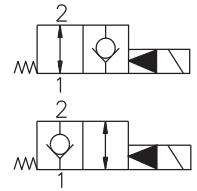


- Screw-in cartridge and in-line design
- Poppet valve - leak-free closing
- High switching reliability after long idling time
- Short switching times



Functional Description

The pilot operated 2/2 way solenoid actuated poppet valves control in the first line the start and stop function of the oil flow. The valve consists of the valve bushing (1), main control spool (2), return spring (3), cartridge with actuating system (4) and of the solenoid coil (5) that is mounted on the actuating system. The valve bushing is screwed into the cartridge part.

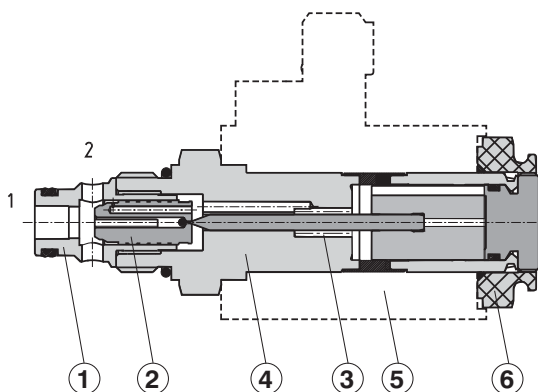
In the variant normally closed / normally open, the valve is securely held in the respective basic position by a spring. By energizing the solenoid coil the spring force is overcome and the pilot valve is pressed onto the seat or lifted. Opening and closing of the main control spool is hydraulically supported through the orifice boring created in the main control spool.

The DC solenoid coils can be delivered for 12 V and 24 V supply voltages. For AC applications 120 V/60 Hz or 230 V/50 Hz, the suitable rectifiers for the standard solenoid coils are available, with them being mounted in an additional terminal box. With the AC high power solenoid coils, the rectifiers are integrated directly in the connector. By loosening the fixing nut (6), the solenoid coil can be replaced or turned in the range of 360°.

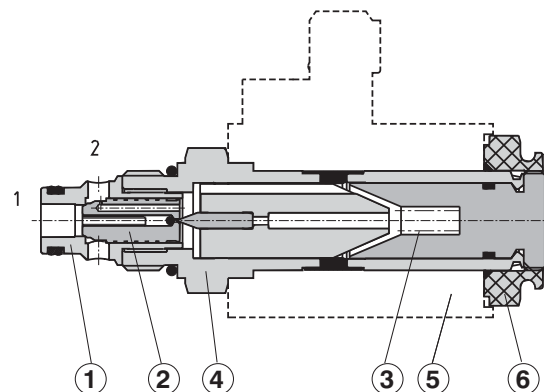
Notice.

The valves are supplied without solenoids coils. The solenoid coil, the terminal box and the body for line mounting have to be ordered separately.

Absence of current opened 2O2



Absence of current closed 2L2



Ordering Code

SD3E-A2 /

**2/2 Way Solenoid Operated
Directional Control Valve
Poppet Type**

**no designation
V**

Seals
standard (NBR)
Viton (FPM)

Standard
High Performance

**S
H**

**No designation
M2
M5
M9**

Manual override
standard for 2O2
covered with rubber bootn only for 2O2
socket head screw
without manual override

Description
Refer to the table with functional symbols

Solenoid coil, terminal box and body for line mounting have to be ordered separately. For selection of solenoid coil and terminal box type use catalogue HA 8007. For selection of valve body for in-line mounting use catalogue HA0018.

Functional Symbols

Designation	Symbol	Designation	Symbol
2O2		2L2	

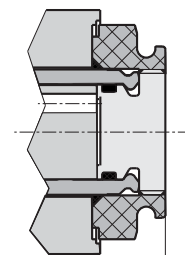
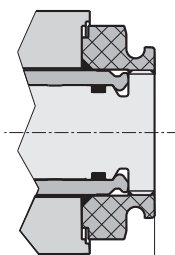
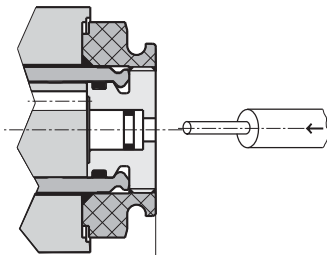
Manual Override

Dimensions in millimeters (inches)

No designation - Standard for 2O2

**Designation M9 - for 2L2
without manual override**

**Designation M9 - for 2O2
without manual override**



Standard valve ~64,5 (2.539)
High performance valve
~70,0 (2.756)

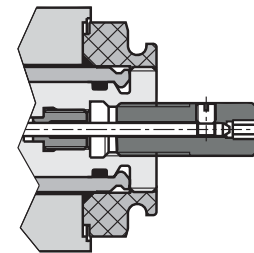
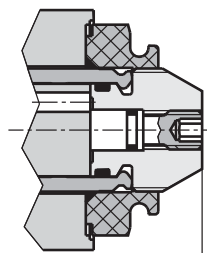
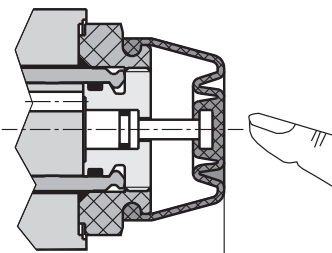
Standard valve ~64,5 (2.539)
High performance valve
~70,0 (2.756)

Standard valve ~64,5 (2.539)
High performance valve
~70,0 (2.756)

**Designation M2 - for 2O2
covered with rubber bootn**

**Designation M5 - for 2O2
by screwing in of the socket head
screw 2,5(0.098)**

**Designation M5 - for 2L2
by screwing in of the socket
head screw 2,5(0.098)**



Standard valve ~71 (2.759)
High performance valve
~81,5(3.209)

Standard valve ~67(2.638)
High performance valve
~77,5(3.051)

Standard valve ~71,5(2.815)
High performance valve
~89,0(3.504)

Technical Data

		Standard	High performance
Cartridge thread		3/4-16 UNF -2B	
Maximum flow	L/min (GPM)	20 (5.3)	30 (7.9)
Max. operating pressure	bar (PSI)	250 (3626)	420 (6091)
Pressure drop	bar (PSI)	see Δp -Q characteristics	
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524	
Coil groups (see the datasheet of coils)		C 51-26	C 04-20
Fluid temperature range	°C (°F)	-20 ... 60 (-4 ... 140)	-20 ... 80 (-4 ... 176)
Ambient temperature, max.	°C (°F)	-20 ... 50 (-4 ... 122)	-20 ... 80 (-4 ... 176)
Viscosity range	mm ² /s (SUS)	10 ... 500 (49 ... 2450)	
Maximum degree of fluid contamination		Class 21/18/15 according to ISO 4406 (1999).	
Permissible rated voltage variation	%	AC,DC ±10	AC,DC ±15
Max. switching frequency	1/h	15 000	
Duty cycle	%	100	
Service life	cycles	10 ⁷	
Enclosure type to EN 60529		IP 65	
Weight	kg (lbs)	0,10 (0.22)	0,20 (0.44)
Maximum valve tightening torque	Nm (lbf.ft)	30+2 (22.127+1.475)	
Maximum plastic nut tightening torque	Nm (lbf.ft)	3+1 (2.213+0.738)	5+1 (3.688+0.738)
Mounting position		optional	

p-Q Characteristics

Measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

Operating limits for hydraulic power transferred by the directional valve. For respective spool type - see functional symbols.

Standard valve

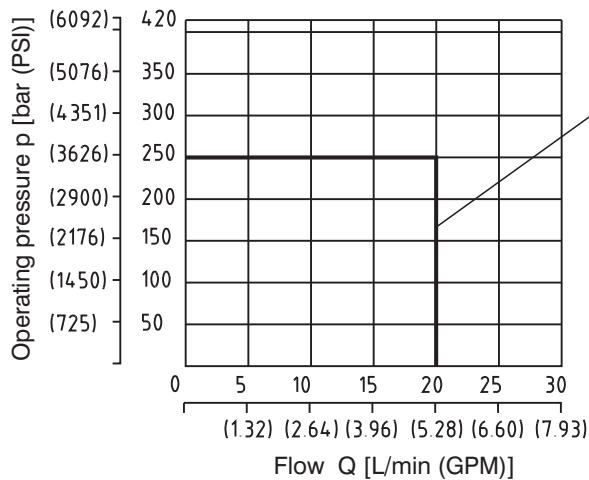
Oil 60 °C (140 °F) / Ambient temperature 40 °C (104 °F)

Voltage Un [V]

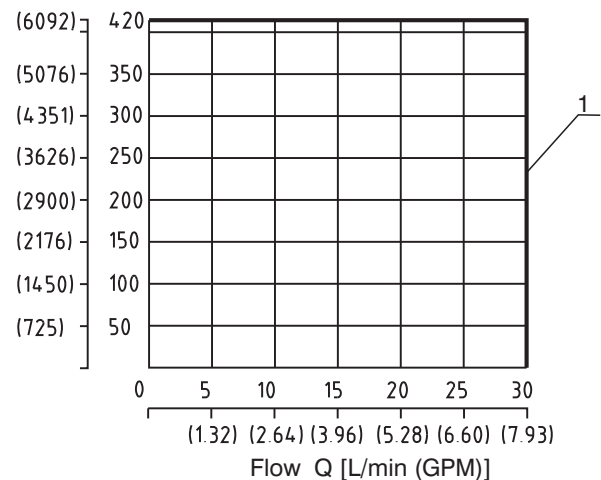
High performance valve

Oil 80 °C (176 °F) / Ambient temperature 50 °C (122 °F)

Voltage Un -10% [V]



	Connection
1	2L2
1	2O2



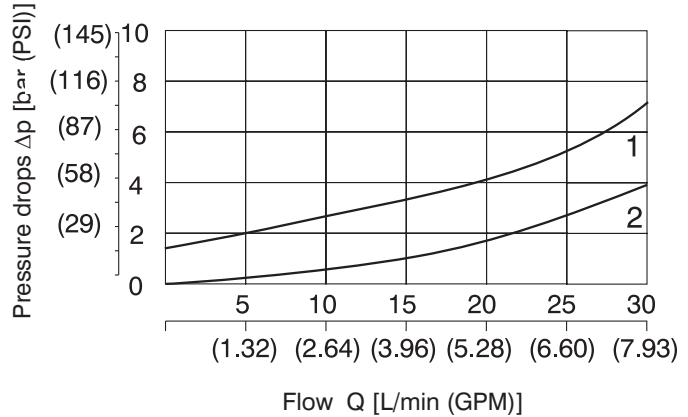
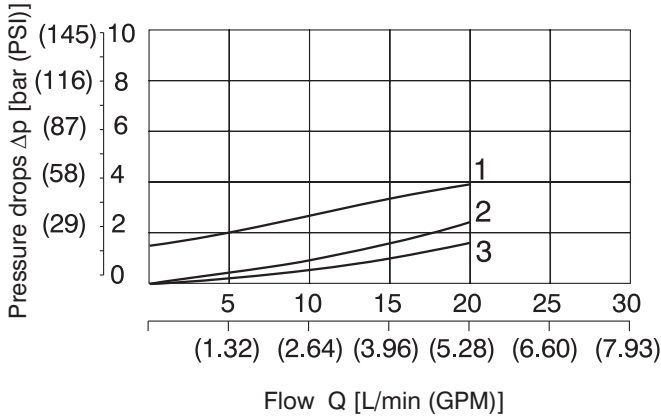
	Connection
1	2L2
1	2O2

Δp-Q Characteristics

Measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

Pressure drops related to flow rate.

Standard valve + High performance valve



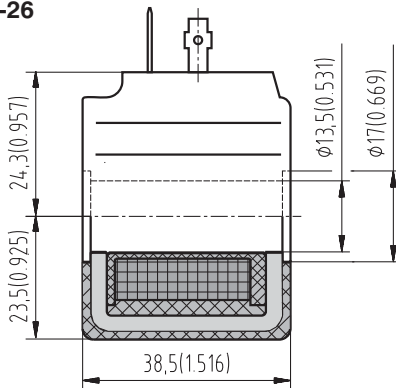
	Connection	Dirrection	Solenoid
1	S 2L2	1→2	switched off
2	S 2L2	1→2	switched on
2	S 2L2	2→1	switched on
2	S 2O2	1→2	switched off
3	S 2O2	2→1	switched off

	Connection	Dirrection	Solenoid
1	H 2L2	1→2	switched off
2	H 2L2	1→2	switched on
2	H 2L2	2→1	switched on
2	H 2O2	1→2	switched off
2	H 2O2	2→1	switched off

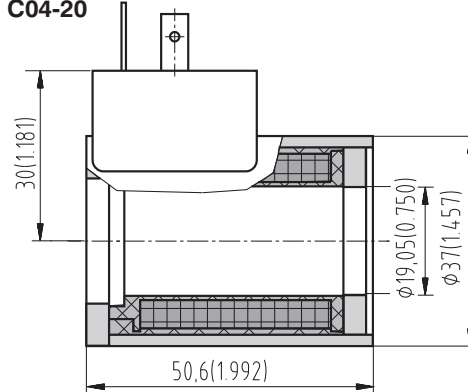
Type of the Solenoid Coils

Dimensions in millimeters (inches)

Coil for Standard valve
C51-26



Coil for High performance valve
C04-20



Note:

Example of most frequent coil types.

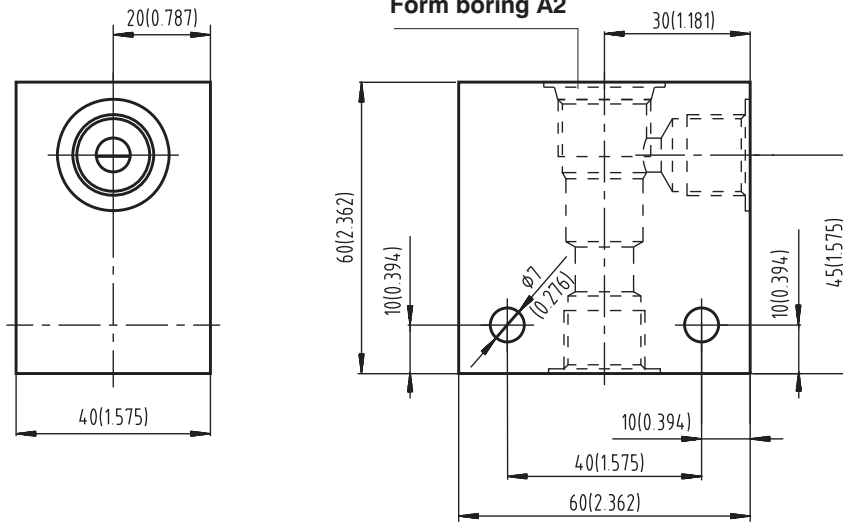
For complete range of SD3E-A2 valve coils with technical informatik about voltage, terminal box please afer to coil data sheet HA 8007.

Solenoid	Connector	Standard	High performance
		SD3E-A2 / S...	SD3E-A2 / H...
		Type code	Type code
12 VDC	EN 175301-803-A (DIN 43 650) with quenching diode	C51-26-012DC-E2	C04-20-012DC-E2
24 VDC	EN 175301-803-A (DIN 43 650) with quenching diode	C51-26-024DC-E2	C04-20-024DC-E2
12 VDC	AMP (with quenching diode)	C51-26-012DC-E4	C04-20-012DC-E4
24 VDC	AMP (with quenching diode)	C51-26-024DC-E4	C04-20-024DC-E4
120 VAC	EN 175301-803-A (DIN 43 650) with rectifier	-	C04-20-120AC-E5
230 VAC	EN 175301-803-A (DIN 43 650) with rectifier	-	C04-20-230AC-E5
120 VAC	EN 175301-803-A (DIN 43 650)	C51-26-105DC-E1*	C04-20-105DC-E1*
230 VAC	EN 175301-803-A (DIN 43 650)	C51-26-205DC-E1*	C04-20-205DC-E1*

*Use the terminal box with rectifier!

Valve Body

Dimensions in millimeters (inches)



Body material	Connecting size	Type code	Operating pressures
Steel	G3/8	SB-A2-0103ST	420 bar (6091 PSI)
Steel	SAE 6	SB-A2-0102ST	420 bar (6091 PSI)
Aluminium	G3/8	SB-A2-0103AL	250 bar (3626 PSI)
Aluminium	SAE 6	SB-A2-0102AL	250 bar (3626 PSI)

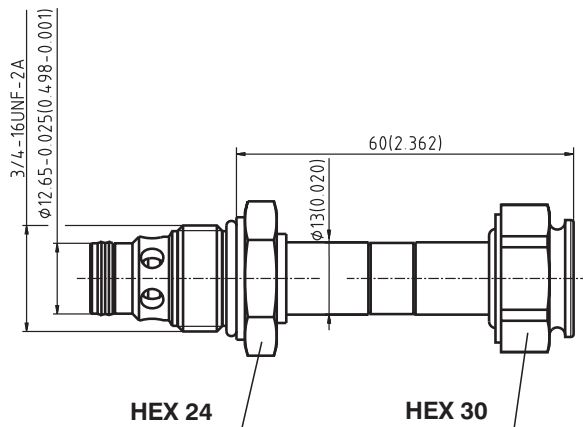
Note:

- For detailed valve body ordering code refer to data sheet HA 0018

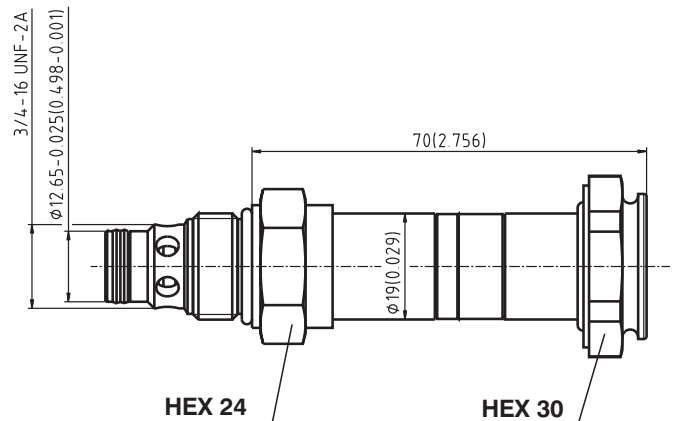
Valve Dimensions

Dimensions in millimeters (inches)

Standard valve

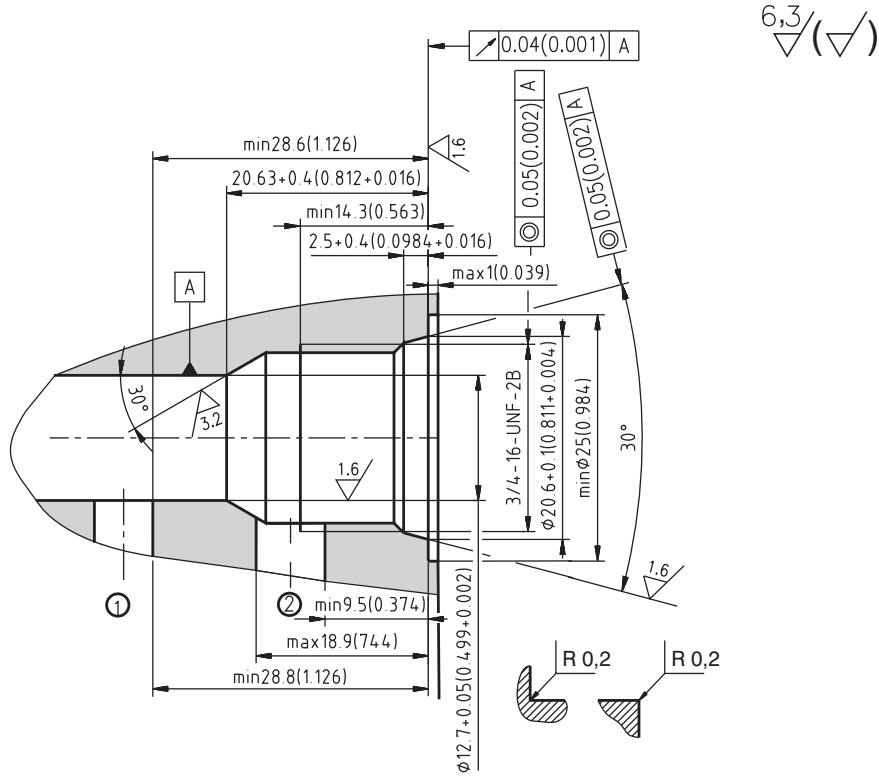


High performance valve



Cavity

Dimensions in millimeters (inches)



Spare Parts

Dimensions in millimeters

Standard and high performance valve

Dualseal - PU	O-ring - NBR	O-ring - Viton	Order number
10,3 x 12,7 x 3,1 (1pc.)	17 x 1,8 (1pc.)	-	408-9001
10,3 x 12,7 x 3,1 (1pc.)	-	17,17 x 1,78 (1pc.)	408-9002

Solenoid retaining nut with seal for standard valve

Type of nut	O-ring - Viton	Order number
Standard nut	12,3 x 2,4 (1pc.)	408-9003
Nut M2	12,3 x 2,4 (1pc.)	408-9010

Solenoid retaining nut with seal for high performance valve

Type of nut	O-ring - Viton	Order number
Standard nut	20 x 2,5 (1pc.)	408-9004
Nut M2	20 x 2,5 (1pc.)	408-9011

Caution!

- The packing foil is recyclable.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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