

## Solenoid poppet valve cartridge 2/2-way versions

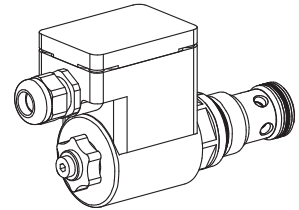
- Pilot operated
- $Q_{\max} = 120 \text{ l/min}$
- $p_{\max} = 350 \text{ bar}$

**M33x2**

ISO 7789



**II 2 G / II 2 D  
Ex em II T4**



### DESCRIPTION

Pilot operated 2/2-way solenoid poppet valve in screw-in cartridge design with thread M33 x2 for cavity acc. to ISO 7789.

**EEEx:** in accordance with european standards EN 50014, EN 50019, EN 50028

**e:** increased safety

**m:** encapsulation

**Group II:**

for all applications except mining

**Zone 1 / 21** (and 2 / 22):

explosive mixtures present intermittently

**EC-type examination certificate:**

PTB 01 ATEX 2129 X

### FUNCTION

For the function „normally closed“ with deenergised pull-type solenoid, and „normally open“ with energised push-type solenoid, the differential area poppet piston is held in closed position by a spring and seals leak free from port 2 to 1. If pull-type solenoid is energised respectively push-type solenoid deenergised, the poppet piston will open flow passage from 2 to 1 after having reached the opening pressure. In the „normally closed“ valve with deenergised solenoid respectively the „normally open“ valve with energised solenoid flow passage from 1 to 2 is open when the opening pressure has been reached.

### APPLICATION

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding-, clamping- or gripping functions. These valves are suitable for hazardous areas in off-shore and shipbuilding applications as well as in the chemical-, oil- and gas industry. The screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG10 flange and sandwich bodies. Cavity tools are available for machining cartridge cavities (hire or purchase). Please refer to the data sheets in register 2.13.

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### TYPE CODE

		S V X PM33 - <input type="text"/> - <input type="text"/> / T4 # <input type="text"/>	
Poppet valve			
Pilot operated			
Explosion proof solenoid EEx em			
Screw-in cartridge M33x2			
Designation see symbols			
Standard-nominal voltage $U_N$ :	24 VDC	<input type="text" value="G24"/>	
	115 VAC	<input type="text" value="R115"/>	
	230 VAC	<input type="text" value="R230"/>	
Execution T1...T4			
Design-Index (Subject to change)			

### GENERAL SPECIFICATIONS

Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid
Mounting	Screw-in thread M33x2
Admissible ambient temperature *	-20...+40 °C
Mounting position	any, preferably horizontal
Fastening torque	$M_D = 80 \text{ Nm}$ for cartridge $M_{D \max} = 5 \text{ Nm}$ for coil retaining nut
Weight	$m = 1,18 \text{ kg}$
Volume flow	see symbols

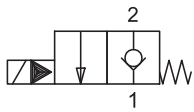
### HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 (Required filtration grade $\beta_{6...10} \geq 75$ ) (see data sheet 1.0-50/2)
Viscosity range	12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s
Admissible fluid temperature *	-20...+40 °C
Working pressure	$p_{\max} = 350 \text{ bar}$
Nominal volume flow	$Q_N = 100 \text{ l/min}$
Max. volume flow	$Q_{\max} = 120 \text{ l/min}$
Pressure drop	$\Delta p_{\max} < 10 \text{ bar}$ with 100 l/min
Opening pressure:	
Version CD / DC	2 → 1 = 2 bar / 1 → 2 = 1 bar
Version AB / BA	2 → 1 = 6 bar / 1 → 2 = 4 bar

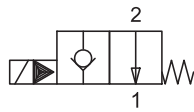
\* Deviating pressure medium - or ambient temperatures are possible for special arrangements after checking and authorisation by a responsible inspector. Measures for the prevention of the exceeding of the admissible solenoid surface - and internal temperatures can be: a good ventilation, low ambient temperatures (for higher pressure medium temperatures), limitation of the maximum possible power supply voltage, a short switching-on duration, installation on large heat dissipating blocks, etc. The responsibility in all cases lies with the operator, resp. with his inspector.

**SYMBOLS**

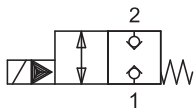
SVXPM33 - DC...



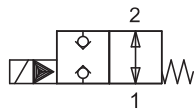
SVXPM33 - CD...



SVXPM33 - BA...



SVXPM33 - AB...


**ELECTRICAL CONTROL**

Construction	Switching solenoid, wet pin pull- or push type, pressure tight.
Standard-nominal voltage	$U_N = 24 \text{ VDC}$ $U_N = 115 \text{ VAC}, U_N = 230 \text{ VAC}$ DC = Ripple component 20 %; wired with VDR AC = 50 to 60 Hz $\pm 2\%$ ; with integrated half wave rectifier and recovery diode
Voltage tolerance	$\pm 10\%$ of nominal voltage
Protection class	IP65 / IP67 acc. to EN 60 529 (if correctly mounted)
Relative duty cycle	100 % DF
Switching cycles	5'000/h
Operating life	$10^7$ (number of switching cycles, theoretically)
Connection / Power supply	Through cable entry for cable diameter $\varnothing 6 \dots 12 \text{ mm}$
Execution T4:	II 2 G EEx em II T4 (for gas) II 2 D IP65 T130 °C (for dust)
Nominal power	17 W (DC), 23 VA (AC)

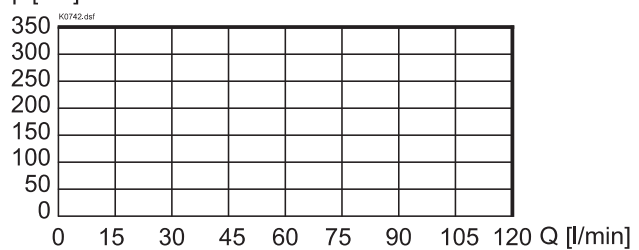
**START-UP**

1. In the power supply for each solenoid a fuse of an appropriate rating (max. 3 times IB of solenoid, DIN 41571 or IEC 127) respectively a motor circuit breaker with electromagnetic and thermal interruption must be installed. The fuse may be located in the power supply unit for the solenoid or between power supply and solenoid. The voltage rating for the fuse must be equal or higher than the one for the solenoid.

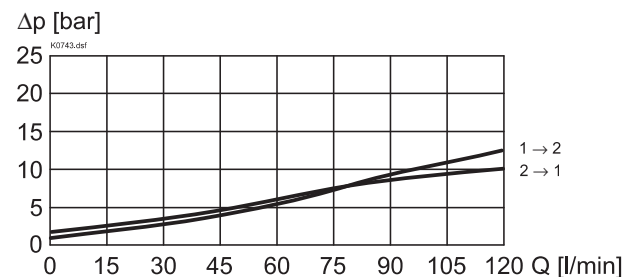
2. The solenoid coils must only be operated on the valve belonging to them. More information concerning the installation and commissioning is contained in the operating instructions supplied together with the solenoid coil.

**CHARACTERISTICS** Oil viscosity  $\nu = 30 \text{ mm}^2/\text{s}$ 

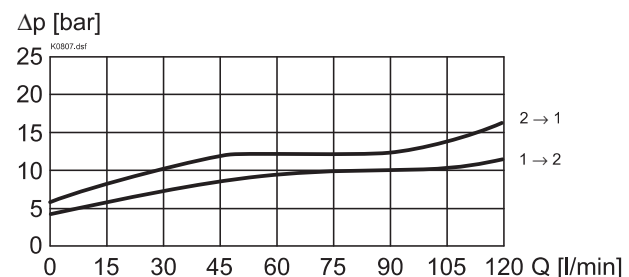
$p = f(Q)$  Performance limits at 10% under voltage and max. ambient temperature



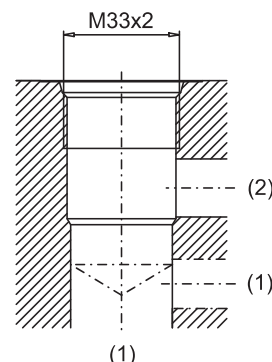
$\Delta p = f(Q)$  Pressure volume flow characteristics [DC / CD]



$\Delta p = f(Q)$  Pressure volume flow characteristics [BA / AB]


**CAVITY**

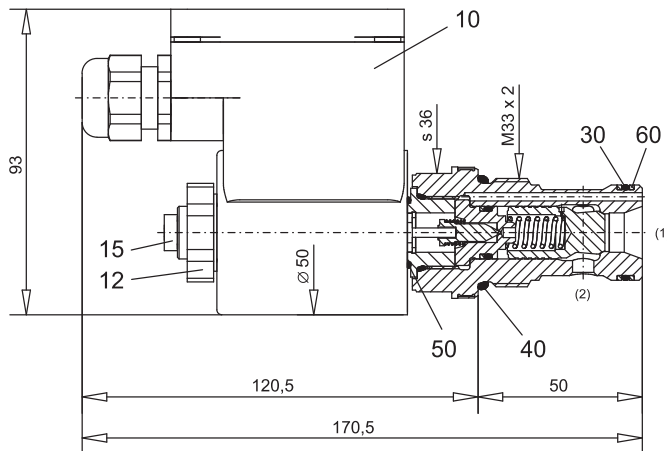
Cavity drawing to ISO 7789-33-01-0-98



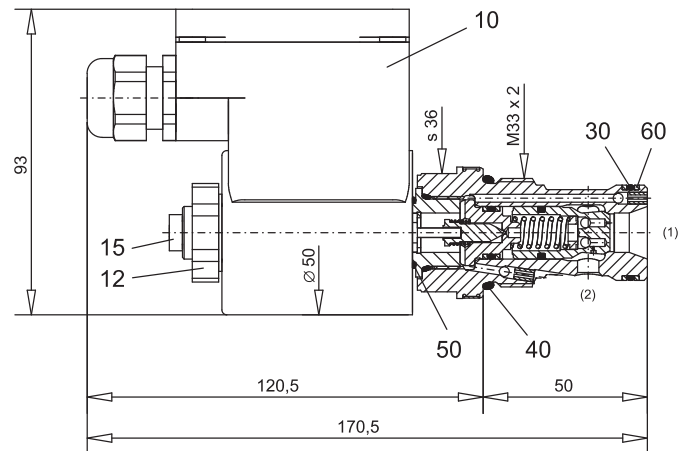
For detailed cavity drawing and cavity tools see data sheet 2.13-1005

# **DIMENSIONS/SECTIONAL DRAWING**

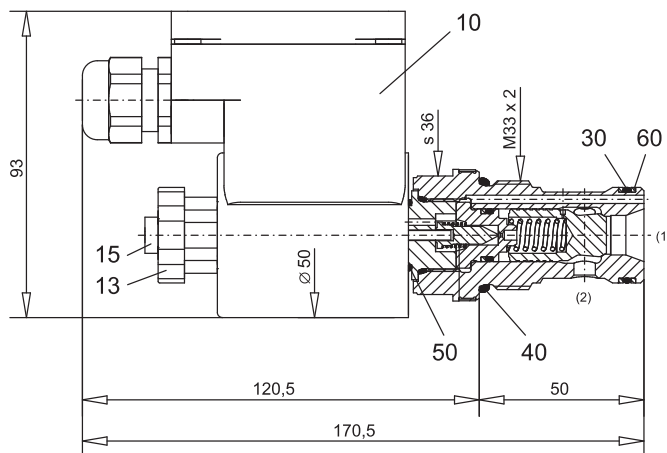
2/2-way version, „normally closed“ [DC]



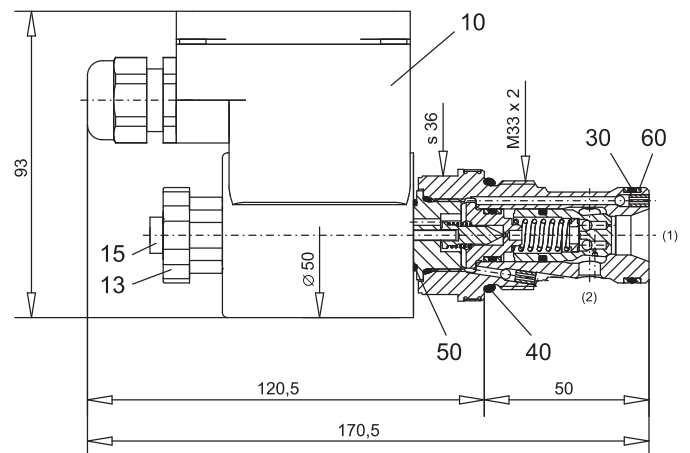
2/2-way version, „normally closed“ [BA]



2/2-way version „normally open“ [CD]



2/2-way version „normally open“ [AB]



## **PARTS LIST**

Position	Article	Description
10	207.5...	Coil type EExem
12	154.2600	Knurled nut M16x1x9
13	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. seal)
30	160.2252	O-ring ID 25,12x1,78
40	160.2298	O-ring ID 29,82x2,62
50	160.6156	O-ring viton ID 15,60x1,78
60	049.3296	Back-up ring RD 26,1x29x1,4

## **ACCESSORIES**

Cartridge built-in flange- or sandwich body:

Flange valve

register 1.11

Sandwich valve

register 1.11

Technical explanation see data sheet

1.0-100E