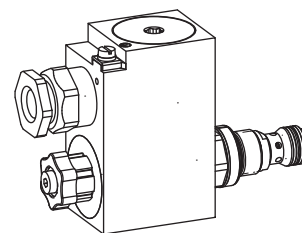


Poppet valve cartridges 2/2- and 3/2-way versions

- direct operated
- $Q_{\max} = 40 \text{ l/min}$
- $p_{\max} = 350 \text{ bar}$

M22x1,5
ISO 7789

II 2 G Ex d II C
II 2D Ex tD A21 IP65


DESCRIPTION

Direct operated 2/2-way solenoid poppet valve in screw-in cartridge design with thread M22x1,5 for cavity acc. to ISO 7789.

Activated with Wandfluh explosion proof solenoid.

The solenoid spool is zinc-/nickel-coated. Solenoid coil in accordance with directive 94/9/EG (ATEX) for explosion-hazard zones.

Ex: In accordance with European standards EN 60079-0, EN 60079-1 (gas)

EN 61241-0, EN 61241-1 (dust)

d: Pressure-proof encapsulation

tD: Protection by the housing

Device group II: For all explosion-hazard zones, except for underground workings

Gas group IIC: Gas groups IIA + IIB included

Device category 2G: For zones 1 and 2 (gas)

Device category 2D: For zones 21 and 22 (dust)

Zones: 1/21 and 2/22

EC-type test certification:

PTB 07 ATEX 1023

FUNCTION

For the function «normally closed» with de-energised 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 NG4-Mini and NG6 flange and sandwich bodies. To machine the cavities in steel or aluminium blocks, cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13.

INSTALLATION

Tightening torque of the coil fixing nut MD = 15Nm. For stack assembly please observe the remarks in the operating instructions.

DESIGNATION

Execution L15:

II 2 G Ex d IIC T4 Ta = -25...70 °C

II 2 D Ex tD A21 IP65 T130 °C

Execution L21:

II 2 G Ex d IIC T4 Ta = -25...50 °C

II 2 D Ex tD A21 IP65 T130 °C

TYPE CODE

S D Y PM22 - <input type="text"/> - <input type="text"/> - <input type="text"/> # <input type="text"/>	
Poppet valve	
Direct operated	
Explosion proof solenoid EEx d	
Screw-in cartridge M22 x 1,5	
2/2-way, «normally closed»	BA
2/2-way, «normally open»	AB
3/2-way	FG
Standard nominal voltage U_N :	12 VDC <input type="text"/> 24 VDC <input type="text"/> 115 VAC <input type="text"/> 230 VAC <input type="text"/>
Nominal power P_N :	15 W <input type="text"/> 21 W <input type="text"/>
Ambient temp by: 70 °C (only for BA and AB) 50 °C	
Design-Index (Subject to change)	

GENERAL SPECIFICATIONS

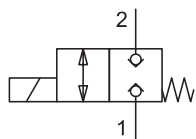
Description	Direct operated 2/2- and 3/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid
Mounting	Screw-in thread M22x1,5
Admissible ambient temperature	Execution L15: -20...+70 °C (operation as T1...T4/T130 °C) Execution L21: -20...+50 °C (operation as T1...T4/T130 °C) In case of $U_N < 20V$, the max. ambient temperature has to be reduced by 10 °C.
Mounting position	any, preverable horizontal
Fastening torque	$M_D = 50 \text{ Nm}$ for cartridge $M_{D_{\max}} = 5 \text{ Nm}$ for coil retaining nut
Weight	$m = 2,25 \text{ kg}$ 2/2-way $m = 2,3 \text{ kg}$ 3/2-way
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

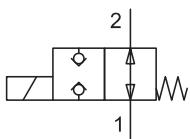
Fluid	Mineral oil, other fluid on request
Contamination	ISO 4406:1999, classe 18/16/13
Verschmutzungsgrad	(Required filtration grade $\beta_6 \dots 10 \geq 75$)
Viscosity range	see data sheet 1.0-50/2
Admissible fluid temperature	12 mm ² /s bis 320 mm ² /s
Working pressure	-20...+40 °C
Nominal flow	$p_{\max} = 350 \text{ bar}$
Max. volume flow	$Q_N = 20 \text{ l/min}$
Pressure drop	$Q_{\max} = 40 \text{ l/min}$
Opening pressure	see characteristics
	1,4 bar

SYMBOLS

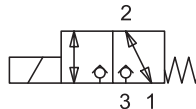
SDYPM22 - BA...



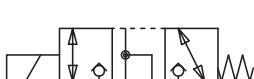
SDYPM22 - AB...



SDYPM22 - FG...



Transitional functions - «FG»...



ELECTRICAL CONTROL

Construction Switching solenoid, wet pin pull- or push type, pressure tight

Standard-nominal voltage $U_N = 12 \text{ VDC}$, $U_N = 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}$, $U_N = 230 \text{ VAC}$
DC wired with VDR

AC = 50 to 60 Hz $\pm 2\%$;
with integrated two way rectifier
and recovery diode

Voltage tolerance $\pm 10\%$ of nominal voltage

Protection class IP 65 acc. to EN 60529

Relative duty cycle 100% ED

Switching cycles 5 000/h

Operating life 10^7 (number of switching cycles, theoretically)

Connection/Power supply Through cable entry for cable
diameter $\varnothing 11 \dots 14 \text{ mm}$

Temperature class acc. to EN 60079-0

Execution L15/L21: T1...T4

Nominal power

Execution L15: 15W

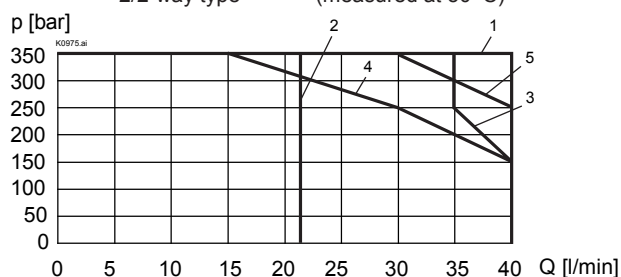
Execution L21: 21W

For further electrical characteristics, refer to the data sheet of the
solenoid coil: 1.1-183

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

$p = f(Q)$ Performance limit at -10%

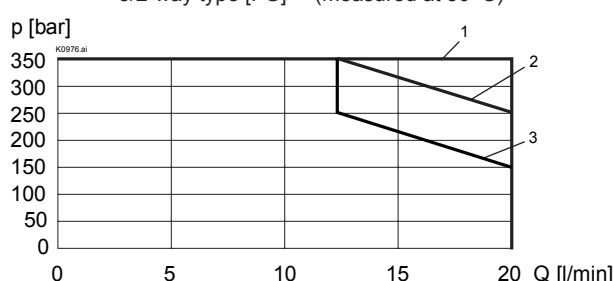
2/2-way type (measured at 50°C)



Version	Flow direction	
	1 \rightarrow 2	2 \rightarrow 1
SDYPM22-BA-L21	1	1
SDYPM22-AB-L21	2	1
SDYPM22-BA-L15	4	3
SDYPM22-AB-L15	2	5

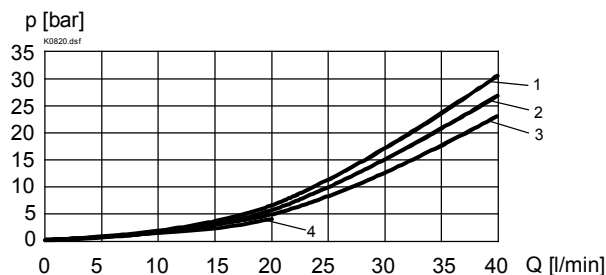
$p = f(Q)$ Performance limit at -10%

3/2-way type [FG] (measured at 50°C)



Version	Flow direction			
	1 \rightarrow 2	2 \rightarrow 1	2 \rightarrow 3	3 \rightarrow 2
SDYPM22-FG-L21	3	1	1	2

$\Delta p = f(Q)$ Pressure volume flow characteristics



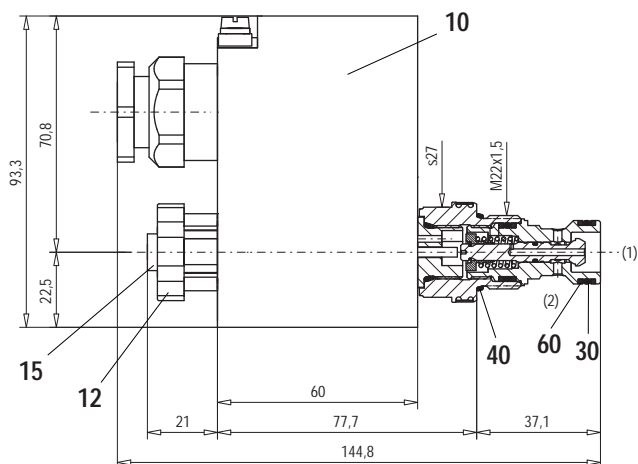
Version	Flow direction			
	1 \rightarrow 2	2 \rightarrow 1	2 \rightarrow 3	3 \rightarrow 2
SDYPM22-BA-...	1	2	-	-
SDYPM22-AB-...	3	4	-	-
SDYPM22-FG-...	-	4	1	1

START-UP

Information for the installation and commissioning can be obtained from
the operating instructions of the solenoid coil supplied with it.

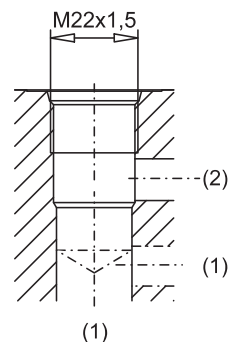
DIMENSIONS / SECTIONAL DRAWING

2/2-way, «normally closed» [BA]



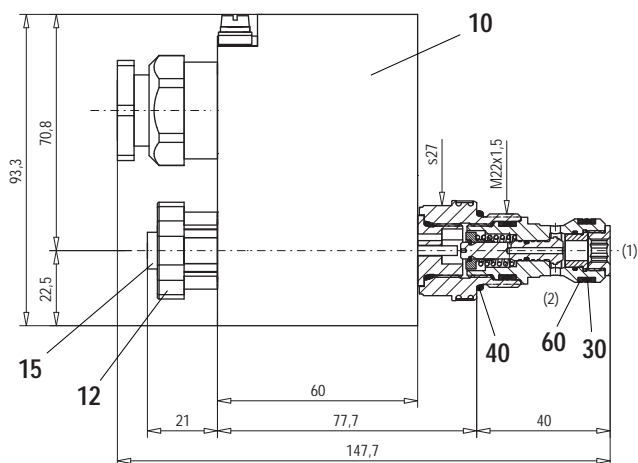
CAVITY

Cavity drawing for 2/2-way version to
ISO 7789-22-01-0-98



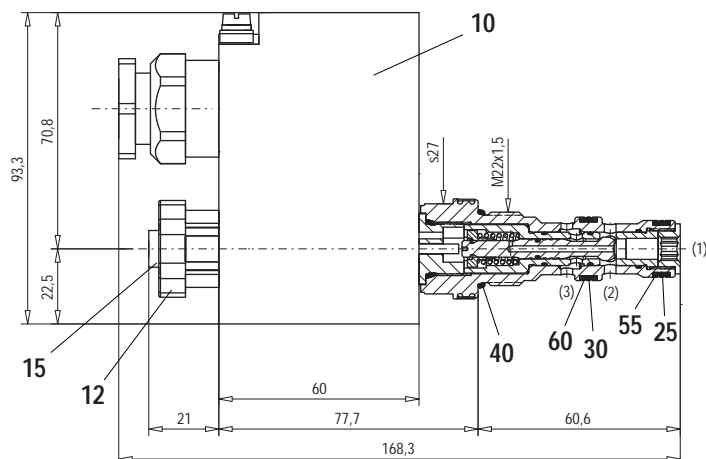
For detailed cavity drawing and cavity tools
see data sheet 2.13-1008

2/2-way, «normally open» [AB]



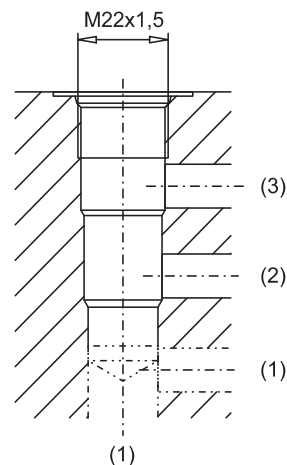
DIMENSIONS / SECTIONAL DRAWING

3/2-way version



CAVITY

Cavity drawing for 3/2-way version to
ISO 7789-22-04-0-98



For detailed cavity drawing and cavity tools
see data sheet 2.13-1004

PARTS LIST

Position	Article	Description
10	263.6...	Coil type MKY 45/18x60...
12	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. Seal)
25	160.2140	O-ring ID 14,00x1,78
30	160.2156	O-ring ID 15,60x1,78
40	160.2188	O-ring ID 18,77x1,78
55	049.3176	Back-up ring RD 14,1x17x1,4
60	049.3196	Back-up ring RD 16,1x19x1,4

ACCESSORIES

Cartridge built-in flange- or sandwich body:

Flange valve

Sandwich valve

register 1.11

register 1.11

Technical explanation see data sheet

1.0-100