

## 2/2-way direct acting solenoid valve



- High quality seal material
- Special versions up to +180°C
- Impulse version optional
- Threaded port and sub-base connections
- Explosion proofed version optional

Type 6013 can be combined with...



Type 2508  
Cable plug



Type 1078  
Timer unit



Type 2511  
ASI Cable plug

This direct-acting 2/2-way miniature solenoid valve is available in two versions.

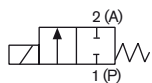
### Standard version:

Type 6013 is a small direct acting solenoid valve for general purpose used for shut-off and dosing. It is of modular design and may be mounted individually or as a block on a multiple manifold.

### Analysis and vacuum technology:

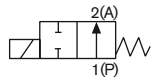
Type 6013 A is a high-quality small solenoid valve for analysis and vacuum technology. It is manufactured under clean-room conditions. This includes thorough cleaning of all parts in contact with media from organic and inorganic substances. The limit for residual hydrocarbons is below 0.2 mg/dm<sup>2</sup>. The valve will undergo an external 100 % non-standard leakage test with respect to seat tightness and impermeability. The permissible leakage rate is 10<sup>-4</sup> mbar l/s. The valve is used for shut-off, dosing, filling, ventilating and particularly for analysis technology.

### Circuit Function A



2/2-way valve,  
normally closed by  
spring force

### Circuit Function B



2/2-way valve,  
normally open by  
spring force

Technical data	
<b>Body material</b>	
Type 6013	Brass, stainless steel 1.4305
Type 6013 A	Brass, stainless steel 1.4305
<b>Seal material</b>	FKM, PTFE/Graphite (EPDM on request)
<b>Analysis version</b>	Silicon, oil and fat free version
<b>Type 6013 A</b>	Tightness <10 <sup>-4</sup> mbar l/s
<b>Limit value for residual carbon</b>	
<b>Type 6013 A</b>	<0.2 mg/dm <sup>2</sup>
<b>Medium</b>	
Type 6013	<ul style="list-style-type: none"> <li>▪ Technical vacuum</li> <li>▪ Neutral gases and liquids (e.g. compressed air, water, hydraulic oil)</li> <li>▪ Neutral medium, which does not attack the body and seal materials (see chemical resistance chart)</li> </ul>
Type 6013 A	
<b>Media temperature</b>	
FKM	-10 to +100 °C (PA coil) till 120°C (Epoxy coil)
PTFE/Graphite	Up to +180 °C (see chemical resistance chart)
FKM, Circuit function B	-10 to 100°C (AC) -10 to 120°C (DC)
<b>Ambient temperature</b>	Max. +55 °C
<b>Viscosity</b>	Max. 21 mm <sup>2</sup> /s
<b>Port connection</b>	
Type 6013	G1/8, G1/4, G3/8, sub-base
Type 6013 A	G1/8, G1/4
<b>Operating voltage</b>	
Type 6013	24 V DC, 24 V/50 Hz, 230 V / 50 Hz
Type 6013 A	24 V DC, 230 V / 50 Hz (other voltages on request)
<b>Voltage tolerance</b>	± 10%
<b>Duty cycle/single valve</b>	100% continuous rating Intermittent operation 60% (30 min) or with 5 W coil on request
With block assembly on manifold	
<b>Electrical connection</b>	Tag connector acc. to DIN EN 175301-803 Form A (previously DIN 43650) for cable plug Type 2508 (see accessories)
<b>Installation</b>	As required, preferably with actuator upright
<b>Assembly</b>	No oils, fats or silicone to be used during installation
<b>Protection class</b>	IP65 with Cable Plug
<b>Coil insulation class</b>	Polyamide class B Epoxy class H

## Technical data, continued

## Circuit function A

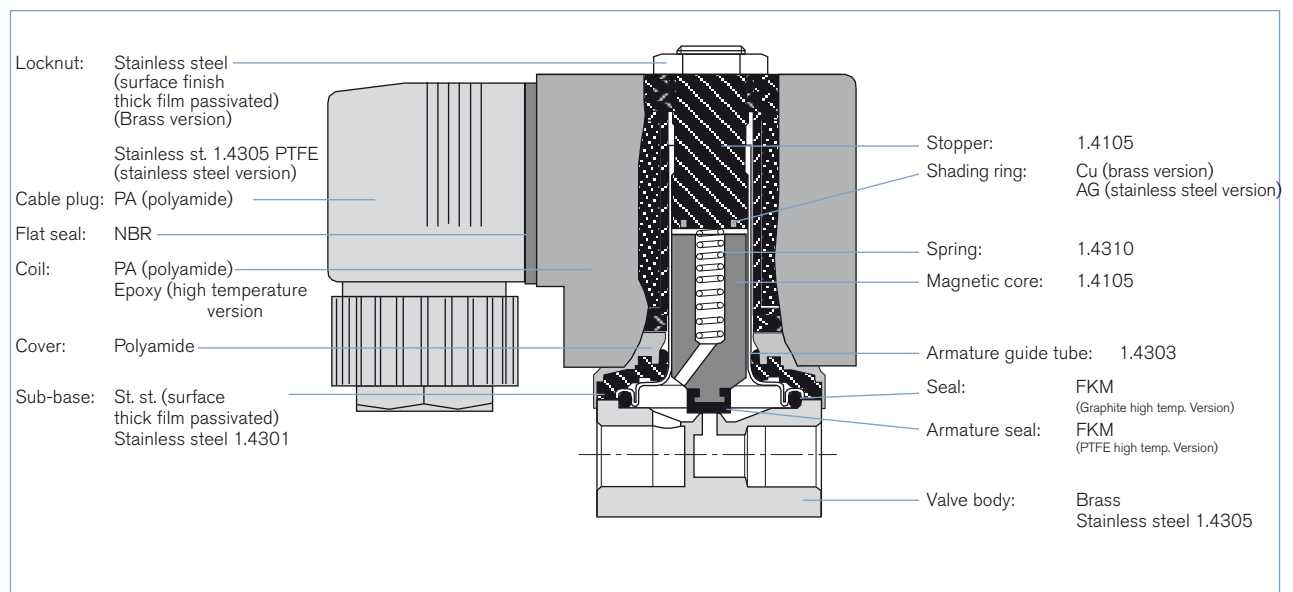
Orifice [mm]	Port connection	Kv-value water [m <sup>3</sup> /h]	Weight [g]	Power consumption <sup>1)</sup> [W]	Electr. power		Coil size	Response times	
					Inrush (AC)	Hold (AC)		opening [ms]	closed [ms]
2.0	G1/8	0.12	325	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
2.0	G1/4	0.12	465	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
2.0	sub-base	0.12	290	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
2.5	G1/8	0.16	325	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
2.5	G1/4	0.16	465	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
3.0	G1/8	0.23	325	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
3.0	G1/4	0.23	465	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
3.0	G3/8	0.23	550	10W AC or 10WDC (11)	30 VA	22 VA	6 (40mm)	20	30
4.0	G1/4	0.30	465	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
4.0	G3/8	0.30	550	10W AC or 10WDC (11)	30 VA	22 VA	6 (40mm)	20	30
6.0	G1/4	0.55	465	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
6.0	G3/8	0.55	550	10W AC or 10WDC (11)	30 VA	22 VA	6 (40mm)	20	30

## Circuit function B

Orifice [mm]	Port connection	Kv-value water [m <sup>3</sup> /h]	Weight [g]	Power consumption <sup>1)</sup> [W]	Electr. power		Coil size	Response times	
					Inrush (AC)	Hold (AC)		opening [ms]	closed [ms]
2.00	G 1/8	0.12	325	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30
2.00	G 1/4	0.12	465	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30
2.00	sub-base	0.12	290	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30
3.00	G 1/8	0.23	325	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30
3.00	G 1/4	0.23	465	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30
3.00	sub-base	0.23	290	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30
4.00	G 1/4	0.3	465	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30
6.00	G 1/4	0.55	465	7 W(AC) or 8 W DC (9)	24VA	17VA	5 (32mm)	20	30

<sup>1)</sup> Values in brackets at coil temperature 20°C

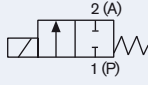
## Materials



## Ordering chart for valves (other versions on request)

### 6013 Universal valve with FKM seal, brass and stainless steel body (Polyamide coil)

Delivered without cable plug (see accessories)

Circuit function	Orifice [mm]	Port connection	Kv value water [m <sup>3</sup> /h] <sup>1)</sup>	Coil power [W]	Pressure range [bar] <sup>2)</sup>	Voltage/Frequency [V/Hz]	Item no. brass body FKM Seal	Item no. Stainless steel body, FKM seal
<b>A</b> 2/2-way valve NC 	2.0	G 1/8	0.12	8	0 - 12	024/DC	134 237	134 233
					0 - 25	024/50	132 865	134 234
					0 - 25	230/50	134 239	134 236
		G 1/4	0.12	8	0 - 12	024/DC	137 537	137 533
					0 - 25	024/50	137 538	137 534
					0 - 25	230/50	137 540	137 536
		sub-base	0.12	8	0 - 12	024/DC	134 244	-
					0 - 25	024/50	134 245	-
					0 - 25	230/50	134 247	-
	2.5	G 1/8	0.16	8	0 - 10	024/DC	134 240	-
					0 - 16	024/50	134 241	-
					0 - 16	230/50	134 243	-
	3.0	G 1/8	0.23	8	0 - 6	024/DC	126 091	126 078
					0 - 10	024/50	126 092	126 079
					0 - 10	230/50	126 094	126 081
		G 1/4	0.23	8	0 - 6	024/DC	125 301	125 317
					0 - 10	024/50	125 302	126 082
					0 - 10	230/50	125 304	126 084
	4.0	G 1/4	0.30	8	0 - 1.5	024/DC	125 306	125 318
					0 - 4	024/50	125 307	125 319
					0 - 4	230/50	125 309	125 320
6.0	G 1/4	0.55	8	0 - 0.5	024/DC	125 311	126 086	
				0 - 1.5	024/50	125 312	126 087	
				0 - 1.5	230/50	125 314	126 089	

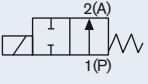
<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet..

<sup>2)</sup> Measured as overpressure to the atmospheric pressure

## Ordering chart for valves

### 6013 Universal valve with FKM seal, brass body (Epoxy coil)

Delivered without cable plug (see accessories)

Circuit function	Orifice [mm]	Port connection	Kv value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Coil power [W]	Voltage/Frequency [V/Hz]	Item no.·
<b>B</b> 2/2-way valve NO 	2.0	G1/8	0.12	0 - 16	8	24/DC	213 543
					7	230/50	213 550
	3.0	G1/8	0.23	0 - 8	8	24/DC	213 545
					7	230/50	213 551
		G1/4	0.23	0 - 8	8	24/DC	213 546
					7	230/50	213 552
	4.0	G1/4	0.3	0 - 4	8	024/DC	213 548
					7	230/50	213 553
	6.0	G1/4	0.55	0 - 2	8	024/DC	213 549
					7	230/50	213 554

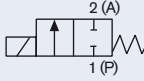
<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet..

<sup>2)</sup> Measured as overpressure to the atmospheric pressure

## Ordering chart for valves

## 6013 Universal valve with FKM seal, G 3/8, brass body (polyamide coil)

Delivered without cable plug (see accessories)

Circuit function	Orifice [mm]	Port connection	Kv value water [m <sup>3</sup> /h] <sup>1)</sup>	Coil power [W]	Pressure range [bar] <sup>2)</sup>	Voltage/Frequency [V/Hz]	Item no. brass seat, FKM Seal	Item no. Stainless steel seat, FKM Seal
<b>A</b> 2/2-way valve NC 	3.0	G 3/8	0.23	10	0 – 8	024/DC	134 248	135 430
					0 – 14	024/50	134 249	135 431
					0 – 14	230/50	134 251	135 433
	4.0	G 3/8	0.30	10	0 – 2.5	024/DC	134 252	135 434
					0 – 6	024/50	134 253	135 435
					0 – 6	230/50	134 255	135 437
	6.0	G 3/8	0.55	10	0 – 0.75	024/DC	134 256	135 438
					0 – 2.5	024/50	134 257	135 439
					0 – 2.5	230/50	134 259	135 441

<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet..<sup>2)</sup> Measured as overpressure to the atmospheric pressure

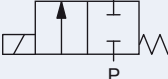
## Ordering chart for valves

## 6013 Valves for high temperature applications (to ±180°C), PTFE seat seal, brass body

Delivered without cable plug (see accessories)

Brass body with Stainless steel seat

(Epoxy coil)

Circuit function	Orifice [mm]	Port connection	Kv value water [m <sup>3</sup> /h] <sup>1)</sup>	Coil power [W]	Pressure range [bar] <sup>2)</sup>	Voltage/Frequency [V/Hz]	Item no.
<b>A</b> 2/2-way valve NC 	2.0	G 1/4	0.12	8	0 – 12	024/DC	136 015
					0 – 25	024/50	136 016
					0 – 25	230/50	136 018
	3.0	G 1/4	0.23	10	0 – 6	024/DC	136 019
					0 – 10	024/50	136 020
					0 – 10	230/50	136 022
					0 – 8	024/DC	136 023
					0 – 14	024/50	136 024
					0 – 14	230/50	136 026
	G 3/8	0.23	10	0 – 8	024/DC	136 023	
				0 – 14	024/50	136 024	
				0 – 14	230/50	136 026	

<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet.<sup>2)</sup> Measured as overpressure to the atmospheric pressure.

**Ordering chart for valves, Standard temperature version for DC power supply, impulse version**

All valves with 32mm coil(AC10), Impulse version, seal material FKM,thermal Insulation class H (epoxy coil), medium temperature -10°C to 120°C, without manual override and cable plug

Circuit function	Port connection	Orifice [mm]	Kv-value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Power consumption DC (hot/cold coil) [W]	Item no. per voltage/frequency [V/Hz]	
						012/DC	024/DC
<b>A</b> 2/2-way valve 	<b>Brass body</b>						
	Sub-base	2.0	0.12	0-16	7	209 266	209 272
		2.5	0.16	0-10	7	209 267	209 273
		3.0	0.23	0-6	7	209 268	209 274
	G 1/8	2.0	0.12	0-16	7	209 269	209 275
		2.5	0.16	0-10	7	209 270	209 276
3.0		0.23	0-6	7	209 271	209 277	

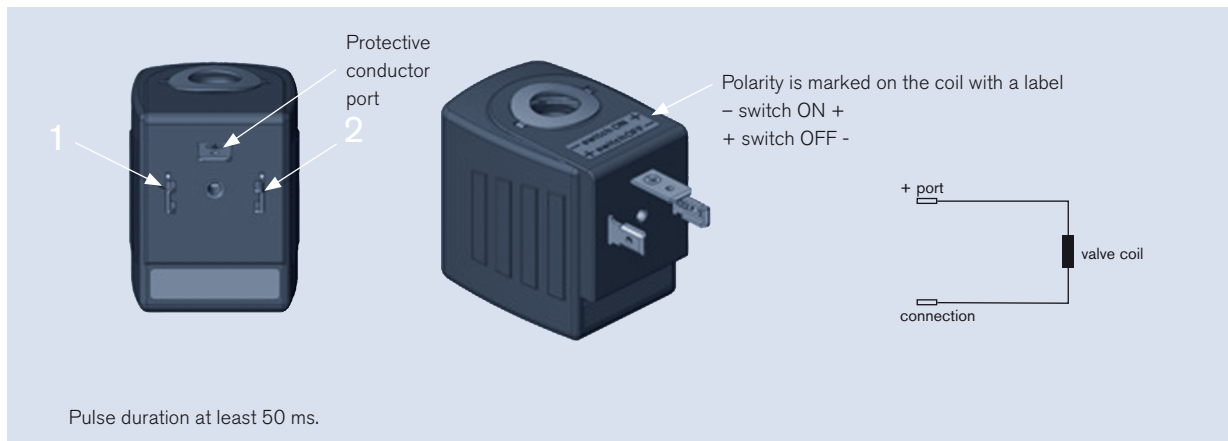
<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet..

<sup>2)</sup> Measured as overpressure to the atmospheric pressure

**Please note** that the cable plug must be ordered separately, see accessories on page 8 and separate datasheet, Type 2508.

**Control for impulse version with polarity reversal control**

Polarity is marked on the coil with a label	Features	Terminal connections
- switch ON +	valve (P-seat) open	(+) on terminal 2 and (-) on terminal 1 (see below)
+ switch OFF -	valve (P-seat) closed	(+) on terminal 1 and (-) on terminal 2 (see below)



**Note:** Please use only the cable plug without electrical circuitry for the impulse version

## Technical data - analytical version

<b>Analysis version</b>	Media flowing through are not contaminated
<b>Limit for residual carbon</b>	<0.2 mg/dm <sup>2</sup>
<b>Permissible leakage rate for medium</b>	10-4 mbar l/sec <ul style="list-style-type: none"> <li>▪ Neutral medium, which does not attack the body and seal materials</li> <li>▪ Technical vacuum</li> </ul>
<b>Electr. connection</b>	Tag connector acc. to DIN EN 175301-803 Form A (previously DIN43650) for cable plug Type 2508 (see accessories)
<b>Mounting instructions</b>	No oils, fats or silicone used during the assembly

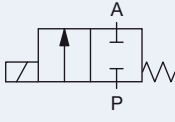
**Solenoid valves for higher Requirements**  
 This version is particularly suitable for switching from extremely pure gaseous medium. All media-affected parts are submitted to additional purification processes, so that the media is not contaminated under any circumstances. The assembly takes place under clean-room conditions.

The tightness test takes place at the Helium leak detector from a min. of 10<sup>-4</sup> mbar l/sec.

## Ordering chart for valves (other versions on request)

### 6013A Analytical valve with brass body and FKM seal, (Polyamide coil)

Delivered without cable plug (see accessories)

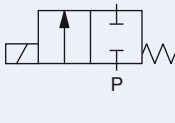
Circuit function	Orifice [mm]	Port connection	Kv value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Coil power [W]	Voltage/Frequency [V/Hz]	Item no.
<b>A</b> 2/2-way valve NC 	2.0	G 1/8	0.12	0-12	8	24/DC	137 826
				0-25		230/50	137 827
	2.5	G1/8	0.16	0-10	8	24/DC	137 828
				0-16		230/50	137 829
	3.0	G 1/4	0.23	0-6	8	24/DC	137 830
				0-10		230/50	137 831
	4.0	G 1/4	0.30	0-1.5	8	24/DC	137 832
				0-4		230/50	137 833

<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet..

<sup>2)</sup> Measured as overpressure to the atmospheric pressure

### 6013A Analytical valve with stainless steel body and FKM seal, (Polyamide coil)

Delivered without cable plug (see accessories)

Circuit function	Orifice [mm]	Port connection	Kv value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Coil power [W]	Voltage/Frequency [V/Hz]	Item no.
<b>A</b> 2/2-way valve NC 	2.0	G 1/8	0.12	0-12	8	24/DC	137 818
				0-25		230/50	137 819
	2.0	G1/4	0.12	0-12	8	24/DC	137 820
				0-25		230/50	137 821
	3.0	G 1/4	0.23	0-6	8	24/DC	137 822
				0-10		230/50	137 823
	4.0	G 1/4	0.30	0-1.5	8	24/DC	137 824
				0-4		230/50	137 825

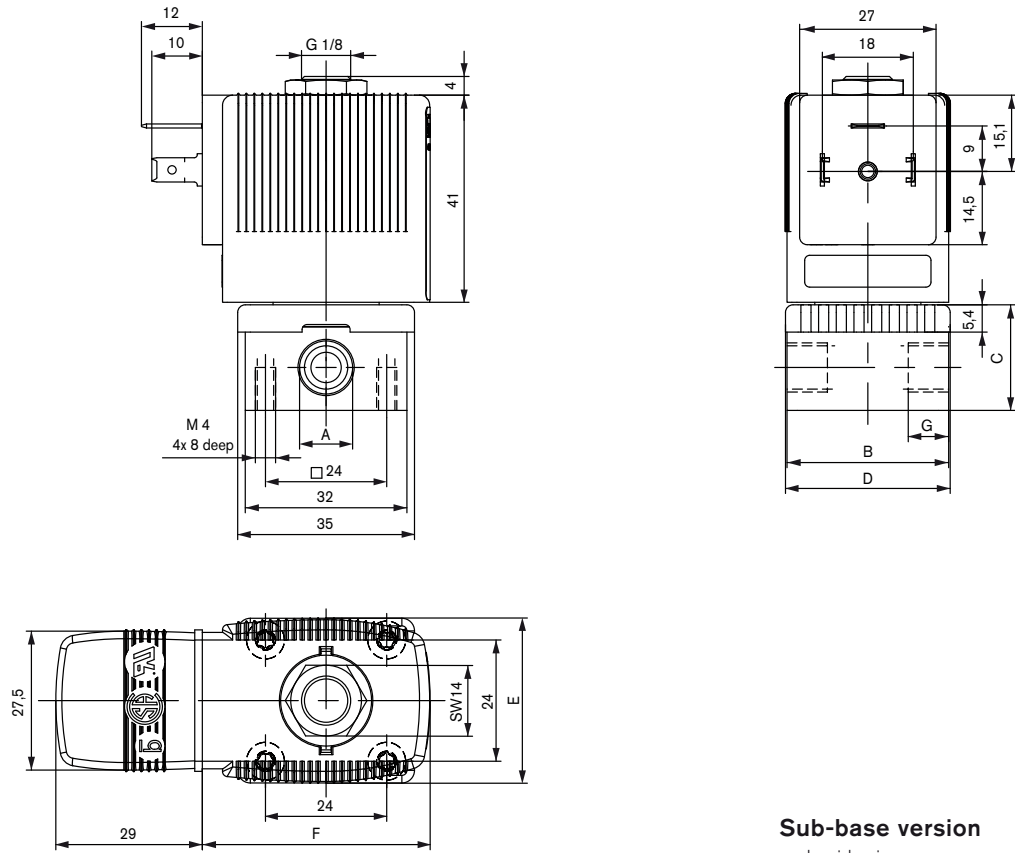
<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet..

<sup>2)</sup> Measured as overpressure to the atmospheric pressure

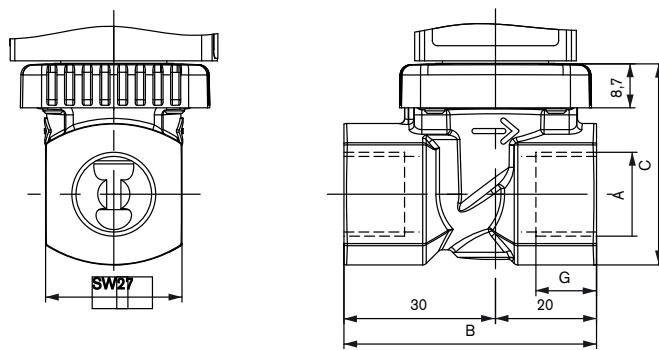
**Please note** that the cable plug must be ordered separately, see accessories on page 8 and separate datasheet, Type 2508.

Dimensions [mm]

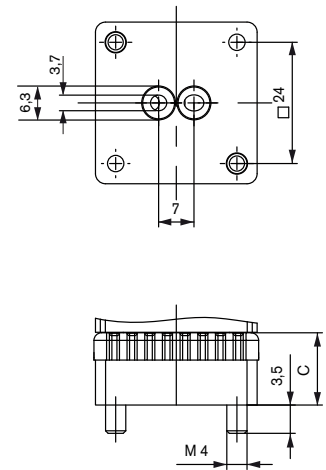
View without cable plug



G3/8 connection

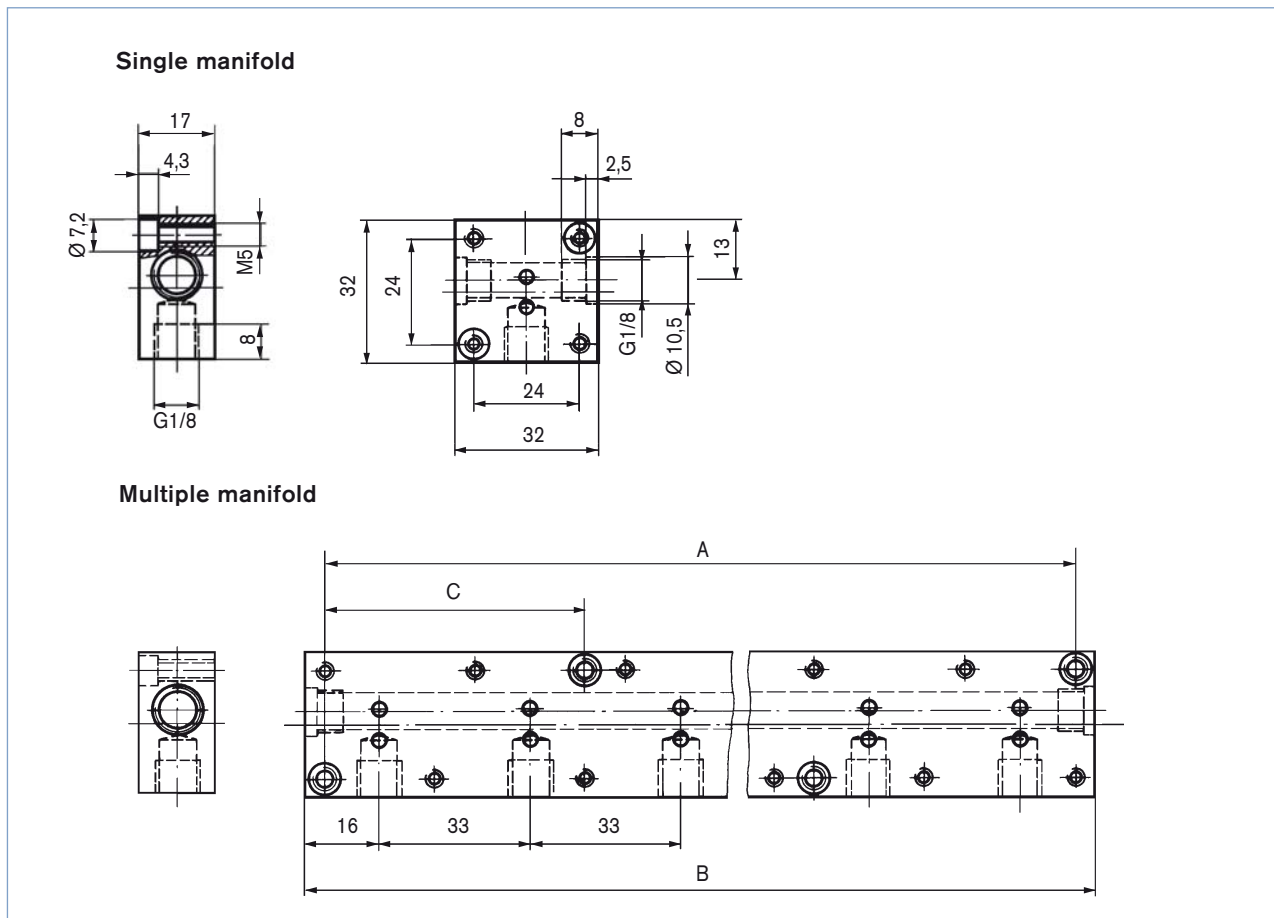


Sub-base version  
underside view



Port connection	Body dimensions [mm]					Coil width E [mm]	Coil depth F [mm]
	A	B	C	D	G		
G1/8	G1/8	32	20.8	32.6	8	32 (8W)	45 (8W)
G1/4	G1/4	46	26.8	49	12	32 (8W)	45 (8W)
G3/8	G3/8	50	39.8	49	12	40 (10W)	51 (10W)
Sub-base	-	32	14.3	32.6	-	32 (8W)	45 (8W)

## Manifold mounting



## Ordering chart for Manifolds

Accessory part	Quantity of valve places				Item no.
Single manifold	in aluminium				005 020
Multiple manifold	in aluminium	Hole spacing A [mm]	Total length B [mm]	Hole spacing C [mm]	
	2	57	65	–	005 023
	3	90	98	–	005 286
	4	123	131	–	005 287
	5	156	164	57	005 035
	6	189	197	57	005 038
	8	255	263	90	005 386
	10	321	329	90	005 764
Connector nipple	with O-Ring, to connect from manifold				005 040
Covering plate	with screws and O-ring for locking unoccupied valve positions				005 630

With manifold mounting, please comply with the permissible duty cycle (5W models with 100% continuous rating or 8W model with 60% duty cycle). The pressure port for the manifold is designated with P (R), and the outlet port with A (B). Only connect together ports with the same designation.

2/2-way valves of Type 6013 can be operated together on a manifold with 3/2-way valves of Type 6014, circuit function C (not D or T1) if the operating pressures agree according to the rating plates. The manifolds can also be expanded if the valve functions are taken into consideration. Connector nipples with O-rings are used to connect the P (R) ports.

**Attention!**

Unused, open valve ports must be closed off with covering plates (see accessories). Manifold should be fixed on to a rail.



## Ordering chart for accessories

Included in delivery is a cable plug with flat seal and fixing screw.  
Other versions with cable plug acc. to DIN EN 175301-803  
(previously DIN43650), see Datasheet: Type 2508.

Circuit	Voltage	Item no.
without circuitry	0 -250 V	008 376
with LED	12 -24 V	008 360
with LED and varistor	12 -24 V	008 367
with LED and varistor	200 -240 V	008 369
with inverter <sup>1)</sup>	24V DC	on request
further versions	see datasheet Type 2508	



Type 2508 Cable plug  
acc. to DIN EN 175301-803  
(previously DIN 43650)

<sup>1)</sup> The inverter plug contains an electronic, which especially enables the electric 3 wire control  
Input for 3 wire technology, common "-" polarity, two split "+" polarity.  
Output suitable for impulse version for Type 6013/6014

### **i** Further versions on request



#### Approval

Ex version  
UL / UR / CSA  
ATEX  
FM / CSA-EX Div 1/2  
European gas approval Class A, Group 2



#### Port connection

Threaded port NPT, Rc



#### Voltage

Further voltages



#### Materials

Seal material EPDM



#### Pressure

Variants with increased coil power for higher medium pressure

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