

# 2/2 Way Solenoid Valve Type 160

pilot operated



## Function

- pilot operated
- normally closed (NC)
- normally open (NO)

## Mode of operation

In a deenergized state, the medium pressure is built up by a servo bore on the upper side of the diaphragm (2), the valve is closed.

When energized, first only the pilot valve opens, i.e. the plunger and the connected pilot diaphragm (5) are lifted and a relief well becomes free. This causes a pressure drop above the diaphragm (2) and the valve opens because of the medium pressure.

In the pilot valve a liquid filling (standard: silicone oil) supports the closing effect of the spring (11). The pilot diaphragm (5) separates the medium from the plunger (10) or from the atmosphere. After releasing the union nut (8) - **in depressurized system** - the pilot valve can be removed without problems for cleaning the servo bores. The coil is fastened with an acorn nut (15) being 360° adjustable against the valve body.

The solenoid valve type 160 has a very resistant thermoplastic construction even against external mechanical effects.

### NOTE

For perfect function a differential pressure of min. 0,3 bar is necessary.

## Design

Seat valve with diaphragm, plunger sealed.

## Type of fluids

- Technically clean neutral or aggressive fluids or gaseous media provided that the components getting in contact with the medium are resistant at the operating temperature according to the ASV resistance guide.

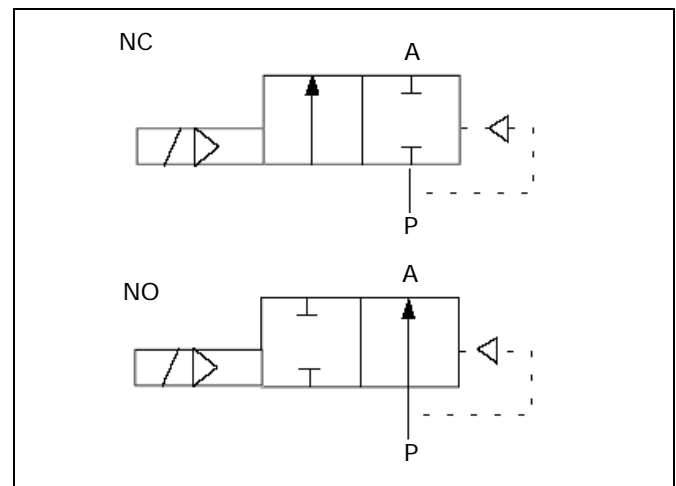
## Nominal diameter

- DN 15 - DN 50

## Pressure range

- 0,3 - max. 6 bar (see table)

## Wiring scheme



## Viscosity

up to approx. 38 mm<sup>2</sup>/s (cSt)

## Body material

- PVC-U
- PP
- PTFE

## Seals

- EPDM
- FPM

## Ambient temperature

- max. +50°C

## Media temperature

see pressure/temperature diagram

## Connections acc. to DIN/ISO

- PVC- U: spigot end for solvent welding
- PP: spigot end for fusion welding
- PTFE: female threaded socket

## Electrical part

### Plug socket

- acc. to DIN 43650

### Nominal voltage

- 230 V 50 Hz
- 24 V DC

### Voltage tolerance

- $\pm 10\%$  acc. to VDE 0580

### Power consumption

- 230 V 50 Hz: 6,5 VA
- 24 V DC: 5 watt

### Duty factor

- 100% ED

## Switching times

- Opening: 30 ms - 150 ms
- Closing: 50 ms - 1 sec

## Protection

- IP 65 with plug socket mounted
- EEXM II T4 execution on request!

### NOTE

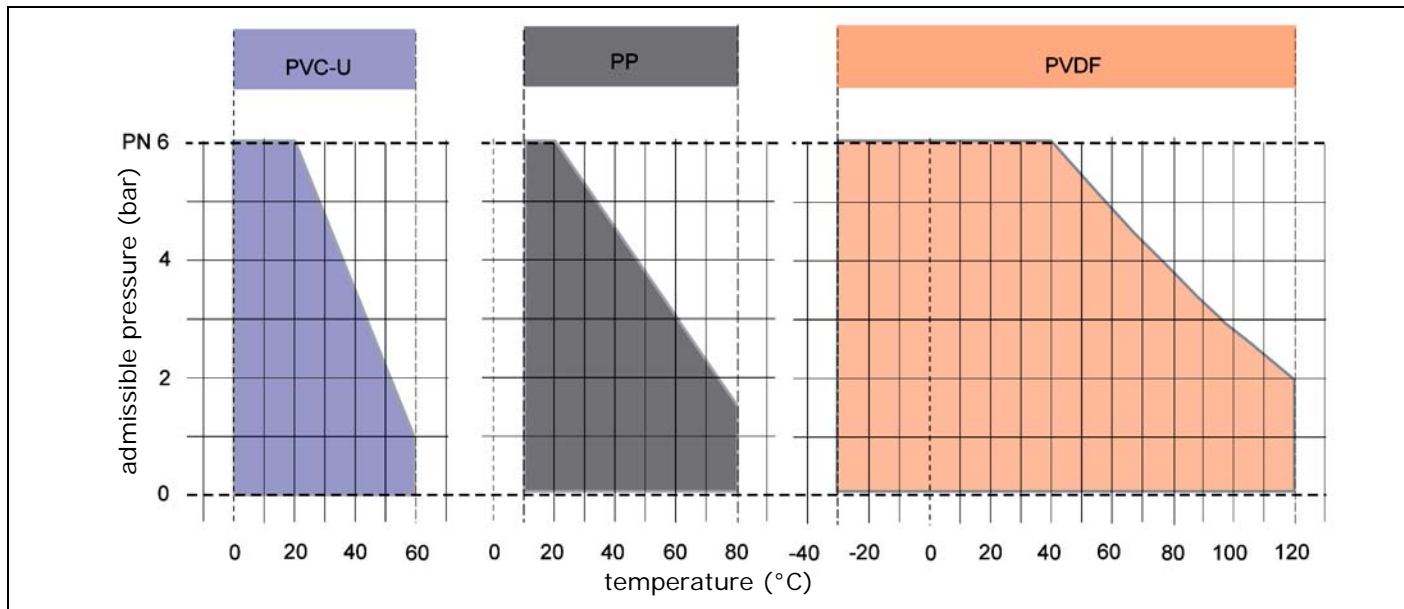
For Ex execution the operating or system pressure is reduced by about 20%.

Pilot operated valves are not suitable for cristallizing media.

## Mounting

Coil preferably in upright position, arrow always in direction of flow.

## Pressure/temperature diagram



## Pressure/temperature diagram

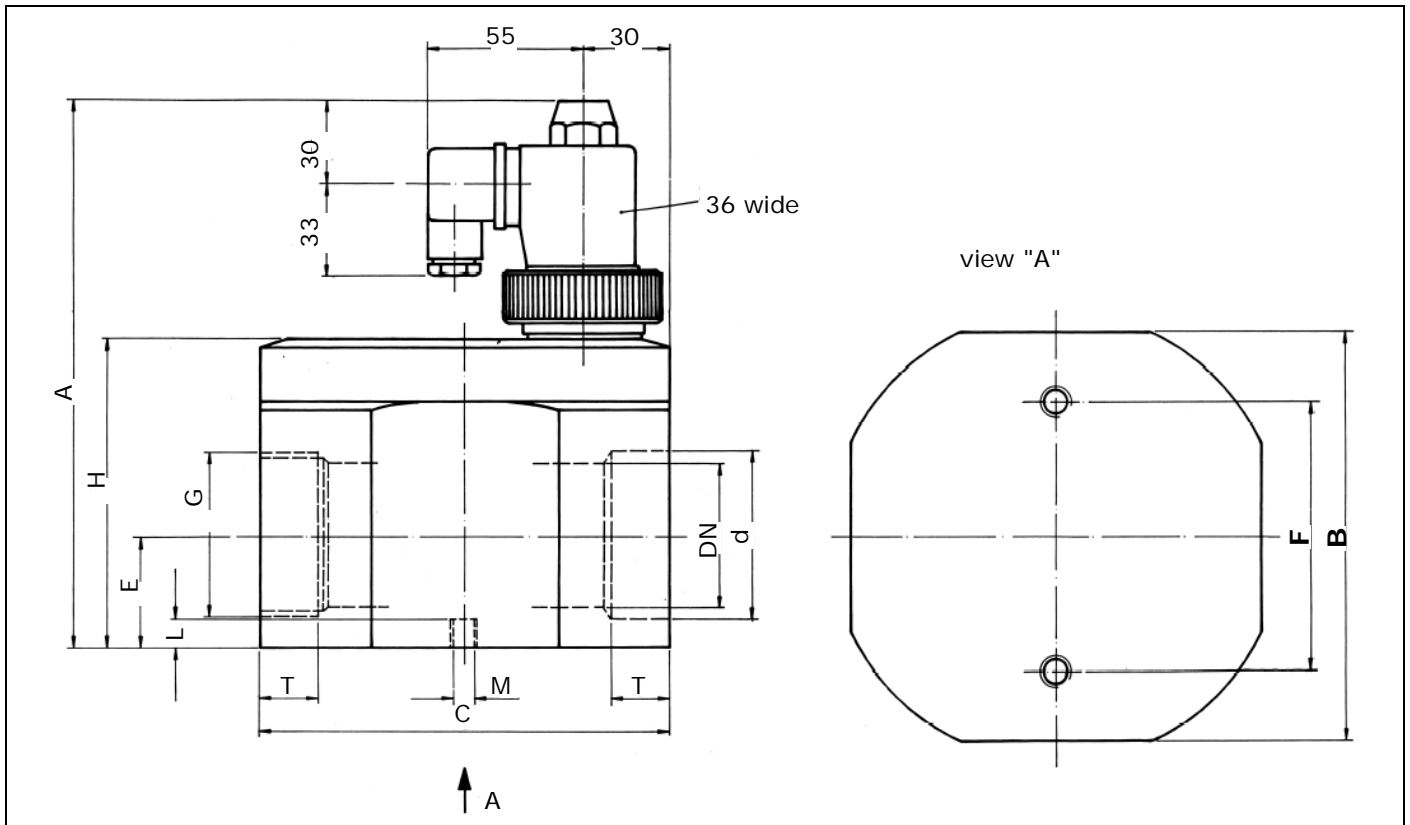
The pressure/temperature limits are applicable for the stated nominal pressures and a computed operating life factor of 25 years.

The values are a guide for harmless media (DIN 2403), to which the material of the valve is resistant. For other media see the ASV resistance guide.

The durability of wear and tear parts depends on the operating conditions of the application.

For temperatures below 0°C (PP < +10°C) please specify the precise operating conditions of the application.

### Dimensional drawing



### Dimension

DN (mm)	d (mm)	G (inch)	T (mm)	A (mm)	B (mm)	C (mm)	E (mm)	F (mm)	H (mm)	L (mm)	M (mm)
15	20	1/2	14,5	129	62	74	16	40	49	6	M5
20	25	3/4	16,0	143	94	98	23	60	63	10	M6
25	32	1	16,0	143	94	98	23	60	63	10	M6
32	40	1 1/4	20,0	171	124	124	31	80	91	12	M8
40	50	1 1/2	20,0	171	124	124	31	80	91	12	M8
50	63	2	20,5	189	140	140	39	90	109	12	M8

## Ident number

### PVC-U

voltage				230 V AC		24 V DC	
DN	connection	pressure	k <sub>v</sub> -value	PVC-U		PVC-U	
(mm)	d (mm)	(bar)	(l/min)	EPDM	FPM	EPDM	FPM
15	20	0,3 - 6,0	51,67	69244	69246	69245	69247
20	25	0,3 - 6,0	163,33	69248	69250	69249	69251
25	32	0,3 - 6,0	171,67	69252	69254	69253	69255
32	40	0,3 - 6,0	386,67	69256	69258	69257	69260
40	50	0,3 - 6,0	400,00	69261	69263	69262	69264
50	63	0,3 - 6,0	493,33	69265	69267	69266	69268

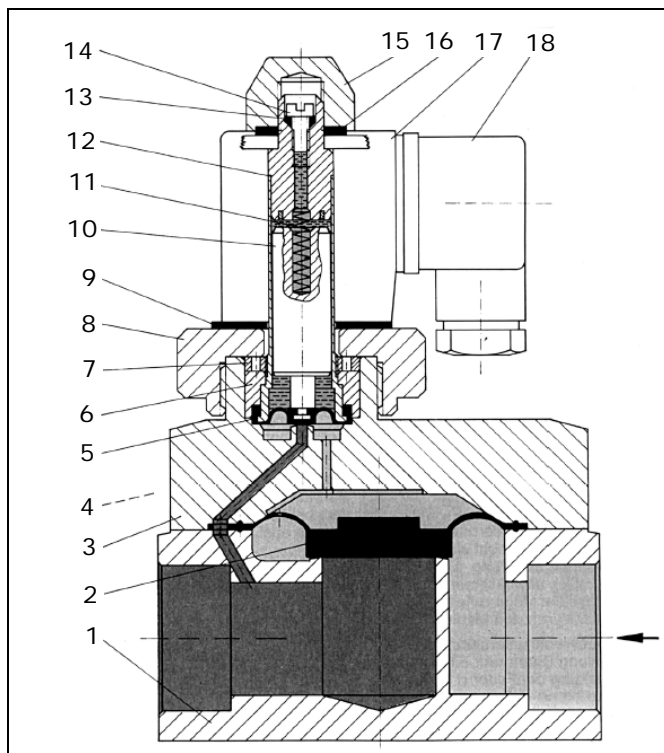
### PP

voltage				230 V AC		24 V DC	
DN	connection	pressure	k <sub>v</sub> -value	PP		PP	
(mm)	d (mm)	(bar)	(l/min)	EPDM	FPM	EPDM	FPM
15	20	0,3 - 6,0	51,67	45369	48067	45143	45155
20	25	0,3 - 6,0	163,33	46379	113334	45144	45156
25	32	0,3 - 6,0	171,67	45370	46390	45145	45157
32	40	0,3 - 6,0	386,67	43291	48068	45146	45158
40	50	0,3 - 6,0	400,00	42323	48069	45147	45159
50	63	0,3 - 6,0	493,33	48066	43257	45148	45160

### PTFE

voltage				230 V AC		24 V DC	
DN	connection	pressure	k <sub>v</sub> -value	PTFE		PTFE	
(mm)	G (inch)	(bar)	(l/min)	EPDM	FPM	EPDM	FPM
15	1/2	0,3 - 6,0	51,67	69269	69111	69270	69271
20	3/4	0,3 - 6,0	163,33	69272	69274	69273	69275
25	1	0,3 - 6,0	171,67	69276	69278	69277	69279
32	1 1/4	0,3 - 6,0	386,67	69280	69282	69281	69283
40	1 1/2	0,3 - 6,0	400,00	69284	69286	69285	69287
50	2	0,3 - 6,0	493,33	69288	69290	69289	69291

## Sectional drawing and parts list



item	designation
1	valve body
2	diaphragm
3	cover
4	screws
5	pilot diaphragm
6	pressure ring
7	thread ring
8	union nut
9	sealing disc
10	plunger
11	spring
12	plunger guide tube
13	O-ring
14	oil screw
15	acorn nut
16	gasket
17	coil
18	plug socket