burkert
FLUID CONTROL SYSTEMS

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

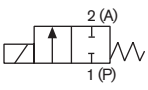
DTS 1000011032 EN Version: M Status: RL (released | freigegeben | validé) printed: 17.02.2011

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.

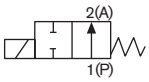
Analysis and vacuum technology:
Type 6013 A is a high-quality small solenoid valve for analysis and vacuum technology. It is manufactured under clean-room conditions. This includes thorough cleaning of all parts in contact with media from organic and inorganic substances. The limit for residual hydrocarbons is below 0.2 mg/dm².
The valve will undergo an external 100 % non-standard leakage test with respect to seat tightness and impermeability. The permissible leakage rate is 10^{-4} 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 fornce

Circuit Function B



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

Technical data	
Body material	
Type 6013	Brass, stainless steel 1.4305
Type 6013 A	Brass, stainless steel 1.4305
Seal material	FKM, PTFE/Graphite (EPDM on request)
Analysis version **Type 6013 A**	Silicon, oil and fat free version Tightness <10^{-4} mbar l/s
Limit value for risidual carbon **Type 6013 A**	<0.2 mg/dm²
Medium	
Type 6013	▪ Technical vacuum ▪ Neutral gases and liquids (e.g. compressed air, water, hydraulic oil)
Type 6013 A	▪ Neutral medium, which does not attack the body and seal materials (see chemical resistance chart)
Media temperature	
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)
Ambient temperature	Max. +55 °C
Viscosity	Max. 21 mm²/s
Port connection	
Type 6013	G1/8, G1/4, G3/8, sub-base
Type 6013 A	G1/8, G1/4
Operating voltage	
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)
Voltage tolerance	± 10%
Duty cycle/single valve With block assembly on manifold	100% continuous rating Intermittent operation 60% (30 min) or with 5 W coil on request
Electrical connection	Tag connector acc. to DIN EN 175301-803 Form A (previously DIN 43650) for cable plug Type 2508 (see accessories)
Installation	As required, preferably with actuator upright
Assembly	No oils, fats or silicone to be used during installation
Protection class	IP65 with Cable Plug
Coil insulation class	Polyamide class B Epoxy class H

Technical data, continued

Circuit function A

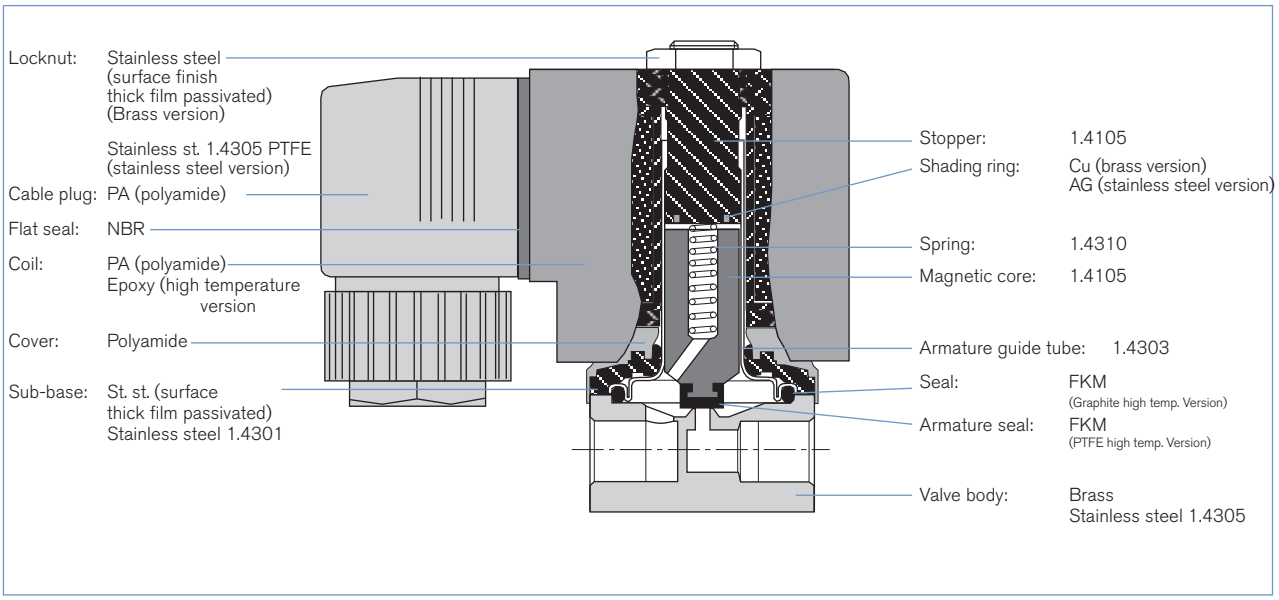
Orifice [mm]	Port connection	Kv-value water [m3/h]	Weight [g]	Power consumption [1] [W]	Electr. power Inrush (AC)	Electr. power Hold (AC)	Coil size	Response times opening [ms]	Response times closed [ms]
2.0	G1/8	0.12	325	8W AC or 8W DC (9)	24 VA	17 VA	5 (32mm)	20	30
2.0	G1/4	0.12	465	8W AC or 8W DC (9)	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 [m3/h]	Weight [g]	Power consumption [1] [W]	Electr. power Inrush (AC)	Electr. power Hold (AC)	Coil size	Response times opening [ms]	Response times 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

[1] Values in brackets at coil temperature 20°C

Materials



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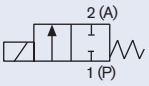
Ordering chart for valves (other versions on request)

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

Delivered without cable plug (see accessories)

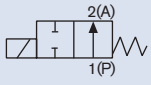
Circuit function	Orifice [mm]	Port connection	Kv value water [m³/h] 1)	Coil power [W]	Pressure range [bar] 2)	Voltage/ Frequency [V/Hz]	Item no. brass body FKM Seal	Item no. Stainless steel body, FKM seal
A 2/2-way valve NC 	2.0	G 1/8	0.12	8	0 - 12	024/DC	134 237	134 233
					0 - 25	024/50	132 865	134 234
					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

1) Measured at +20 °C, 1 bar 2) pressure at valve inlet and free outlet..
2) 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 [m³/h] 1)	Pressure range [bar] 2)	Coil power [W]	Voltage/ Frequency [V/Hz]	Item no..
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

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

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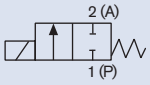
Ordering chart for valves

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

Delivered without cable plug (see accessories)

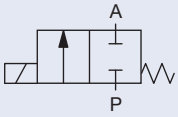
Circuit function	Orifice [mm]	Port connection	Kv value water [m³/h] [1]	Coil power [W]	Pressure range [bar] [2]	Voltage/ Frequency [V/Hz]	Item no. brass seat, FKM Seal	Item no. Stainless steel seat, FKM Seal
A 2/2-way valve NC 	3.0	G 3/8	0.23	10	0 – 8	024/DC	134 248	135 430
					0 – 14	024/50	134 249	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

[1] Measured at +20 °C, 1 bar [2] pressure at valve inlet and free outlet..
[2] 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 [m³/h] [1]	Coil power [W]	Pressure range [bar] [2]	Voltage/ Frequency [V/Hz]	Item no.
A 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
		G 3/8	0.23	10	0 – 8	024/DC	136 023
					0 – 14	024/50	136 024
					0 – 14	230/50	136 026

[1] Measured at +20 °C, 1 bar [2] pressure at valve inlet and free outlet.
[2] Measured as overpressure to the atmospheric pressure.

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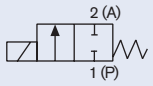
Ordering chart for valves, Standard temperature version for DC power supply, impulse version

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

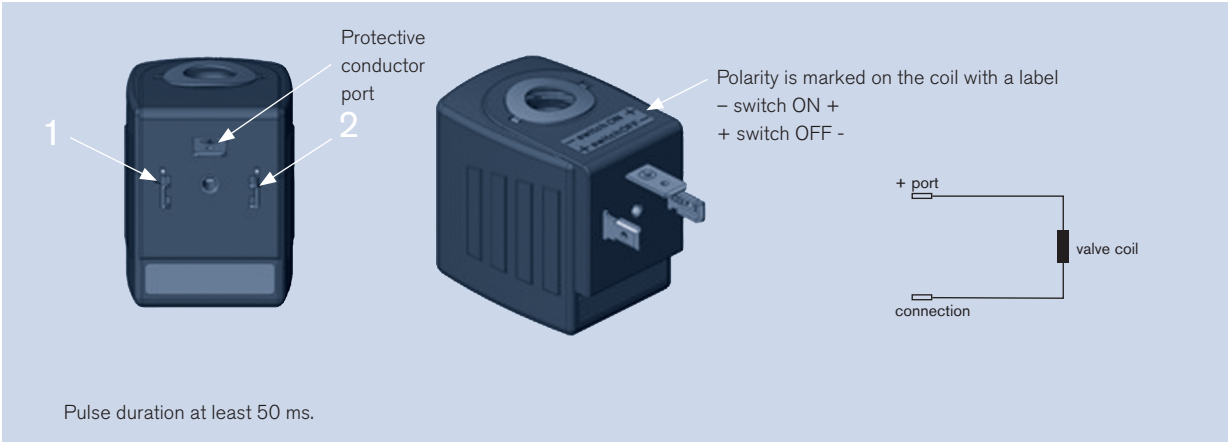
Circuit function	Port connection	Orifice [mm]	Kv-value water [m3/h] [1]	Pressure range [bar] [2]	Power consumption DC (hot/cold coil) [W]	Item no. per voltage/ frequency [V/Hz] 012/DC	024/DC
A 2/2-way valve 	**Brass body**						
	Sub-base	2.0	0.12	0-16	7	209 266	209 272
		2.5	0.16	0-10	7	209 267	209 273
		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

[1] Measured at +20 °C, 1 bar[2] pressure at valve inlet and free outlet..
[2] 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

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Technical data - analytical version

Analysis version	Media flowing through are not contaminated
Limit for risidual carbon	<0.2 mg/dm²
Permissible leakage rate for medium	10-4 mbar l/sec ▪ Neutral medium, which does not attack the body and seal materials ▪ Technical vacuum
Electr. connection	Tag connector acc. to DIN EN 175301-803 Form A (previously DIN43650) for cable plug Type 2508 (see accessories)
Mounting instructions	No oils, fats or silicone used during the assembly

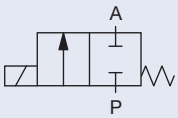
Solenoid valves for higher Requirements
This version is particularly suitable for switching from extremely pure gaseous medium. All media-affected parts are submitted to additional purification processes, so that the media is not contaminated under any circumstances. The assembly takes place under clean-room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

The tightness test takes place at the Helium leak detector from a min. of 10^{-4} mbar l/sec.

Ordering chart for valves (other versions on request)

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

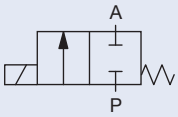
Delivered without cable plug (see accessories)

Circuit function	Orifice [mm]	Port connection	Kv value water [m³/h] 1)	Pressure range [bar] 2)	Coil power [W]	Voltage/ Frequency [V/Hz]	Item no.
A 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	0-2	8	24/DC	137 832
				0-4		230/50	137 833

1) Measured at +20 °C, 1 bar 2) pressure at valve inlet and free outlet..
2) 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 [m³/h] 1)	Pressure range [bar] 2)	Coil power [W]	Voltage/ Frequency [V/Hz]	Item no.
A 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	0-2	8	24/DC	137 824
				0-4		230/50	137 825

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

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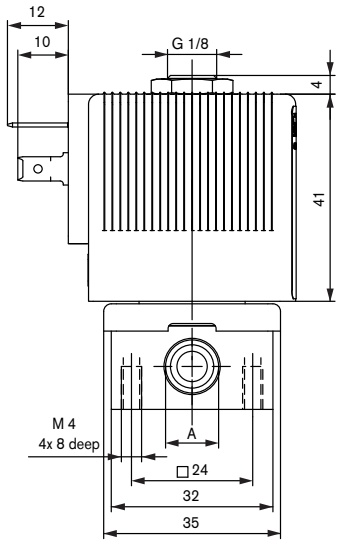
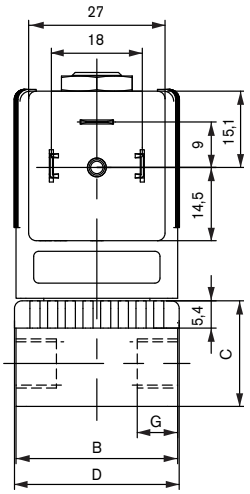
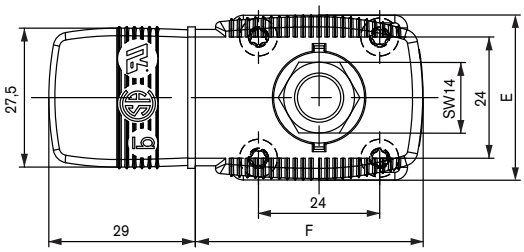
Dimensions [mm]

View without cable plug

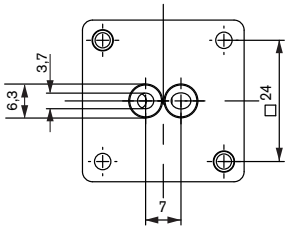


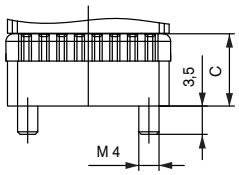




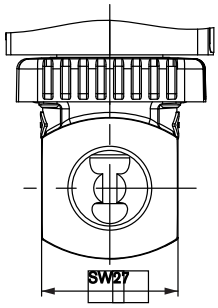
Sub-base version

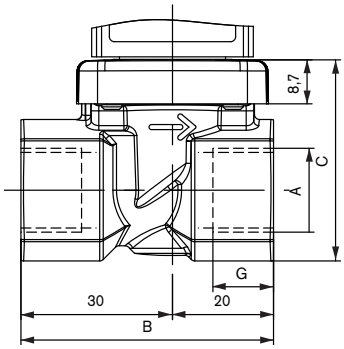
underside view





G3/8 connection





Port connection	Body dimensions [mm] A	B	C	D	G	Coil width E [mm]	Coil depth F [mm]
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)

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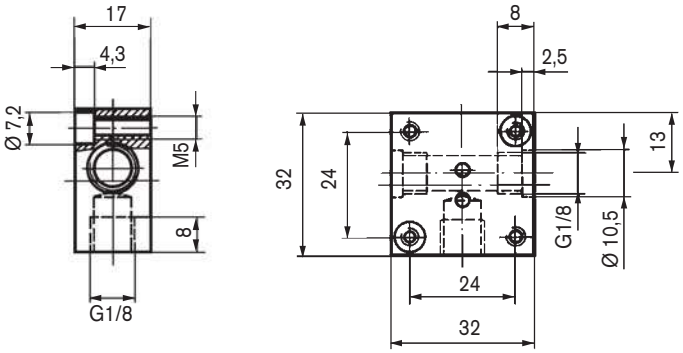
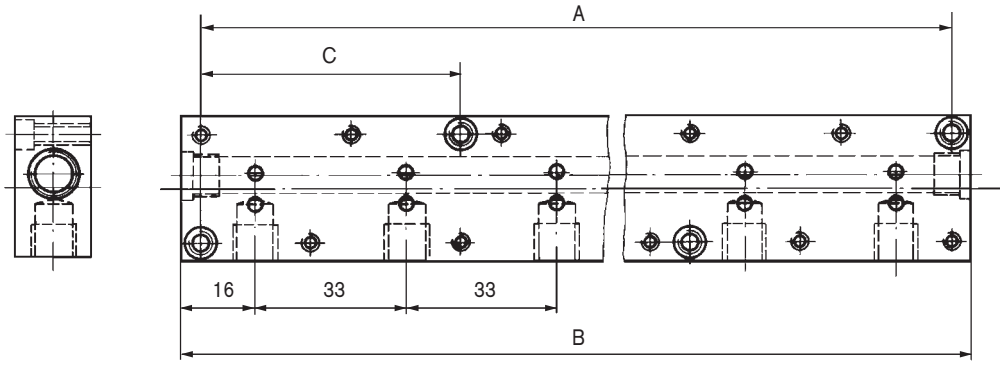
Manifold mounting

Single manifold



Multiple manifold



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 T!) 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.

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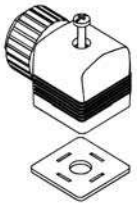
Ordering chart for accessories

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 [1)]	24V DC	on request
further versions	see datasheet Type 2508	

[1)] 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 implulse version for Type 6013/6014



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

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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In case of special application conditions,
please consult for advice..

Subject to alterations
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