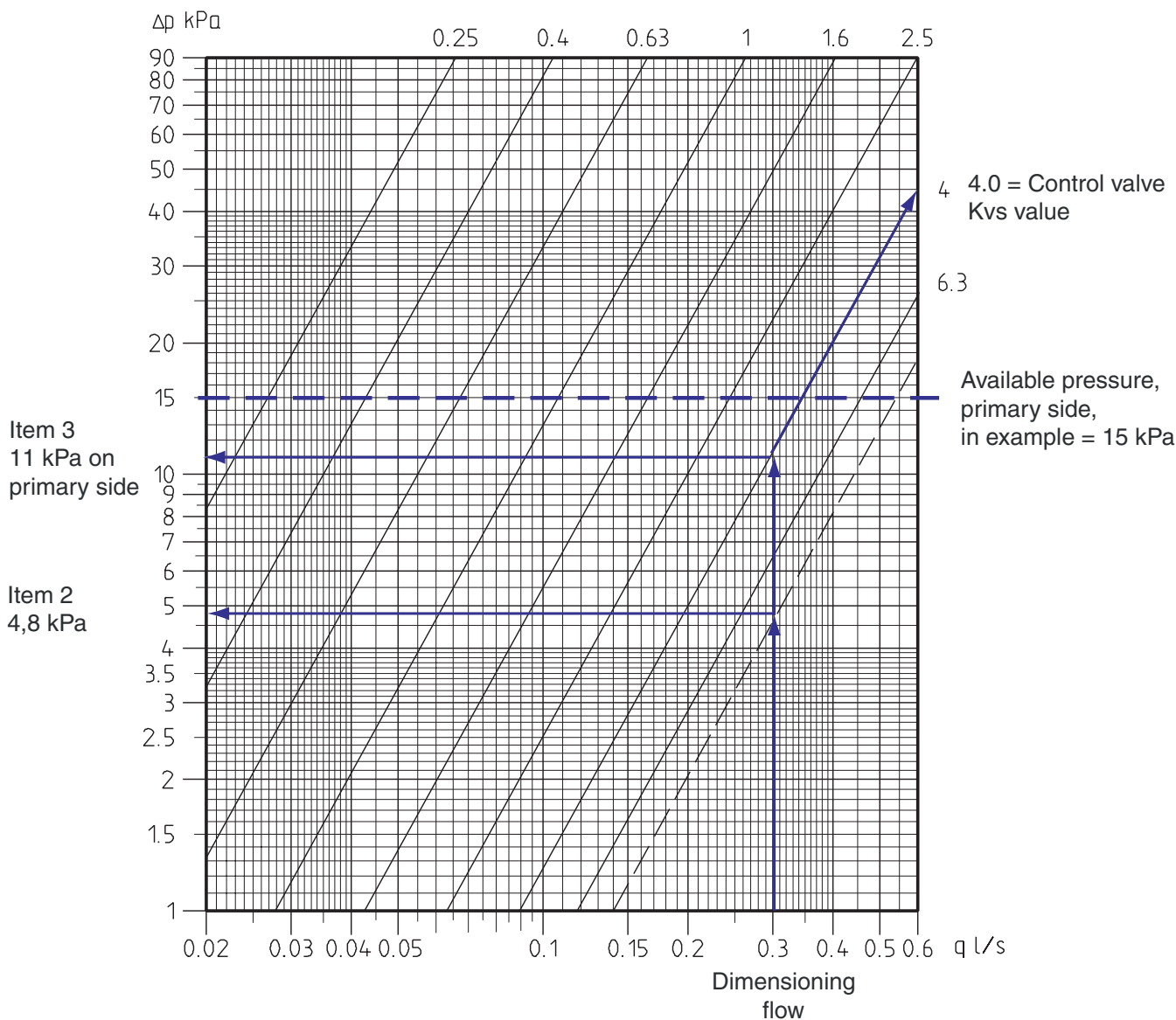
----- = Pressure drop with fully open balancing valve across

Secondary circuit

Principle coupling 1, 2 and 5.

Primary circuit

Principal coupling 3, 4 and 6.



Background:

- A shunt valve group is to be connected to a heat exchanger with constant flow in primary and secondary circuits.
- The connection should be on the top of the shunt valve group for both primary and secondary circuits, with the primary circuit on the left.
- The shunt valve group shall be equipped with a circulation pump, 1x230V, in the secondary circuit.
- The shunt valve group shall be mounted on a floor stand.

- Primary coupling:

Available pressure 15 kPa

Required flow 0.3 l/s

- Secondary coupling:

Pressure drop across secondary side outside the shunt valve group with required flow = 20 kPa

Required flow 0.3 l/s

- Control valve: TAC 3-way

A proposed solution is given below, which moves forward one step at a time to derive coding which complies with the appearance of the coding templates. In the calculation example below, the unknown values are replaced by x, and are successively replaced by the derived values.

Coding: Vxxx-x.x/xxV-xx-0.30/xx-0.30/xx

Solution:

1 Start by choosing the principle coupling and version. Principle coupling 1, shunt valve group 11, complies with the background conditions.

Coding: Vxxx-x.x/xxV-11-0.30/xx-0.30/xx

2 Choose shunt valve group size. Flow 0.3 l/s gives size DN 20, please refer to the diagram. First read off the secondary pressure drop across the shunt valve group, with the balancing valve fully open, to 4.8 kPa.

Coding: Vxxx-x.x/20V-11-0.30/xx-0.30/4.8

3 Now select the control valve. The pressure drop shown by the slanting lines in the diagrams applies to the entire shunt valve group primary side i.e. both the control and balancing valves. Both valves are fully open.

The Kv values beside the slanting lines specify the Kvs values you should select for the control valve. They do not refer to the Kv value for the line they are on.

Go up in the diagram to the relevant flow, 0.3 l/s. Select the Kvs value for the control valve which gives the next lower pressure drop in the shunt valve group compared with available pressure. A Kvs value of 4.0 for the control valve gives a total pressure drop of 11 kPa on the primary side. This pressure drop is deducted from available pressure, 15 kPa. The difference, 4.0 kPa, is controlled by the balancing valve on the primary side. In the valve table, you see that the valve is referred to as V341. This has a threaded spindle end and can be motorised by most makes of control.

The entire coding can now be written:

Coding: V341-4.0/20V-11-0.30/11-0.30/4.8

This coding will be marked on the type plate and contains the following information:

- Type of control valve
- Kvs value
- Union dimension
- Type of insulation
- Connection procedure
- Projected primary flow
- Min necessary available primary pressure
- Projected secondary flow
- Secondary pressure drop across the valve group

4 Select pump for secondary circuit. Pump data is available from each manufacturer's catalogue.

The lift height which the pump must provide is determined by pipe losses and equipment outside the shunt valve group, plus the pressure drop across the secondary side of the shunt valve group with the balancing valve fully open. In the example, this gives 20 kPa plus 4.8 kPa i.e. 24.8 kPa. The flow should be 0.3 l/s. For example, select Grundfos pump UPS 25-40 130 1x 230V. At 0.3 l/s, this gives 28 kPa.

Or select Wilo Star - RS 25/4 1x230V. At 0.3 l/s, this gives 30 kPa. The surplus pressure is controlled by the balancing valve on the secondary side.

5 Select any accessories, in this example one floor stand for DN 20.

6 Summarise the information:

1 shunt valve group, V341-4.0/20V-11-0.30/11-0.30/4.8

1 Grundfos pump, UPS25-40 130 1 x 230V, or Wilo Star - RS 25/4 1 x 230V

1 floor stand DN 20

Support material

Calculation program

TA-SHUNT: Simplifies the choice of pump, control valve and balancing valve for shunt valve groups.

Manual

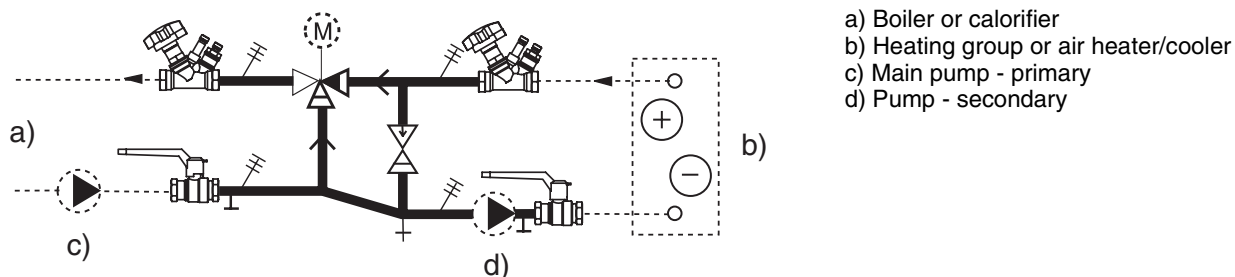
Manual no 1: Balancing of control circuits.

Principle coupling 1: Constant flow in primary and secondary circuit

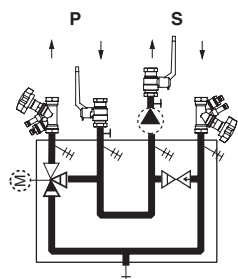
TA-SHUNT connection procedure 11, 12, 13 , 14, 15 and 16.

For **conventional heating and ventilation systems** with main pump and where you want high return temperature to the boiler. This circuit is also used in **cooling installations and floor heating installations**. The flow in the secondary circuit can be greater than, or equal to the flow in primary circuit. The control valve functions as a mixing valve on the primary circuit return.

For other connection procedures than those below - please contact closest sales office.

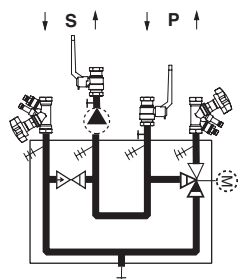


Shunt valve group 11



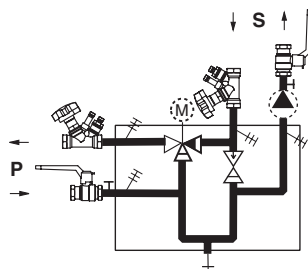
DN	TA No Heating	TA No Cooling
20	54 111-120	54 161-120
25	54 111-125	54 161-125
32	54 111-132	54 161-132
40	54 111-140	54 161-140
50	54 111-150	54 161-150
65	54 111-165	54 161-165
80	54 111-180	54 161-180
100	54 111-190	54 161-190

Shunt valve group 12



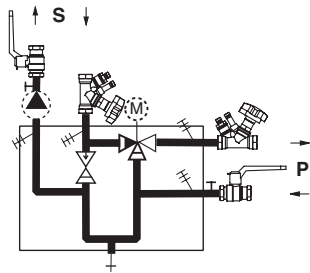
DN	TA No Heating	TA No Cooling
20	54 111-220	54 161-220
25	54 111-225	54 161-225
32	54 111-232	54 161-232
40	54 111-240	54 161-240
50	54 111-250	54 161-250
65	54 111-265	54 161-265
80	54 111-280	54 161-280
100	54 111-290	54 161-290

Shunt valve group 13



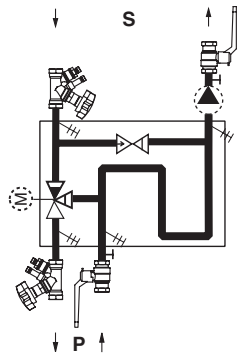
DN	TA No Heating	TA No Cooling
20	54 111-320	54 161-320
25	54 111-325	54 161-325
32	54 111-332	54 161-332
40	54 111-340	54 161-340
50	54 111-350	54 161-350
65	54 111-365	54 161-365
80	54 111-380	54 161-380
100	54 111-390	54 161-390

Shunt valve group 14



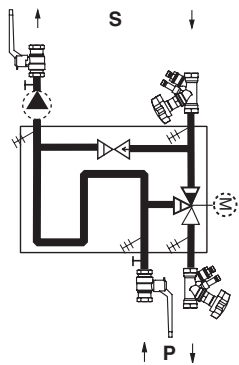
DN	TA No Heating	TA No Cooling
20	54 111-420	54 161-420
25	54 111-425	54 161-425
32	54 111-432	54 161-432
40	54 111-440	54 161-440
50	54 111-450	54 161-450
65	54 111-465	54 161-465
80	54 111-480	54 161-480
100	54 111-490	54 161-490

Shunt valve group 15



DN	TA No Heating	TA No Cooling
20	54 111-520	54 161-520
25	54 111-525	54 161-525
32	54 111-532	54 161-532
40	54 111-540	54 161-540
50	54 111-550	54 161-550
65	54 111-565	54 161-565
80	54 111-580	54 161-580
100	54 111-590	54 161-590

Shunt valve group 16



DN	TA No Heating	TA No Cooling
20	54 111-620	54 161-620
25	54 111-625	54 161-625
32	54 111-632	54 161-632
40	54 111-640	54 161-640
50	54 111-650	54 161-650
65	54 111-665	54 161-665
80	54 111-680	54 161-680
100	54 111-690	54 161-690

P = Primary side

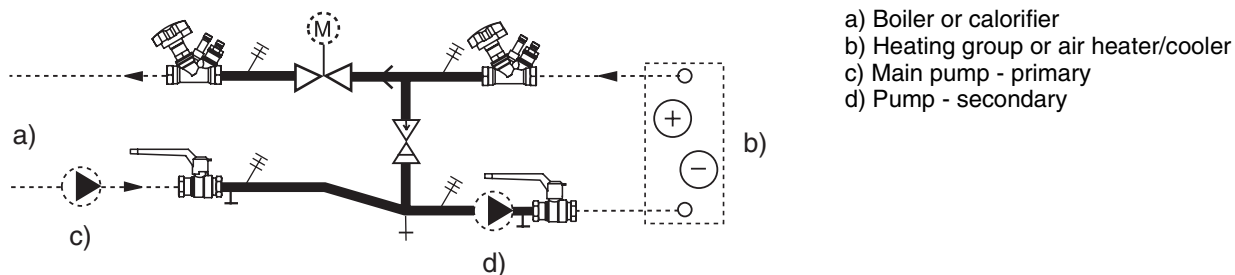
S = Secondary side

Principle coupling 2: Variable flow in primary circuit and constant flow in secondary circuit

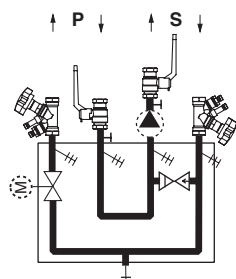
TA-SHUNT connection procedure 21, 22, 23, 24, 25 and 26.

For installations connected to **district heating networks** or other installations where low return temperature is required. The flow in the secondary circuit can be greater than or equal to the flow in the primary circuit. A 2-way control valve is located in the primary side return pipe.

For other connection procedures than those below - please contact closest sales office.

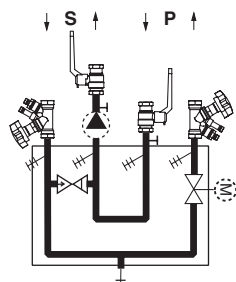


Shunt valve group 21



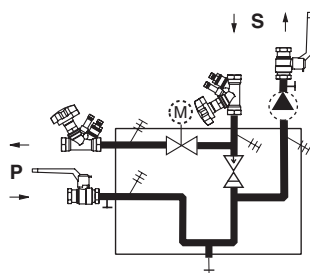
DN	TA No Heating	TA No Cooling
20	54 112-120	54 162-120
25	54 112-125	54 162-125
32	54 112-132	54 162-132
40	54 112-140	54 162-140
50	54 112-150	54 162-150
65	54 112-165	54 162-165
80	54 112-180	54 162-180
100	54 112-190	54 162-190

Shunt valve group 22



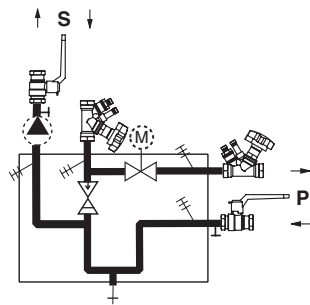
DN	TA No Heating	TA No Cooling
20	54 112-220	54 162-220
25	54 112-225	54 162-225
32	54 112-232	54 162-232
40	54 112-240	54 162-240
50	54 112-250	54 162-250
65	54 112-265	54 162-265
80	54 112-280	54 162-280
100	54 112-290	54 162-290

Shunt valve group 23



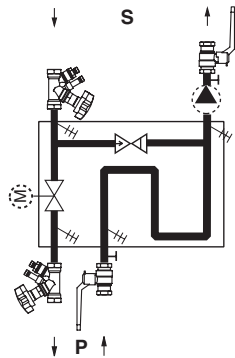
DN	TA No Heating	TA No Cooling
20	54 112-320	54 162-320
25	54 112-325	54 162-325
32	54 112-332	54 162-332
40	54 112-340	54 162-340
50	54 112-350	54 162-350
65	54 112-365	54 162-365
80	54 112-380	54 162-380
100	54 112-390	54 162-390

Shunt valve group 24



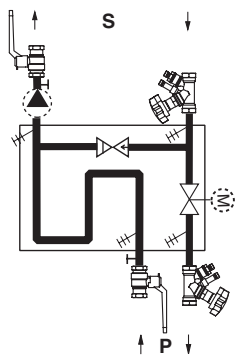
DN	TA No Heating	TA No Cooling
20	54 112-420	54 162-420
25	54 112-425	54 162-425
32	54 112-432	54 162-432
40	54 112-440	54 162-440
50	54 112-450	54 162-450
65	54 112-465	54 162-465
80	54 112-480	54 162-480
100	54 112-490	54 162-490

Shunt valve group 25



DN	TA No Heating	TA No Cooling
20	54 112-520	54 162-520
25	54 112-525	54 162-525
32	54 112-532	54 162-532
40	54 112-540	54 162-540
50	54 112-550	54 162-550
65	54 112-565	54 162-565
80	54 112-580	54 162-580
100	54 112-590	54 162-590

Shunt valve group 26



DN	TA No Heating	TA No Cooling
20	54 112-620	54 162-620
25	54 112-625	54 162-625
32	54 112-632	54 162-632
40	54 112-640	54 162-640
50	54 112-650	54 162-650
65	54 112-665	54 162-665
80	54 112-680	54 162-680
100	54 112-690	54 162-690

P = Primary side

S = Secondary side

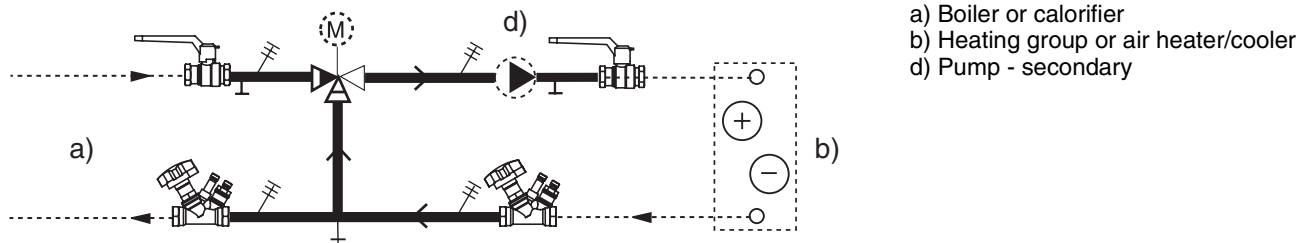
Principle coupling 3: Variable flow in primary circuit and constant flow in secondary circuit

TA-SHUNT connection procedure 31, 32, 33, 34, 35 and 36.

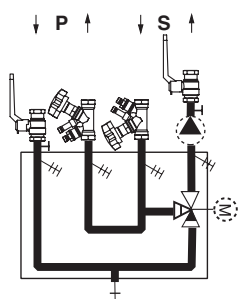
This shunt valve group is generally used in **installations without a main pump or in installations with low available pressure**. The control valve functions as a mixing valve in the inlet pipe.

NOTE! The following applies to dimensioning of the pressure drop diagrams: The primary side pressure drop applies to the secondary side. The secondary side pressure drop applies to the primary side. The flow should be equal in primary and secondary circuits.

For other connection procedures than those below - please contact closest sales office.

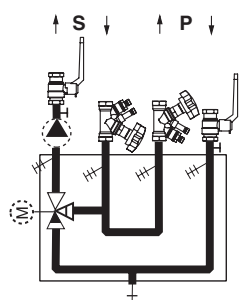


Shunt valve group 31



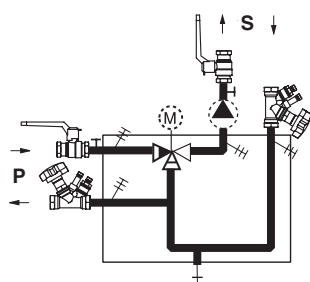
DN	TA No Heating	TA No Cooling
20	54 113-120	54 163-120
25	54 113-125	54 163-125
32	54 113-132	54 163-132
40	54 113-140	54 163-140
50	54 113-150	54 163-150
65	54 113-165	54 163-165
80	54 113-180	54 163-180
100	54 113-190	54 163-190

Shunt valve group 32



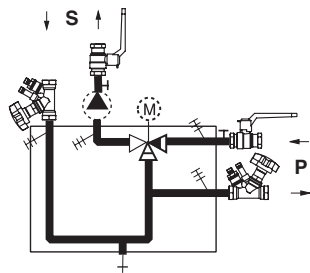
DN	TA No Heating	TA No Cooling
20	54 113-220	54 163-220
25	54 113-225	54 163-225
32	54 113-232	54 163-232
40	54 113-240	54 163-240
50	54 113-250	54 163-250
65	54 113-265	54 163-265
80	54 113-280	54 163-280
100	54 113-290	54 163-290

Shunt valve group 33



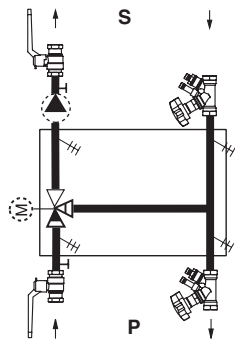
DN	TA No Heating	TA No Cooling
20	54 113-320	54 163-320
25	54 113-325	54 163-325
32	54 113-332	54 163-332
40	54 113-340	54 163-340
50	54 113-350	54 163-350
65	54 113-365	54 163-365
80	54 113-380	54 163-380
100	54 113-390	54 163-390

Shunt valve group 34



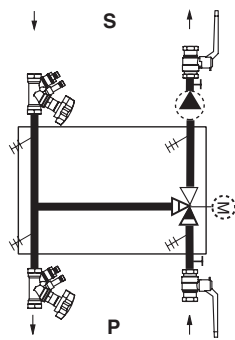
DN	TA No Heating	TA No Cooling
20	54 113-420	54 163-420
25	54 113-425	54 163-425
32	54 113-432	54 163-432
40	54 113-440	54 163-440
50	54 113-450	54 163-450
65	54 113-465	54 163-465
80	54 113-480	54 163-480
100	54 113-490	54 163-490

Shunt valve group 35



DN	TA No Heating	TA No Cooling
20	54 113-520	54 163-520
25	54 113-525	54 163-525
32	54 113-532	54 163-532
40	54 113-540	54 163-540
50	54 113-550	54 163-550
65	54 113-565	54 163-565
80	54 113-580	54 163-580
100	54 113-590	54 163-590

Shunt valve group 36



DN	TA No Heating	TA No Cooling
20	54 113-620	54 163-620
25	54 113-625	54 163-625
32	54 113-632	54 163-632
40	54 113-640	54 163-640
50	54 113-650	54 163-650
65	54 113-665	54 163-665
80	54 113-680	54 163-680
100	54 113-690	54 163-690

P = Primary side

S = Secondary side

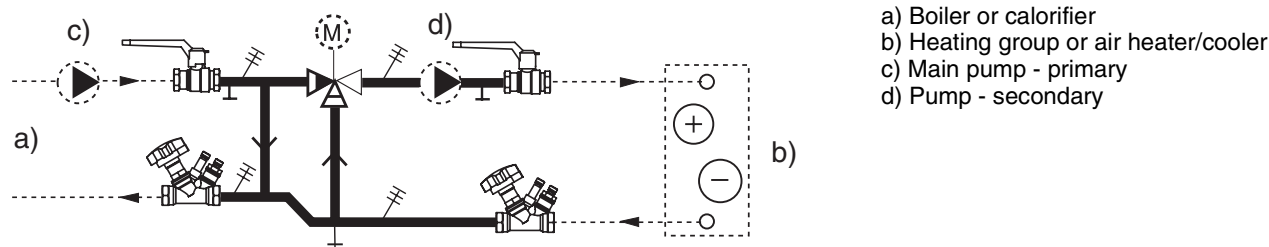
Principle coupling 4: Constant flow in primary and secondary circuit (Norwegian coupling)

TA-SHUNT connection procedure 41, 42, 43, 44, 45 and 46.

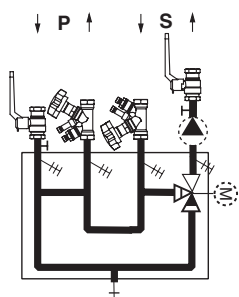
Used for **shunting of heating or cooling water** in radiators, ventilation or cooling circuits etc. The connection is intended for systems with a main pump. The flow in the primary circuit can be greater than or equal to the flow in the secondary circuit. The control valve functions as a mixing valve in the secondary side inlet pipe.

NOTE! The following applies to dimensioning of the pressure drop diagrams: The primary side pressure drop applies to the secondary side. The secondary side pressure drop applies to the primary side.

For other connection procedures than those below - please contact closest sales office.

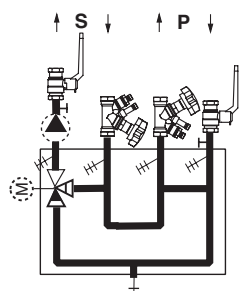


Shunt valve group 41



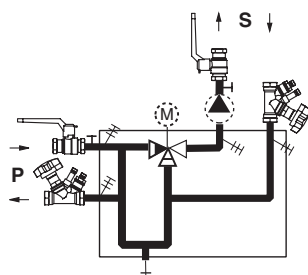
DN	TA No Heating	TA No Cooling
20	54 114-120	54 164-120
25	54 114-125	54 164-125
32	54 114-132	54 164-132
40	54 114-140	54 164-140
50	54 114-150	54 164-150
65	54 114-165	54 164-165
80	54 114-180	54 164-180
100	54 114-190	54 164-190

Shunt valve group 42



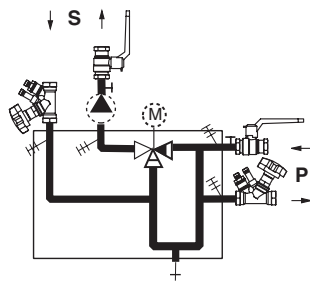
DN	TA No Heating	TA No Cooling
20	54 114-220	54 164-220
25	54 114-225	54 164-225
32	54 114-232	54 164-232
40	54 114-240	54 164-240
50	54 114-250	54 164-250
65	54 114-265	54 164-265
80	54 114-280	54 164-280
100	54 114-290	54 164-290

Shunt valve group 43



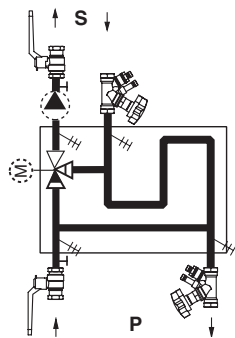
DN	TA No Heating	TA No Cooling
20	54 114-320	54 164-320
25	54 114-325	54 164-325
32	54 114-332	54 164-332
40	54 114-340	54 164-340
50	54 114-350	54 164-350
65	54 114-365	54 164-365
80	54 114-380	54 164-380
100	54 114-390	54 164-390

Shunt valve group 44



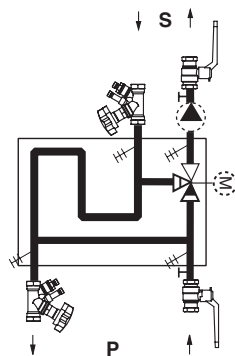
DN	TA No Heating	TA No Cooling
20	54 114-420	54 164-420
25	54 114-425	54 164-425
32	54 114-432	54 164-432
40	54 114-440	54 164-440
50	54 114-450	54 164-450
65	54 114-465	54 164-465
80	54 114-480	54 164-480
100	54 114-490	54 164-490

Shunt valve group 45



DN	TA No Heating	TA No Cooling
20	54 114-520	54 164-520
25	54 114-525	54 164-525
32	54 114-532	54 164-532
40	54 114-540	54 164-540
50	54 114-550	54 164-550
65	54 114-565	54 164-565
80	54 114-580	54 164-580
100	54 114-590	54 164-590

Shunt valve group 46



DN	TA No Heating	TA No Cooling
20	54 114-620	54 164-620
25	54 114-625	54 164-625
32	54 114-632	54 164-632
40	54 114-640	54 164-640
50	54 114-650	54 164-650
65	54 114-665	54 164-665
80	54 114-680	54 164-680
100	54 114-690	54 164-690

P = Primary side

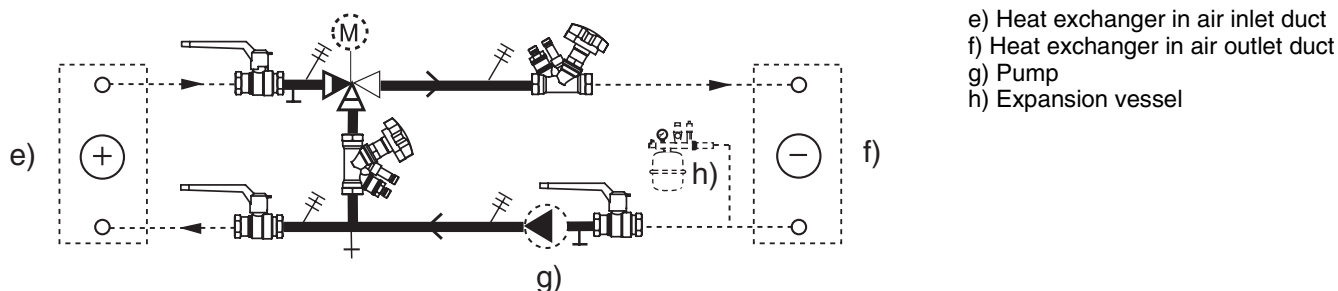
S = Secondary side

Principle coupling 5: Variable flow in air inlet circuit and constant flow in air outlet circuit

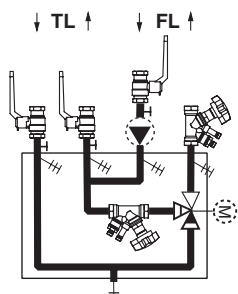
TA-SHUNT connection procedure 51, 52, 53, 54, 55 and 56.

This shunt valve group is intended for **heat recycling systems**. The control valve functions as a mixing valve in the primary side inlet pipe. When you dimension the pump, the dimensioning flow should be used in both heat exchangers. The pump must be able to manage the pressure drop across both heat exchangers, the pipe system and the control valve.

For other connection procedures than those below - please contact closest sales office.

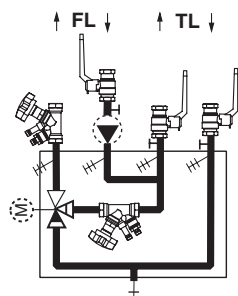


Shunt valve group 51



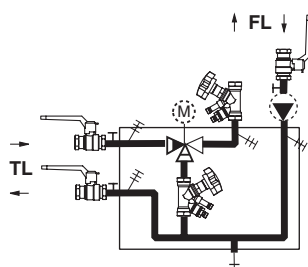
DN	TA No Heating	TA No Cooling
20	54 115-120	54 165-120
25	54 115-125	54 165-125
32	54 115-132	54 165-132
40	54 115-140	54 165-140
50	54 115-150	54 165-150
65	54 115-165	54 165-165
80	54 115-180	54 165-180
100	54 115-190	54 165-190

Shunt valve group 52



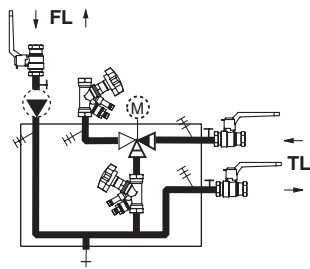
DN	TA No Heating	TA No Cooling
20	54 115-220	54 165-220
25	54 115-225	54 165-225
32	54 115-232	54 165-232
40	54 115-240	54 165-240
50	54 115-250	54 165-250
65	54 115-265	54 165-265
80	54 115-280	54 165-280
100	54 115-290	54 165-290

Shunt valve group 53



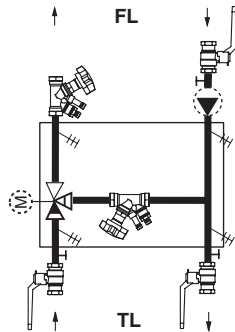
DN	TA No Heating	TA No Cooling
20	54 115-320	54 165-320
25	54 115-325	54 165-325
32	54 115-332	54 165-332
40	54 115-340	54 165-340
50	54 115-350	54 165-350
65	54 115-365	54 165-365
80	54 115-380	54 165-380
100	54 115-390	54 165-390

Shunt valve group 54



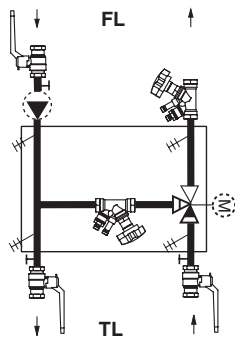
DN	TA No Heating	TA No Cooling
20	54 115-420	54 165-420
25	54 115-425	54 165-425
32	54 115-432	54 165-432
40	54 115-440	54 165-440
50	54 115-450	54 165-450
65	54 115-465	54 165-465
80	54 115-480	54 165-480
100	54 115-490	54 165-490

Shunt valve group 55



DN	TA No Heating	TA No Cooling
20	54 115-520	54 165-520
25	54 115-525	54 165-525
32	54 115-532	54 165-532
40	54 115-540	54 165-540
50	54 115-550	54 165-550
65	54 115-565	54 165-565
80	54 115-580	54 165-580
100	54 115-590	54 165-590

Shunt valve group 56



DN	TA No Heating	TA No Cooling
20	54 115-620	54 165-620
25	54 115-625	54 165-625
32	54 115-632	54 165-632
40	54 115-640	54 165-640
50	54 115-650	54 165-650
65	54 115-665	54 165-665
80	54 115-680	54 165-680
100	54 115-690	54 165-690

FL = Air outlet
TL = Air inlet

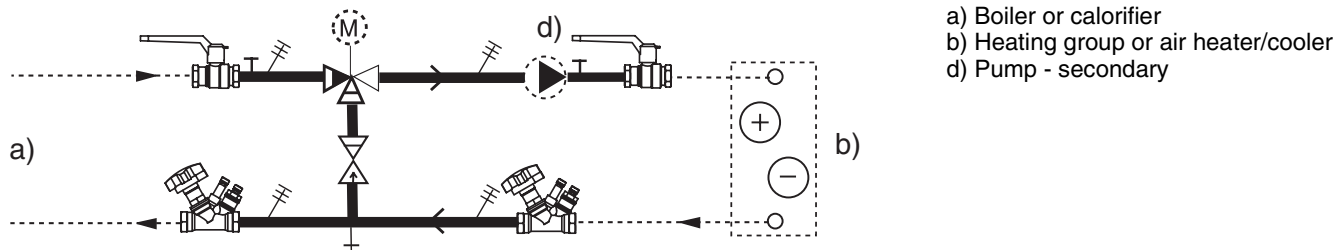
Principle coupling 6: Variable flow in primary circuit and constant flow in secondary circuit (Sabo coupling)

TA-SHUNT connection procedure 61, 62, 63, 64 , 65 and 66.

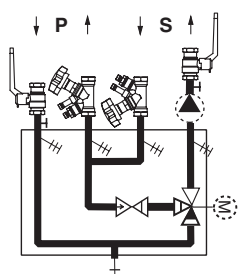
This shunt valve group is used in **low flow systems** with large temperature differences and low pressure drop in the shunt valve group.

NOTE! The following applies to dimensioning of the pressure drop diagrams: The primary side pressure drop applies to the secondary side. The secondary side pressure drop applies to the primary side. The control valve functions as a mixing valve in the inlet pipe.

For other connection procedures than those below - please contact closest sales office.

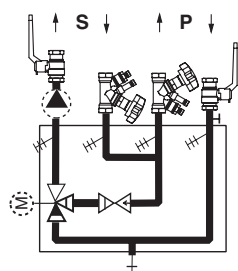


Shunt valve group 61



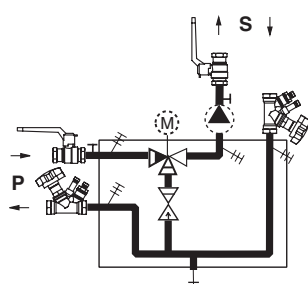
DN	TA No Heating	TA No Cooling
20	54 116-120	54 166-120
25	54 116-125	54 166-125
32	54 116-132	54 166-132
40	54 116-140	54 166-140
50	54 116-150	54 166-150
65	54 116-165	54 166-165
80	54 116-180	54 166-180
100	54 116-190	54 166-190

Shunt valve group 62



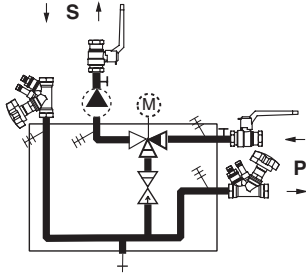
DN	TA No Heating	TA No Cooling
20	54 116-220	54 166-220
25	54 116-225	54 166-225
32	54 116-232	54 166-232
40	54 116-240	54 166-240
50	54 116-250	54 166-250
65	54 116-265	54 166-265
80	54 116-280	54 166-280
100	54 116-290	54 166-290

Shunt valve group 63



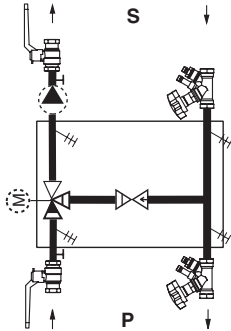
DN	TA No Heating	TA No Cooling
20	54 116-320	54 166-320
25	54 116-325	54 166-325
32	54 116-332	54 166-332
40	54 116-340	54 166-340
50	54 116-350	54 166-350
65	54 116-365	54 166-365
80	54 116-380	54 166-380
100	54 116-390	54 166-390

Shunt valve group 64



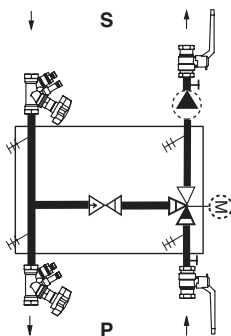
DN	TA No Heating	TA No Cooling
20	54 116-420	54 166-420
25	54 116-425	54 166-425
32	54 116-432	54 166-432
40	54 116-440	54 166-440
50	54 116-450	54 166-450
65	54 116-465	54 166-465
80	54 116-480	54 166-480
100	54 116-490	54 166-490

Shunt valve group 65



DN	TA No Heating	TA No Cooling
20	54 116-520	54 166-520
25	54 116-525	54 166-525
32	54 116-532	54 166-532
40	54 116-540	54 166-540
50	54 116-550	54 166-550
65	54 116-565	54 166-565
80	54 116-580	54 166-580
100	54 116-590	54 166-590

Shunt valve group 66



DN	TA No Heating	TA No Cooling
20	54 116-620	54 166-620
25	54 116-625	54 166-625
32	54 116-632	54 166-632
40	54 116-640	54 166-640
50	54 116-650	54 166-650
65	54 116-665	54 166-665
80	54 116-680	54 166-680
100	54 116-690	54 166-690

P = Primary side

S = Secondary side

Principle coupling 7: Variable flow in primary circuit and constant flow in secondary circuit. Keeping the differential pressure over a control valve constant.

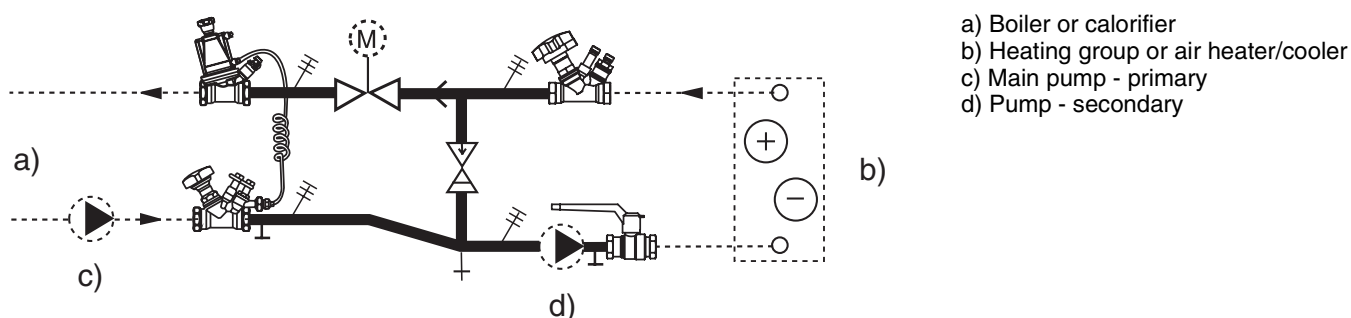
TA-SHUNT connection procedure 71, 72, 73, 74, 75 and 76.

For installations connected to **district heating networks** or other installations where low return temperature is required. The flow in the secondary circuit can be greater than or equal to the flow in the primary circuit. A 2-way control valve is located in the primary side return pipe.

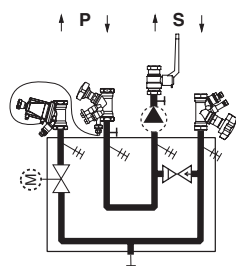
Depending of the design of the plant, the available differential pressure across some circuits can vary significantly with the load. To keep the correct control valve characteristic in such a case, the differential pressure across the control valves can be kept almost constant by a STAP connected directly across each control valve. The control valve will not be over-sized and the authority is and will remain close to 1.

- STAP keeps Δp across the control valve constant, giving a valve authority ~ 1 .
- The Kvs of the control valve and the chosen Δp gives the design flow.
- STAD is used for flow measuring, shut-off and connection of the signal pipe.

For other connection procedures than those below - please contact closest sales office.

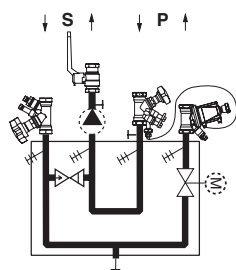


Shunt valve group 21



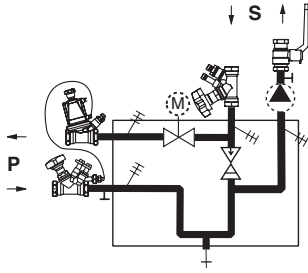
DN	TA No Heating	TA No Cooling
20	54 117-120	54 167-120
25	54 117-125	54 167-125
32	54 117-132	54 167-132
40	54 117-140	54 167-140
50	54 117-150	54 167-150
65	54 117-165	54 167-165
80	54 117-180	54 167-180
100	54 117-190	54 167-190

Shunt valve group 22



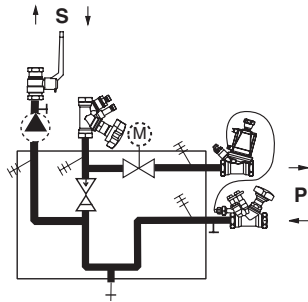
DN	TA No Heating	TA No Cooling
20	54 117-220	54 167-220
25	54 117-225	54 167-225
32	54 117-232	54 167-232
40	54 117-240	54 167-240
50	54 117-250	54 167-250
65	54 117-265	54 167-265
80	54 117-280	54 167-280
100	54 117-290	54 167-290

Shunt valve group 23



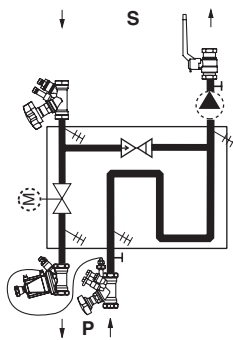
DN	TA No Heating	TA No Cooling
20	54 117-320	54 167-320
25	54 117-325	54 167-325
32	54 117-332	54 167-332
40	54 117-340	54 167-340
50	54 117-350	54 167-350
65	54 117-365	54 167-365
80	54 117-380	54 167-380
100	54 117-390	54 167-390

Shunt valve group 24



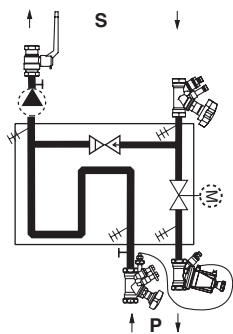
DN	TA No Heating	TA No Cooling
20	54 117-420	54 167-420
25	54 117-425	54 167-425
32	54 117-432	54 167-432
40	54 117-440	54 167-440
50	54 117-450	54 167-450
65	54 117-465	54 167-465
80	54 117-480	54 167-480
100	54 117-490	54 167-490

Shunt valve group 25



DN	TA No Heating	TA No Cooling
20	54 117-520	54 167-520
25	54 117-525	54 167-525
32	54 117-532	54 167-532
40	54 117-540	54 167-540
50	54 117-550	54 167-550
65	54 117-565	54 167-565
80	54 117-580	54 167-580
100	54 117-590	54 167-590

Shunt valve group 26



DN	TA No Heating	TA No Cooling
20	54 117-620	54 167-620
25	54 117-625	54 167-625
32	54 117-632	54 167-632
40	54 117-640	54 167-640
50	54 117-650	54 167-650
65	54 117-665	54 167-665
80	54 117-680	54 167-680
100	54 117-690	54 167-690

P = Primary side

S = Secondary side

NOTE! Diagram for Princip coupling 7 will be available in February 2006.

Diagram DN 20

----- = Pressure drop with fully open balancing valve across

Secondary circuit

Principle coupling 1, 2 and 5.

Primary circuit

Principle coupling 3, 4 and 6.

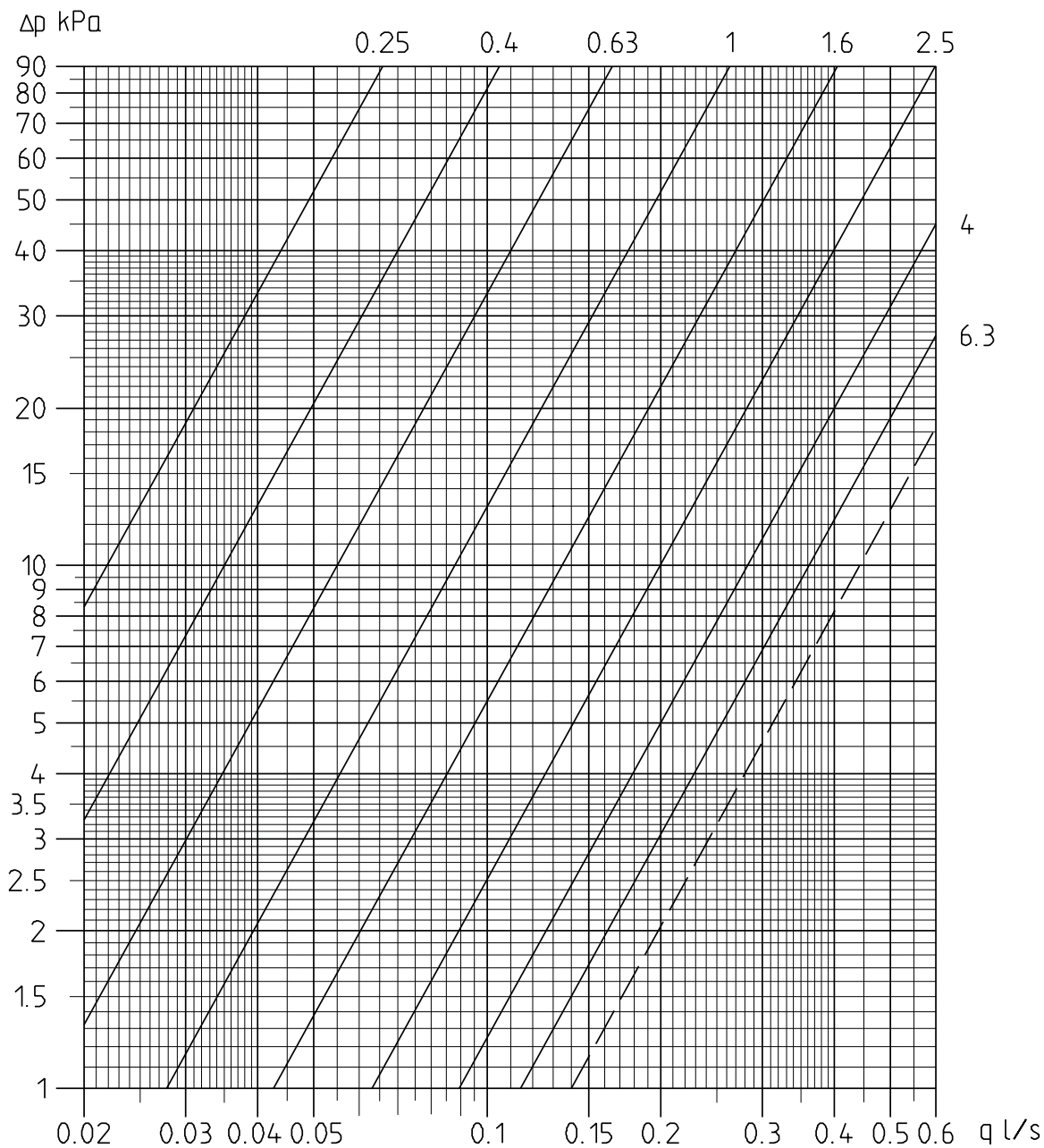


Diagram DN 25

----- = Pressure drop with fully open balancing valve across

Secondary circuit

Principle coupling 1, 2 and 5.

Primary circuit

Principle coupling 3, 4 and 6.

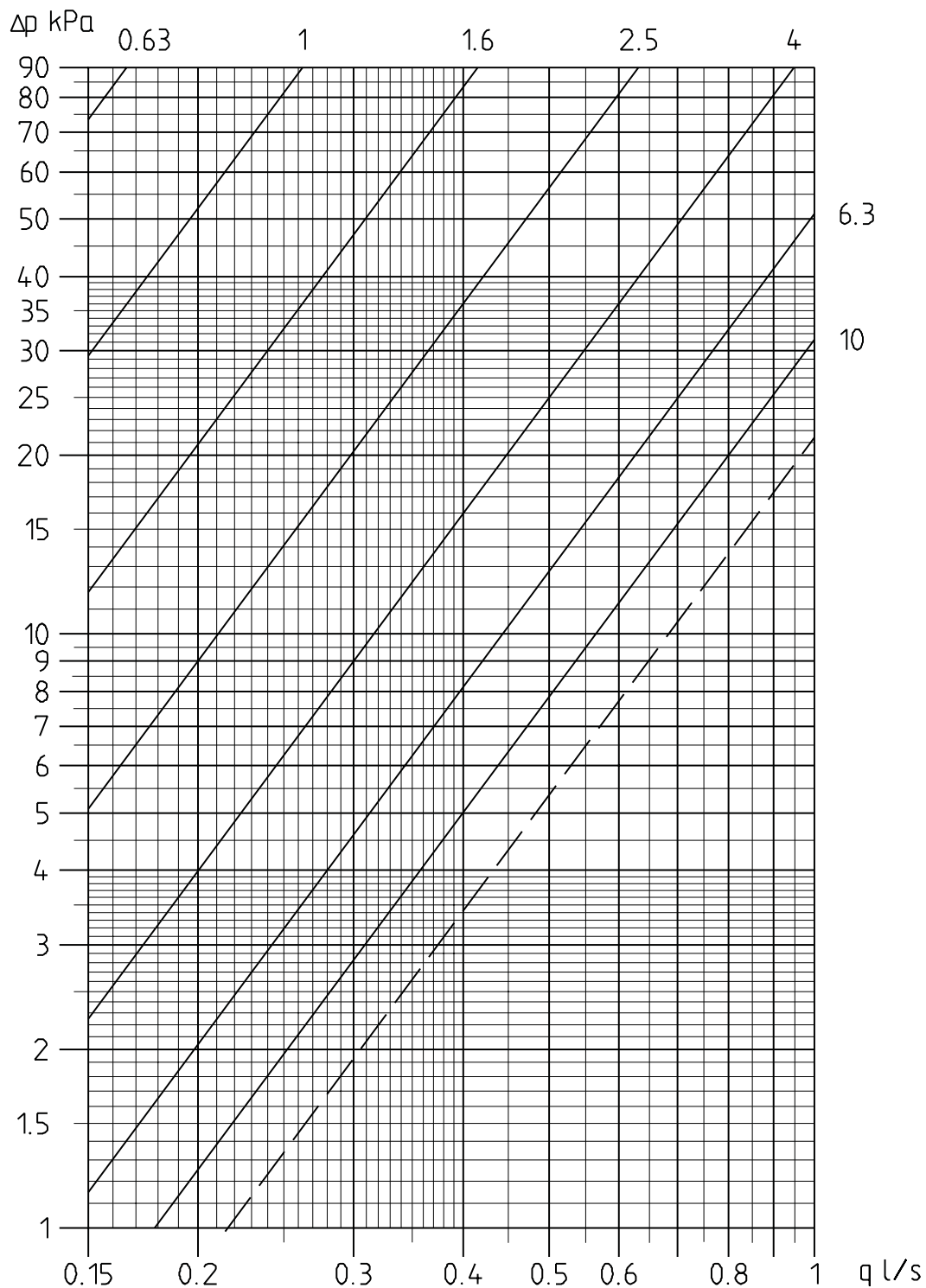


Diagram DN 32

----- = Pressure drop with fully open balancing valve across
Secondary circuit
 Principle coupling 1, 2 and 5.
Primary circuit
 Principle coupling 3, 4 and 6.

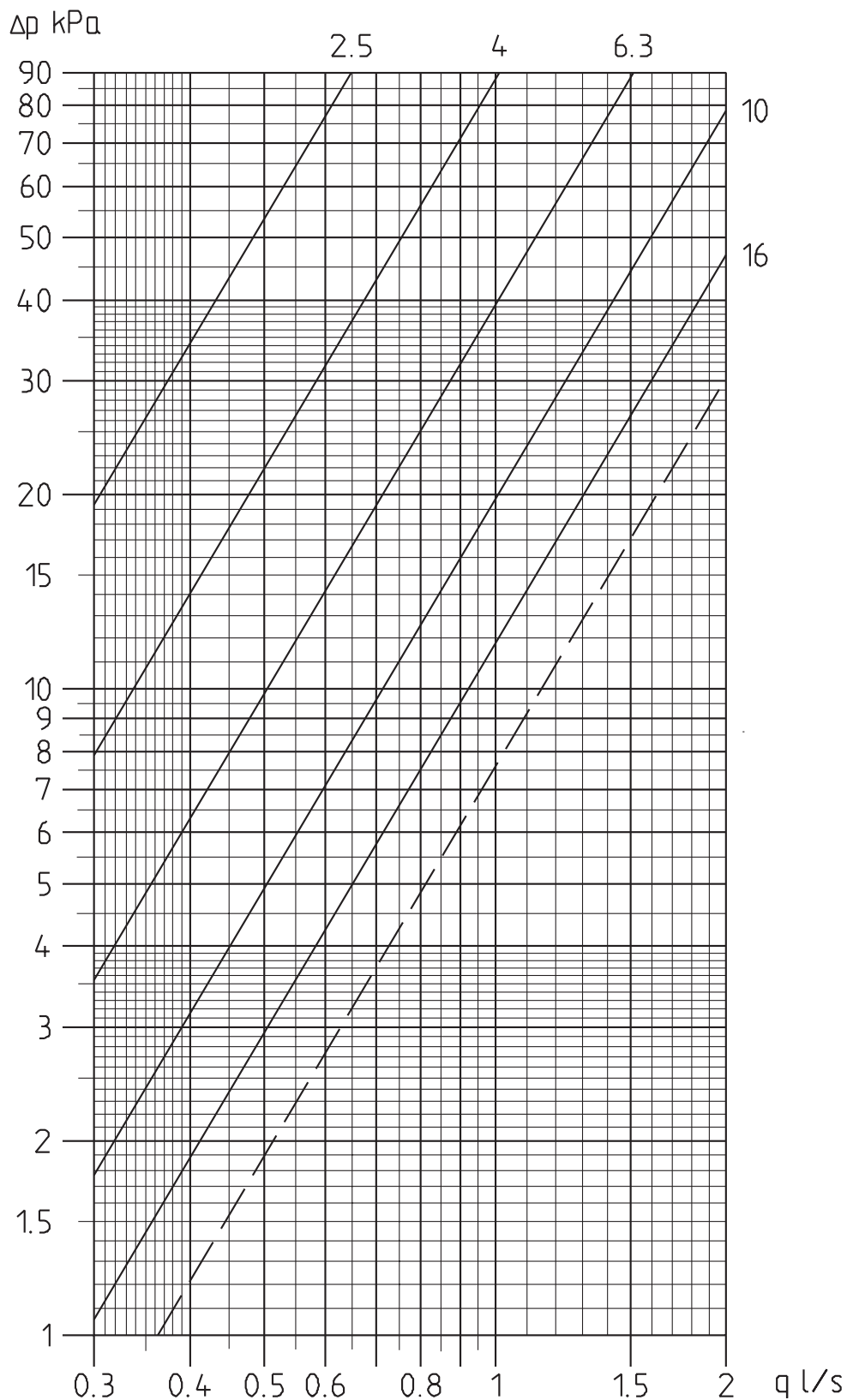


Diagram DN 40

----- = Pressure drop with fully open balancing valve across

Secondary circuit

Principle coupling 1, 2 and 5.

Primary circuit

Principle coupling 3, 4 and 6.

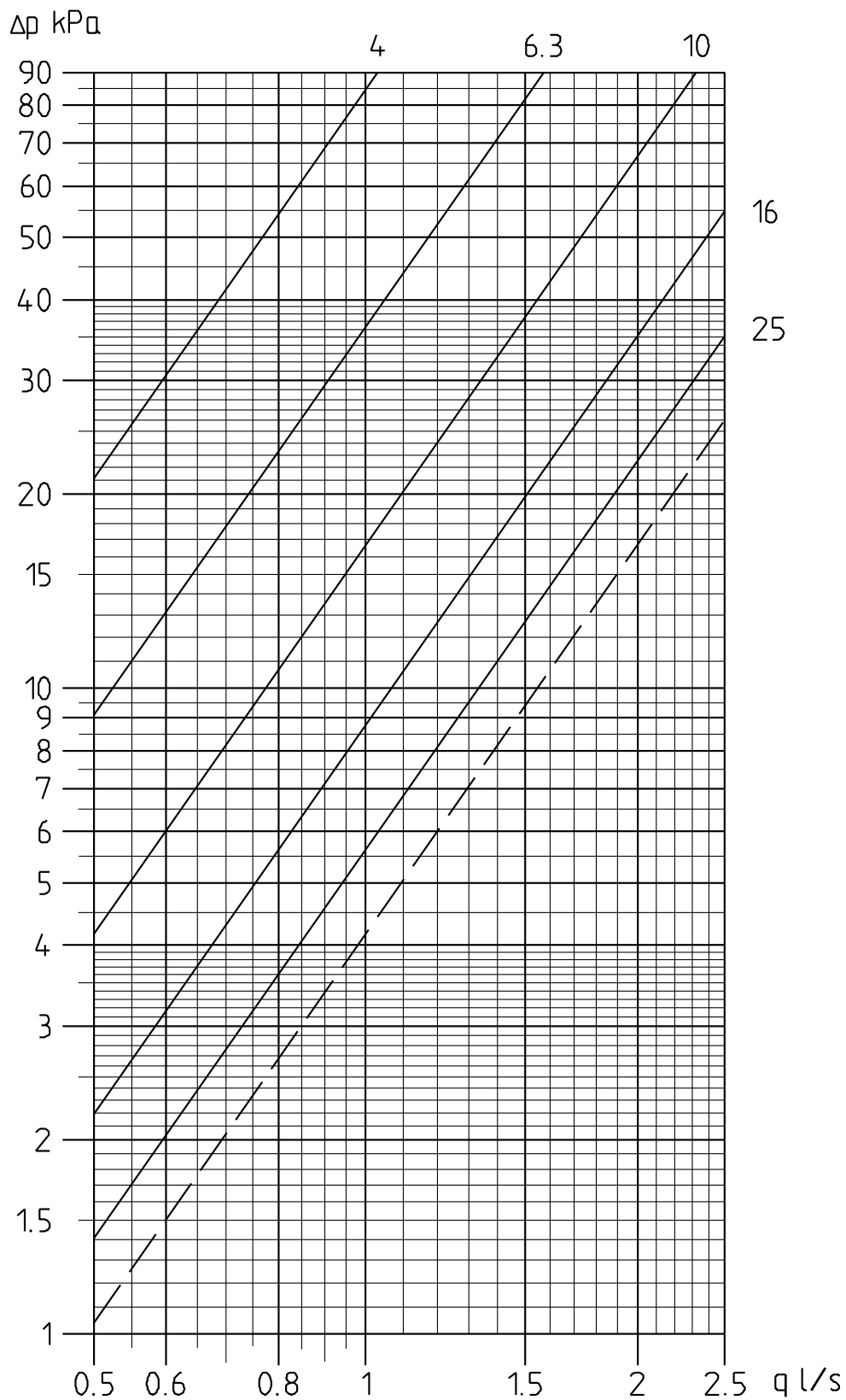


Diagram DN 50

----- = Pressure drop with fully open balancing valve across
Secondary circuit
 Principle coupling 1, 2 and 5.
Primary circuit
 Principle coupling 3, 4 and 6.

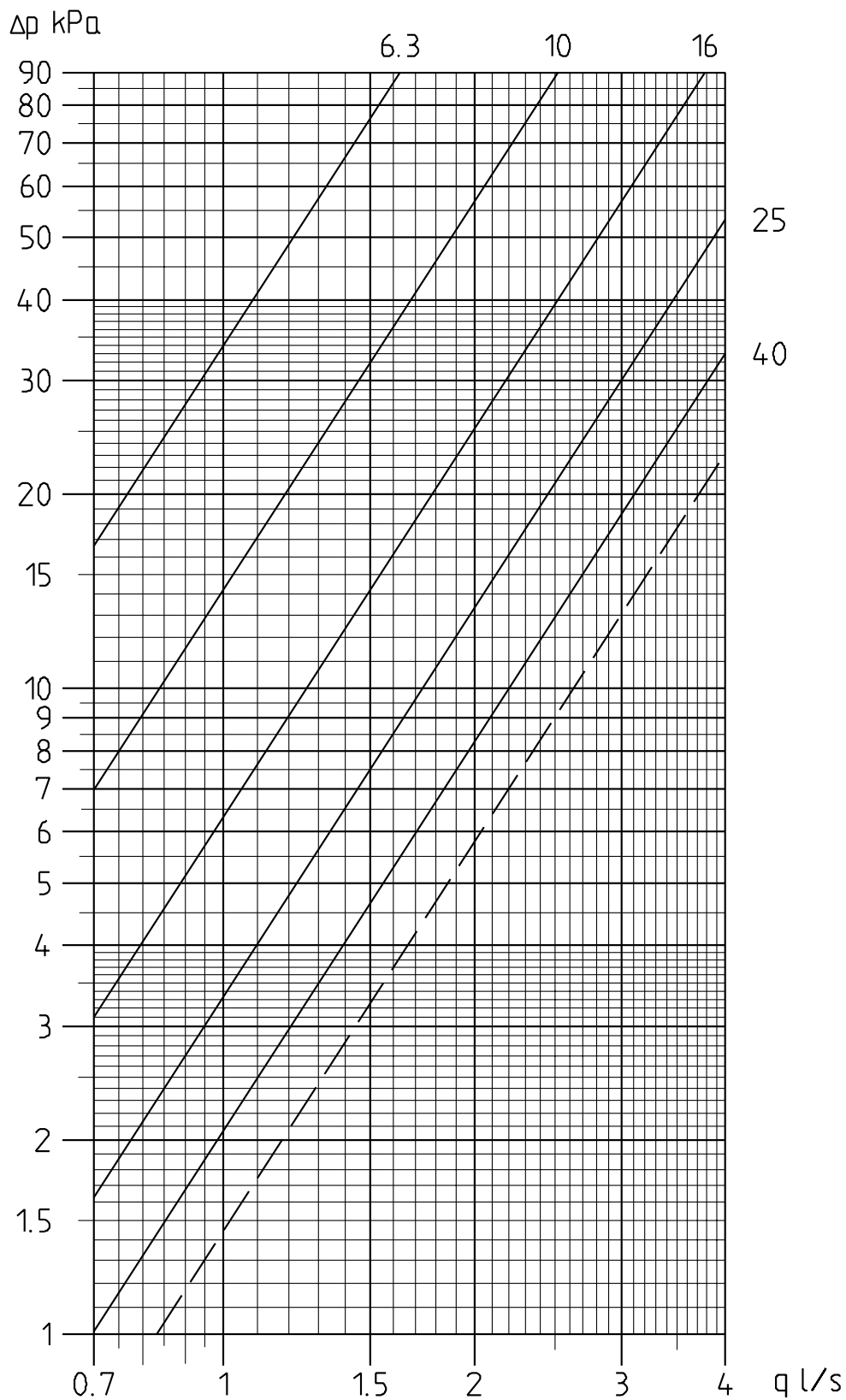


Diagram DN 65

----- = Pressure drop with fully open balancing valve across

Secondary circuit

Principle coupling 1, 2 and 5.

Primary circuit

Principle coupling 3, 4 and 6.

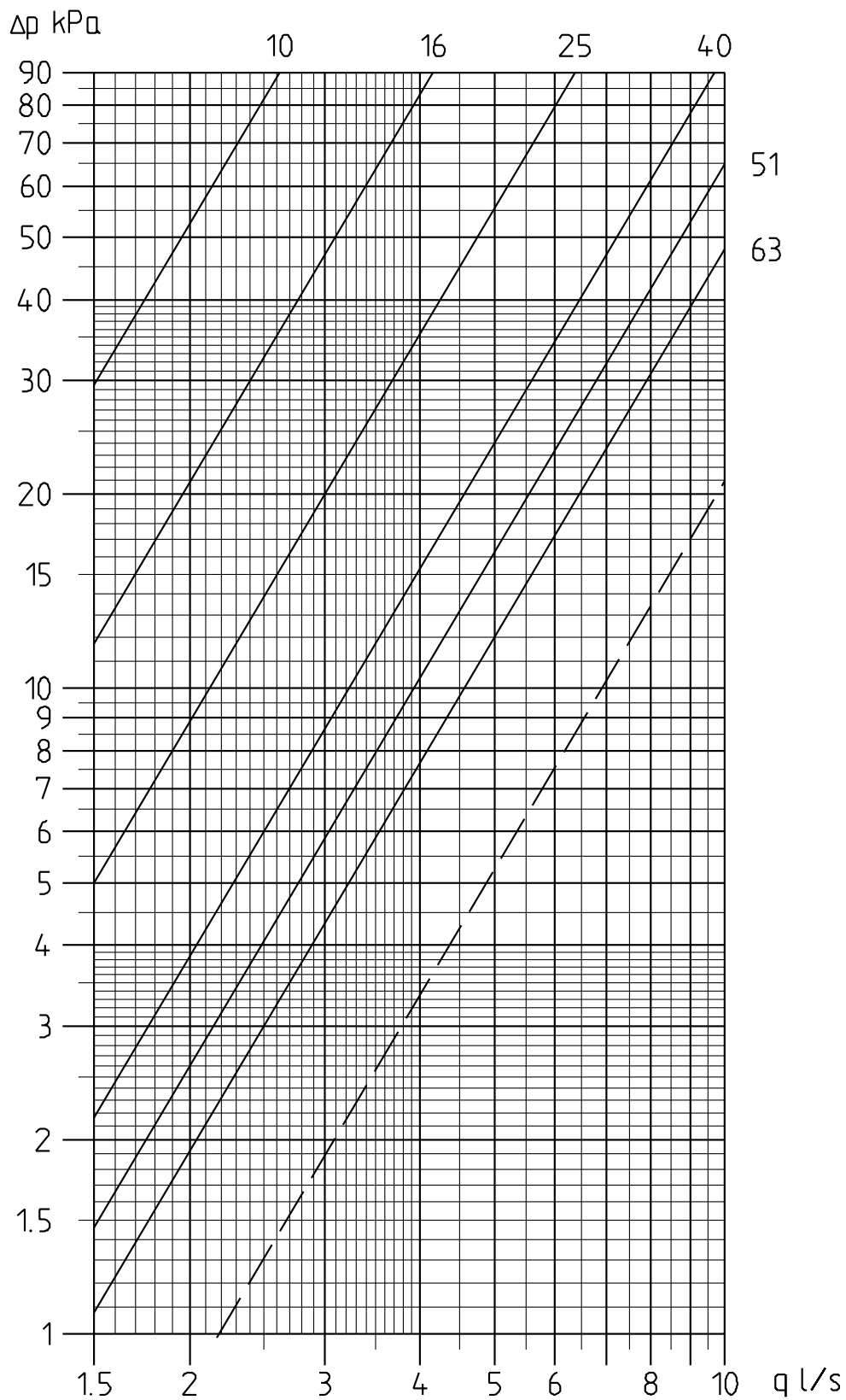


Diagram DN 80

----- = Pressure drop with fully open balancing valve across

Secondary circuit

Principle coupling 1, 2 and 5.

Primary circuit

Principle coupling 3, 4 and 6.

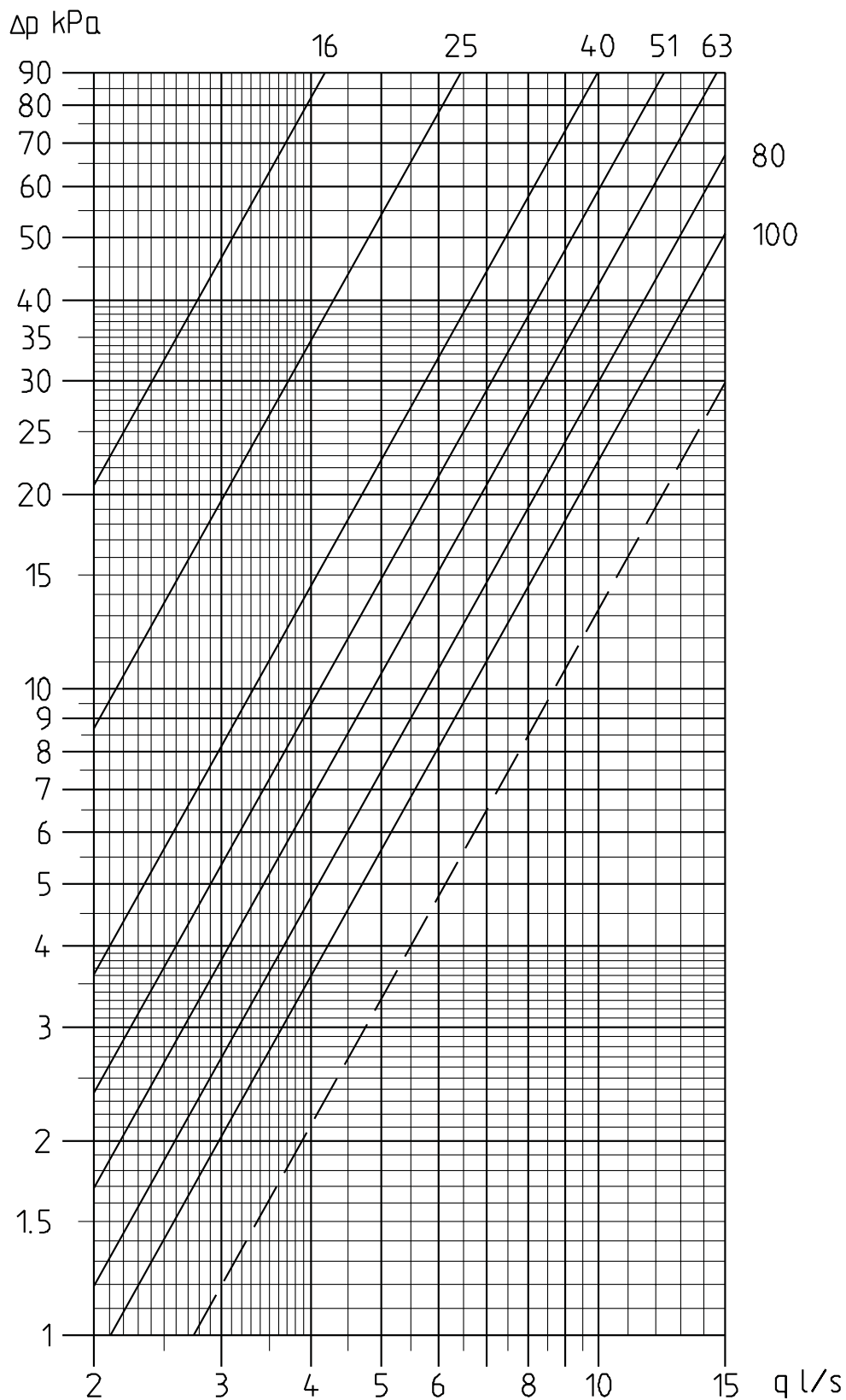


Diagram DN 100

----- = Pressure drop with fully open balancing valve across

Secondary circuit

Principle coupling 1, 2 and 5.

Primary circuit

Principle coupling 3, 4 and 6.

