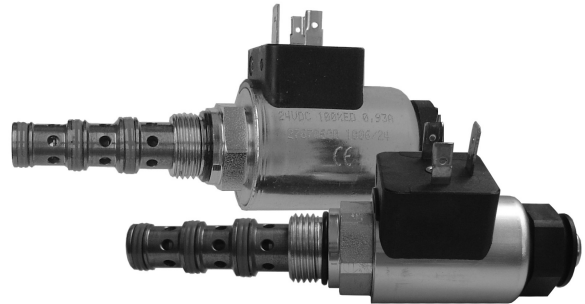
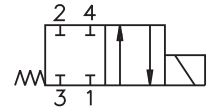


- Hardened precision working parts
- High flow capacity
- High transmitted hydraulic power
- Wide range of manual overrides available
- All ports may be fully pressurized
- Variety of optional spools connections available
- Coil interchangeability with all series SD*- A* valves



Functional Description

The directly operated 4/2 way solenoid actuated spool valve controls in the first line the start and stop function of the oil flow. The valve consists of the valve body (1), control spool (2), return spring (3), cartridge with actuating system (4) and of the solenoid coil (7) that is mounted on the actuating system. The valve bushing is screwed into the cartridge part (4).

The valve bushing is fixed in the cartridge by a wire ring (5) and sealed with the seal ring (6). Separation of the valve bushing and the cartridge prevent transmitting the stresses, which could be caused by too high tightening torques. 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,

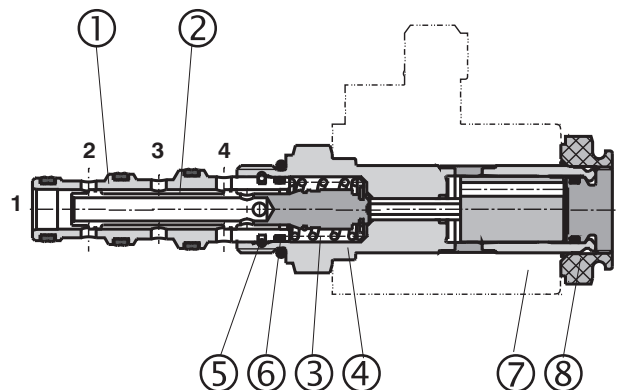
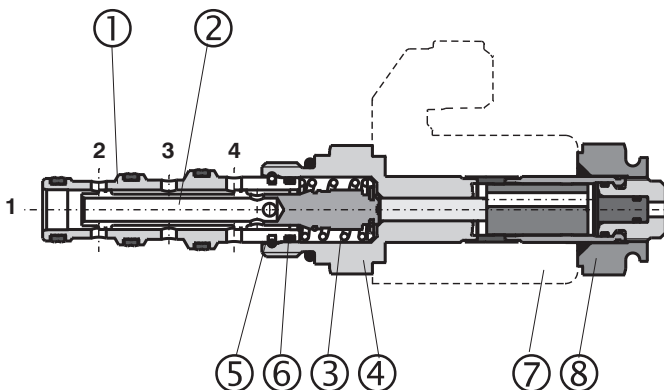
the suitable rectifiers for the Light line solenoid coils are available, with them being mounted in an additional terminal box. With the high power solenoid coils in AC variants, the rectifiers are integrated directly in the connector. By loosening the fixing nut (8), the solenoid coil can be replaced or turned in the range of 360°. The valve body is zinc coated.

Note:

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

Light line

High performance



Ordering Code

SD2E-A4 /

4/2 Way Solenoid Operated Directional Control Valve

Light line
High Performance

Description
Refer to the table with functional symbols

L
H

No designation
V

Seals
NBR
FPM (Viton)

No designation
M5
M9

Manual override
standard
socket head screw
without manual override

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.

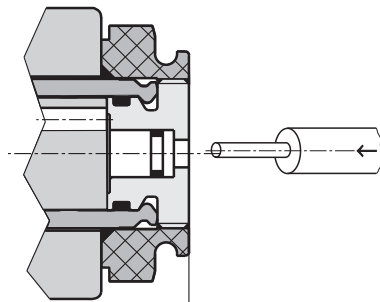
Functional Symbols

Designation	Symbol	Interposition	Designation	Symbol	Interposition
2Z51			2X21		
2Z11			2R21		
2Y11			* only for High Performance		

Manual Override

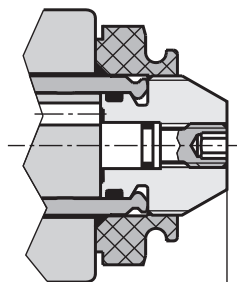
Dimensions in millimeters (inches)

No designation - standard



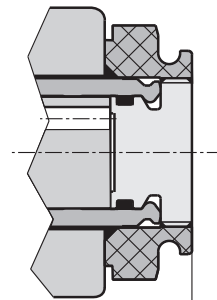
Light line ~70,2 (2.63)
High performance ~70,0 (2.76)

Designation **M5** - with socket head screw 2.5 (0.098)



Light line ~77,2(3.04)
High performance ~77,5(3.05)

Designation **M9** - without manual override



Light line ~67,2(2.65)
High performance ~70,0(2.76)

Technical Data

		Light line	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 (3625)	350 (5076)
Pressure drop	bar (PSI)	see Δp-Q characteristics	
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524	
Coil groups ¹⁾		C14B	C19B
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 (2006).	
Permissible rated voltage variation	%	AC,DC ±10	AC,DC ±15
Max. switching frequency	1/h	15 000	
Duty cycle	%	100	
Enclosure type to EN 60529 ¹⁾		IP 67 (IP 65)	
Service life	cycles	10 ⁷	
Weight	kg (lbs)	0,18 (0.40)	0,23 (0.51)
Valve tightening torque	Nm (lbf.ft)	30+2 (22.127+1.475)	
Plastic nut tightening torque	Nm (lbf.ft)	3+1 (2.213+0.738)	3+1 (2.213+0.738)
Mounting position		unrestricted	

¹⁾ see data sheet coils HA 8007

p-Q Characteristics

Measured at v = 32mm²/s (156 SUS)

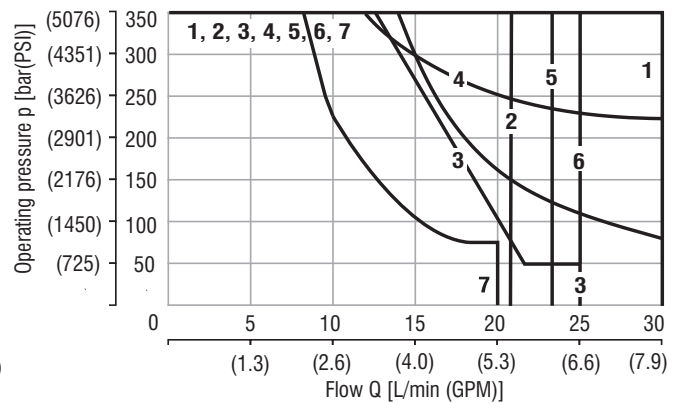
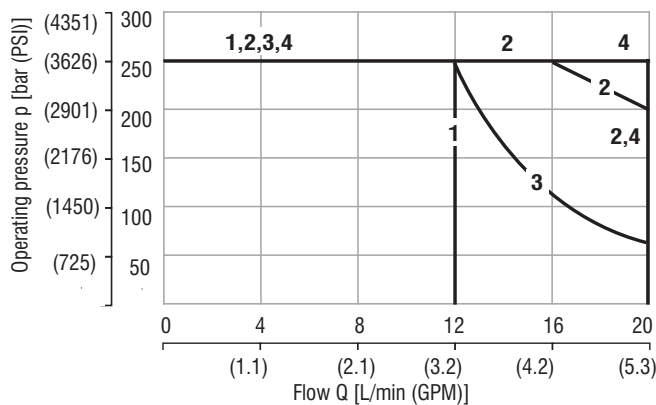
Operating limits for maximum hydraulic power transferred by the directional valve. For respective spool type - see functional symbols.

Light line

Oil 60 °C (140 °F) / Ambient temperature 50 °C (122 °F)
Voltage Un-10% [V] 24VDC

High performance

Oil 80 °C (176 °F) / Ambient temperature 50 °C (122 °F)
Voltage Un-10% [V] 24VDC



	Connection	Direction
1	2Z11	3→2, 4→1
2	2Z51	3→4, 2→1
3	2R21	3→2, 4→1
4	2R21	3→4, 2→1
4	2X21, 2P51	3→4, 2→1

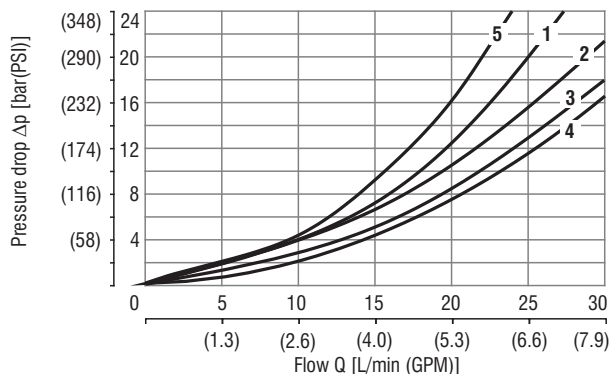
	Connection	Direction
1	2Z51	3→4, 2→1
2	2Z11	3→2, 4→1
3	2R21	3→2, 4→1
4	2X21	3→4, 2→1
5	2X21	3→2, 4→1
1	2R21	3→4, 2→1
6	2Y11	3→2, 4→1
7	2C51	3→1

Δp-Q Characteristics

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

Pressure drops related to flow rate.

Light line + High performance

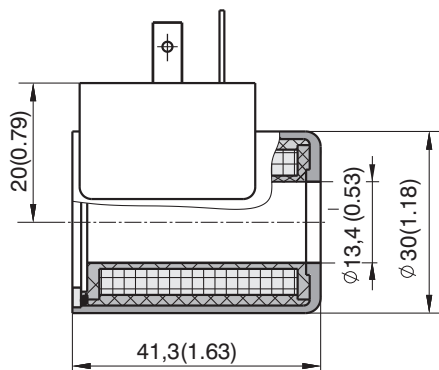


	Connection	Direction
1	2Z11	4→1
1	2R21	2→1
2	2Z11	3→2
2	2Z51	2→1
2	2X21	3→4, 4→1
2	2R21	3→2
3	2Z51	3→4
3	2R21	3→4
3	2Y11	3→2, 4→1
4	2X21	3→2, 2→1
4	2C51	3→2, 4→1
5	2R21	4→1
5	2C51	3→1

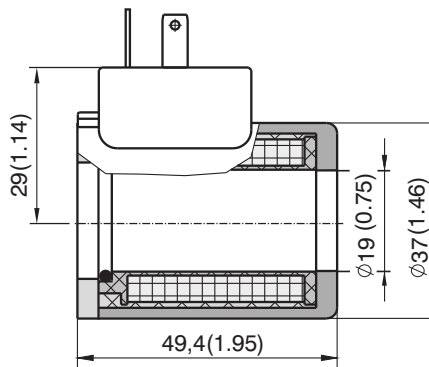
Type of the Solenoid Coils

Dimensions in millimeters (inches)

Coil for Light line
C14B



Coil for High performance
C19B



Note:

Example of most frequent coil types.

For complete range of SD2E-A4 valve coils with technical informatik about voltage, enclosure type, terminal box please refer to coil data sheet HA 8007.

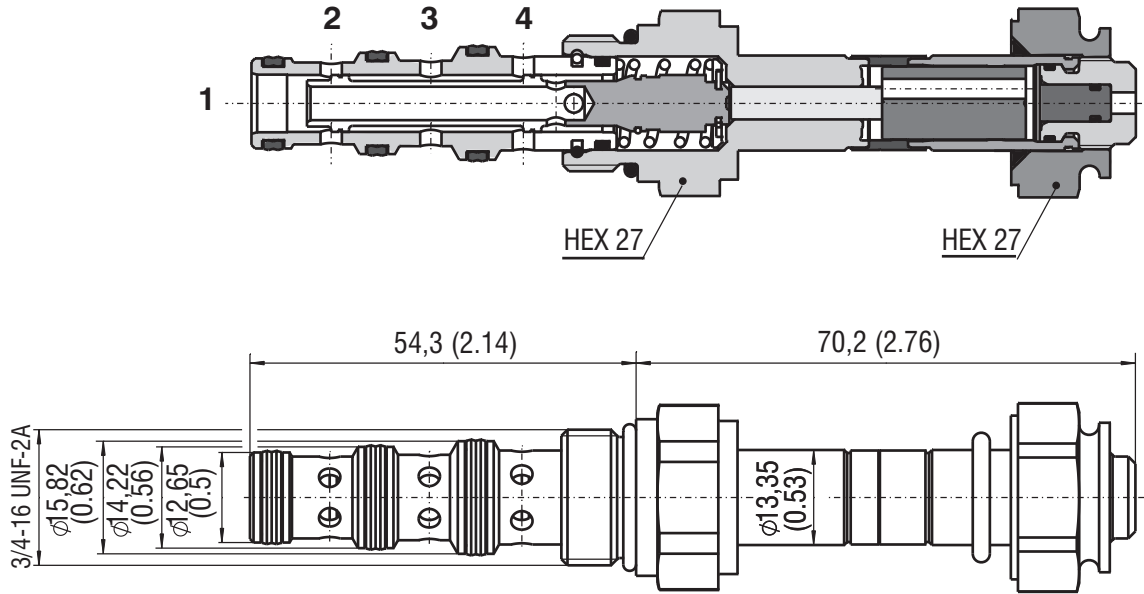
Solenoid	Connector	Light line	High performance
		SD2E-A4 / L...	SD2E-A4 / H...
		Type code	Type code
12 VDC	EN 175301-803-A	C14B-01200E1-6,55NA	C19B-01200E1-7,1NA
24 VDC	EN 175301-803-A	C14B-02400E1-26,2NA	C19B-02400E1-28,8NA
12 VDC	AMP-Junior-Timer	C14B-01200E3A-6,55NA	C19B-01200E3-7,16NA
24 VDC	AMP-Junior-Timer	C14B-02400E3A-26,2NA	C19B-02400E3-28,8NA
120 VAC	EN 175301-803-A with integrated rectifier	-	C19B-12060E5-527NA
230 VAC	EN 175301-803-A with integrated rectifier	-	C19B-23050E5-2065NA
120 VAC*	EN 175301-803-A (with rectifier)	C14B-10600E1-536NA	C19B-10600E1-527NA
230 VAC*	EN 175301-803-A (with rectifier)	C14B-20500E1-2476NA	C19B-20500E1-2065NA

*Use the terminal box with rectifier!

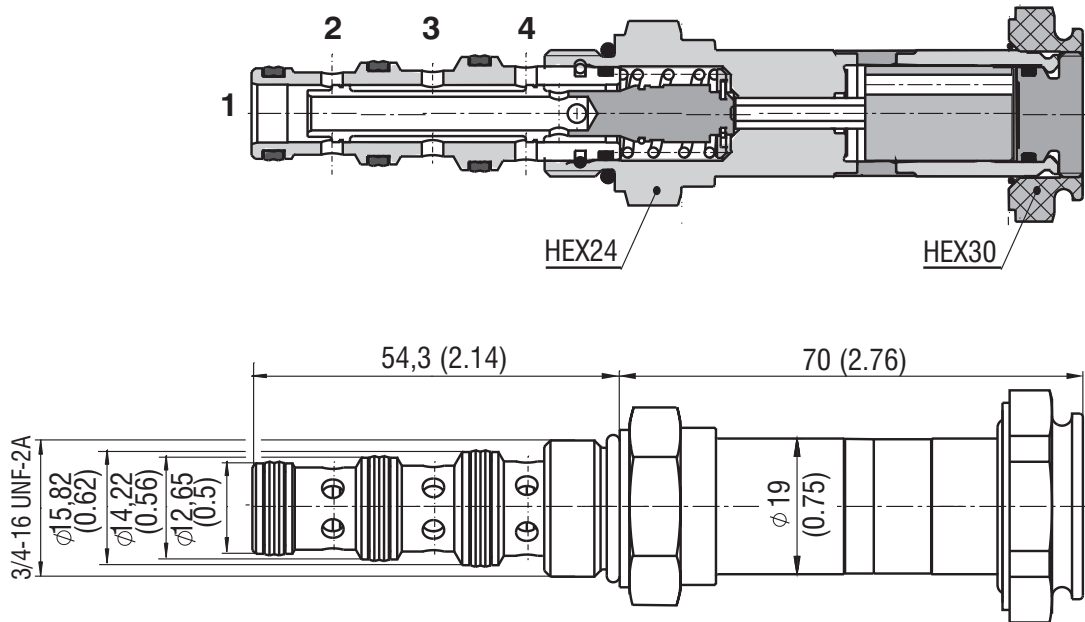
Valve Dimensions

Dimensions in millimeters (inches)

Light line

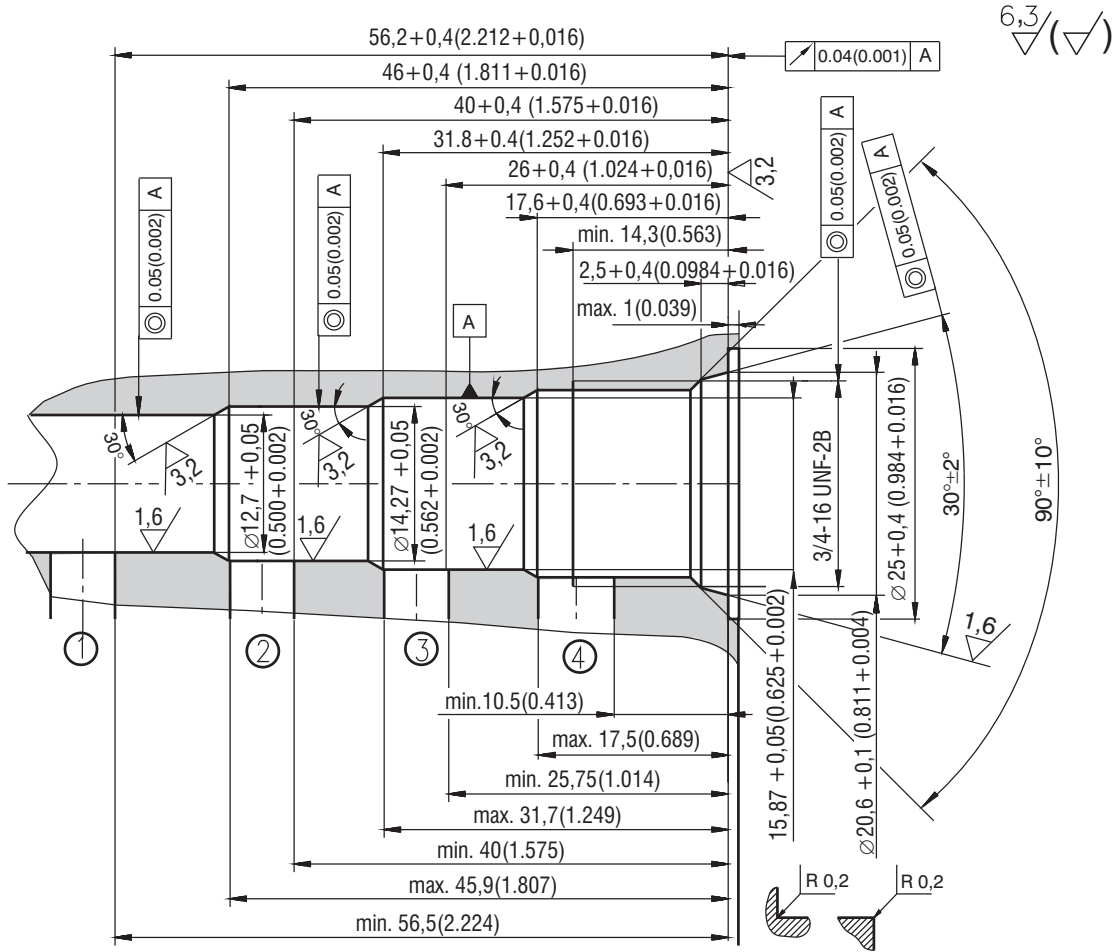


High performance



Cavity

Dimensions in millimeters (inches)



Spare Parts

Dimensions in millimeters

Light line and high performance

Dualseal - PU	O-ring - NBR	O-ring - Viton	Ordering number
10,3 x 12,7 x 3,1 (1pc.)	17 x 1,8 (1pc.)	-	20777300
11,87 x 14,27 x 3,1 (1pc.)			
13,4 x 15,87 x 3,1 (1pc.)			
10,3 x 12,7 x 3,1 (1pc.)	-	17,17 x 1,78 (1pc.)	20777400
11,87 x 14,27 x 3,1 (1pc.)			
13,4 x 15,87 x 3,1 (1pc.)			

Solenoid retaining nut with seal for Light line

Type of nut	O-ring - Viton	Ordering number
Standard nut	12,3 x 2,4 (1pc.)	20776900

Solenoid retaining nut with seal for High performance

Type of nut	O-ring - Viton	Ordering number
Standard nut	20 x 2,5 (1pc.)	20777000

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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