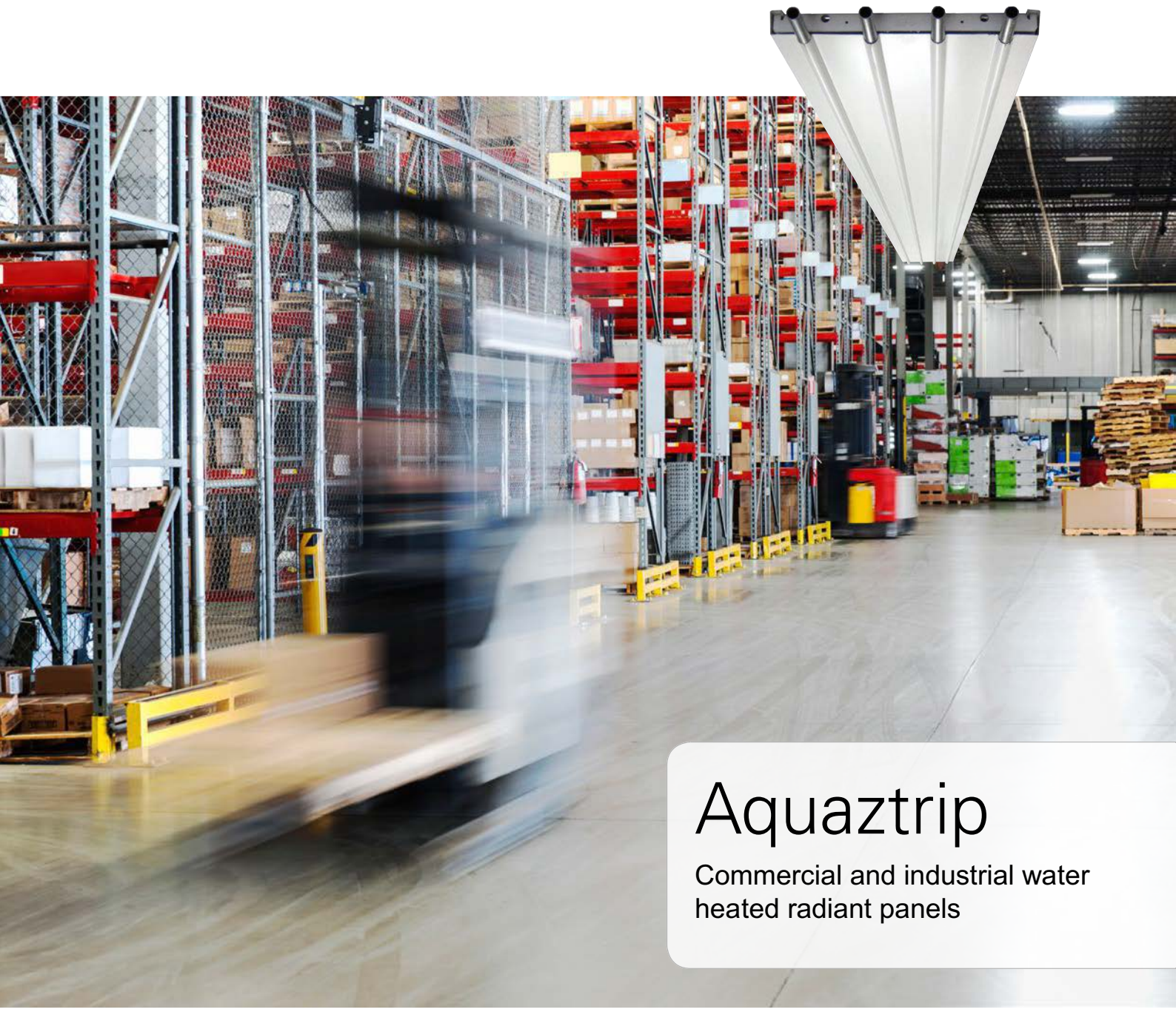


Aquaztrip

Commercial and industrial water heated radiant panels





More than 80 years experience in developing products for the varied Nordic climate has provided us with a unique knowledge bank. This is our foundation when creating today's energy efficient solutions for a comfortable indoor climate.

There are many advantages with radiant heaters:

Comfort
In any season, you will be sure of an ideal, uniform, constant temperature everywhere, adjustable according to occupation. The static process employed in the panels avoids using forced-air movement and eliminates the comfort barriers associated with air circulation. The radiant panels provide a feeling of comfort even before the air temperature increases or decreases.

Space
Ceiling-mounted heating and cooling frees up floor and wall space. The entire floor area of the premises can thus be used for other purposes.

Simplicity
Easy to install and regulate, and maintenance-free, this technology is completely compatible with traditional construction methods.

Hygiene
Aquaztrip radiant panels operate without air circulation. The movement of dust, mites and odours is thus limited, creating a healthier environment. In cooling mode, the panels remove the risk of the spread of pathogenic organisms often experienced with traditional installations.

Safety
The Aquaztrip radiant panel heating system is safe and presents no risk of fire. Their positioning also protects them from vandalism.

Aesthetic appearance
Aquaztrip radiant panels can be perfectly integrated with the structure of the building.

Energy performance
No air stratification and low inertia. A constant and uniform heat. The BMS enables running costs to be controlled.

Contents

4 Aquaztrip Basic

4 Technical specifications

5 Components and accessories

6 Dimensions

6 Connection possibilities

7 Heat output

8 Controls

Aquaztrip is a range of water heated radiant panels achieving high performance through specialised design. The use of aluminium for the reflector panels of the heaters, designed to maximise the surface of contact with the water pipes, ensures high energy-efficiency and guarantees complete watertightness. These radiant panels can be installed in commercial or industrial buildings of any height, providing heating with unrivalled comfort.



Water heated radiant panels

Aquaztrip water- heated panels provide heating for buildings. They are supplied with hot water (between 40 °C and 120 °C). The panels then transfer their heat by radiation to all solid objects which are at a lower temperature until temperatures reach parity. Lastly, the air heats up by conduction. Comfort is achieved with a uniform temperature of the floor, the walls and all solid objects and with a lower air temperature. The panels can provide total heating, spot heating by zone or additional heating.





Aquaztrip Basic

Lightweight heating panel for economic heating

Aquaztrip is a water heated radiant panel with a very wide area of application in both commercial and industrial buildings.

This appliance offers the option of heating without displacing air. In addition, heat reaches only the location where it is required. The short warming-up period and the lower room temperature can yield good energy savings.

The panels are fitted with a glass wool insulation blanket preventing the heat from being radiated upwards.

Aquaztrip AZB is easy to install thanks to its unique suspension using mounting strips and snap hooks. This system facilitates alignment of the panels and enables expansion to be accommodated.

- Unique system of suspension using mounting strips and snap hooks.
- Low weight per metre and high heat emission.
- Each panel comprises 4 DN15 pipes spaced 75 mm apart and placed on an aluminium sheet reflector.
- Galvanized headers and connections.
- Linking of panels by means of press couplings.
- Standard lengths: 4 and 6 metres. The panels may also be suspended in parallel with standard widths varying between 302 - 1.298 mm.
- Insulation of 30 mm mineral wool, delivered separately in rolls, width 300 mm.
- Complies to EN14037 1-3.
- The panel is supplied in white RAL 9010 as standard. Other RAL colours are available on request.

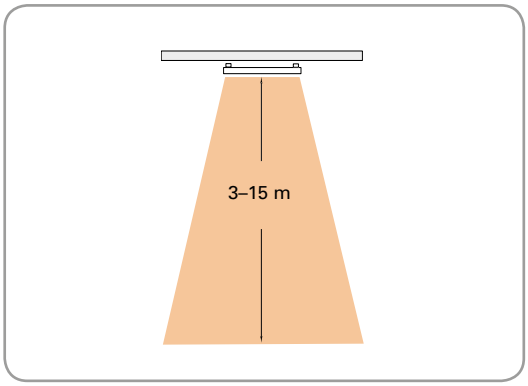
Aquaztrip Basic - AZB

Type	Output*[1] [W/panel]	Length [mm]	Width [mm]	Water volume [l/m]	Max operating pression [bar]	Max operating temperature [°C]	Operating weight*[2] [kg/m]
AZB440S	796	4000	302	0,70	8	120	12,4
AZB460S	1194	6000	302	0,70	8	120	18,5

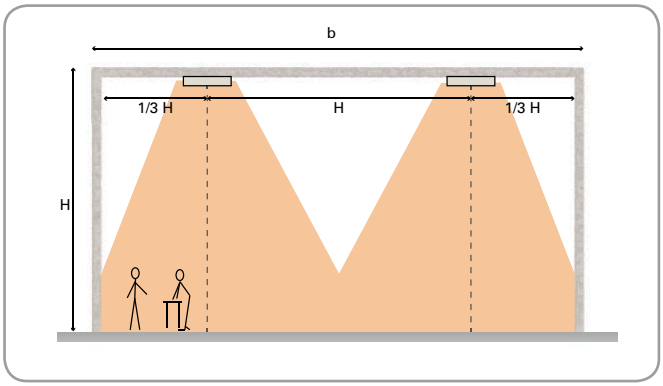
*[1]) Applicable at water temperature 80/60 °C, room temperature +15 °C.

*[2]) With water and insulation.

Installation height

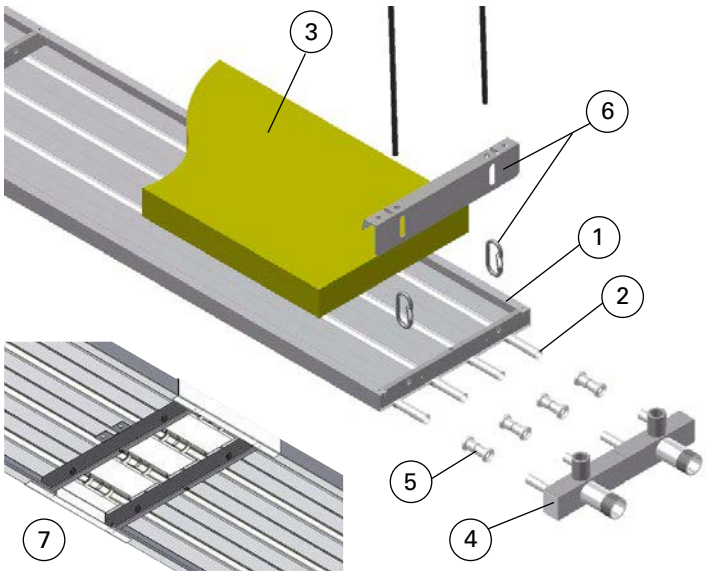


Distance between panels



Design and specifications are subject to change without notice.

Components and accessories

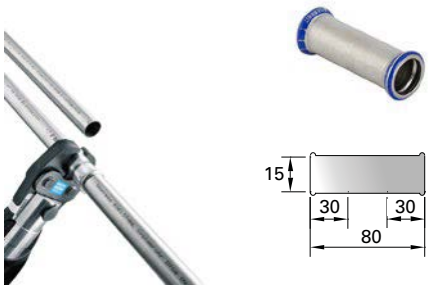


The aluminium sheet reflector is coated with a white epoxy polyester paint (RAL 9010 as standard, other RAL colours on request). The painting complies with 76/769/EEC. Fire Class A1. Emission of the radiant surface: ε = 0.96

The panels' insulation is made of mineral wool (Fire Class M1), is 30mm thick and is lined with aluminium. The assembly is held in place by suspension brackets.

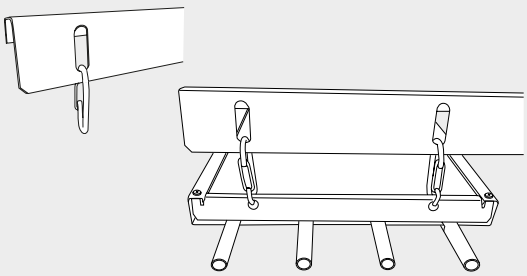
1. Aluminium reflector
2. Water pipe ∅15 mm
3. Insulation 30 mm
4. Header
5. Press couplings
6. Suspension kit
7. Cover between panels

5



Geberit carbon steel couplings are used to connect the headers to the panels, or to connect several panels together, using a crimping tool, guaranteeing the watertightness of the pipe/sleeve couple.

6



The unique system of suspension using mounting strips and snap hooks facilitates installation and alignment of the AZB panels while enabling expansion to be accommodated.

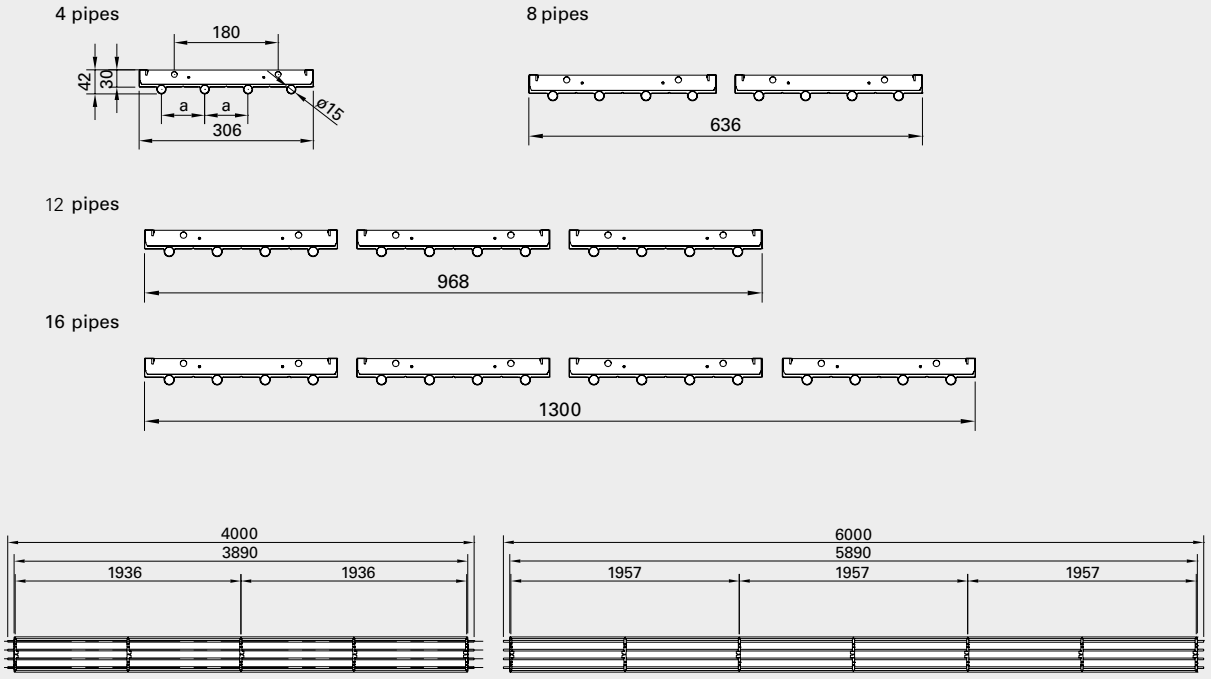
Accessories

Type	Description
AZBC040	Header 4 pipes
AZBC041	Header 4 pipes + 1 outlet
AZBC042	Header 4 pipes + 2 outlets
AZBC080	Header 8 pipes
AZBC081	Header 8 pipes + 1 outlet
AZBC120	Header 12 pipes
AZBC121	Header 12 pipes + 1 outlet
AZBC122	Header 12 pipes + 2 outlets

Accessories

Type	Description
AZMAP80	Press coupling ∅15 L80mm
AZBSK04	Suspension kit for panels 4 pipes
AZBSK08	Suspension kit for panels 8 pipes
AZBSK12	Suspension kit for panels 12 pipes
AZBSK16	Suspension kit for panels 16 pipes
AZBJ00	Cover between panels
AZBJ04	Cover header 4 pipes
AZBJ08	Cover header 8 pipes
AZBJ12	Cover header 12 pipes
AZBFC25	Control kit DN25

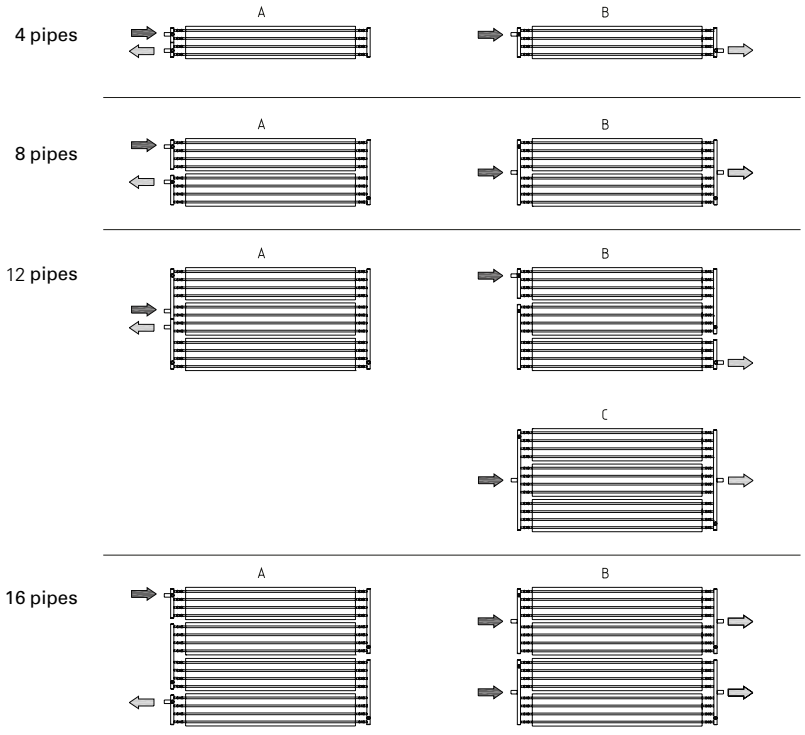
Dimensions



Maximum length of a panel assembly 50 meters, delivered in several pieces of 4m and 6m, with press couplings.

Connection possibilities

The header and pipe configuration is to be specified at the time of order.



Heat output of the panels in W/m

ΔT_m	4 pipes	8 pipes	12 pipes	16 pipes
80	310	619	929	1239
75	287	574	861	1148
70	264	529	793	1058
69	260	520	780	1040
68	256	511	767	1022
67	251	502	753	1004
66	247	493	740	987
65	242	485	727	969
64	238	476	714	951
63	233	467	700	934
62	229	458	687	916
61	225	449	674	899
60	220	441	661	881
59	216	432	648	864
58	212	423	635	847
57	207	415	622	830
56	203	406	609	812
55	199	398	596	795
54	195	389	584	778
53	190	381	571	761
52	186	372	558	744
51	182	364	545	727
50	178	355	533	710
49	173	347	520	694
48	169	338	508	677
47	165	330	495	660
46	161	322	483	644
45	157	314	470	627
44	153	305	458	611
43	149	297	446	594
42	144	289	433	578
41	140	281	421	562
40	136	273	409	546

ΔT_m = average water temperature - room temperature.

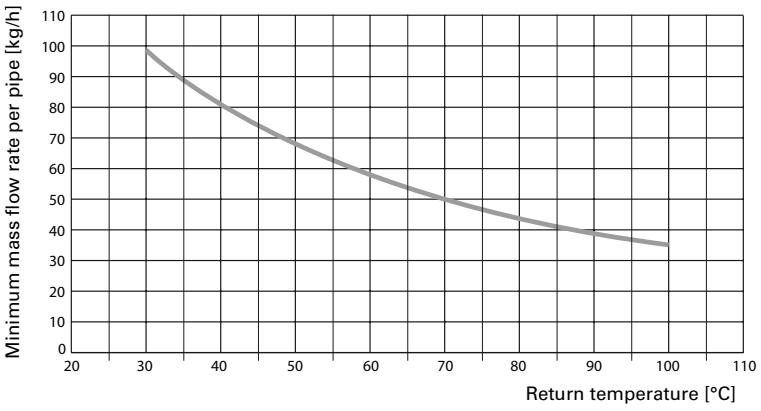
Measurements according to EN14037 1-3.

Heat output of a pair of headers in W

ΔT_m	4 pipes	8 pipes	12 pipes	16 pipes
80	106	212	318	423
75	98	196	293	391
70	90	180	270	360
69	88	177	265	353
68	87	174	260	347
67	85	170	256	341
66	84	167	251	335
65	82	164	246	329
64	81	161	242	322
63	79	158	237	316
62	78	155	233	310
61	76	152	228	304
60	74	149	223	298
59	73	146	219	292
58	71	143	214	286
57	70	140	210	280
56	68	137	205	274
55	67	134	201	268
54	66	131	197	262
53	64	128	192	256
52	63	125	188	250
51	61	122	183	244
50	60	119	179	239
49	58	116	175	233
48	57	113	170	227
47	55	111	166	221
46	54	108	162	215
45	52	105	157	210
44	51	102	153	204
43	50	99	149	198
42	48	96	145	193
41	47	94	140	187
40	45	91	136	182

Relationship between the minimum mass flow rate and the return temperature

The curve below gives the minimum flow rate required against the return temperature of the water in order to obtain a turbulent flow in the pipes. If the water flow rate is too low, which is often the case for small panels, a laminar flow is created, which significantly reduces the thermal efficiency of the panel.



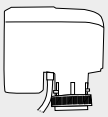
According to the installation, it is possible to ensure a sufficient water flow rate by:

- Modifying the return temperature of the water
- Changing the type of headers in order to increase the length of the path of the water in the pipes
- Connecting several panels in series (also to increase the length of the path of the water).


T10S


TK10S

VOT


SD230


TRVS

T10S/TK10S, thermostats

Processor controlled thermostats with concealed and visible dials. Setting range +5 – +30 °C. Closing contact for heating or cooling. Connection voltage: 230 V. Max. breaking current: 10 A. IP30.

Type	Voltage [V]	Max input [A]	Setting range [°C]	HxWxD [mm]
T10S	230V~	10	5 - +30	80x80x31
TK10S	230V~	10	5 - +30	80x80x31
TKS16	230V~	16	5 - +30	80x80x39
TKS16400	400V2~	16	5 - +30	80x80x39
TD10	230V~	10	5 - +37	80x80x31

VOT, three way control valve and actuator on/off

3-way control valve with on/off actuator, DN15/20/25. 230V.
The valve kit consists of the following:

- TRVS, 3-way control valve
- SD230, actuator on/off 230V

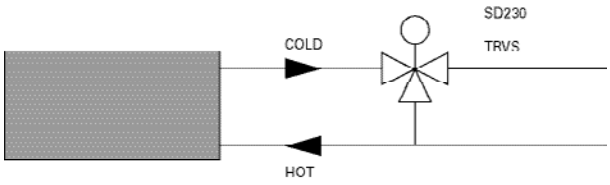
TRVS, 3-way control valve

The 3-way valve and the actuator controls the waterflow and provides a basic form of water regulation, without the possibility of adjusting or shutting the water flow off, e.g. when making maintenance.

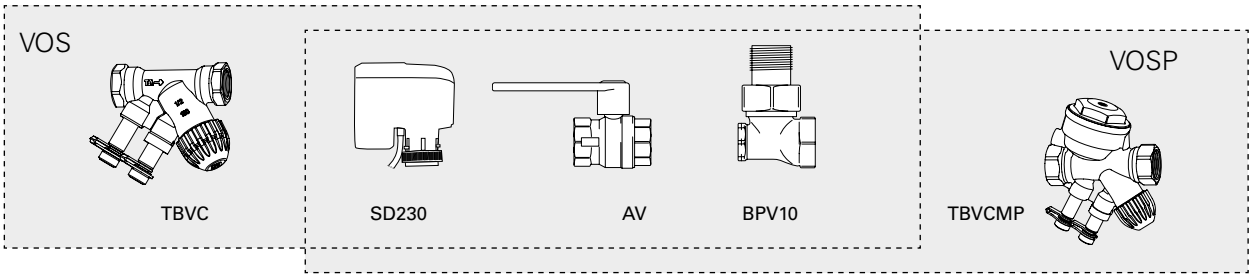
SD230, actuator

The actuator controls the heat supply on/off. In unpowered mode SD230 is open.

The valve kit is available in three different valve dimensions, DN15 (1/2”), DN20 (3/4”) and DN25 (1”).



Type	Connection	Kvs
VOT15	DN15	1,7
VOT20	DN20	2,5
VOT25	DN25	4,5



VOS, valve kit on/off

Two way combined control and adjustment valve with on/off actuator, shut-off valve and bypass. DN15/20/25. 230V.
The valve kit consists of the following:

- TBVC, regulation and adjustment valve
- SD230, actuator on/off 230V
- AV, shut off valve
- BPV10, bypass valve

TBVC, regulation and adjustment valve

The regulation and adjustment valve can be used to finely adjust or shut off the water flow manually. The water flow is set using the adjustment tool (option). The regulation and adjustment valve also has a shut off function, which makes maintenance easier, and a self sealing measurement outlet which allows for easy and fast measurements.

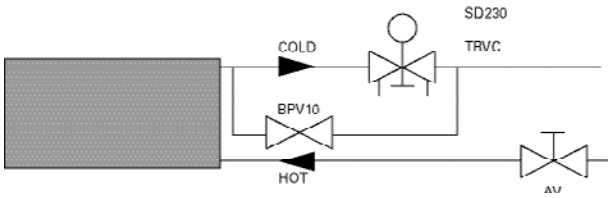
VOSP, pressure independent valve kit on/off

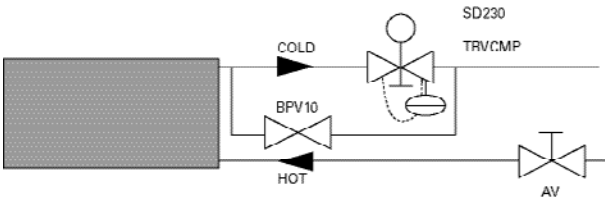
Two way pressure independent control and adjustment valve with on/off actuator, shut-off valve and bypass. DN15/20/25. 230V.
The valve kit consists of the following:

- TBVCMP, pressure independent regulation and adjustment valve
- SD230, actuator on/off 230V
- AV, shut off valve
- BPV10, bypass valve

TBVCMP, regulation and adjustment valve

The regulation and adjustment valve can be used to finely adjust or shut off the water flow manually. TBVCMP is independent of the available differential pressure, which contributes to stable and accurate regulation (ensures the correct flow to the heater even if the differential pressure in the rest of the pipe system changes). The water flow is set using the adjustment tool (option). With the regulation and adjustment valve easy flush-through is also possible, which makes for easy and fast maintenance.





Type	Voltage [V]	Connection	Kvs
VOS15LF*	230V	DN15	0,90
VOS15NF	230V	DN15	1,8
VOS20	230V	DN20	3,4
VOS25	230V	DN25	7,2

*) Low flow

Type	Voltage [V]	Connection
VOSP15LF*	230V	DN15
VOSP15NF	230V	DN15
VOSP20	230V	DN20
VOSP25	230V	DN25

*) Low flow

Frico AB
Box 102, SE-433 22 Partille
Sweden
T + 46 31 336 86 00
F + 46 31 26 28 60
mailbox@frico.se • www.frico.se

Systemair Fans and Spares Ltd
72 Cheston Road, Birmingham B7 5EJ
United Kingdom
T 0121 322 0854
F 0121 322 0859
sales@frico.co.uk • www.frico.co.uk