



## Direct-acting 2/2- or 3/2-way pivoted armature valve

- Direct-acting, media-separated valve with diameter of up to DN 5
- Maintenance-free pivoted armature technology
- Vibration-proof, block screwed coil system
- Suitable for aggressive alkaline and acidic solutions
- Service-friendly, robust manual operation
- Explosion proof versions

The 0330 valve is a direct-acting, media-separated pivoted armature valve. It is available in 3/2- and 2/2-way versions. As a 3/2-way version, it can be used as a distributor or mixing valve. Various diaphragm material combinations and methods of operation are available depending on the application. The standard brass housing satisfies all European drinking water requirements. Stainless steel (316), PVDF, and polypropylene housing versions complete the offering. The solenoid coils are moulded with a chemically resistant epoxy. The 0330 is equipped with manual override for commissioning and testing. For reduced energy requirements all coils can be delivered with electronic power reduction or as an impulse version. The switching status can be indicated with position feedback as a binary or NAMUR signal. In combination with a plug in accordance with DIN EN 17301-803 Form A, the valves satisfy protection class IP65/67 – in combination with a stainless steel or plastic housing NEMA 4X.

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#### Explosion proof version

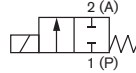
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Technical data	
<b>Available housing materials</b>	Brass Stainless steel (1.4401) PP (Polypropylene) PVDF (Polyvinylfluoride)
<b>Port connection</b>	G 1/4; NPT 1/4; (RC 1/4 and G 1/8 on request)
<b>Seal material</b>	EDPM / FKM / FFKM / NBR
<b>Medium for NBR</b>	Neutral medium such as compressed air, town gas, water, hydraulic oil, oils and fats without additives, oxygen Alkalis, acids to medium concentrations, alkaline washing and bleaching lyes Oxydizing acids and substances, hot oils with additives, salt solutions, waste gases, oxygen aggressive mediums, hot air, hot oils
<b>EPDM</b>	
<b>for FKM</b>	
<b>for FFKM</b>	
<b>All Materials - For more exact info. please refer to our chemical resistance chart</b>	
<b>Medium temperature for body material brass or stainless steel</b>	NBR 0 to +80 °C EPDM -30 to +90 °C FKM 0 to +90 °C FFKM +5 to +90 °C
<b>Medium temperature for body material PP or PVDF</b>	NBR 0 to +80 °C EPDM -30 to +80 °C FKM 0 to +80 °C FFKM +5 to +80 °C
<b>Viscosity</b>	Max. 37mm <sup>2</sup> /s
<b>Ambient temperature</b>	max. +55°C
<b>Voltages</b>	24V 50Hz; 110V 50Hz; 230V 50Hz; 120V 60Hz; 240V 60Hz; 12V DC; 24V DC; (further voltages on request)
<b>Voltage tolerance</b>	+/- 10%
<b>Duty cycle for brass and stainless steel.</b>	100%
<b>Duty cycle for PP and PVDF</b>	40% ED (60% intermittent operation) in 30min for 8W version 100% ED for 5W version

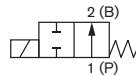
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## Circuit function

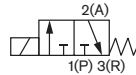
**A** 2/2-way direct acting valve, normally closed



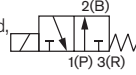
**B** 2/2-way direct acting valve, normally open



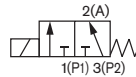
**C** 3/2-way valve, direct acting, when de-energised Port A exhausted



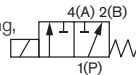
**D** 3/2-way valve, servo-assisted, outlet B normally pressurized



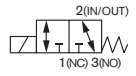
**E** Mixer valve, direct-acting, in de-energized position, P2→A open, P1 closed



**F** Distribution valve, direct-acting, in de-energized position, P→B open, A closed



**T** 3/2 way valve, universal function, flow direction as required



## Technical data (continued)

<b>Electrical connection</b>	Pin terminal acc. to DIN EN 175301-803 Form A for cable pug Type 2508/2509 (also on request with moulded cable or terminal box)
<b>Protection class</b>	IP65 with Cable Plug
<b>Coil insulation class</b>	H
<b>Installation</b>	As required, preferably with actuator upright
<b>Weight [kg]</b>	
with metal body	0.47
with plastic housing	0.40

## Standard power consumption

Frequency AC Inrush [VA]	Hold [VA]	Operation [W]	Frequency DC Cold [W]	Warm [W]
30	15	8	11	8

## Impulse (inrush winding)

Frequency AC Hold [VA]	Operation [W]	Frequency DC Cold [W]	Warm [W]
20	11	11	8

## Response times

Orifice [mm]	Frequency AC Opening [ms]	Closing [ms]	Frequency DC Opening [ms]	Closing [ms]
2-4	8-15	8-15	10-20	10-20

## Response times [ms]:

Measured at valve outlet at 6 bar and +20 °C

Opening: Pressure rise 0 to 90%,

Closing: Pressure drop 100 to 10%

## Pressure range and flow rate for metal body

Circuit function	DN	Kv value water [m³/h]:		Standard <sup>1)</sup>		Impulse <sup>2)</sup>
		DC	AC [50 or 60Hz]	Pressure range <sup>4)</sup> [bar]	Vacuum <sup>3)</sup> Pressure range <sup>4)</sup> [bar]	Pressure range <sup>4)</sup> [bar]
A / B / C / D / F	2.0	0.08	0.11	0 - 16	-0.98 - 10	0 - 16
	3.0	0.14	0.18	0 - 10	-0.98 - 6	0 - 10
	4.0	0.17	0.23	0 - 5	-0.98 - 3	0 - 5
	5.0	0.29	0.29	0 - 2.5	-0.98 - 1	0 - 2.5
E	2.0	0.08	0.11	0 - 10	-0.98 - 8	0 - 10
	3.0	0.14	0.18	0 - 6	-0.98 - 5	0 - 6
	4.0	0.17	0.23	0 - 3	-0.98 - 2.5	0 - 3
	5.0	0.29	0.23	0 - 1.5	-0.98 - 1	0 - 1
T	2.0	0.08	0.11	0 - 12	-0.98 - 8	0 - 10
	3.0	0.14	0.18	0 - 8	-0.98 - 5	0 - 6
	4.0	0.17	0.23	0 - 4	-0.98 - 2.5	0 - 5
	5.0	0.29	0.23	0 - 2.5	-0.98 - 1	-

## Pressure range and flow rate for plastic body

Circuit function	DN	Kv value water [m³/h]	Standard <sup>1)</sup>		Vacuum Pressure range <sup>4)</sup> [bar]	Impulse <sup>2)</sup> Pressure range <sup>4)</sup> [bar]
			Pressure range <sup>4)</sup> [bar] AC [50 or 60Hz]	Pressure range <sup>4)</sup> [bar] DC		
A / B / C / D / F	2.0	0.13	0 - 16	0 - 12	-0.98 - 10	0 - 12
	3.0	0.25	0 - 10	0 - 8	-0.98 - 6	0 - 8
	4.0	0.30	0 - 5	0 - 4	-0.98 - 3	0 - 4
	5.0	0.40	0 - 4.5	0 - 3.5	-0.98 - 1	0 - 3
E / T	2.0	0.13	0 - 10	0 - 7	-0.98 - 7	0 - 7
	3.0	0.25	0 - 6	0 - 4	-0.98 - 5	0 - 4
	4.0	0.30	0 - 3	0 - 2	-0.98 - 2.5	0 - 2

<sup>1)</sup> Rated power consumption 8W

<sup>2)</sup> Inrush power 11W

<sup>3)</sup> Vacuum possible for all seal materials

<sup>4)</sup> Pressure values [bar] with respect to atmospheric pressure

## Other circuit functions

The valves are fitted with different springs for a specific circuit function. When used in other circuit functions the permissible operating pressure changes acc. to the following table.

Metal body (8W respectively 11W)																		
Circuit function	Max. operating pressure [bar] when using the valve in a new circuit function																	
	Orifice 2mm						Orifice 3mm						Orifice 4mm					
	A <sup>1)</sup>	B <sup>1)</sup>	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
C	16	1.5	16	1.5	1.5	16	10	1	10	1	1	10	5	0.8	5	0.8	0.8	5
D	4	16	4.5	16	4	4	2.5	10	2.5	10	2	3	2	5	2	5	2	2
T	8	8	10	10	10	8	6	6	6	6	6	6	3	3	3	3	3	3

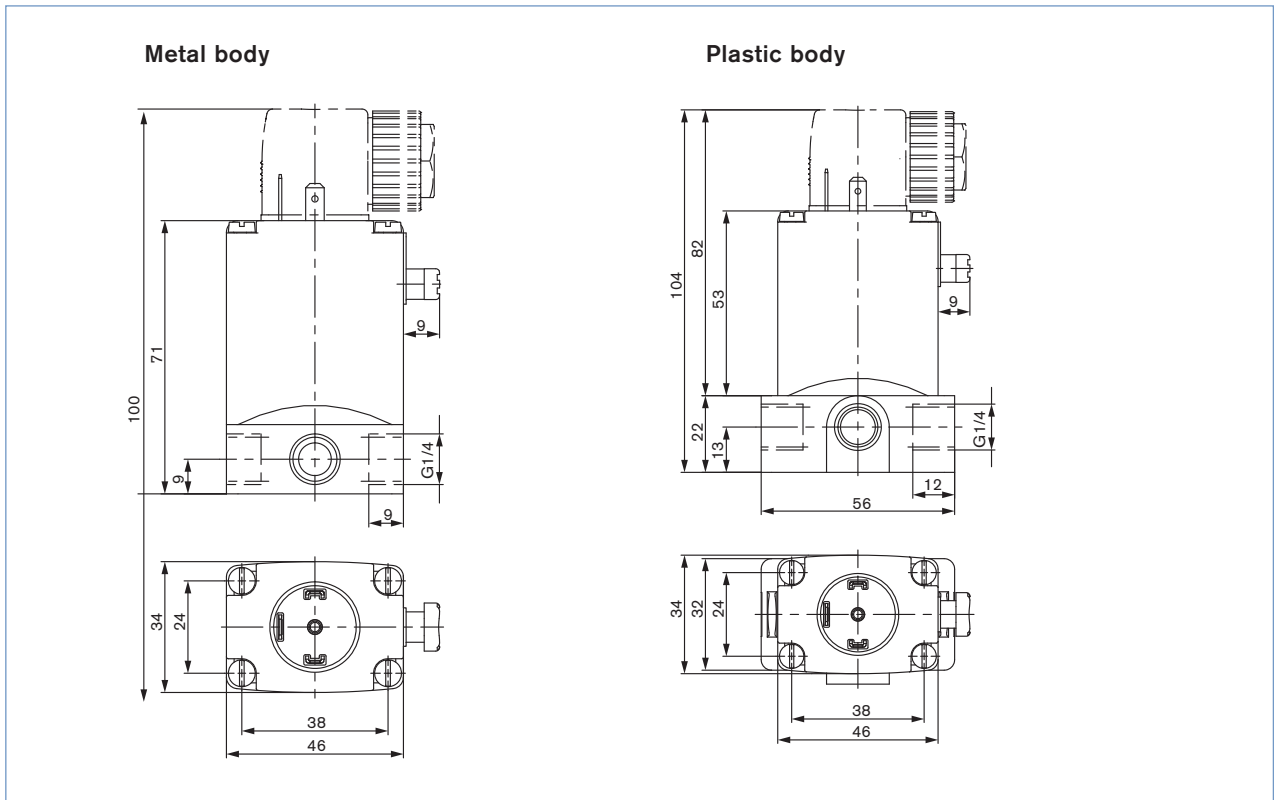
Plastic body (8W respectively 11W)																		
Circuit function	Max. operating pressure [bar] when using the valve in a new circuit function																	
	Orifice 2mm						Orifice 3mm						Orifice 4mm					
	A <sup>1)</sup>	B <sup>1)</sup>	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
C	16	1.5	16	1.5	1.5	16	10	1	10	1	1	10	5	0.8	5	0.8	0.8	5
D	4	16	4.5	16	4	4	2.5	10	2.5	10	2	3	2	5	2	5	2	2
F	16	1.5	10	1.5	1.5	16	6	1	6	1	1	10	4	1	4	1	1	5

<sup>1)</sup> For circuit function A and B the valve must be connected acc. to the pin assignment of 3/2-way valve.

## Additional options

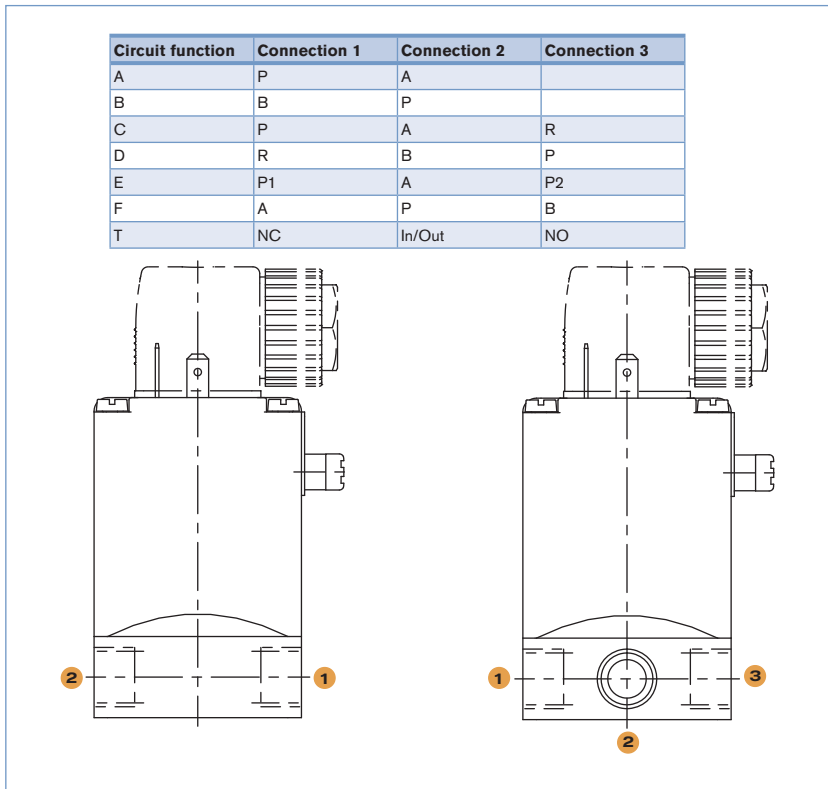
Option	Variable Code	Description
Impulse version	CF02	Bistable magnetic system with inrush and drop-off coil; Continuous operation or operation with short current pulses (min. 150 ms) possible
Oxygen versions	NL02	Suitable for applications with oxygen (non-metal materials that are in contact with the medium, are tested and approved according to BAM)
Increased purity requirements e.g. oil, grease and silicone-free	NL50/NL05	Wetted parts are specially cleaned and packaged in accordance with the valves
Increased tightness requirements	PCxx	Standard units are tested at 10 <sup>-2</sup> mbar x l / sec; feasible up to 10 <sup>6</sup> mbar
Electrical feedback	LF02 / LF03	See Type 1060
High-power electronics	CZ05	Inrush power 60 W, nominal holding current 3 W; with plastic versions 100% ED is now feasible
Vacuum version	NA02	Suitable for vacuums up to -0.98bar
Increased purity and tightness requirements	NA03	Wetted parts are specially cleaned and leak tested to 10 <sup>-4</sup> mbar x l/sec
Increased purity and tightness requirements and vacuum version	NA01	Wetted parts are specially cleaned and leak tested up to 10 <sup>-4</sup> mbar x l/sec and suited for vacuum up to -0.98 bar
Coil with reduced power (5W)		Devices have lower pressure range; with plastic versions 100% ED is now feasible
Cable plug	JFxx / JGxx	Cable plug is included in delivery. Cable plug versions (acc. to DIN EN 175301-803 Form A), see datasheet Type 2508 and 2509

Dimensions [mm]



Port connections

The connections marked with 1, 2 and 3 are labelled in the drawing according to the circuit function table.



## Ordering chart (products with reduced delivery time)

All devices with connection thread G 1/4, manual override and cable plug Type 2508

Circuit function	Orifice [mm]	Seal Material	Housing or seat material	Item no. per voltage/frequency [V/Hz]		
				024/DC	024/50	230/50
A <sup>2)</sup>	3.0	FKM	Brass	020 293	022 883	124 909
	3.0	FKM	Stainless steel	020 292	023 984	024 563
	3.0	FKM	PP	018 410	088 496	045 653
	3.0	FKM	PVDF	018 188	020 286	069 006
	3.0	NBR	Brass	020 294	086 553	024 902
	3.0	EPDM	PP	067 214	022 105	062 398
	4.0	FKM	Brass	024 019	025 246	124 912
	4.0	FKM	Stainless steel	018 276	018 857	020 873
	4.0	FKM	PP	062 695	043 005	063 116
	4.0	FKM	PVDF	023 472	069 079	087 837
	4.0	NBR	Brass	025 084	-	046 007
	4.0	EPDM	PP	021 660	067 731	063 118
	5.0	FKM	PP	062 624	067 007	022 619
	5.0	FKM	PVDF	064 512	-	063 786
	5.0	EPDM	PP	061 321	054 261	049 969
B <sup>2)</sup>	3.0	FKM	Brass	141 917	130 146	141 919
	4.0	FKM	Brass	141 920	141 921	141 923
	3.0	FKM	Stainless steel	141 928	141 929	141 931
	4.0	FKM	Stainless steel	141 932	141 933	141 935
C	2.0	NBR	Brass	041 103	042 129	041 105
	3.0	NBR	Brass	041 107	041 108	041 116
	3.0	FKM	Stainless steel	052 344	045 024	052 059
	4.0	NBR	Brass	042 218	042 695	042 329
	4.0	FKM	Stainless steel	050 483	043 324	050 979
	4.0	FKM	PP	-	088 240	-
	4.0	FKM	PVDF	055 788	-	019 078
	4.0	EPDM	PP	-	-	063 625
D	2.0	NBR	Brass	056 984	041 858	041 137
	3.0	NBR	Brass	041 139	041 141	041 147
	4.0	NBR	Brass	043 129	042 696	042 903
	4.0	NBR	Brass	043 129	042 696	042 903
E	3.0	FKM	PP	069 917	066 230	022 294
	3.0	EPDM	PP	078 556	-	078 559
	4.0	FKM	PP	061 077	086 921	053 406
	4.0	FKM	PVDF	022 340	020 550	085 599
	4.0	EPDM	PP	067 160	044 693	066 033
F	4.0	FKM	PP	020 528	-	-
	4.0	EPDM	PP	-	-	066 032
T	2.0	FKM	Brass	124 922	138 316	124 925
	3.0	FKM	Brass	124 927	124 928	124 930
	2.0	FKM	Stainless steel	124 932	124 933	124 935
	3.0	FKM	Stainless steel	124 937	124 938	124 940

<sup>2)</sup> The listed ID numbers and circuit functions have a body with a straight channel**Note:** Further versions on request



Explosion proof version

Technical data	
<b>Available body materials</b>	Brass, stainless steel (1.4401), PP (Polypropylene) PVDF (Polyvinylfluoride)
<b>Port connection</b>	G 1/4; NPT 1/4; (RC 1/4 and G 1/8 on request)
<b>Seal material</b>	EDPM / FKM / FFKM / NBR
<b>Medium</b>	
<b>for NBR</b>	Neutral medium such as compressed air, town gas, water, hydraulic oil, oils and fats without additives, oxygen
<b>for EPDM</b>	Alkalis, acids to medium concentrations, alkaline washing and bleaching lyes
<b>for FKM</b>	Oxydizing acids and substances, hot oils with additives, salt solutions, waste gases, oxygen
<b>for FFKM</b>	Aggressive mediums, hot air, hot oils
<b>All Materials - For more exact info. please refer to our chemical resistance chart</b>	
<b>Medium temperature for body material brass or stainless steel</b>	NBR 0 to +80 °C EPDM -30 to +90°C FKM 0 to +90 °C FFKM +5 to 90°C
<b>Medium temperature for body material PP or PVDF</b>	NBR 0 to +80 °C EPDM -30 to +80°C FKM 0 to +80 °C FFKM +5 to +80°C
<b>Viscosity</b>	Max. 37mm <sup>2</sup> /s
<b>Ambient temperature.</b>	Max. +55°C
<b>Voltages</b>	24V, 230V (further voltages on request)
<b>Frequency</b>	AC/DC
<b>Voltage tolerance</b>	+/- 10%
<b>Duty cycle</b>	100%
<b>Electrical connection</b>	Moulded cable (HO5RN-F3G,3x0.75 mm <sup>2</sup> ) Terminal box without safety fuse (on request also terminal box with Fuse ( Tpye 1058/PTB 01 ATEX 2064 U))
<b>Protection class</b>	IP65
<b>Coil insulation class</b>	H
<b>Type of protection</b>	II 2 G Ex d e IIC T4 bzw. T5 II 2 G Ex d e mb IIC T4 bzw. T5 II 2 D Ex tD A21 IP65 T135°C bzw. 100°C
<b>Certificate</b>	PTB 03 ATEX 1030 X IECEX PTB 05.0026X
<b>Fuse</b>	According to inrush current (see also ordering chart)
<b>Installation</b>	As required, preferably with actuator upright

Circuit function

- A** 2/2-way direct acting valve, normally closed
- B** 2/2-way direct acting valve, normally open
- C** 3/2-way valve, direct acting, when de-energised Port A exhausted
- D** 3/2-way valve, servo-assisted, outlet B normally pressurized
- E** Mixer valve, direct-acting, in de-energized position, P2→A open, P1 closed
- F** Distribution valve, direct-acting, in de-energized position, P→B open, A closed
- T** 3/2 way valve, universal function, flow direction as required

Cycling rate

	Max. cycling rate	For mediums temp	For ambient temp.
Variant 1	20/min	Up to +70 °C	Up to +40 °C
Variant 2	5/min	Up to +90 °C	Up to +40 °C

Power consumption

Inrush [W]	Operation [W]
40	3

Response times

Orifice [mm]	Opening [ms]	Closing [ms]
2 - 4	30	40

Response times [ms]:

Measured at valve outlet at 6 bar and +20 °C

Opening: Pressure rise 0 to 90%,

Closing: Pressure drop 100 to 10%

## Technical data (continued)

## Pressure range and flow rate for metal body

Circuit function	DN	Kv value water [m <sup>3</sup> /h]	Standard Pressure range <sup>2) 3)</sup> [bar]	Vacuum Pressure range [bar]
A / B / C / D / F	2.0	0.11	0 - 16	-0.98 - 10
	3.0	0.18	0 - 10	-0.98 - 6
	4.0	0.23	0 - 5	-0.98 - 3
	5.0	0.29	0 - 4	-0.98 - 2.5
E	2.0	0.11	0 - 10	-0.98 - 8
	3.0	0.18	0 - 6	-0.98 - 5
	4.0	0.23	0 - 3.5	-0.98 - 2.5
	5.0	0.29	0 - 3	-0.98 - 2
T	2.0	0.11	0 - 10	-0.98 - 8
	3.0	0.18	0 - 6	-0.98 - 5

## Pressure range and flow rate for plastic body

Circuit function	DN	Kv value water [m <sup>3</sup> /h]	Standard Pressure range <sup>2) 3)</sup> [bar]	Vacuum Pressure range [bar]
A / B / C / D / F	2.0	0.13	0 - 16	-0.98 - 10
	3.0	0.25	0 - 10	-0.98 - 6
	4.0	0.30	0 - 5	-0.98 - 3
	5.0	0.40	0 - 4.5	-0.98 - 1
E / T	2.0	0.13	0 - 10	-0.98 - 7
	3.0	0.25	0 - 6	-0.98 - 5
	4.0	0.30	0 - 3	-0.98 - 2.5

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

<sup>2)</sup> Devices with FKM or FFKM diaphragm are reduced to a max. pressure of 12 bar

<sup>3)</sup> Pressure data [bar]: Measured as overpressure to the atmospheric pressure

## Other circuit functions

The valves are fitted with different springs for a specific circuit function. When used in other circuit functions the permissible operating pressure changes acc. to the following table.

Metal body																		
Valve operation	Max. operating pressure [bar] when using the valve in a new circuit function																	
	Orifice 2mm						Orifice 3mm						Orifice 4mm					
	A <sup>1)</sup>	B <sup>1)</sup>	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
C	16	1.5	16	1.5	1.5	16	10	1	10	1	1	10	5	0.8	5	0.8	0.8	5
D	4	16	4.5	16	4	4	2.5	10	2.5	10	2	3	2	5	2	5	2	2
T	8	8	10	10	10	8	6	6	6	6	6	6	3	3	3	3	3	3

Plastic body																		
Valve operation	Max. operating pressure [bar] when using the valve in a new circuit function																	
	Orifice 2mm						Orifice 3mm						Orifice 4mm					
	A <sup>1)</sup>	B <sup>1)</sup>	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
C	16	1.5	16	1.5	1.5	16	10	1	10	1	1	10	5	0.8	5	0.8	0.8	5
D	4	16	4.5	16	4	4	2.5	10	2.5	10	2	3	2	5	2	5	2	2
F	16	1.5	10	1.5	1.5	16	6	1	6	1	1	10	4	1	4	1	1	

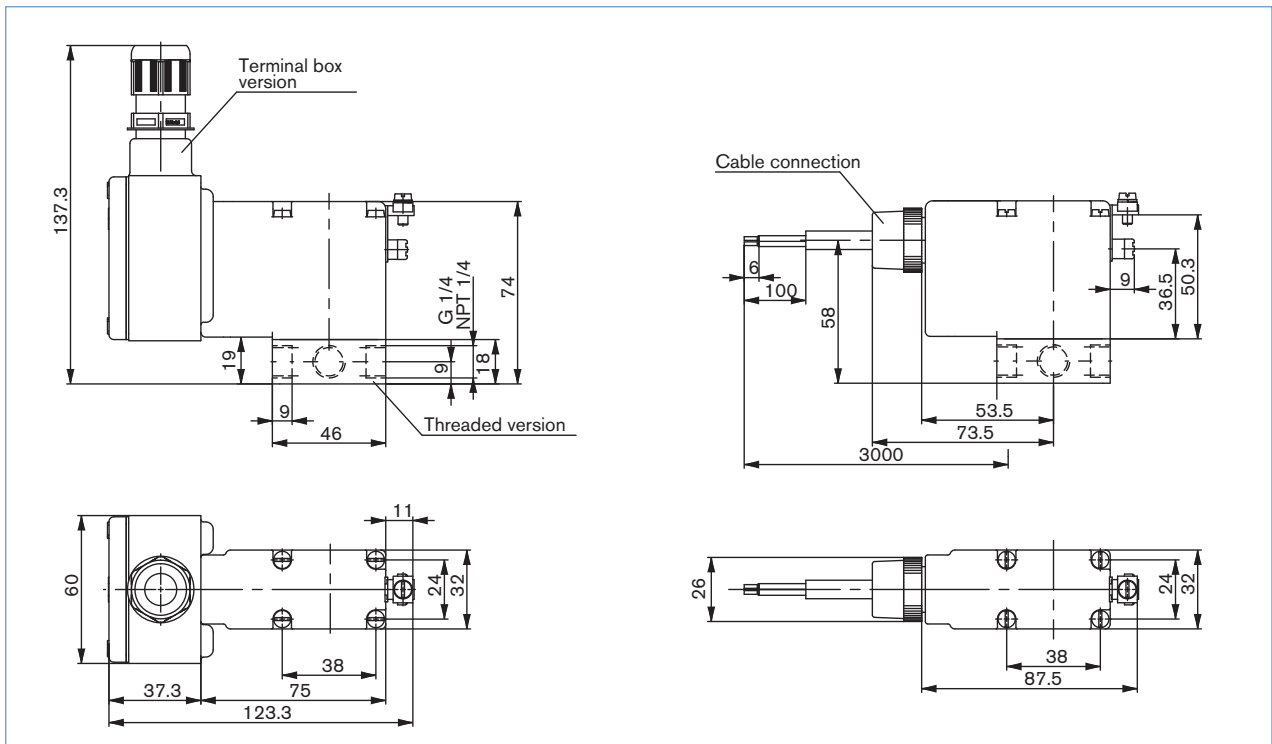
<sup>1)</sup> For circuit function A and B the valve must be connected acc. to the pin assignment of 3/2-way valve.

## Additional options

Option	Variable Code	Description
Terminal box with G 1/2" or NPT 1/2" threaded nipple	JA09 JA10	Instead of the cable gland a threaded nipple with internal thread is installed in the terminal box. Thereby laying the cable in a closed steel pipe system is possible.
Oxygen versions	NL02	Suitable for applications with oxygen (non-metal materials that are in contact with the medium, are tested and approved according to BAM)
Increased purity requirements e.g. oil, grease and silicone-free	NL50/NL05	Wetted parts are specially cleaned and packaged in accordance with the valves
Increased hermetic requirements	PCxx	Standard units are tested at 10 <sup>-2</sup> mbar x l / sec; feasible up to 10 <sup>-6</sup> mbar
Vacuum version	NA02	Suitable for vacuums up to -0.98bar
Increased purity and hermetic requirements	NA03	Wetted parts are specially cleaned and leak tested to 10 <sup>-4</sup> mbar x l/sec
Increased purity and hermetic requirements and vacuum version	NA01	Wetted parts are specially cleaned and leak tested up to 10 <sup>-4</sup> mbar x l/sec and suited for vacuum up to -0.98 bar
Electrical feedback	CF15	Coil with intrinsically safe proximity switches (PTB 00 ATEX 2048X) instead of manual override



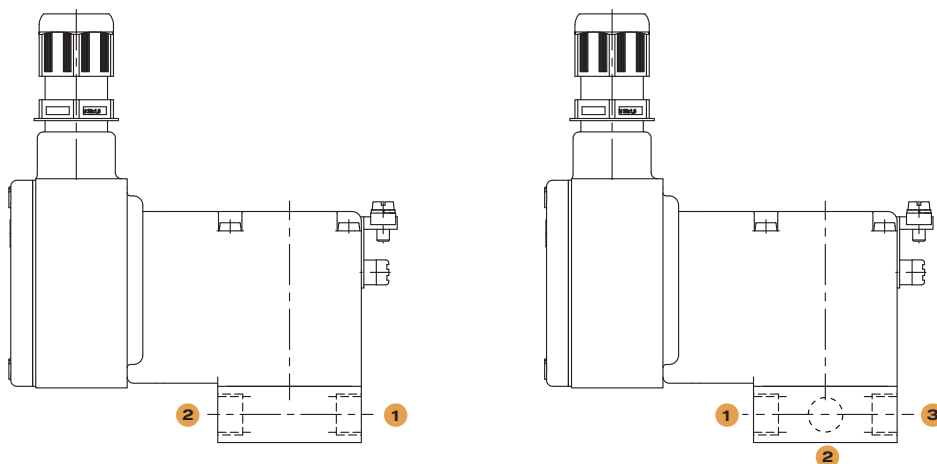
Dimensions [mm]



Port connections

The connections marked with 1, 2 and 3 are labelled in the drawing according to the circuit function table on the left.

Circuit function	Connection 1	Connection 2	Connection 3
A	P	A	
B	B	P	
C	P	A	R
D	R	B	P
E	P1	A	P2
F	A	P	B



## Ordering chart for fuse

Voltage [V]	Max. current [A]	Item no.
24	2	153740
230	0.315	153733
110 resp. 120	0.5	153735

## Ordering chart - selection table (Articles with reduced delivery time)

All devices with connection thread G 1/4 and manual override

Circuit function	Orifice [mm]	Seal Material	Housing or seat material	Electrical connection	Item no. per voltage/frequency [V/Hz]	
					024/UC	230/UC
A <sup>2)</sup>	3.0	NBR	MS	Terminal box	137077	137079
	3.0	NBR	MS	cable	137076	137078
	3.0	FKM	Stainless steel	Terminal box	137081	137083
	3.0	FKM	Stainless steel	cable	137080	137082
C	3.0	NBR	MS	Terminal box	124619	125567
	3.0	NBR	MS	cable	077495	088175
	3.0	FKM	Stainless steel	Terminal box	135080	137075
	3.0	FKM	Stainless steel	cable	137073	137074
E	3.0	FKM	Stainless steel	Terminal box	137085	135624
	3.0	FKM	Stainless steel	cable	137084	137086
F	3.0	FKM	Stainless steel	Terminal box	146203	137089
	3.0	FKM	Stainless steel	cable	137087	137088
T	4.0	FKM	Stainless steel	Terminal box	133712	-
	4.0	FKM	Stainless steel	cable	141556	-

**Note:** Further versions on request

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