



3-Way, 2-Position Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
	EVH 06/D5	NCS06/3	Solenoid Valve, Poppet Type, 3-Way, 2-Position	20 l/min [5 US gal/min]	230 bar [3300 psi]	SV - 19

2-Way Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
	SVP08-CDB	SDC08-2	Solenoid Valve, Poppet Type, Double-Blocking,	16 l/min [4 US gal/min]	230 bar [3300 psi]	SV - 21
	EVK 06/C5	NCS06/2	Normally Closed	40 l/min [10.6 US gal/min]	210 bar [3000 psi]	SV - 23

2-Way Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
	HSVP10-CDB	SDC10-2	Solenoid Valve, Poppet Type, Normally Closed, Pilot Operated, Double Blocking	50 l/min [13.2 US gal/min]	350 bar [5075 psi]	SV - 25
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2-Way Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page	
	HSVP10-ODB	SDC10-2	Solenoid Valve, Poppet Type, Normally Open, Pilot Operated, Double Blocking	50 l/min [13.2 US gal/min]	350 bar [5075 psi]	SV - 27	

2-Way Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
	SVP08-NC	50000 0		35 l/min	230 bar**	SV - 29
	SVP08-NC	SDC08-2		[9 US gal/min]	[3300 psi]	
		50610.2		80 l/min	230 bar**	CV 21
	SVP10-NC	SDC10-2		[21 US gal/min]	[3300 psi]	SV - 31
		50610.2		65 l/min	350 bar	CV 22
	HSVP10-NC	10-NC SDC10-2		[17 US gal/min]	[5075 psi]	SV - 33
	SVP12-NC CP	CP12-2		114 l/min	230 bar	SV - 35
	SVP12-NC	CP12-2	Solenoid Valve, Poppet	[30 US gal/min]	[3300 psi]	
	HSVP12-NC CP12-2	CD12.2	Type, Normally Closed,	114 l/min	350 bar	SV - 37
		CF 12-2	Pilot Operated	[30 US gal/min]	[5075 psi]	54-57
	SVP16-NC	SDC16-2		152 l/min	230 bar	SV - 39
	SVPTO-INC	SDC10-2		[40 US gal/min]	[3300 psi]	
-	HSVP16-NC	SDC16-2		152 l/min	350 bar	SV - 41
	HSVP TO-NC	30010-2		[40 US gal/min]	[5075 psi]	
	SVP20-NC	SDC20-2		227 l/min	230 bar	SV - 43
	3VP20-INC	30(20-2		[60 US gal/min]	[3300 psi]	
	HSVP20-NC	SDC20-2		227 l/min	350 bar	SV - 45
	HSVP20-NC	30020-2		[60 US gal/min]	[5075 psi]	38-43



Quick Reference

3-Way, 2-Position Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
	SVP08-NCF	SDC08-2	Solenoid Valve, Poppet Type, Normally Closed, Pilot Operated, Flow Control	15 l/min [4 US gal/min]	230 bar [3300 psi]	SV - 47

2-Way Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
	SVP08-NCR	SDC08-2		35 l/min	230 bar**	SV - 49
		55000 2	-	[9 US gal/min]	[3300 psi]	
	SVP10-NCR	SDC10-2		80 l/min	230 bar**	SV - 51
	JVI IO-NCK	JDC10-2		[21 US gal/min]	[3300 psi]	54-51
	HSVP10-NCR	NCR SDC10-2		65 l/min	350 bar	SV - 53
	115VF TO-INCK	30010-2		[17 US gal/min]	[5075 psi]	34-33
	SVP12-NCR	CP12-2	Solenoid Valve,	114 l/min	230 bar	SV - 55
	JVF 12-NCK	CF 12-2		[30 US gal/min]	[3300 psi]	
	HSVP12-NCR	CP12-2	Poppet Type, Normally Closed,	114 l/min	350 bar	SV - 57
	115V1 12-NCK	CI 12-2		[30 US gal/min]	[5075 psi]	
	SVP16-NCR	SDC16-2	Pilot Operated with Reverse Free Flow	152 l/min	230 bar	SV - 59
	JVF TO-NCK	30010-2	neverse rice riow	[40 US gal/min]	[3300 psi]	34-33
	HSVP16-NCR	SDC16-2		152 l/min	350 bar	SV - 61
	115VF 10-NCK	30010-2		[40 US gal/min]	[5075 psi]	34-01
	SVP20-NCR	SDC20-2		227 l/min	230 bar	SV - 63
	JVF20-INCK	30020-2		[60 US gal/min]	[3300 psi]	50-05
	HSVP20-NCR	SDC20-2		227 l/min	350 bar	SV - 65
	115VF20-IVCR	30020-2		[60 US gal/min]	[5075 psi]	30-05

2-Way Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
2	SVP08-NO	SDC08-2		35 l/min [9 US gal/min]	230 bar** [3300 psi]	SV - 67
	SVP10-NO	SDC10-2		80 l/min [21 US gal/min]	230 bar** [3300 psi]	SV - 69
	HSVP10-NO	SDC10-2		65 l/min [17 US gal/min]	350 bar [5075 psi]	SV - 71
		CP12-2		114 l/min [30 US gal/min]	230 bar [3300 psi]	SV - 73
		CP12-2	Solenoid Valve, Poppet Type, Normally Open,	114 l/min [30 US gal/min]	350 bar [5075 psi]	SV - 75
	SVP16-NO	SDC16-2	Pilot Operated	152 l/min [40 US gal/min]	230 bar [3300 psi]	SV - 77
	HSVP16-NO	SDC16-2		152 l/min [40 US gal/min]	350 bar [5075 psi]	SV - 79
	SVP20-NO	SDC20-2		265 l/min [70 US gal/min]	230 bar [3300 psi]	SV - 81
	HSVP20-NO	SDC20-2		265 l/min [70 US gal/min]	350 bar [5075 psi]	SV - 83







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2-Way Poppet	Model No.	Cavity	Description	Flow*	Pressure	Page
	SVP08-NOR	SDC08-2		35 l/min [9 US gal/min]	230 bar** [3300 psi]	SV - 85
	SVP10-NOR	SDC10-2		80 l/min [21 US gal/min]	230 bar** [3300 psi]	SV - 87
	HSVP10-NOR	SDC10-2		65 l/min [17 US gal/min]	350 bar [5075 psi]	SV - 89
2	SVP12-NOR	CP12-2	Solenoid Valve, Poppet	114 l/min [30 US gal/min]	230 bar [3300 psi]	SV - 91
	HSVP12-NOR	CP12-2	Solehold Valve, Popper Type, Normally Open, Pilot Operated with Reverse Free Flow	114 l/min [30 US gal/min]	350 bar [5075 psi]	SV - 93
	SVP16-NOR	SDC16-2		152 l/min [40 US gal/min]	230 bar [3300 psi]	SV - 95
	HSVP16-NOR	SDC16-2		152 l/min [40 US gal/min]	350 bar [5075 psi]	SV - 97
	SVP20-NOR	SDC20-2		265 l/min [70 US gal/min]	230 bar [3300 psi]	SV - 99
	HSVP20-NOR	SDC20-2		265 l/min [70 US gal/min]	350 bar [5075 psi]	SV - 101
2-Way Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-22-01	SDC08-2	Solenoid Valve, Spool Type, 2-Way,	16 l/min [4 US gal/min]	230 bar** [3300 psi]	SV - 103
	HSV10-22-01	SDC10-2	2-Position, Normally Open, Push Type	50 l/min [13 US gal/min]	350 bar [5075 psi]	SV - 105
2-Way Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
2	HSV08-22-01	SDC08-2	Solenoid Valve,	13 l/min [3.4 US gal/min]	350 bar [5075 psi]	SV - 107
	SV10-22-01	SDC10-2	Spool Type, 2-Way, 2-Position, Normally	27 l/min [7 US gal/min]	230 bar** [3300 psi]	SV - 109
	SV15-22-01	NCS 12/2	Open, Pull Type	60 l/min [16 US gal/min]	210 bar** [3000 psi]	SV - 111
2-Way Spool	Model No.	Cavity	Description	Flow*	Pressure	Page

2-Way Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-22-02	SDC08-2		14 l/min	230 bar**	SV - 113
	3000-22-02 3000-2		[4 US gal/min]	[3300 psi]	50-115	
	HSV08-22-02 SDC08-2		12 l/min	350 bar	SV - 115	
		H5V08-22-02	30008-2	Solenoid Valve,	[3.2 US gal/min]	[5075 psi]
	SV10-22-02	SDC10-2	Spool Type, 2-Way,	35 l/min	230 bar**	SV - 117
	5010-22-02	SV10-22-02 SDC10-2	2-Position, Normally	[9 US gal/min]	[3300 psi]	50-117
		SDC10-2	Closed, Pull Type	50 l/min	350 bar	SV - 119
	HSV10-22-02	SDC10-2		[13 US gal/min]	[5075 psi]	50-119
SV15-22-02	SV15 22 02			60 l/min	210 bar**	SV - 121
	NCS 12/2		[16 US gal/min]	[3045 psi]	30-121	





Quick Reference

2-Way Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-22-03	SDC08-2	Solenoid Valve, Spool Type, 2-Way, 2-Position, Normally Open, Pull Type	12 l/min [3 US gal/min]	230 bar** [3300 psi]	SV - 123

3-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-23-01	SDC08-3		17 l/min [4.5 US gal/min]	230 bar** [3300 psi]	SV - 125
	HSV08-23-01	SDC08-3	-	16 l/min [4.2 US gal/min]	350 bar [5075 psi]	SV - 127
	SV10-23-01	SDC10-3	Solenoid Valve, Spool Type, 3-Way, 2-Position	28 l/min [7 US gal/min]	230 bar** [3300 psi]	SV - 129
	HSV10-23-01	SDC10-3		30 l/min [8 US gal/min]	350 bar [5075 psi]	SV - 131
	CP521-21	CP12-3		60 l/min [16 US gal/min]	240 bar [3500 psi]	SV - 133

3-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-23-02	SDC08-3		10 l/min	230 bar**	SV - 135
	SV08-23-02 SDC08-:	30008-3		[3 US gal/min]	[3300 psi]	30-135
		SDC08-3		16 l/min	350 bar	SV - 137
	HSV08-23-02	H3V08-23-02 SDC08-3		[4.2 US gal/min]	[5075 psi]	50-13/
	SV09-23-02	SDC10-3	Solenoid Valve, Spool	21 l/min	100 bar	SV - 139
	3009-23-02	30010-3	Type, 3-Way, 2-Position	[6 US gal/min]	[1450 psi]	38-139
	SV10-23-02	SDC10-3		15 l/min	230 bar	SV - 141
3 2	3010-23-02	30010-3		[4 US gal/min]	[3300 psi]	
	HSV10-23-02	SDC10-3		28 l/min	350 bar	SV - 143
	H5V10-23-02	HSV10-23-02 SDC10-3		[7.4 US gal/min]	[5075 psi]	50-145

3-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-23-03	SDC08-3	Solenoid Valve, Spool Type, 3-Way, 2-Position	18 l/min [5 US gal/min]	230 bar** [3300 psi]	SV - 145

3-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-23-04	SDC08-3	Solenoid Valve, Spool Type, 3-Way, 2-Position	10 l/min [3 US gal/min]	230 bar** [3300 psi]	SV - 147
	SV10-23-04	SDC10-3		20 l/min [5 US gal/min]	230 bar** [3300 psi]	SV - 149
	SV15-23-04	NCS12/3		50 l/min [13 US gal/min]	210 bar** [3000 psi]	SV - 151

* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only. ** See 315 bar pressure rating note on page SV-10.

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4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-24-01	SDC08-4		8 l/min	230 bar**	SV - 153
	3008-24-01	3000-4		[2 US gal/min]	[3300 psi]	38-122
	HSV08-24-01 SDC08-4			11 l/min	350 bar	SV - 155
			[2.9 US gal/min]	[5075 psi]	30-133	
	SV09-24-01 SDC10-4		20 l/min	100 bar	SV - 157	
	3009-24-01	5V09-24-01 5DC10-4	Solenoid Valve, Spool	[5 US gal/min]	[1450 psi]	38-137
	SV10-24-01	SDC10-4	Type, 4-Way, 2-Position	15 l/min	230 bar**	SV - 159
	3010-24-01	SDC10-4		[4 US gal/min	[3300 psi]	
3 1	1151/10 24 01	SDC10-4		25 l/min	350 bar	SV - 161
	HSV10-24-01	30010-4		[6.6 US gal/min]	[5075 psi]	34-101
	SV15-24-01	NCS12/4		55 l/min	210 bar**	CV 162
	3013-24-01	NC312/4		[15 US gal/min]	[3000 psi]	SV - 163

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-24-02	SDC08-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	10 l/min [3 US gal/min]	230 bar** [3300 psi]	SV - 165
	SV10-24-02	SDC10-4		24 l/min [6.3 US gal/min]	230 bar** [3300 psi]	SV - 167
3 0	SV15-24-02	NCS12/4		60 l/min [16 US gal/min]	210 bar** [3045 psi]	SV - 169

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV15-24-03	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	50 l/min [13 US gal/min]	210 bar** [3000 psi]	SV - 171

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-24-04	SDC08-4	Solenoid Valve, Spool	8 l/min [2 US gal/min]	230 bar** [3300 psi]	SV - 173
	SV15-24-04	NCS12/4	Type, 4-Way, 2-Position	50 l/min [13 US gal/min]	210 bar** [3000 psi]	SV - 175

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV10-24-12	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	18 l/min [5 US gal/min]	230 bar** [3300 psi]	SV - 177





4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV10-24-05	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	25 l/min [7 US gal/min]	230 bar** [3300 psi]	SV - 179

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV10-24-06	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	20 l/min [5 US gal/min]	230 bar** [3300 psi]	SV - 181

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV10-24-07	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	24 l/min [6 US gal/min]	230 bar** [3300 psi]	SV - 183

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-24-08	SDC08-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	24 l/min [6 US gal/min]	230 bar** [3300 psi]	SV - 185

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP531-21	SDC12-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	32 l/min [8 US gal/min]	240 bar [3500 psi]	SV - 187

4-Way, 2-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV10-24-13	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 2-Position	21 l/min [6 US gal/min]	230 bar** [3300 psi]	SV - 189



4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
$\begin{array}{c} 2 \\ 4 \\ 1 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$	SV08-34-02	SDC08-4		10 l/min [2.6 US gal/min]	230 bar** [3300 psi]	SV - 191
	HSV08-34-02	SDC08-4	Solenoid Valve, Spool Type, 4-Way, 3-Position, Closed Center	11 l/min [2.9 US gal/min]	350 bar [5075 psi]	SV - 193
	SV10-34-02	SDC10-4		20 l/min [6 US gal/min]	230 bar** [3300 psi]	SV - 195
	HSV10-34-02	SDC10-4		25 l/min [6.6 US gal/min]	350 bar [5075 psi]	SV - 197
	SV15-34-02	NCS12/4		55 l/min [15 US gal/min]	210 bar** [3000 psi]	SV - 199

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-34-03	SDC08-4	Solenoid Valve, Spool	8 l/min [2 US gal/min]	230 bar** [3300 psi]	SV - 201
$\begin{array}{c c} & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ &$	SV15-34-03	NCS12/4	Type, 4-Way, 3-Position, All Open Center	50 l/min [13 US gal/min]	210 bar** [3000 psi]	SV - 203

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	SV10-34-03	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 3-Position, All Open Center	16 l/min [4 US gal/min]	230 bar** [3300 psi]	SV - 205

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-34-04	SDC08-4	Solenoid Valve, Spool	6 l/min [2 US gal/min]	230 bar** [3300 psi]	SV - 207
$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 &$	SV15-34-04	NCS12/4	Type, 4-Way, 3-Position	50 l/min [13 US gal/min]	210 bar** [3000 psi]	SV - 209

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
$\begin{array}{c} 2 \\ 4 \\ 1 \\ 1 \\ 1 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$	SV10-34-04	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 3-Position	15 l/min [4 US gal/min]	230 bar** [3300 psi]	SV - 211



Quick Reference

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
	SV08-34-05	SDC08-4		10 l/min	230 bar**	SV - 213
	3000-34-03 30000-4	3000-4		[2 US gal/min]	[3300 psi]	38-213
	HSV08-34-05	SDC08-4		11 l/min	350 bar	SV - 215
	H3V08-34-03 SDC08-4		[2.9 US gal/min]	[5075 psi]	38-213	
	SV10-34-05	SDC10-4	Solenoid Valve, Spool	20 l/min	230 bar**	SV - 217
	3010-34-05	3V10-34-05 SDC10-4	Type, 4-Way, 3-Position	[6 US gal/min]	[3300 psi]	30-217
S2 S1	HSV10-34-05	SDC10-4		25 l/min	350 bar	SV - 219
$(3)^{-1}(1)$	H3V10-34-05	30010-4		[6.6 US gal/min]	[5075 psi]	30-219
	SV15-34-05	NCS12/4		55 l/min	210 bar**	SV - 221
	313-34-05	NC312/4		[15 US gal/min]	[3000 psi]	30-221

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
$ \begin{array}{c c} 2 & 4 \\ & 4 \\ & 52 & 51 \\ & 3 & 1 \end{array} $	SV10-34-11	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 3-Position	24 l/min [6 US gal/min]	230 bar** [3300 psi]	SV - 223

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	SV10-34-14	SDC10-4	Solenoid Valve, Spool Type, 4-Way, 3-Position	18 l/min [5 US gal/min]	230 bar [3300 psi]	SV - 225

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
$\begin{array}{c c} & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\$	SV10-35-02	SDC10-5	Solenoid Valve, Spool Type, 5-Way, 3-Position, All Blocked Center	18 l/min [4.8 US gal/min]	230 bar [3300 psi]	SV - 227

4-Way, 3-Position Spool	Model No.	Cavity	Description	Flow*	Pressure	Page
$\begin{array}{c c} & @ \\ & @ \\ & & & \\ & & \\ & & & \\ & & \\ & & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & &$	SV10-35-05	SDC10-5	Solenoid Valve, Spool Type, 5-Way, 3-Position	18 l/min [4.8 US gal/min]	230 bar [3300 psi]	SV - 229

See 515 bai pressare rating note on page 54 10.







SOLENOID VALVES Solenoid valves are electrically-operated, on-off poppet or spool-type valves for load holding, blocking, or directional control applications.

Solenoid valves



PLUS+1[™] COMPLIANT

Danfoss ICS solenoid valves are PLUS+1[™] compliant. PLUS+1 compliance means our valves are directly compatible with the PLUS+1 machine control architecture. Adding solenoid valves to your application using PLUS+1 GUIDE software is as easy as *drag-and-drop*. Software development that used to take months can now be done in just a few hours. For more information on PLUS+1 GUIDE, visit http://powersolutions.danfoss.com/ Products/MobileElectronics/PLUS1Compliance. The table below details available GUIDE function blocks for controlling Danfoss ICS solenoid valves.

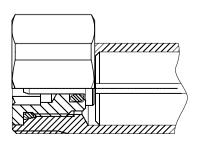
GUIDE function blocks

On-off	10106088
On-off-on	10106102

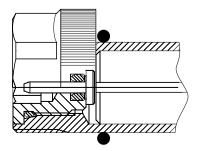
SV AND HSV COIL OPTIONS

All SV and SVP valves may be ordered with a robust coil option. The robust coil option uses a steel nut and does not use O-rings on the top and bottom of the coil. The standard coil option uses a plastic nut with one O-ring on the top of the coil and one O-ring on the bottom of the coil. HSV and HSVP valves come standard with the 'H' robust coil, using the steel nut.

Robust Coil Nut



No O-rings needed Torque is same as standard nut **Standard Coil Nut**



Standard Coil Nut Kit includes O-rings





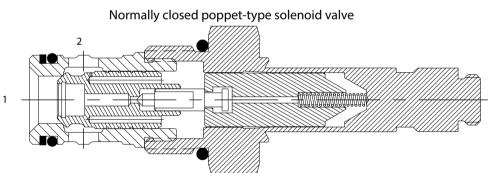
PRESSURE RATING Danfoss ICS solenoid valves are tested and qualified to 1 million duty cycles at 230 bar (3330 psi) for standard valves and 350 bar (5075 psi) for HSV high pressure valves according to NFPA T2.6.1 standards. A portion of our standard solenoid valve line has been qualified at 315 bar, but at a reduced operational life. Cycles are intended as the number of times the product is exposed to rated pressure at the defined port(s). The operational life at the (315 bar) varies by valve model and is identified in the Applications statement on each valve page. Contact your Danfoss ICS product application engineer to verify that the expected service life meets your operational requirements.

POPPET-TYPE SOLENOID VALVES

Poppet-type solenoid valves are two-way, normally open or normally-closed valves.

Normally-closed

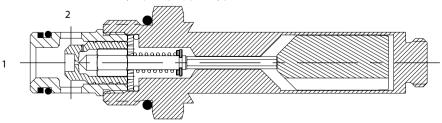
Normally-closed poppet valves block flow from 2 to 1 when de-energized. When the solenoid coil is energized, magnetic force lifts the small pilot dart from it's seat, creating a pressure differential across the main poppet that provides the force to lift the main poppet off it's seat. Models with free-reverse-flow also act as allow pressure, free-flow check valve from 1 to 2 when energized; standard models provide an orifice-connection to 2 when pressure is applied at 1.



Normally-open

Normally-open poppet valves provide free flow from 2 to 1 when de-energized. When the solenoid coil is energized, magnetic force seats the small pilot dart, creating a pressure differential that provides the force to seat the main poppet and block flow. Models with free-reverse flow also act as a low-pressure, free-flow check valve from 1 to 2 when de-energized; standard models provide an orifice-connection to 2 when pressure is applied at 1.











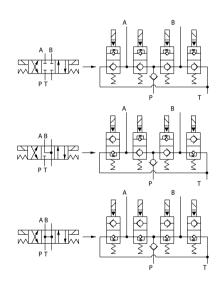
 POPPET-TYPE SOLENOID
 Applications

 VALVES
 Common applications for normally-open and normally-closed poppet valves include:

- · Load holding and lowering with single-acting cylinders.
- Unloading of a fixed-displacement pump.
- Use in combination to duplicate four-way, three-position valve functions. These circuits create low-cost, compact alternatives to subplate- or stack-type directional control valves. As an added advantage these poppet valve circuits do not need load holding checks as the poppets provide the same low-leakage function.

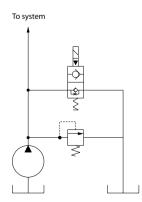
Load holding and lowering

Lower Lift



4-way 3-position directional valve circuits

Pump unloading







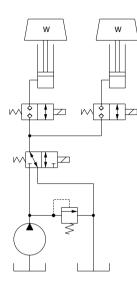


BI-DIRECTIONAL POPPET-TYPE SOLENOID VALVES

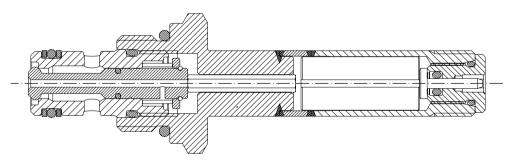
Bi-directional poppet-type solenoid valves are two-way, normally open or normally-closed valves. The poppets are pressure-balanced so that the spring holds the poppet in it's de-energized position. When the solenoid coil is energized, magnetic force overcomes the spring and causes the poppet to shift.

Normally-closed

Normally-closed bi-directional poppet valves block flow in both directions when de-energized and allow freeflow when energized. These valves are typically used as directional controls for single-acting cylinders or uni-directional motors where low-leakage load holding is required, or where multiple functions must be separated. Independent cylinder operation and load-holding



Normally closed bi-directional poppet-type solenoid valve



SPOOL-TYPE SOLENOID VALVES

Spool-type valves are available in 2-way 2-position, 3-way 2-position, 4-way 2-position, and 4-way 3 position configurations. For all these valves the spools are pressurebalanced and are held in position by a spring when de-energized. When the solenoid coil is energized, magnetic force overcomes the spring and shifts the spool. As the spool moves, flow forces, also known as Bernoulli forces, act on the spool and can prevent proper operation. These forces are a function of pressure and flow, and the catalog ratings show the operating limits for each valve. These limits are based on the valve's ability to shift at 85% of nominal voltage at 140°F ambient temperature. For this reason flow and pressure ratings for solenoid spool valves should not be exceeded.

Consult your Danfoss ICS representative for extreme applications.





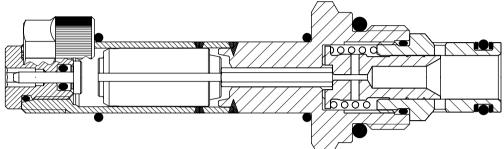


SPOOL-TYPE SOLENOID VALVES (continued)

Two-way, two-position

Two-way, two-position spool-type valves are either normally open or normally closed.

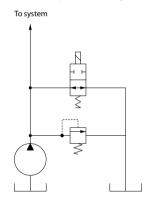
Two-way, two-position spool-type solenoid valve



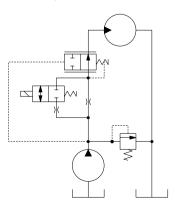
Common applications for two-way, twoposition spool type solenoid valves are:

- Unloading of a fixed-displacement pump.
- Cylinder regeneration. When the two-way two-position spool valve is energized the cylinder circuit is in regeneration mode for faster cylinder extension.
- Two-speed motor (or cylinder) operation. By using multiple valves and circuit logic, similar circuits can be used for three-speed, four-speed, etc.

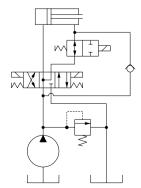




Two-speed motor circuit



Cylinder regeneration circuit Energize 2-way spool valve for faster extension



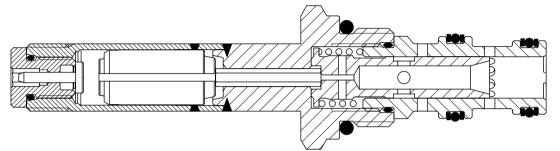


Application Notes



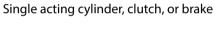
SPOOL-TYPE SOLENOID	Three-way, two-position
VALVES	Three-way, two-position spool-type valves are available with a variety of porting and
(continued)	flow paths.

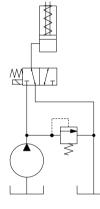
Three-way, two-position spool-type solenoid valves



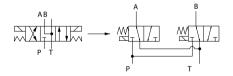
Common applications for three-way, two-position spool type solenoid valves:

- Control of a single-acting cylinder, clutch, or brake.
- Circuit selector
- Pilot control for a large directional spool.
- Use in combination to duplicate four-way, three-position valve functions, creating low-cost, compact alternatives to subplate- or stack-type directional control valves.

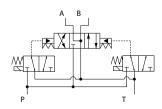


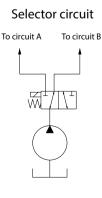


4-way 3-position directional valve circuits



Pilot for directional valve









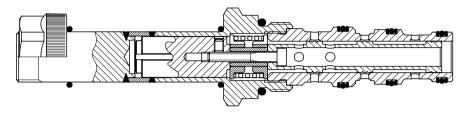


SPOOL-TYPE SOLENOID VALVES (continued)

Four-way, two-position

Four-way, two-position spool-type valves are available with normally-open, normally-closed, reversing, and single-acting spool options.

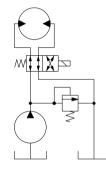
Four-way, two-position spool-type solenoid valves



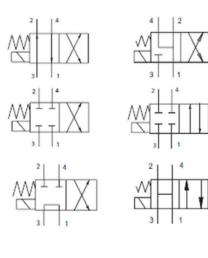
Common applications for four-way, twoposition spool type solenoid valves are:

- Directional control for motors or cylinders.
- Use in combination to duplicate four-way, three-position valve functions, creating low-cost, compact alternatives to subplate- or stacktype directional control valves.

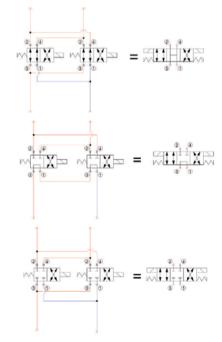
Motor directional control



4-way 2-position spool options



4-way 3-position directional valve circuits





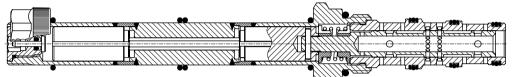
5

SPOOL-TYPE SOLENOID VALVES (continued)

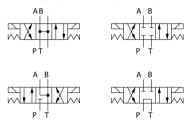
Four-way, three-position

Four-way, three-position spool-type valves are available with normally-open, normallyclosed, motor, and tandem spools. These valves are typically used for directional control for motor or cylinder functions. Typical series (or open-center) and parallel (or closedcenter) circuits are shown below.

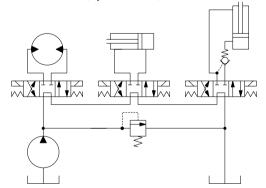
Four-way, three-position spool-type solenoid valve

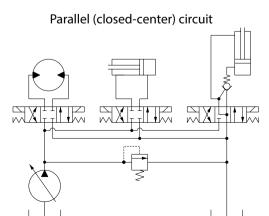


4-way 3-position spool options



Series (open-center) circuit









Solenoid Valves Technical Information Application Notes



MANUAL OVERRIDES

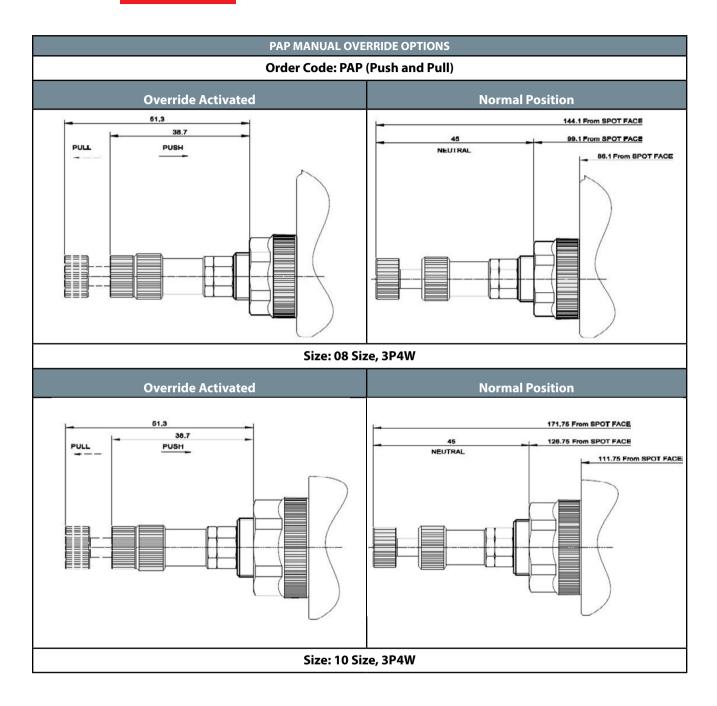
Danfoss ICS solenoid valves, where noted in the individual catalog pages, have optional manual overrides. The manual overrides are "safety" features for when power is lost and the solenoid needs to be operated. 2 position valves with manual overrides, when activated, shift the valve to its energized position. Some 3 position valves come standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2. Manual override options are intended for emergency use only and are not intended for continuous operation.

MANUAL OVERRIDE OPTIONS							
Override Activated	Normal Position	Size	Order Code	Description			
08 Size (Normal)	10 Size (Normal)	08 & 10 Size	OMIT (PN for HSV's)	Standard for any valve with push-pin manual override feature, where indicated in the catalog (HSV's & HSVP's noted with "PN" in the order code). Standard or Robust coil nuts are used, depending on the coil / valve.			
		10 Size	OPS Push Pin Nut for Protection & Actuation	Optional for any 10-size valve with push-pin manual override. Kit for standard coil (nut + 2 O-rings) 173801368; Kit for 3-position, 4-way valve (nut + O-ring) 173801378; Nut for robust coil 173801388			
08 Size (Normal)	10 Size (Normal)	08 & 10 Size	PB Push Button	Optional feature for any valve with push-pin manual override. Standard or Robust coil nuts are used, depending on the coil / valve.			
	24.5	08 Size	SPS Screw Style	Optional feature for any valve with push-pin manual override, standard or robust coil nuts are used, depending			
21.65	25.75	10 Size	(Push Type Valves)	on the coil selected. Part number for SPS Manual Override Kit for 10 Size Tube = 170013919. Part number for SPS Manual Override Kit for 08 Size Tube = 272601688.			
32,5 SWTED	NEUTRAL	10 Size & HSVP12, 16 & 20	PAT Push-and- Twist (Push Type Valves)	Optional feature for any valve with push-pin manual override. Allows the operator to manually actuate a solenoid valve with a push style tube (normally open), without requiring an electrical signal to the coil. When the valve is in the normal (neutral) position, the operator can push in, and then twist CW or CCW) the override into an actuated (shifted) position. The valve will remain actuated until the operator again pushes in and twists (CW or CCW) the override to the neutral position.			
		08 Size	M Screw Style	Optional feature for any valve with pull-type manual override (Normally-Closed poppet-type valves). Standard or Robust			
		10 Size	(Pull-Type Manual Override)	Coil nuts are used depending on the coil selected.			





Application Notes







Solenoid Valves Technical Information 3-Way, 2-Position Poppet EVH 06/D5



OPERATION

This is a direct-acting, 2-position, 3-way, poppet-type Metric NCS 06-size solenoid valve. When de-energized, the valve checks flow from port 3, while allowing free flow between port 1 and 2. When energized, the valve poppet checks flow from port 1, while allowing free flow between port 2 and 3. This valve comes standard with a push-pin type manual override.



APPLICATIONS

This valve is designed for hydraulic circuits requiring very low leakage and can be used for load holding and blocking applications.

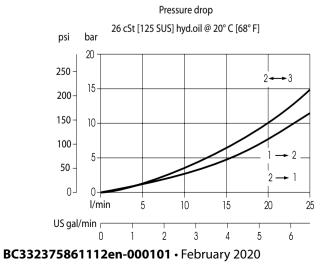
Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

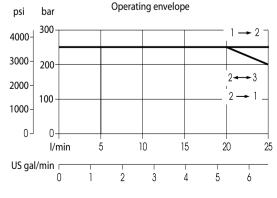
Rated pressure*	230 bar [3300 psi]
Rated flow at 7 bar	20 l/min
[100 psi]	[5 US gal/min]
Weight	0.44 kg [0.97 lb]
Cavity	NCS06/3
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

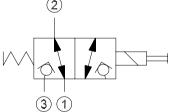
PERFORMANCE CURVES







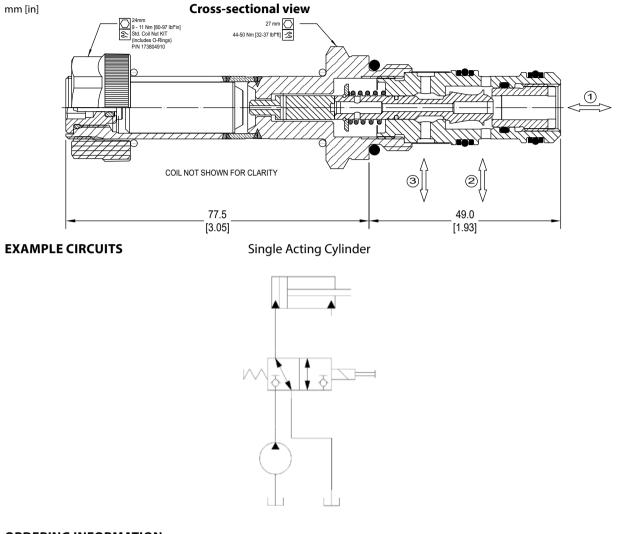
SCHEMATIC



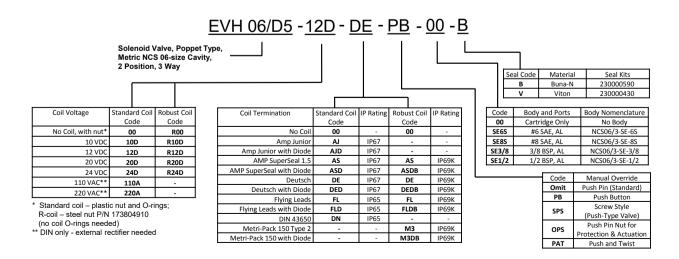


3-Way, 2-Position Poppet EVH 06/D5

DIMENSIONS



ORDERING INFORMATION







2-Way Poppet SVP08-CDB



OPERATION

This is a normally-closed, double-blocking poppet-type, 2 position, 08-size solenoid valve. When de-energized, the SVP08-CDB blocks flow in both directions. When energized, the valve's poppet lifts and allows flow from port 2 to port 1, and from port 1 to port 2. This valve comes standard with a push-pin type manual override.

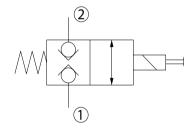
APPLICATIONS

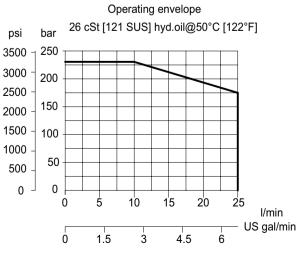
The SVP08-CDB is designed for low leakage applications and can be used to control the advance and retract of single acting and double acting cylinders. The valve can also be used to lock pressure in a group of cylinders.



Shown with filter option

SCHEMATIC



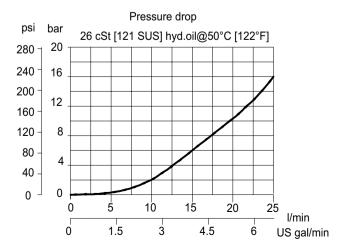


SPECIFICATIONS

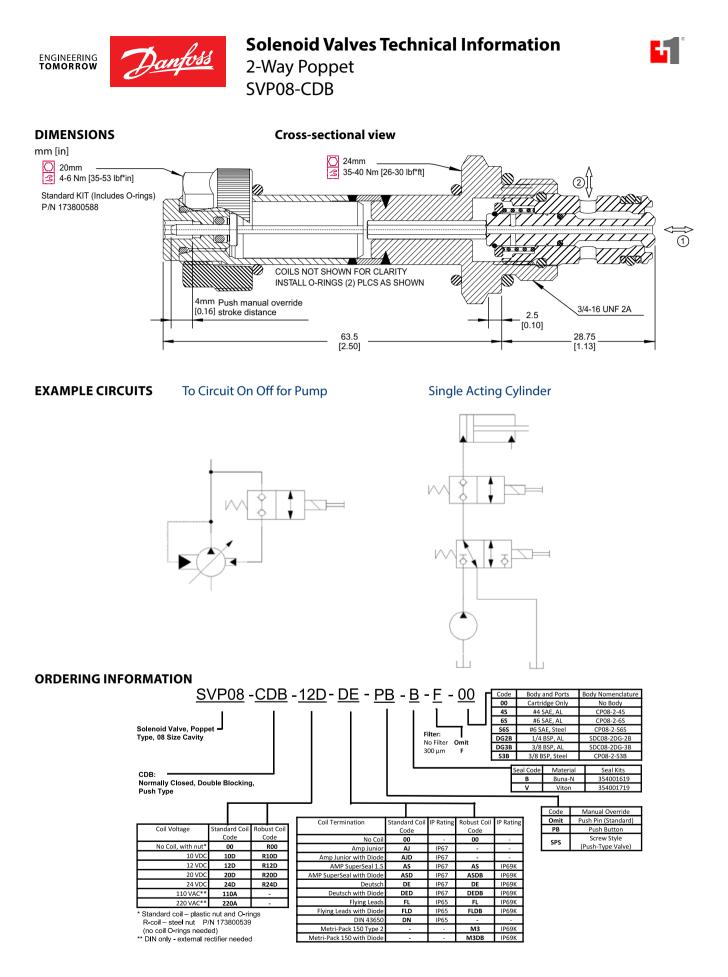
Rated pressure*	230 bar [3300 psi]
Rated flow at 7 bar	16 l/min
[100 psi]	[4 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.32 kg [0.71 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



BC332375861112en-000101 · February 2020









OPERATION

This is a normally-closed, double-blocking poppet-type, 2 position, Metric NCS 06-size solenoid valve. When de-energized, the EVK 06/C5 blocks flow in both directions. When energized, the valve's poppet lifts and allows flow from port 2 to port 1, and from port 1 to port 2. This valve comes standard with a push-pin type manual override.

EVK 06/C5



APPLICATIONS

The EVK 06/C5 is designed for circuits requiring very low leakage can be used to control the advance and retract of single acting and double acting cylinders. The double blocking state can be used to lock pressure in a group of cylinders.

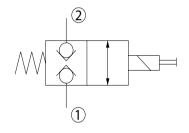
Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

Rated pressure*	210 bar [3000 psi]		
Rated flow	40 l/min [10.6 US gal/min]		
Weight	0.43 kg [0.95 lb]		
Cavity	NCS06/2		
Standard Coil	M16 26 Watt		
Robust Coil	R16 20 Watt		
	Robust Nut P/N 173804910		
	(no coil O-rings needed)		

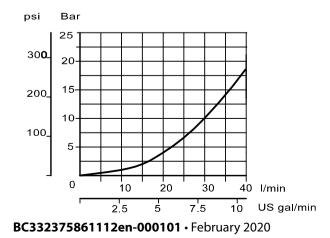
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC

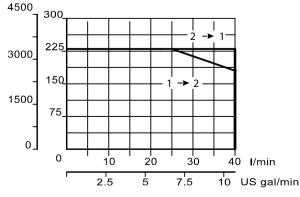


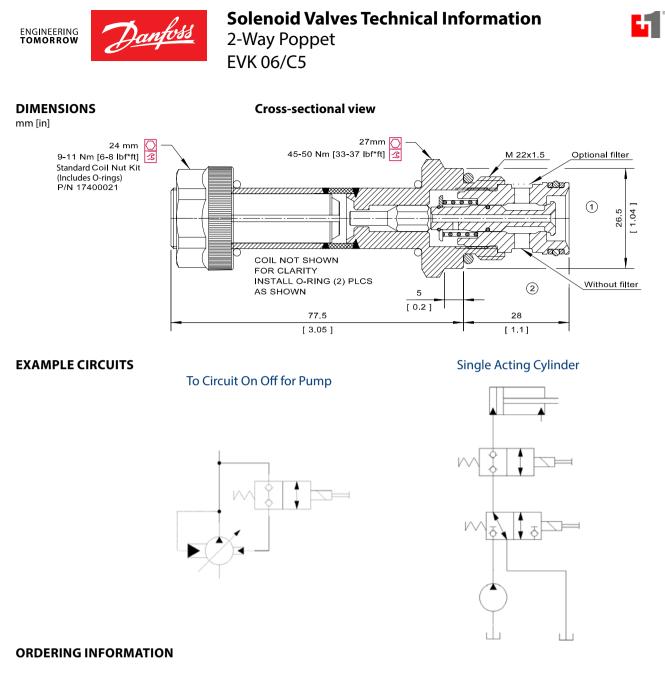
PERFORMANCE CURVES

Pressure drop 26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



Operating envelope 26 cSt [121 SUS] hyd.oil at 50°C [122 °F]





EVK 06/C5 - F - 12D - DE - PB - 00 - B Solenoid Valve, Double Blocking, Metric NCS 06-size Filter: No Filter Omit Cavity, 2-Position, 2-Way 300 µm Seal Code Material Seal Kits 230000440 в Buna-N Viton 230000710 Coil Voltage Standard Coil Robust Coil Coil Termination Standard Coil IP Rating Robust Coil IP Rating Code Body and Ports Body Nomenclature Code Code 00 Code Code Cartridge Only No Body No Coil, with nut* DG6S R00 00 No Coil 00 00 #6 SAE, AL NCS06/2-DG-6S Amp Junior AJ IP67 DG8S #8 SAE, AL NCS06/2-DG-8S R10D 10 VDC 10D Amp Junior with Diode AJD IP67 3/8 BSP, AL NCS06/2-DG-3/8 DG3/8 12 VDC 12D R12D AMP SuperSeal 1.5 AS IP67 AS IP69K DG1/2 1/2 BSP, AL NCS06/2-DG-1/2 20 VDC 20D R20D AMP SuperSeal with Diode ASD IP67 ASDB IP69K er housings available. Please consult factory for details 24 VDC R24D 24D 110 VAC** Deutsch DE IP67 DE IP69K 110A Manual Override Code Deutsch with Diode DED IP67 IP69K 220 VAC** DEDB 220A Omit Push Pin (Standard) Flying Leads FL IP65 FL IP69K Standard coil - plastic nut and O-rings; PB Push Button Flying Leads with Diode FLD IP65 FLDB IP69K R-coil - steel nut P/N 173804910 Screw Style DIN 43650 DN IP65 SPS (no coil O-rings needed) (Push-Type Valve) Metri-Pack 150 Type 2 M3 IP69K ** DIN only - external rectifier needed Push Pin Nut for OPS Metri-Pack 150 with Diode M3DB IP69K Protection & Actuation PAT Push and Twist





SCHEMATIC



OPERATION

This is normally-closed, poppet-style 10-size solenoid valve. When de-energized, the valve block in both directions. When energized, the valve's poppet is opens on its seat, allowing flow from 2 to 1 or 1 to 2.

HSVP10-CDB

HP COL

Shown with Robust Coil, Deutsch Connector

APPLICATIONS

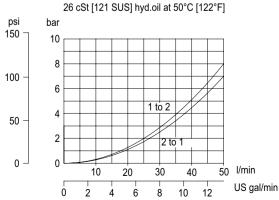
The HSVP10-CDB is designed for high pressure, low leakage applications and can be used to control the advance and retract of single acting and double acting cylinders. The valve can also be used to lock pressure in a group of cylinders.

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar	50 l/min
[100 psi]	[13.2 US gal/min]
Leakage	6 drops/min @ Rated Pressure
Weight	0.42 kg [0.93 lb]
Cavity	SDC10-2
Standard Coil	H16 29 Watt

*Rated Pressure based on NFPA fatigue test standard (at 1 Million Cycles)

PERFORMANCE CURVES



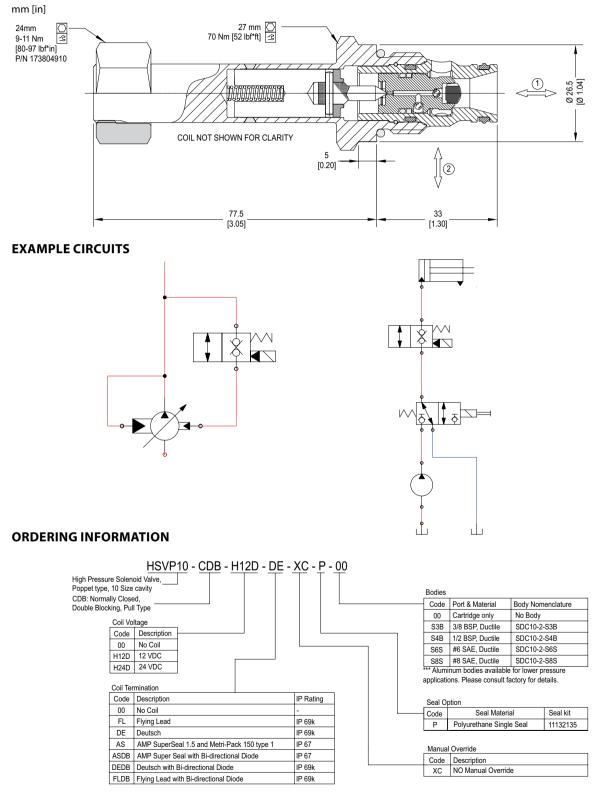
Pressure drop



2-Way Poppet HSVP10-CDB

DIMENSIONS

Cross-sectional view



SV - 26









2-Way Poppet HSVP10-ODB

OPERATION

This is a normally-open, poppet-style 10-size solenoid valve. When de-energized, the valve allows free flow from 2 to 1 or 1 to 2. When energized, the valve's poppet is seated and flow is blocked in both directions.



APPLICATIONS

The HSVP10-ODB is designed for high pressure, low leakage applications and can be used to control the advance and retract of single acting and double acting cylinders. The valve can also be used to lock pressure in a group of cylinders.

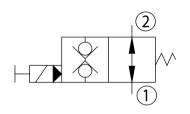
Shown with Robust Coil, Deutsch Connector

SPECIFICATIONS

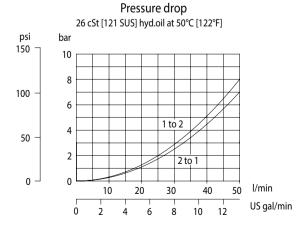
Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar	50 l/min
[100 psi]	[13.2 US gal/min]
Leakage	6 drops/min @ Rated Pressure
Weight	0.42 kg [0.93 lb]
Cavity	SDC10-2
Standard Coil	H16 29 Watt

*Rated Pressure based on NFPA fatigue test standard (at 1 Million Cycles)

SCHEMATIC

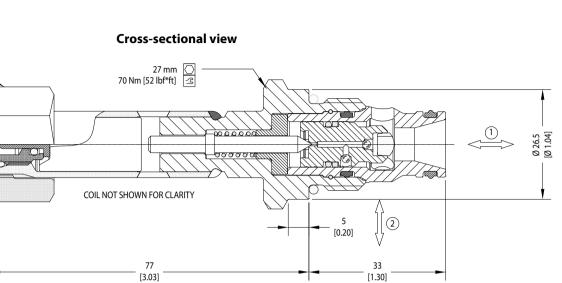


PERFORMANCE CURVES





2-Way Poppet HSVP10-ODB



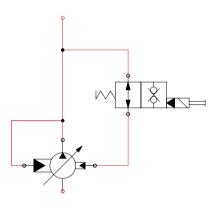
EXAMPLE CIRCUITS

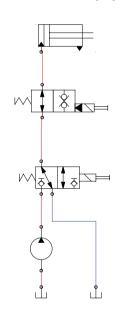
DIMENSIONS

mm [in]

24mm 9-11 Nm [80-97 lbf*in]

P/N 173804910





ORDERING INFORMATION

	<u> HSVP10 - ODB - H12D - DE</u>	- <u>PN</u> - <u>P</u> - (00				
High Pressure Solen Poppet type, 10 Size				Bodies			
ODB: Normally Oper	u			Code	Port & Material	Body Nomenclat	ture
Double Blocking, Pu	h Type			00	Cartridge only	No Body	
Coil V	oltage			S3B	3/8 BSP, Ductile	SDC10-2-S3B	
Code	Description			S4B	1/2 BSP, Ductile	SDC10-2-S4B	
00	No Coil			S6S	#6 SAE, Ductile	SDC10-2-S6S	
H120	12 VDC			S85	#8 SAE, Ductile	SDC10-2-S8S	
H240	24 VDC				num bodies available f		
				applicatio	n. Please consult facto	ry for details.	
Coil 1	ermination			6	1		
Code	Description	IP Rating		Seal Opt Code	Seal Material		Seal kit
00	No Coil	-					
FL	Flying Lead	IP 69k		Р	Polyurethane Single	Sedi	11132135
DE	Deutsch	IP 69k		Manual	Override		
AS	AMP SuperSeal 1.5 and Metri-Pack 150 type 1	IP 67		Code	Description		
ASDE	ASDB AMP Super Seal with Diode Bidirectional			PN	Push Pin		
DEDB Deutsch with Diode Bidirectional		IP 69k		OPS	Push Pin M/O Nut for	Protection & Actu	ation
FLDB	Flying Lead with Diode Bidirectional	IP 69k		PAT	Push and Twist		







OPERATION

This is a normally-closed, pilot-operated, poppet-style 08-size solenoid valve. When de-energized, the SVP08-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2. This valve is available with an optional pull-type manual override.

APPLICATIONS

The SVP08-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load. This valve can operate at an inlet pressure of 315 bar on port 2 for 600,000 cycles.



Shown with Robust Coil, Deutsch Connector

SPECIFICATIONS

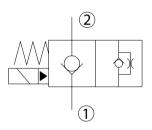
Rated pressure*	230 bar [3300 psi]**
Maximum flow at	35 l/min
rated pressure	[9 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.23 kg [0.51 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

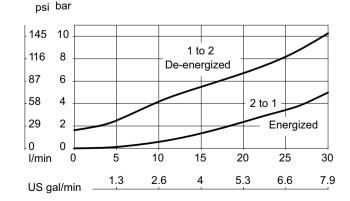
PERFORMANCE CURVES

SCHEMATIC



Pressure drop

33 cSt [154 SUS] hyd.oil @ 38°C [100° F]



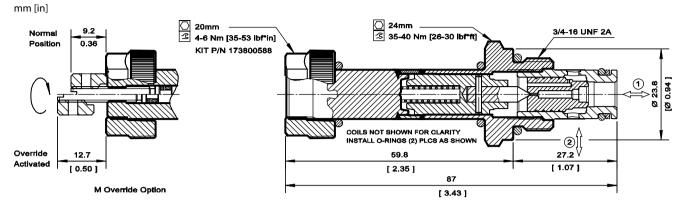


2-Way Poppet SVP08-NC

5

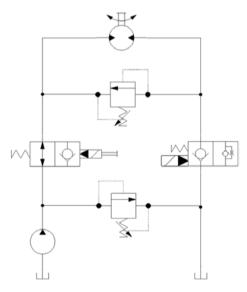
DIMENSIONS

Cross-sectional view

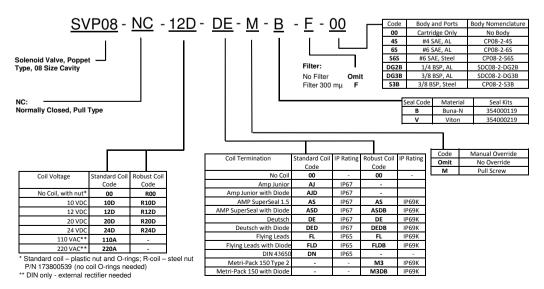


EXAMPLE CIRCUITS

On/Off Motor Circuit



ORDERING INFORMATION









OPERATION

This is a normally-closed, pilot-operated, poppet-style 10-size solenoid valve. When de-energized, the SVP10-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2. This valve is available with an optional pull-type manual override.

APPLICATIONS

The SVP10-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load. This valve can operate at an inlet pressure of 315 bar on port 2 for 250,000 cycles.



Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

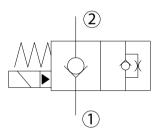
Rated pressure*	230 bar [3300 psi]**			
Rated flow at 7 bar	80 l/min			
[100 psi]	[21 US gal/min]			
Leakage	6 drops/min @			
	Rated pressure			
Weight	0.43 kg [0.95 lb]			
Cavity	SDC10-2			
Standard Coil	M16 26 Watt			
Robust Coil	R16 20 Watt			
	Robust Nut P/N 173804910			
	(no coil O-rings needed)			

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

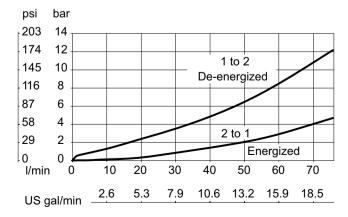
PERFORMANCE CURVES

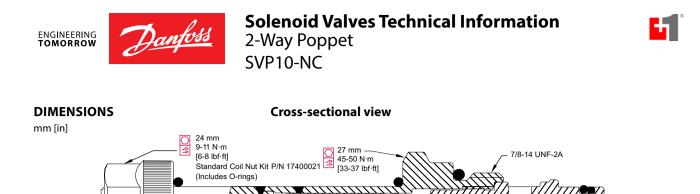


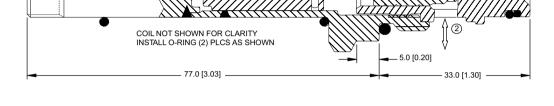


Pressure drop

33 cSt [154 SUS] hyd.oil @ 38°C [100° F]

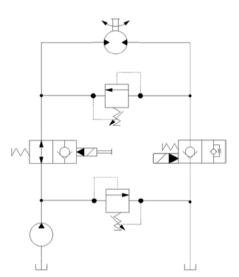




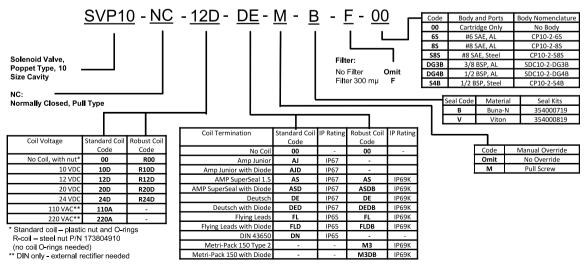


EXAMPLE CIRCUITS

On/Off Motor Circuit



ORDERING INFORMATION









OPERATION

This is a normally-closed, pilot-operated, poppet-style 10-size solenoid valve. When de-energized, the HSVP10-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2.

HSVP10-NC

APPLICATIONS

The HSVP10-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load.



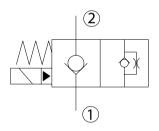
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

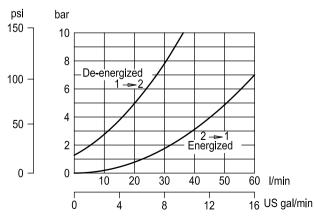
Rated pressure*	350 bar [5075 psi]*					
Rated flow at 7 bar	65 l/min					
[100 psi]	[17 US gal/min]					
Leakage	6 drops/min @					
	Rated pressure					
Weight	0.42 kg [0.93 lb]					
Cavity	SDC10-2					
Standard Coil	H16 29 Watt					

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



Pressure Drop 26 cSt [121 SUS] hyd.oil at 50C [122F]



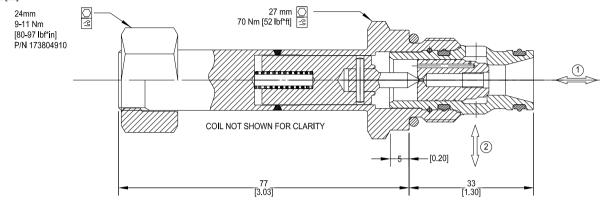
2-Way Poppet HSVP10-NC



DIMENSIONS

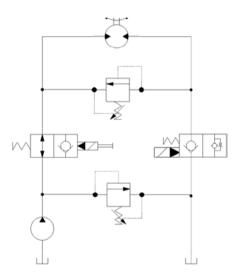
mm [in]

Cross-sectional view



EXAMPLE CIRCUITS

On/Off Motor Circuit



ORDERING INFORMATION

PL Flying Lead IP98K DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K Code Description			HS∖	<u>/P10 - NC</u>	- <u>H1</u> 2	<u>2D - D</u>	<u>E - X</u>	<u>C - F</u>	<u>- 00</u>)	Bod	ies			
10 Size, Poppet Type Coil Voltage No Body Code Description S3B 3/8 BSP, Ductile SDC10-2-S3B S4B 1/2 BSP, Ductile SDC10-2-S4B S6S #6 SAE, Ductile SDC10-2-S4B S6S #6 SAE, Ductile SDC10-2-S6S S8B #8 SAE, Ductile SDC10-2-S6S S8S P										[Cod	e P	orts & Material	Body No	menclature
Code Description 00 No Coil H12D 12 VDC H24D 24 VDC Coil Termination IP Rating 00 No Coil FL Flying Lead DE Deutsch IP69K IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K	,		Call Va	ltono					L		00	С	artridge Only	No Body	
00 No Coil H12D 12 VDC H24D 24 VDC Coil Termination IP Rating 00 No Coil FL Flying Lead DE Deutsch AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K Code Description IP69K Code Seal Material Seal N V Viton 35400										S3B	3/	8 BSP, Ductile	SDC10-2	-S3B	
Ses #6 SAE, Ductile SDC10-2-S6S Base #8 SAE, Ductile SDC10-2-S6S S8S #8 SAE, Ductile SDC10-2-S8S S8S #8 SAE, Ductile SDC10-2-S8S S8S #8 SAE, Ductile SDC10-2-S8S seal Option IP Rating 00 No Coil - FL Flying Lead IP69K DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal into Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K				<u> </u>							S4B	1/	2 BSP, Ductile	SDC10-2	-S4B
Image: Sas #8 SAE, Ductile SDC10-2-S8S Coil Termination IP Rating 00 No Coil - FL Flying Lead IP69K DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K											S6S	#	6 SAE, Ductile	SDC10-2	-S6S
*** Aluminum Bodies available for lower pressur applications. Please consult factory for detai applications. Please consult factory for detai applications. Please consult factory for detai Seal Option Code Description IP Rating 00 No Coil - FL Flying Lead IP69K DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K											S8S	#	3 SAE, Ductile	SDC10-2	-S8S
Code Description IP Rating 00 No Coil - FL Flying Lead IP69K DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K Code Description 35400 Manual Overrides Code Description			H24D	24 VDC				ł			*** A	Juminu	m Bodies available	e for lower	pressure
O0 No Coil - FL Flying Lead IP69K DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K Code Description	Coil Te	rmination									а	pplicat	ions. Please cons	ult factory f	for details.
Image: Normal display="block content of the image: Normal display="block content of the image: Normal display="block display	Code	Description			IP Rat	ting	J								
PL Piying Lead P Polyurethane Single Seal 11132 DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEB Deutsch with Diode Bidirectional IP69K Code Description	00	No Coil			-						_	Seal O	ption		
DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K	FL	Flying Lead			IP69K							Code	Seal Material		Seal Kit
ASDB AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K Code Description	DE				IP69K							Р	Polyurethane Si	ngle Seal	11132135
ASDB AMP Super Seal with Diode Bidirectional IP69K DEDB Deutsch with Diode Bidirectional IP69K Code Description	AS	AMP Super Seal 1.5	5 & Metri	Pack 150 type 1	IP69K							V	Viton		354000819
DEDB Deutsch with Diode Bidirectional IP69K Code Description	ASDB				IP69K				Manual	Overri	des				
	DEDB	Deutsch with Diode Bidirectional			IP69K			Ŀг				n			
FLDB Flying Lead with Diode Bidirectional IP69K XC No Manual Override	FLDB	Flying Lead with Diode Bidirectional			IP69K			XC No Manual Override							







OPERATION

This is a normally-closed, pilot-operated, poppet-style 12-size solenoid valve. When de-energized, the SVP12-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2.

SVP12-NC

APPLICATIONS

The SVP12-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load. This solenoid valve is a technical replacement for CP501-1.



Shown with Robust Coil, Deutsch Connector

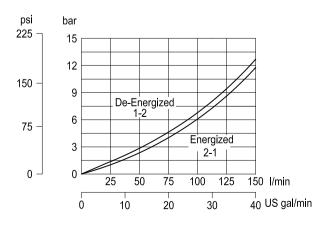
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	114 l/min
[100 psi]	[30 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.67 kg [1.47 lb]
Cavity	CP12-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

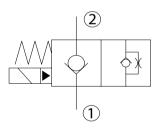
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES

Pressure Drop 26 cSt [121 SUS] hyd.oil at 50C [122F]



SCHEMATIC





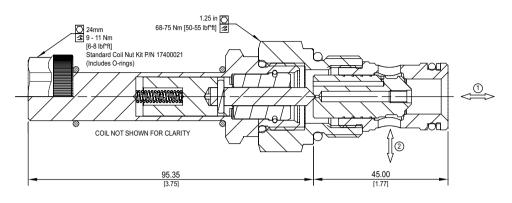


2-Way Poppet SVP12-NC

DIMENSIONS

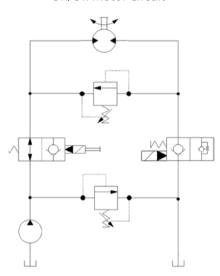
Cross-sectional view

mm [in]



EXAMPLE CIRCUITS

On/Off Motor Circuit



ORDERING INFORMATION

	SVP12 - NC	- 12D	- DE -	ХС - В -	00		Bodie		D. I. N
Solenoid Valve		· –	<u> </u>	Ť Ť	Ť		Code 00	Ports & Material Cartridge Only	Body Nomenclature No Body
Normally-Closed, Pilot Operated	1							#10 SAE, AL	CP12-2-10S
•	-,							#10 SAE, DUCTILE	CP12-2-103 CP12-2-S10S
12 Size, Poppet Type								#12 SAE, AL	CP12-2-3103
								#12 SAE, DUCTILE	CP12-2-S12S
								1/2 BSP, AL	CP12-2-3123
						ור		1/2 BSP, DUCTILE	CP12-2-4B CP12-2-S4B
Coil Voltage								3/4 BSP, AL	CP12-2-6B
Standard Robust	Coil Termination							3/4 BSP, DUCTILE	CP12-2-S6B
Description Coil Code Coil Code		Standard	IP Rating	Robust Coil	ID Dating			uminum bodies are to be us	12 22 1
	Туре	Coll Code	IF Ralling	Coue	IF Ralling			than 210 bar (3.000 PSI)	ed for pressures
No Coil, with nut* 00 R00	No Coil	00	-	R00	-		1000	ulaii 210 bai (0,000 1 01)	
10 VDC 10D R10D	Amp Junior	AJ	IP67	-	-				
12 VDC 12D R12D	Amp Junior with Diode		IP67	-	-			Seal Option	
20 VDC 20D R20D	AMP SuperSeal 1.5		IP67	AS	IP69K			Code Material	Seal Kits
24 VDC 24D R24D	AMP SuperSeal with Diode		IP67	ASDB	IP69K			B Buna	120017
110 VAC** 110A -	Deutsch	DE	IP69K	DE	IP69K			V Viton	120018
220 VAC** 220A -	Desutch with Diode	DED	IP69K	DEDB	IP69K				
*Standard coil - plastic nut and O-rings R-coil steel nut P/N 173804910	Flying Leads		IP65	FL	IP69K				
(no coil O-rings needed)	Flying Leads with Diode	FLD	IP65	FLDB	IP69K			Manual Override	
**DIN only - external rectifier needed	DIN 43650	DN	IP65	-	-			Code Descrip	tion
	Metri-Pack 150 Type 2	-	-	M3	IP69K	L		XC No Ove	
	Metri-Pack 150 with Diode	-	-	M3DB	IP69K				







This is a normally-closed, pilot-operated, poppet-style 12-size solenoid valve. When de-energized, the HSVP12-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2.

HSVP12-NC

APPLICATIONS

The HSVP12-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load.



Shown with Standard H16 Coil, Deutsch Connector

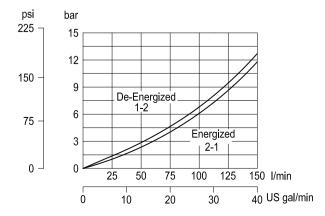
SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	114 l/min
[100 psi]	[30 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.67 kg [1.47 lb]
Cavity	CP12-2
Standard Coil	H16 29 Watt

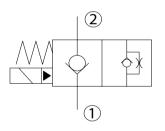
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES





SCHEMATIC



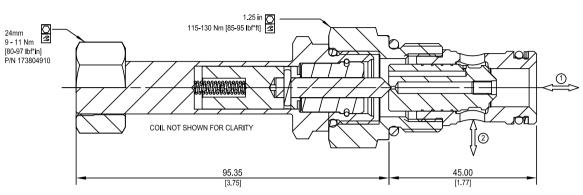


2-Way Poppet HSVP12-NC

DIMENSIONS

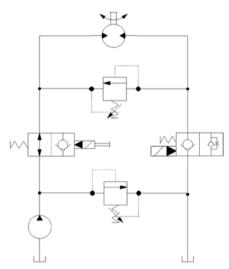
Cross-sectional view





EXAMPLE CIRCUITS

On/Off Motor Circuit



		HS\	/P12 - NC	- H12D	- DF - X(C - B	- 00	Bodies				
		1101					-	Code	Ports & M	aterial	Body Nome	nclature
High Pressure S	Solenoid Valve —							00	Cartridge (Only	No Body	
Normally-Close	d, Pilot Operated,							10S	#10 SAE, /	AL	CP12-2-10S	
12 Size, Popper	t Type	Coil Vo	oltage					S10S	#10 SAE, [DUCTILE	CP12-2-S10	S
		Code	Description -					12S	#12 SAE, /	AL	CP12-2-12S	
		H00	No Coil					S12S	#12 SAE, I	DUCTILE	CP12-2-S12	S
		H12D	12 VDC					4B	1/2 BSP, A	AL.	CP12-2-4B	
		H24D	24 VDC					S4B	1/2 BSP,D	UCTILE	CP12-2-S4B	
Call Ta	rmination							6B	3/4 BSP, A	۸L	CP12-2-6B	
				ID Detine	- I I			S6B	3/4 BSP, D	DUCTILE	CP12-2-S6B	
Code	Description			IP Rating				**Aluminu	m bodies are t	o be used t	or lower pressure	s less than
00	No Coil			-				210 bar (3	,000 psi)			
FL	Flying Lead			IP69K						Seal Op	tion	
DE	Deutsch			IP69K	1					Code	Seal Material	Seal Kit
AS	AMP Super Seal 1	.5 & Metri	Pack 150 type 1	IP69K	1	l				В	Buna	120017
ASDB	AMP Super Seal w	ith Diode I	Bidirectional	IP69K	1					V	Viton	120018
DEDB	Deutsch with Diode	Bidirectio	onal	IP69K	1			Overrides	-			1
FLDB	Flying Lead with D	iode Bidire	ectional	IP69K	1 L	_	Code	Descriptio				
	, , , , , , , , , , , , , , , , , , , ,				_	Ŀ	XC	No Manua	Override			







This is a normally-closed, pilot-operated, poppet-style 16-size solenoid valve. When de-energized, the SVP16-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2.

APPLICATIONS

The SVP16-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load. This solenoid valve is a technical replacement for CP502-1.



Shown with Robust Coil, Deutsch Connector

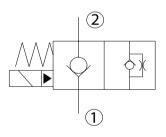
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*						
Rated flow at 7 bar	152 l/min						
[100 psi]	[40 US gal/min]						
Leakage	6 drops/min @						
	Rated pressure						
Weight	.75 kg [1.6 lb]						
Cavity	SDC16-2						
Standard Coil	M16 26 Watt						
Robust Coil	R16 20 Watt						
	Robust Nut P/N 173804910						
	(no coil O-rings needed)						

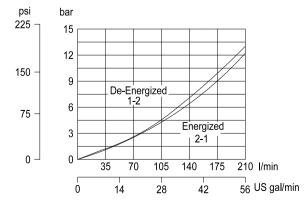
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

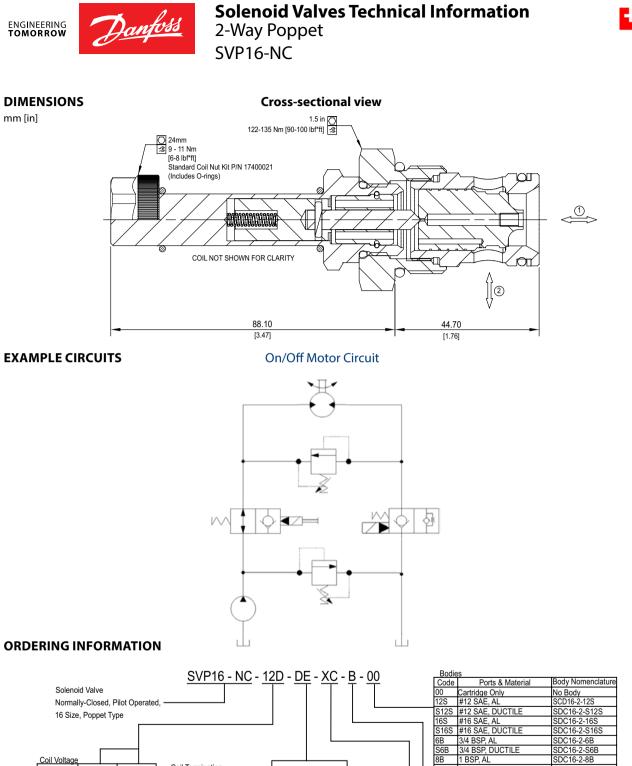
PERFORMANCE CURVES





Pressure Drop 26 cSt [121 SUS] hyd.oil at 50ウC [122 ウF]





16 Size	, Poppet Ty	'ne					-		S12S	#12 SAE, DU	ICTILE	SDC	16-2-8
10 0120	, i oppet i y	pc							16S	#16 SAE, AL		SDC	16-2-
									S16S	#16 SAE, DU	ICTILE	SDC	16-2-9
								I	6B	3/4 BSP, AL		SDC	16-2-6
									S6B	3/4 BSP, DU	CTILE	SDC	16-2-
Coil Voltage									8B	1 BSP, AL		SDC	16-2-8
	Standard	Robust	Coil Termination						S8B	1 BSP, DUCT	ILE	SDC	16-2-
Description	Coil Code	Coil Code	Туре	Standard Coil Code	IP Rating	Robust Coil Code	IP Rating		**AI	uminum bodies than 210 bar (3	are to be us	ed for press	ures
No Coil, with nut*	00	R00	No Coil	00	-	R00	-		1653		5,000 F 31)		
10 VDC	10D	R10D	Amp Junior	AJ	IP67	-	-						
12 VDC	12D	R12D	Amp Junior with Diode	AJD	IP67	-	-			Seal Opt	ion		
20 VDC	20D	R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K	L		Code	Material	Seal Kits	Л
24 VDC	24D	R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K			В	Buna	120019	-
110 VAC**	110A	-	Deutsch	DE	IP69K	DE	IP69K			V	Viton	120020	1
220 VAC**	220A	-	Desutch with Diode	DED	IP69K	DEDB	IP69K						-
	oil - plastic nut		Flying Leads	FL	IP65	FL	IP69K						
	el nut P/N 173 ngs needed)	3804910	Flying Leads with Diode	FLD	IP65	FLDB	IP69K			Manual Ov	orrido		
	ngs needed) external rectif	ier needed	DIN 43650	DN	IP65	-	-			Code	Descrip	tion	
,			Metri-Pack 150 Type 2	-	-	M3	IP69K			XC	No Ove		
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K					IIIue	

SDC16-2-S8B







This is a normally-closed, pilot-operated, poppet-style 16-size solenoid valve. When de-energized, the HSVP16-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2.

HSVP16-NC

APPLICATIONS

The HSVP16-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load.



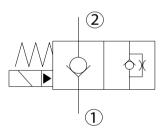
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

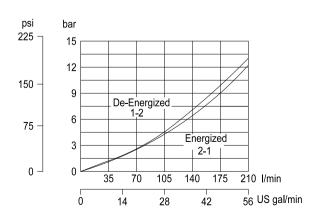
Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	152 l/min
[100 psi]	[40 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	.75 kg [1.6 lb]
Cavity	SDC16-2
Standard Coil	H16 29 Watt

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

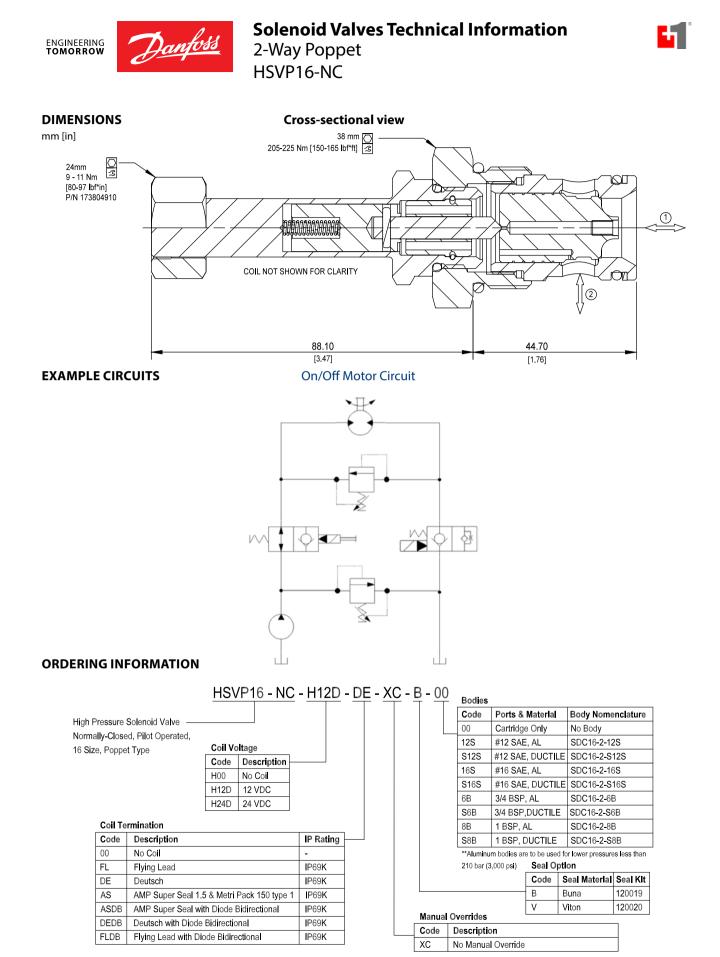
SCHEMATIC



PERFORMANCE CURVES



Pressure Drop 26 cSt [121 SUS] hyd.oil at 50[†]C [122 [†]F]









This is a normally-closed, pilot-operated, poppet-style 20-size solenoid valve. When de-energized, the SVP20-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2.

APPLICATIONS

The SVP20-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load. This solenoid valve is a technical replacement for CP503-1.



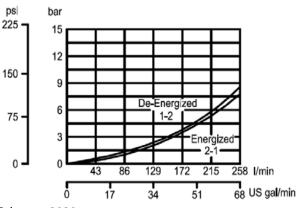
Shown with Robust Coil, Deutsch Connector

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*						
Rated flow at 7 bar	227 l/min						
[100 psi]	[60 US gal/min]						
Leakage	6 drops/min @						
	Rated pressure						
Weight	1.04 kg [2.29 lb]						
Cavity	SDC20-2						
Standard Coil	M16 26 Watt						
Robust Coil	R16 20 Watt						
	Robust Nut P/N 173804910						
	(no coil O-rings needed)						

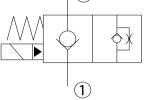
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES

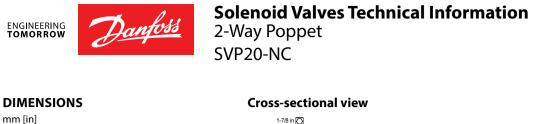


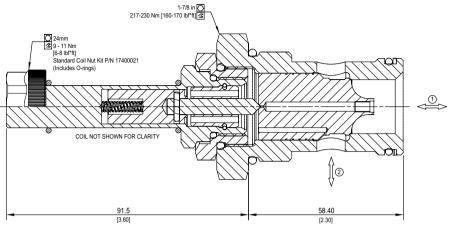
Pressure Drop 26 cSt [121 SUS] hyd.oil at 50ウC [122 ウF]

SCHEMATIC



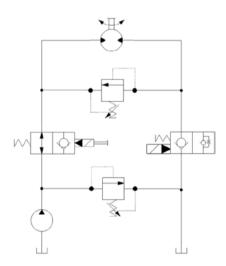
(2)

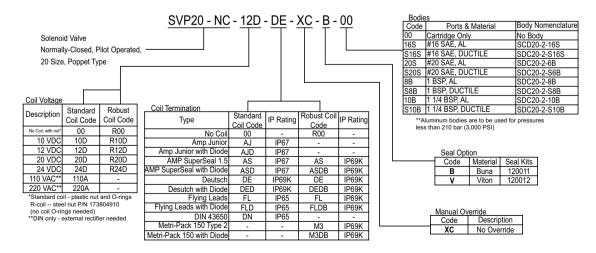




EXAMPLE CIRCUITS

On/Off Motor Circuit











This is a normally-closed, pilot-operated, poppet-style 20-size solenoid valve. When de-energized, the HSVP20-NC acts as a check valve allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and severely restricts from port 1 to port 2.

HSVP20-NC

APPLICATIONS

The HSVP20-NC is designed to function as load holding or blocking valve in applications where low internal leakage is required. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load.



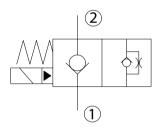
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

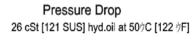
Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	227 l/min
[100 psi]	[60 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	1.04 kg [2.29 lb]
Cavity	SDC20-2
Standard Coil	H16 29 Watt

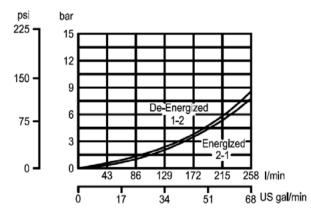
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



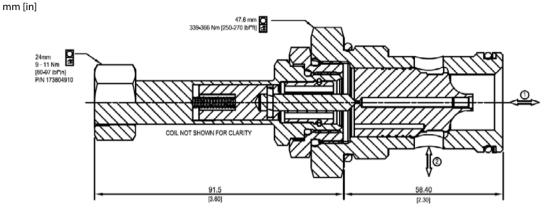




2-Way Poppet HSVP20-NC

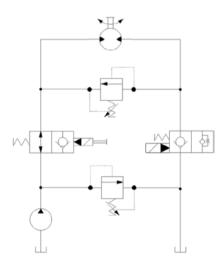


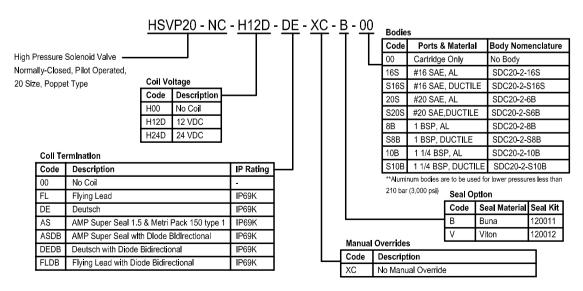




EXAMPLE CIRCUITS

On/Off Motor Circuit









This is a normally-closed, pilot-operated, poppet-style 08-size solenoid valve. When de-energized, the SPV08-NCF acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows restricted flow through the orifice from port 2 to port 1. This valve is available with optional filter and with pull-type manual override.

APPLICATIONS

SPECIFICATIONS

Rated flow at 7 bar

Rated pressure*

[100 psi]

Leakage

Weight

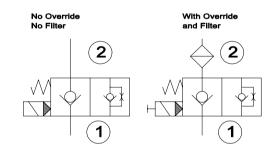
Cavity Standard Coil

Robust Coil

The SVP08-NCF is designed to function as load holding or blocking valve in applications where low internal leakage and various bleeding flows are required in two different positions. In load holding applications, the circuit should be designed so that the de-energized state is the position that is holding the load. When it is energized, a load lowering function will be achieved via a non-compensated orifice. Example applications include scissor & telescopic manlifts, which use a single-acting cylinder for raising and lowering of the platform. The valve has an additional (optional) threaded pull-type override for emergency lowering via a wire cable or a knob handle.



SCHEMATIC



 R13 16 Watt

 Robust Coil
 Robust Nut P/N 173800539

 (No coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles). **PERFORMANCE CURVES**

230 bar [3300 psi]

[4.2 US gal/min]

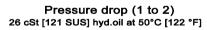
0.23 kg [0.51 lb] SDC08-02

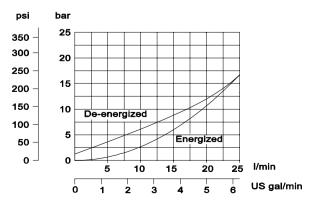
M13 20 Watt

6 drops/min @ Rated pressure

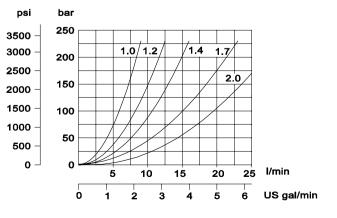
Robust Nut P/N 173800539 (no coil O-rings needed)

16 l/min





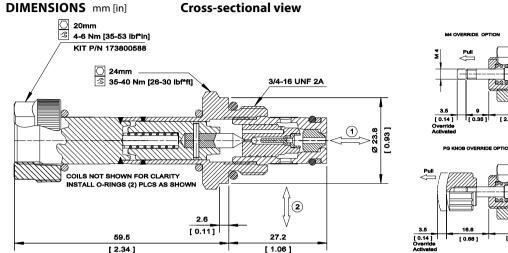
Pressure drop (2 to 1) 26 cSt [121 SUS] hyd.oil at 50°C [122 °F]

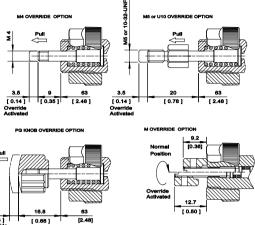




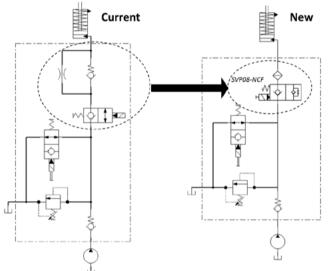
2-Way Poppet SVP08-NCF







EXAMPLE CIRCUITS



Current vs new circuit schematics for single-acting cylinder application. SVP08-NCF replaces 3 valves, while adding manual override and filter options.

ORDERING INFORMATION

SVP08 - NCF - 1.0 - 12D - DE - M4 - B - F - 00

Solenoid Valve, Pop	opet type												Code	Body an	d Ports	Body N	omenclature
8 Size cavity													00	Cartridg	e only	No Boo	ly
NCF: Normally Clos	ed,								F	ilter			4S	#4 SAE,	AL	CP08-2	2-4S
low Control Fixed,	Pull Type								N	lo Filter		Omit	6S	#6 SAE,	AL	CP08-2	2-6S
Orifice Ø Flow 7 ba	ar								F	liter 300 m	μ	F	S6S	#6 SAE,	Steel	CP08-2	2-S6S
1.0 1.3 LPM	[0.34 GPM]								1				2B	1/4 BSP	, AL	SDC08	-2-2B
	[0.58 GPM]												3B	3/8 BSP	, AL	SDC08	-2-3B
	0.71 GPM]		Coil T	ermination	Star	ndard	IP	Robu	ot	IP			S3B	3/8 BSP	, Steel	CP08-2	2-S3B
	.06 GPM1			ommation			Rating			Rating					1		
	[1.54 GPM]		No Co	oil	00		-	00		-				Code	Materi	al	Seal Kits
2.0 0.0 11 11				Junior	AJ		IP 67	-		-				в	Buna-	N	354000119
Coil Voltage		Robust Coll Code	Amp .	Junior W Diode	AJE)	IP 67	-		-				v	Viton		354000219
No Coil, with nut*	00	R00	AMP	SuperSeal 1.5	AS		IP 67	AS		IP 69K				Code	Manua	l Overrio	le
10 VDC	10D	R10D	AMP	SuperSeal W Diod		2	IP 67	ASD	в	IP 69K				Omit	No Ov		
12 VDC	12D	R12D	Deuts		DE		IP 69K	DE		IP 69K				M4	Pull Ov	/erride N	4 thread
20 VDC	20D	R20D		ich W Diode	DE	D	IP 69K	DED	в	IP 69K				M5	Pull Ov	/erride N	15 thread
24 VDC	24D	R24D		leads	FL		IP 65	FL		IP 69K				U10	Pull O	R 10-32	-UNF thread
110 VAC**	110A	-	Flying	Leads W Diode	FLC)	IP 65	FLD	в	IP 69K				PG	Pull O	/erride w	ith Knob
220 VAC **	220A	-	DIN 4	3650	DN		IP 65	-		-				M	Pull Sc		
* Standard coil-plast	tic nut and O-	rings; R-coil- steel	Metri-	Pack 150 Type 2	-		-	M3		IP 69K							
nut P/N 1738005: ** DIN only-external			Metri-	Pack 150 W Diode	ə -		-	M3D	в	IP 69K							

BC332375861112en-000101 • February 2020







This is a normally-closed, pilot-operated, poppet-type 08-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2. This valve is available with an optional pull-type manual override.

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve. The SVP08-NCR can operate at an inlet pressure of 315 bar on port 2 for 600,000 cycles.



Shown with Robust Coil, Metri-Pack Type 2 Connector

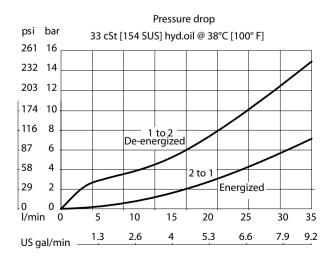
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**						
Maximum flow at	35 l/min						
rated pressure	[9 US gal/min]						
Leakage	6 drops/min @						
	Rated pressure						
Weight	0.23 kg [0.51 lb]						
Cavity	SDC08-2						
Standard Coil	M13 20 Watt						
Robust Coil	R13 16 Watt						
	Robust Nut P/N 173800539						
	(no coil O-rings needed)						

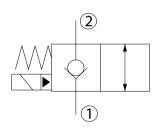
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC





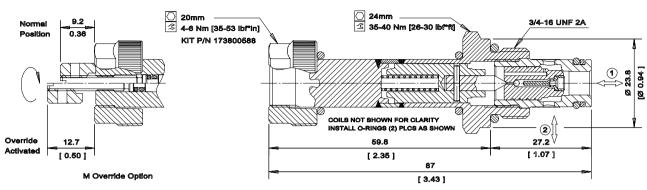
5

2-Way Poppet SVP08-NCR

DIMENSIONS

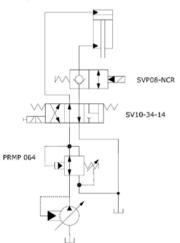
Cross-sectional view



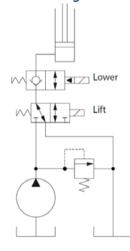


EXAMPLE CIRCUITS

Height Control with Float Option



Lift, hold, & lower single acting cylinder



P103 102E

SVE	208 - ľ	NUK-	121)-	<u>DE - N</u>	и-в	()()		ode Body	and Ports	Body Nomenclatur
<u></u>	<u> </u>			<u> </u>	<u> </u>	<u> </u>			00 Cartr	idge Only	No Body
	1	1	1	1	1 I		1		4S #4	SAE, AL	CP08-2-4S
									6S #6	SAE, AL	CP08-2-6S
lenoid Valve, Poppet									6S #6 S	AE, Steel	CP08-2-S6S
pe, 08 Size Cavity						Filter:	1	D	G2B 1/4	BSP, AL	SDC08-2-DG2B
						No Filter	Omi	it D	33B 3/8	BSP, AL	SDC08-2-DG3B
						Filter 300	mµ F		3B 3/8 I	BSP, Steel	CP08-2-S3B
CR:									Seal Code	Material	Seal Kits
ormally Closed,									B	Buna-N	354000119
ee Reverse Flow, Pul	ll Type								v	Viton	354000219
		-								Code	Manual Override
				Coil Term	ination	Standard Coil	IP Rating		I IP Rating	Code Omit	Manual Override No Override
Cail Voltage	Standard Coil	Bohust Coil		Coil Term		Code	IP Rating	Code	I IP Rating		
Coil Voltage		Robust Coil		Coil Term	No Coil	Code 00	-	Code 00	I IP Rating	Omit	No Override
÷	Code	Code			No Coil Amp Junior	Code 00 AJ	- IP67	Code 00 -	I IP Rating	Omit	No Override
No Coil, with nut*	Code 00	Code R00		Amp Juni	No Coil Amp Junior ior with Diode	Code 00	-	Code 00	I IP Rating	Omit	No Override
No Coil, with nut* 10 VDC	Code 00 10D	Code R00 R10D		Amp Juni AMP	No Coil Amp Junior	Code 00 AJ AJD	- IP67 IP67	Code 00 - -	-	Omit	No Override
No Coil, with nut* 10 VDC 12 VDC	Code 00 10D 12D	Code R00 R10D R12D		Amp Juni AMP	No Coil Amp Junior ior with Diode SuperSeal 1.5	Code 00 AJ AJD AS	- IP67 IP67 IP67	Code 00 - - AS		Omit	No Override
No Coil, with nut* 10 VDC 12 VDC 20 VDC	Code 00 10D 12D 20D	Code R00 R10D R12D R20D		Amp Juni AMP AMP SuperSe	No Coil Amp Junior ior with Diode SuperSeal 1.5 eal with Diode	Code 00 AJ AJD AS ASD	- IP67 IP67 IP67 IP67	Code 00 - - AS ASDB		Omit	No Override
No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC	Code 00 10D 12D 20D 24D	Code R00 R10D R12D		Amp Juni AMP AMP SuperSe	No Coil Amp Junior ior with Diode SuperSeal 1.5 eal with Diode Deutsch	Code 00 AJ AJD AS ASD DE	IP67 IP67 IP67 IP67 IP67	Code 00 - - AS ASDB DE	IP69K IP69K IP69K	Omit	No Override
No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC 110 VAC**	Code 00 10D 12D 20D 24D 110A	Code R00 R10D R12D R20D		Amp Juni AMP AMP SuperSe Deuts	No Coil Amp Junior ior with Diode SuperSeal 1.5 eal with Diode Deutsch ich with Diode	Code 00 AJ AJD AS ASD DE DED	IP67 IP67 IP67 IP67 IP67 IP67	Code 00 - AS ASDB DE DEDB	IP69K IP69K IP69K IP69K IP69K	Omit	No Override
No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC 110 VAC** 220 VAC**	Code 00 10D 12D 20D 24D 110A 220A	Code R00 R10D R12D R20D - - -	steel put	Amp Juni AMP AMP SuperSe Deuts	No Coil Amp Junior ior with Diode SuperSeal 1.5 eal with Diode Deutsch ich with Diode Flying Leads	Code 00 AJ AJD AS ASD DE DED FL	IP67 IP67 IP67 IP67 IP67 IP67 IP65	Code 00 - - - AS ASDB DE DEDB FL		Omit	No Override
No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC 110 VAC**	Code 00 10D 12D 20D 24D 110A 220A c nut and O-rir	Code R00 R10D R12D R20D R24D - - - - - - - - - - - - -	steel nut	Amp Juni AMP AMP SuperSe Deuts Flying Lea	No Coil Amp Junior ior with Diode SuperSeal 1.5 eal with Diode Deutsch ich with Diode Flying Leads ads with Diode	Code 00 AJ ASD DE DED FL FLD	- IP67 IP67 IP67 IP67 IP67 IP65 IP65	Code 00 - - - AS ASDB DE DEDB FL		Omit	No Override





SCHEMATIC

(2)

(1)



OPERATION

This is a normally-closed, pilot-operated, poppet-type 10-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2. This valve is available with an optional pull-type manual override.

SVP10-NCR

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve. The SVP10-NCR can operate at an inlet pressure of 315 bar on port 2 for 250,000 cycles.



Shown with Standard Coil, Deutsch Connector

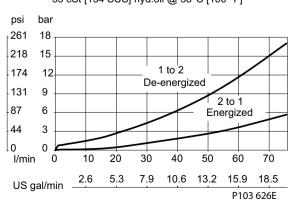
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	80 l/min
[100 psi]	[21 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.43 kg [0.95 lb]
Cavity	SDC10-2
Standard Coil	M16 26 Watt

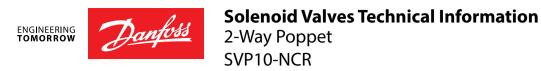
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



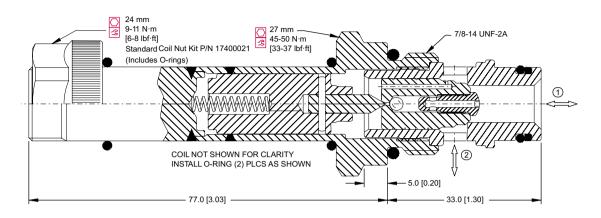
Pressure drop 33 cSt [154 SUS] hyd.oil @ 38°C [100° F]



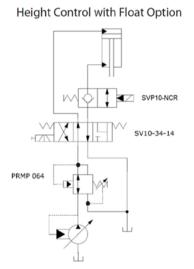
DIMENSIONS



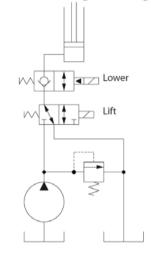
mm [in]



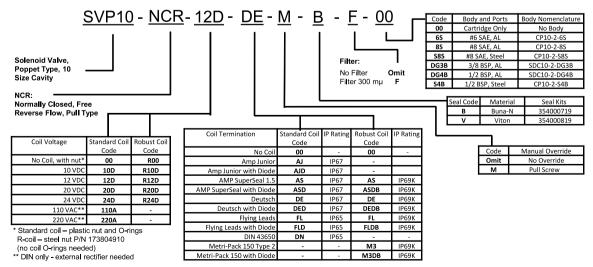
EXAMPLE CIRCUITS



Lift, hold, & lower single acting cylinder



P103 102E







Solenoid Valves Technical Information 2-Way Poppet



OPERATION

This is a normally-closed, pilot-operated, poppet-type 10-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2.

HSVP10-NCR

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve.



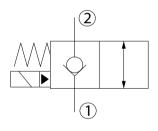
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

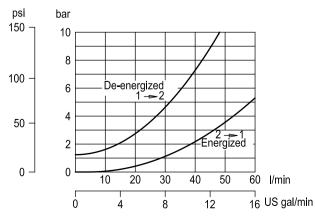
Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	65 l/min
[100 psi]	[17 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.43 kg [0.95 lb]
Cavity	SDC10-2
Standard Coil	H16 29 Watt

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



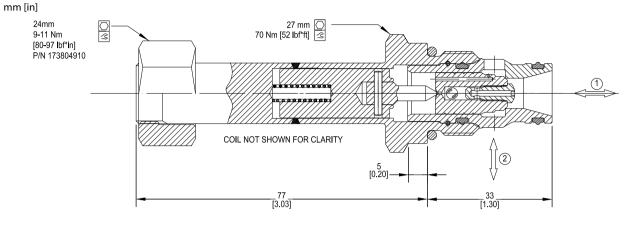
Pressure Drop 26 cSt [121 SUS] hyd.oil at 50C [122F]



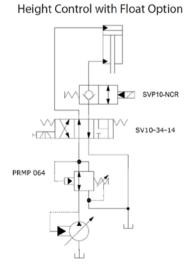
2-Way Poppet HSVP10-NCR



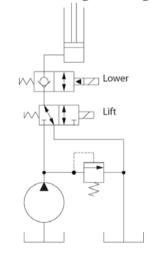
Cross-sectional view



EXAMPLE CIRCUITS



Lift, hold, & lower single acting cylinder



P103 102E

Link D		Colonaid Makes	HSVE	<u>210 - NCR</u>	- <u>H12</u>		- <u>PN</u>	- <u>P - (</u>	00	Во	dies		_	
•		Solenoid Valve —								Co	de Po	orts & Material	Body No	menclature
		d, Pilot Operated,	Coil Vo	Itago						00	C	artridge Only	No Body	
	10 Size, Poppet Type with Reverse Free Flow		Code	Description -						S3	B 3/	8 BSP, Ductile	SDC10-2	-S3B
with R			00	No Coil						S4	B 1/	2 BSP, Ductile	SDC10-2	-S4B
				12 VDC						S6	S #6	SAE, Ductile	SDC10-2	-S6S
			H12D H24D	12 VDC						S8	S #8	SAE, Ductile	SDC10-2	-S8S
			HZ4U	24 VDC						***	Aluminu	m Bodies availabl	e for lower	pressure
	Coil Te	rmination									applicati	ons. Please cons	ult factory	for details.
	Code	Description			IP Ratin	ig —								
	00	No Coil			-						Seal O	Seal Option		
	FL	Flying Lead			IP69K	-					Code	Seal Material		Seal Kit
	DE	Deutsch			IP69K	-					Р	Polyurethane Si	ngle Seal	11132135
	AS	AMP Super Seal 1.	5 & Metri	Pack 150 type 1	IP69K	-					۷	Viton		354000819
	ASDB	AMP Super Seal w	ith Diode	Bidirectional	IP69K			Manu	ual O	verrides				
	DEDB	Deutsch with Diode	Bidirectio	onal	IP69K			Code		Descripti	on			
	FLDB	Flying Lead with Di	ode Bidire	ectional	IP69K	7		xc		No Manua		le		







This is a normally-closed, pilot-operated, poppet-type 12-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2.

SVP12-NCR

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve. This solenoid valve is a technical replacement for CP501-3.



Shown with Robust Coil, Deutsch Connector

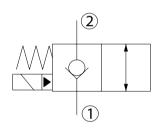
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*						
Rated flow at 7 bar	114 l/min						
[100 psi]	[30 US gal/min]						
Leakage	6 drops/min @						
	Rated pressure						
Weight	0.43 kg [0.95 lb]						
Cavity	CP12-2						
Standard Coil	M16 26 Watt						
Robust Coil	R16 20 Watt						
	Robust Nut P/N 173804910						
	(no coil O-rings needed)						

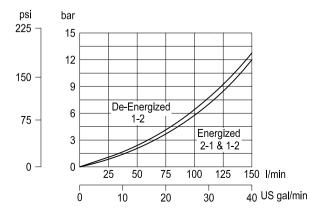
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES

SCHEMATIC



Pressure Drop 26 cSt [121 SUS] hyd.oil at 50C [122F]

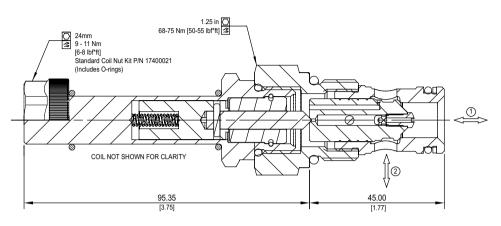




2-Way Poppet SVP12-NCR

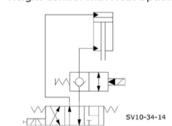
DIMENSIONS

mm [in]



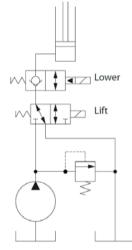
Cross-sectional view

EXAMPLE CIRCUITS



Height Control with Float Option





P103 102E

ORDERING INFORMATION

PRMP 064

Normal	everse Flow	Pilot Operated, , 12 Size,	SVP12 - NCF	<u>R</u> - <u>12D</u>	- <u>DE</u> -	<u>ХС - В</u>	- <u>00</u>]	10S S10S 12S S12S	S Ports & Material Cartridge Only #10 SAE, AL #10 SAE, DUCTILE #12 SAE, AL #12 SAE, AL #12 SAE, DUCTILE 1/2 BSP, AL	Body Nomenclature No Body CP12-2-10S CP12-2-10S CP12-2-12S CP12-2-12S CP12-2-12S CP12-2-4B
										1/2 BSP, DUCTILE	CP12-2-S4B
Coil Voltage										3/4 BSP, AL	CP12-2-6B
Description	Standard	Robust	Coil Termination	Chandand		Debuet Cell			S6B	3/4 BSP, DUCTILE	CP12-2-S6B
Description	Coil Code	Coil Code	Туре	Standard Coil Code	IP Rating	Robust Coil	IP Rating			uminum bodies are to be used	for pressures
No Coil, with nut*	00	R00	No Coil	00	_	Code R00			less	than 210 bar (3,000 PSI)	
10 VDC	10D	R10D	Amp Junior	AJ	IP67	100					
12 VDC	12D	R12D	Amp Junior with Diode		IP67	-				Seal Option	
20 VDC	20D	R20D	AMP SuperSeal 1.5		IP67	AS	IP69K				Seal Kits
24 VDC	24D	R24D	AMP SuperSeal with Diode		IP67	ASDB	IP69K			B Buna	120017
110 VAC**	110A	-	Deutsch	DE	IP69K	DE	IP69K			V Viton	120018
220 VAC**	220A	-	Desutch with Diode	DED	IP69K	DEDB	IP69K			• vitori	120010
	il - plastic nut		Flying Leads	FL	IP65	FL	IP69K				
	el nut P/N 173	804910	Flying Leads with Diode	FLD	IP65	FLDB	IP69K			Manual Quantita	
(no coil O-rir **DIN only - e	ngs needed) external rectifi	er needed	DIN 43650	DN	IP65	-	-			Manual Override Code Descripti	on
			Metri-Pack 150 Type 2	-	-	M3	IP69K			XC No Overri	
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K			NO Overn	







This is a normally-closed, pilot-operated, poppet-type 12-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2.

HSVP12-NCR

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve.



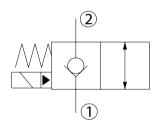
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

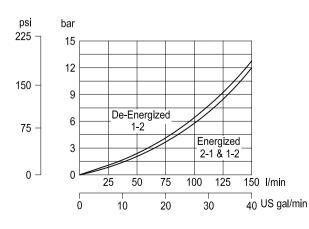
Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	114 l/min
[100 psi]	[30 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.43 kg [0.95 lb]
Cavity	CP12-2
Standard Coil	H16 29 Watt

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

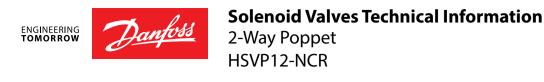
SCHEMATIC

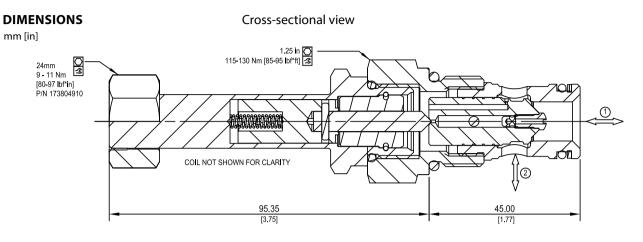


PERFORMANCE CURVES

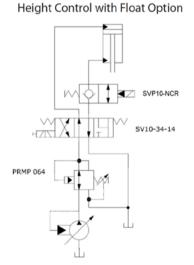


Pressure Drop 26 cSt [121 SUS] hyd.oil at 50C [122F]

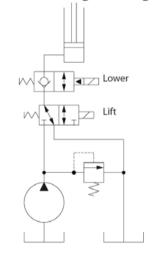




EXAMPLE CIRCUITS



Lift, hold, & lower single acting cylinder



P103 102E

ORDERING INFORMATION

Code Ports & Material Body Nomenclature High Pressure Solenoid Valve 00 Cartridge Only No Body Normally-Closed, Pilot Operated, #10 SAE, AL 10S CP12-2-10S Coil Voltage Free Reverse Flow, 12 Size, S10S #10 SAE, DUCTILE CP12-2-S10S Code Description Poppet Type 12S #12 SAE, AL CP12-2-12S H00 No Coil #12 SAE, DUCTILE CP12-2-S12S S12S H12D 12 VDC 4B 1/2 BSP, AL CP12-2-4B H24D 24 VDC S4B 1/2 BSP, DUCTILE CP12-2-S4B 6B 3/4 BSP, AL CP12-2-6B **Coil Termination** S6B 3/4 BSP, DUCTILE CP12-2-S6B Description IP Rating Code **Aluminum bodies are to be used for lower pressures less than No Coil 00 210 bar (3,000 psi) FL Flying Lead IP69K Seal Option DE Deutsch IP69K Code | Seal Material Seal Kit 120017 В Buna AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K ۷ Viton 120018 ASDB AMP Super Seal with Diode Bidirectional IP69K Manual Overrides DEDB Deutsch with Diode Bidirectional IP69K Code Description FLDB Flying Lead with Diode Bidirectional IP69K XC No Manual Override

<u>HSVP12 - NCR - H12D - DE - XC - B - 00</u> Bodies





SCHEMATIC



OPERATION

This is a normally-closed, pilot-operated, poppet-type 16-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2.

SVP16-NCR

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve. This solenoid valve is a technical replacement for CP502-3.



Shown with Robust Coil, **Deutsch Connector**

(2)

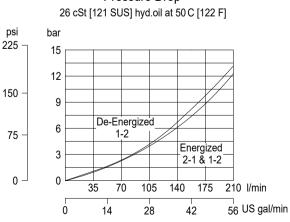
(1)

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	152 l/min
[100 psi]	[40 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.73 kg [1.61 lb]
Cavity	SDC16-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



Pressure Drop

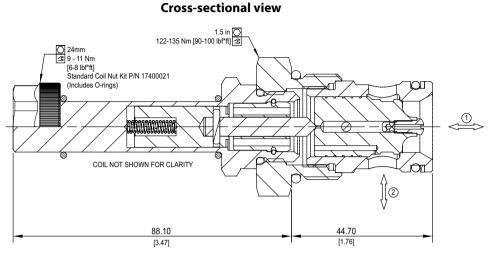




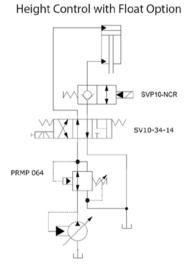
2-Way Poppet SVP16-NCR

DIMENSIONS

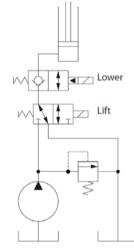
mm [in]



EXAMPLE CIRCUITS



Lift, hold, & lower single acting cylinder



P103 102E

			SVP16 - NCR	- 12D -	- DF -	XC - B -	00			5		
					<u> </u>	ŤŤ	Ť		Code	Ports & Material	Body Nomenclature	
Solenoi	id Valve								00	Cartridge Only	No Body	
Normal	lv-Closed, P	ilot Operated,								#12 SAE, AL	SCD16-2-12S	
	everse Flow,						-		S12S	#12 SAE, DUCTILE	SDC16-2-S12S	
Fiee Re	everse Flow,	To Size,							16S	#16 SAE, AL	SDC16-2-16S	
Poppet	Туре								S16S	#16 SAE, DUCTILE	SDC16-2-S16S	
								_	6B	3/4 BSP. AL	SDC16-2-6B	
									S6B	3/4 BSP, DUCTILE	SDC16-2-S6B	
Coil Voltage									8B	1 BSP, AL	SDC16-2-8B	
	Standard	Robust	Coil Termination		_				S8B	1 BSP. DUCTILE	SDC16-2-S8B	
Description	Coil Code	Coil Code	Туре	Standard	IP Rating	Robust Coil	IP Rating			uminum bodies are to be used		
No Coil, with nut*	00	R00	No Coil	Coil Code 00		Code R00	<u> </u>		less	than 210 bar (3,000 PSI)		
10 VDC	10D	R10D	Amp Junior	AJ	IP67	-						
12 VDC	12D	R12D	Amp Junior with Diode		IP67					Qual Option		
20 VDC	20D	R20D	AMP SuperSeal 1.5		IP67	AS	IP69K			Seal Option	0.11/1	
24 VDC	24D	R24D	AMP SuperSeal with Diode		IP67	ASDB	IP69K				Seal Kits	
110 VAC**	110A	NZ4D								B Buna	120019	
220 VAC**	220A	-	Deutsch	DE	IP69K	DE	IP69K			V Viton	120020	
		-	Desutch with Diode		IP69K	DEDB	IP69K					
	il - plastic nut el nut P/N 173		Flying Leads		IP65	FL	IP69K					
(no coil O-rir		004010	Flying Leads with Diode	. ==	IP65	FLDB	IP69K			Manual Override		
	external rectifi	er needed	DIN 43650	DN	IP65	-	-			Code Descripti	on	
			Metri-Pack 150 Type 2	-	-	M3	IP69K	L		XC No Overr		
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K					







This is a normally-closed, pilot-operated, poppet-type 16-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2.

HSVP16-NCR

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve.



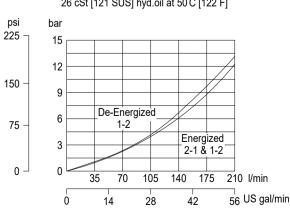
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	152 l/min
[100 psi]	[40 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.73 kg [1.61 lb]
Cavity	SDC16-2
Standard Coil	H16 29 Watt

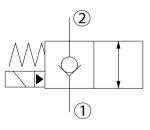
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



Pressure Drop 26 cSt [121 SUS] hyd.oil at 50 C [122 F]

SCHEMATIC



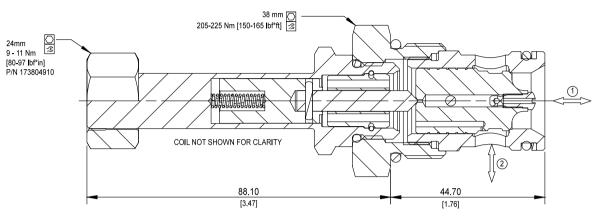


2-Way Poppet HSVP16-NCR

DIMENSIONS

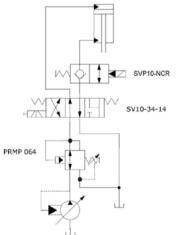
Cross-sectional view

mm [in]

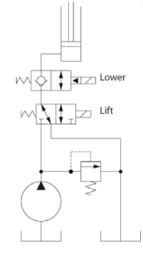


EXAMPLE CIRCUITS





Lift, hold, & lower single acting cylinder



P103 102E

ORDERING INFORMATION

HSVP16 - NCR - H12D - DE - XC - B - 00 Bodies

		-				- Boales					
						Code	Ports 8	Material	Body Norr	enclatur	
h Pressure	Solenoid Valve —					00	Cartridg	ge Only	No Body		
rmally-Close	d, Pilot Operated,					12S	#12 SA	E, AL	SDC16-2-1	2S	
e Reverse F	low, 16 Size,	Coil Vo	oltage			S12S	#12 SA	E, DUCTI	LE SDC16-2-S	S12S	
ppet Type		Code	Description -			16S	#16 SA	#16 SAE, AL		SDC16-2-16S	
		H00	No Coil			S16S	#16 SA	E, DUCTI	LE SDC16-2-S	616S	
	H12D 12 VDC H24D 24 VDC					6B	3/4 BSF	P, AL	SDC16-2-6	B	
		24 VDC			S6B	3/4 BSF	,DUCTIL	E SDC16-2-S	6B		
	rmination					8B	1 BSP,	AL	SDC16-2-8	B	
Code	Description			IP Ratino		S8B	1 BSP,	DUCTILE	SDC16-2-9	68B	
00	No Coil			-		**Aluminum bodies are to be used for lower pressure					
FL	Flying Lead			IP69K		210 bar (210 bar (3,000 psi) Seal Option				
DE	Deutsch			IP69K				Code	Seal Materia	Seal Kit	
AS	AMP Super Seal 1	.5 & Metri	Pack 150 type 1	P69K					Buna	120019	
ASDB	ASDB AMP Super Seal with Diode Bidirectional			IP69K			V Vi		Viton	120020	
DEDB	Deutsch with Diode	e Bidirectional		IP69K		Overrides					
FLDB	Flying Lead with D	iode Bidire	ectional	IP69K	Code	Descripti				_	
L				I	XC	No Manua	l Overrid	Э			

BC332375861112en-000101 · February 2020







This is a normally-closed, pilot-operated, poppet-type 20-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2.

SVP20-NCR

APPLICATIONS

This valve is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump valve. This solenoid valve is a technical replacement for CP503-3.



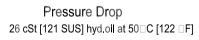
Shown with Robust Coil, Deutsch Connector

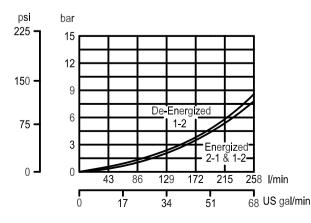
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	227 l/min
[100 psi]	[60 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	1.04 kg [2.29 lb]
Cavity	SDC20-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

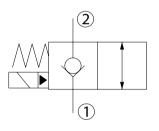
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

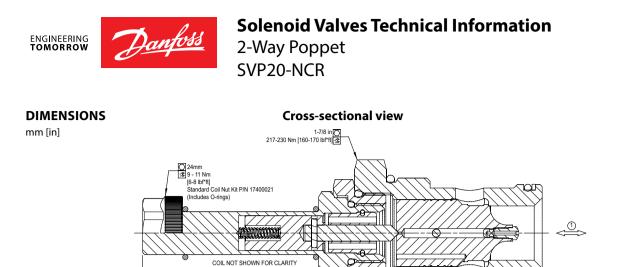
PERFORMANCE CURVES



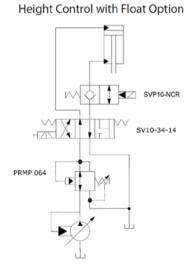


SCHEMATIC





EXAMPLE CIRCUITS

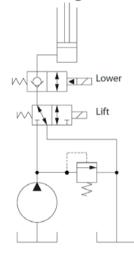


91.5

Lift, hold, & lower single acting cylinder

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58.40 [2.30]



P103 102E

		SVP20 - NCR	- 12D -	DF -	ХС - В -	. 00		Bodies			
Solenoid Valve				두	Ϋ́́	÷		Code		Material	Body Nomenclature
									Cartridge Onl	у	No Body
Normally-Closed, Pilot Op	perated,								#16 SAE, AL		SCD20-2-16S
Free Reverse Flow, 20 Siz	ize.								#16 SAE, DU	CTILE	SDC20-2-S16S
Pennet Tyrne	.,								#20 SAE, AL		SDC20-2-6B
Poppet Type								S20S #	#20 SAE, DU	CTILE	SDC20-2-S6B
								8B 1	I BSP, AL		SDC20-2-8B
	-							S8B (I BSP, DUCT	ILE	SDC20-2-S8B
Coil Voltage								10B 1	I 1/4 BSP, AL		SDC20-2-10B
Description Standard Ro	obust	Coil Termination						S10B 1	I 1/4 BSP, DL	JCTILE	SDC20-2-S10B
Description Coil Code Coil	I Code	Туре	Standard	IP Rating	Robust Coil	IP Rating		**Alu	minum bodies	are to be us	ed for pressures
No Coil, with nut* 00 R	200	No Coil	Coil Code 00		Code R00			less	than 210 bar (3	8,000 PSI)	
	10D	Amp Junior		- IP67		-					
	12D	Amp Junior with Diode	AJ	IP67	-	-					
	20D	AMP SuperSeal 1.5	AJD		-	- IP69K			Seal Opt	-	0.110
		AMP SuperSeal with Diode		IP67	AS		1 -		Code	Material	Seal Kits
110 VAC** 110A	240		ASD	IP67	ASDB	IP69K			B	Buna	120011
220 VAC** 220A	-	Deutsch	DE	IP69K	DE	IP69K			V	Viton	120012
*Standard coil - plastic nut and O	-	Desutch with Diode	DED	IP69K	DEDB	IP69K					
R-coil - steel nut P/N 17380491		Flying Leads	FL	IP65	FL	IP69K					
(no coil O-rings needed)		Flying Leads with Diode	FLD	IP65	FLDB	IP69K			Manual Ov	erride	
**DIN only - external rectifier nee	eded	DIN 43650	DN	IP65	-	-			Code	Descrip	tion
		Metri-Pack 150 Type 2	-	-	M3	IP69K	L		XC	No Ove	rride
		Metri-Pack 150 with Diode	-	-	M3DB	IP69K					





2-Way Poppet HSVP20-NCR



OPERATION

This is a normally-closed, pilot-operated, poppet-type 20-size solenoid valve with free reverse flow. When de-energized, the valve acts as a check valve, allowing flow from port 1 to port 2, and blocking flow from port 2 to port 1. When energized, the valve's poppet is shifted and allows flow from port 2 to port 1, and from port 1 to port 2.

APPLICATIONS

This value is designed for low leakage applications and can be used in a circuit with a single acting cylinder to control motion, provide load holding or as a general purpose diverter or dump value.



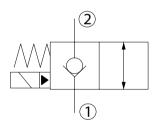
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

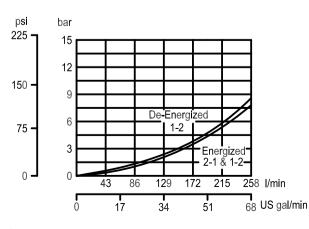
Rated pressure*	350 bar [5075 psi]*					
Rated flow at 7 bar	227 l/min					
[100 psi]	[60 US gal/min]					
Leakage	6 drops/min @					
	Rated pressure					
Weight	1.04 kg [2.29 lb]					
Cavity	SDC20-2					
Standard Coil	H16 29 Watt					

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



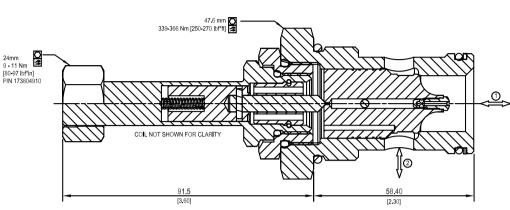
Pressure Drop 26 cSt [121 SUS] hyd.oil at 50 C [122 F]



2-Way Poppet HSVP20-NCR

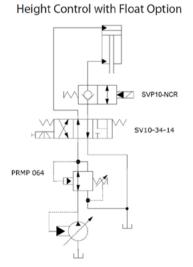
DIMENSIONS





Cross-sectional view

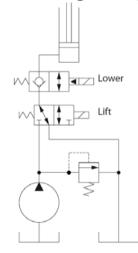
EXAMPLE CIRCUITS



.....

. .

Lift, hold, & lower single acting cylinder



P103 102E

ORDERING INFORMATION

							Code	Ports	& Materi	ial Boo	dy No	menclatu	
Pressure	Solenoid Valve —						00	Cartrido	ge Only	No	Body		
nally-Close	d, Pilot Operated,						16S	#16 SA	E, AL	SD	C20-2	2-16S	
Reverse F	low, 20 Size,	Coil Ve	oltage				S16S	#16 SA	E, DUCT	ILE SD	C20-2	2-S16S	
Det Type Code Description						20S	#20 SA	e, al	SD	C20-2	2-6B		
	H00 No Coil						S20S	#20 SA	E,DUCTI	LE SD	C20-2	2-S6B	
	H12D 12 VDC						8B	1 BSP,	AL	SD	C20-2	2-8B	
		H24D	24 VDC				S8B	1 BSP,	DUCTILI	e sd	C20-2	2-S8B	
	rmination						10B	1 1/4 B	SP, AL	SD	C20-2	2-10B	
Code	Description			IP Rating	<u> </u>		S10B	1 1/4 B	1 1/4 BSP, DUCTILE			2 - S10B	
00	No Coil			ii itaang	- 1			**Aluminum bodies are to be used for lower pressures less than					
FL	Flying Lead			- IP69K			210 ba	210 bar (3,000 psi) Seal Option					
DE	Deutsch			IP69K					Code Sea		terial	Seal Kit	
AS AMP Super Seal 1.5 & Metri Pack 150 type 1			IP69K	1				В	Buna		120011		
ASDB AMP Super Seal with Diode Bidirectional				IP69K	1				۷	Viton		120012	
DEDB	Deutsch with Diod	e Bidirectio	onal	IP69K	1		1	verrides					
FLDB	Flying Lead with D	ode Bidire	ectional	P69K	1 [Code XC	Descrip No Man						

BC332375861112en-000101 · February 2020







This is a normally open, pilot-operated, poppet-type 08-size solenoid valve. When de-energized, the SVP08-NO severely restricts flow from port 1 to port 2, while allowing free flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allows reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required. The SVP08-NO can operate at an inlet pressure of 315 bar on port 2 for 600,000 cycles.



Shown with Robust Coil, Metri-Pack Type 2 connector

SPECIFICATIONS

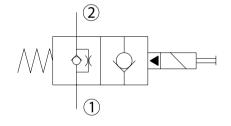
Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	35 l/min
[100 psi]	[9 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.23 kg [0.51 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

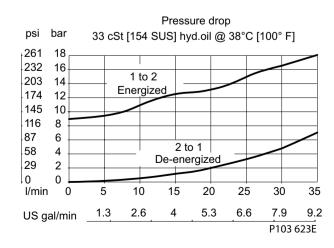
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES







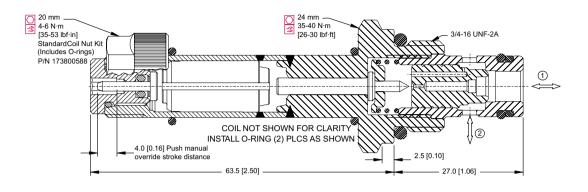


2-Way Poppet SVP08-NO

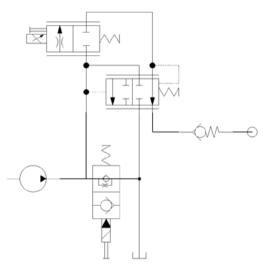
DIMENSIONS

Cross-sectional view

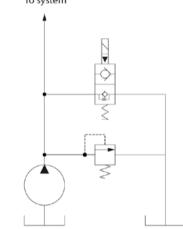
mm [in]

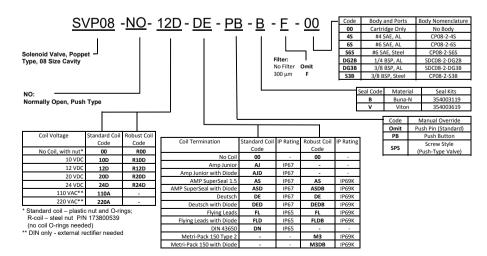


EXAMPLE CIRCUITS



Pump unloading To system











This is a normally open, pilot-operated, poppet-type 10-size solenoid valve. When de-energized, the SVP10-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required. The SVP10-NO can operate at an inlet pressure of 315 bar on port 2 for 300,000 cycles.



Shown with Standard Coil, Deutsch Connector

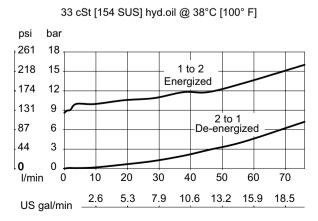
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	80 l/min
[100 psi]	[21 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.43 kg [0.95 lb]
Cavity	SDC10-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

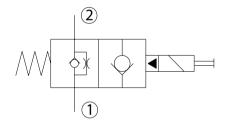
** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



Pressure drop

SCHEMATIC



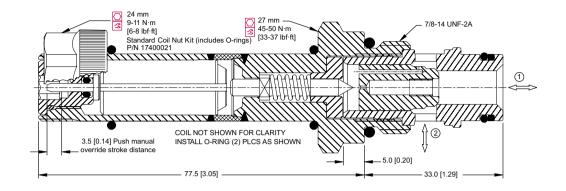


2-Way Poppet SVP10-NO

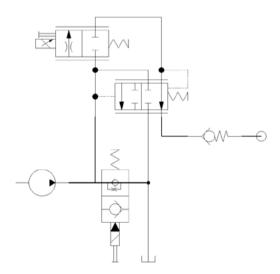
DIMENSIONS

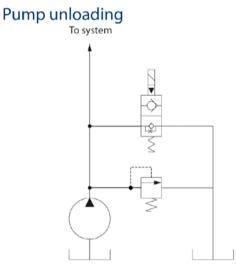
Cross-sectional view

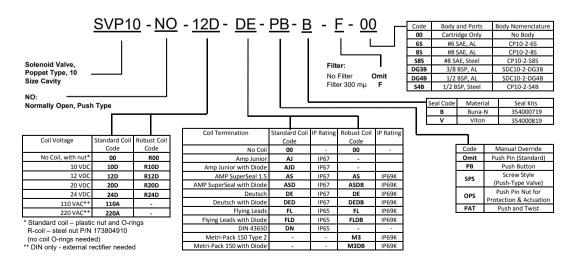
mm [in]



EXAMPLE CIRCUITS













This is a normally open, pilot-operated, poppet-type 10-size solenoid valve. When de-energized, the HSVP10-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

HSVP10-NO

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required.



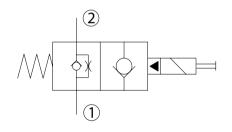
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

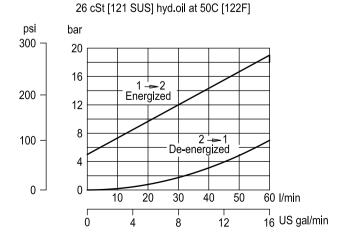
Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	65 l/min
[100 psi]	[17 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.42 kg [0.93 lb]
Cavity	SDC10-2
Standard Coil	H16 29 Watt

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



Pressure drop

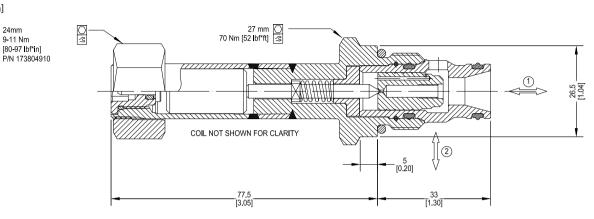


2-Way Poppet HSVP10-NO

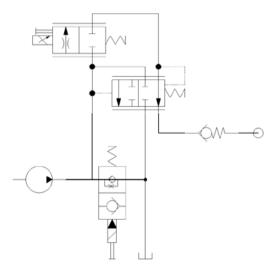
Cross-sectional view

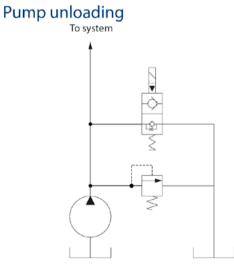
DIMENSIONS

mm [in]



EXAMPLE CIRCUITS





	HSVP	10 - NO	- H12D ·	- DE -	- PN -	Р-	- 00
						\top	
d Valve,]					
Operated,	,						

Norr	nally-Op	re Solenoid Valve, pen, Pilot-Operated, opet Type		- 14	
			Coil V	-	
			Code	Descriptio	n
			H00	No Coil	
			H12D	12 VDC	
			H24D	24 VDC	
	Coil Te	ermination			
	Code	Description			IP Rating
	00	No Coil			-
	FL	Flying Lead			IP 69k
	DE	Deutsch			IP 69k
	AS	AMP SuperSeal 1.5 and Me	etri-Pack	150 type 1	IP 69k
	ASDB	AMP Super Seal with Diode	Bidirec	tional	IP 69k
	DEDB	Deutsch with Diode Bidirect	tional		IP 69k
	FLDB	Flying Lead with Diode Bidi	rectiona	I	IP 69k

		Bodies		
		Code	Port & Material	Body Nomenclature
		00	Cartridge only	No Body
		S3B	3/8 BSP, Ductile	SDC10-2-S3B
		S4B	1/2 BSP, Ductile	SDC10-2-S4B
		S6S	#6 SAE, Ductile	SDC10-2-S6S
		S8S	#8 SAE, Ductile	SDC10-2-S8S
	Seal O	applicat	ninium bodies availa ion. Please consult	able for lower pressur factory for details.
L	Code	i –	Seal Material	Seal kit
	0000	Polyurethane Single Seal		
	P	Polyur	ethane Single Seal	11132135
	P V	Polyur Viton	ethane Single Seal	11132135 354000819
Manua	-	Viton	ethane Single Seal	
<u>Manua</u> Code	V	Viton	ethane Single Seal	
1		Viton le otion	ethane Single Seal	
Code	V I Overric Descrip Push P	Viton le otion Pin	ethane Single Seal	354000819







This is a normally open, pilot-operated, poppet-type 12-size solenoid valve. When de-energized, the SVP12-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type

SVP12-NO

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required. This solenoid valve is a technical replacement for CP501-2.



Shown with Robust Coil, Deutsch Connector

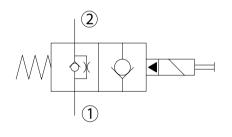
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	114 l/min
[100 psi]	[30 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.67 kg [1.47 lb]
Cavity	CP12-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

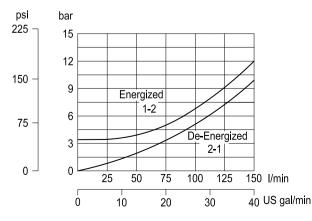
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES





Pressure drop 26 cSt [121 SUS] hyd.oil at 50C [122F]

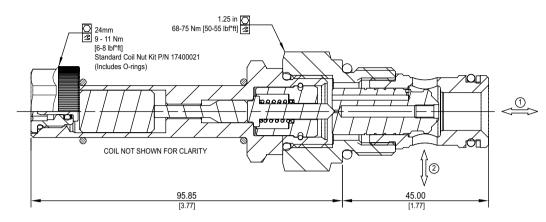




2-Way Poppet SVP12-NO

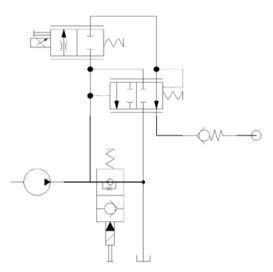
DIMENSIONS

mm [in]

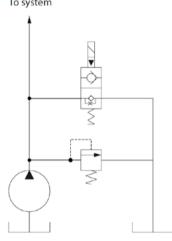


Cross-sectional view

EXAMPLE CIRCUITS



Pump unloading To system



ORDERING INFORMATION

SVP12 - NO - 12D - DE - PN - B - 00										
Solenoid Valve										
Normall	Normally-Open, Pilot Operated,									
12 Size,	Poppet Typ	e								
Coil Voltage										
_	Standard	Robust	Coil Termination				,			
Description	Coil Code	Coil Code	Туре	Standard	IP Rating	Robust Coil	IP Rating			
No Coil, with nut*	00	R00	No Coil	Coil Code 00	-	Code R00				
10 VDC	10D	R10D	Amp Junior		IP67	-	-			
12 VDC	12D	R12D	Amp Junior with Diode			-	-			
20 VDC	20D	R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K			
24 VDC	24D	R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K			
110 VAC**		-	Deutsch	DE	IP69K	DE	IP69K			
220 VAC**		-	Desutch with Diode		IP69K	DEDB	IP69K			
	oil - plastic nut el nut P/N 173		Flying Leads		IP65	FL	IP69K			
(no coil O-ri		004910	Flying Leads with Diode		IP65	FLDB	IP69K			
	external rectifi	er needed	DIN 43650		IP65	-	-			
-			Metri-Pack 150 Type 2	-	-	M3	IP69K			
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K			

Bodie	es l									
Code		Body Nomenclature								
		No Body								
	#10 SAE, AL	CP12-2-10S								
	#10 SAE, DUCTILE	CP12-2-S10S								
	#12 SAE, AL	CP12-2-12S								
S12S	#12 SAE, DUCTILE	CP12-2-S12S								
4B	1/2 BSP, AL	CP12-2-4B								
S4B	1/2 BSP, DUCTILE	CP12-2-S4B								
6B	3/4 BSP, AL	CP12-2-6B								
S6B 3/4 BSP, DUCTILE CP12-2-S6B										
**A	**Aluminum bodies are to be used for pressures									

"Aluminum bodies are to be used for p less than 210 bar (3,000 PSI)

Seal Option									
Code	Code Material Se								
В	Buna	120017							
V	Viton	120018							

Manual Override							
Code	Description						
PN	Push Pin						
OPS	Push Pin Override with Nut for Protection & Actuation						







This is a normally open, pilot-operated, poppet-type 12-size solenoid valve. When de-energized, the HSVP12-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

HSVP12-NO

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required.



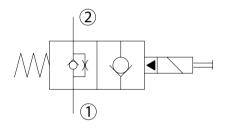
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

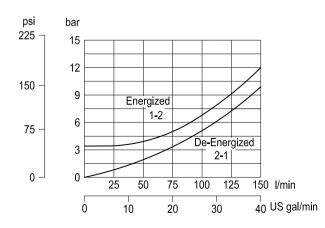
Rated pressure*	350 bar [5075 psi]*				
Rated flow at 7 bar	114 l/min				
[100 psi]	[30 US gal/min]				
Leakage	6 drops/min @				
	Rated pressure				
Weight	0.67 kg [1.47 lb]				
Cavity	CP12-2				
Standard Coil	H16 29 Watt				

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



Pressure drop 26 cSt [121 SUS] hyd.oil at 50C [122F]

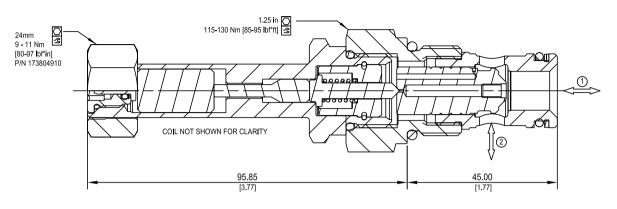


2-Way Poppet HSVP12-NO

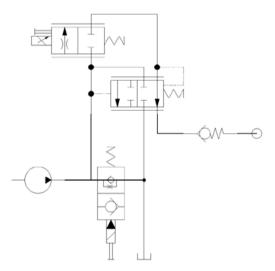
DIMENSIONS

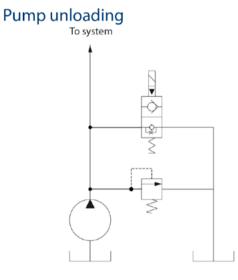
Cross-sectional view

mm [in]



EXAMPLE CIRCUITS





ORDERING INFORMATION

			1 12 110	11120								
						Т		Code	Ports &	Material	Body Nom	enclature
Pressure	Solenoid Valve —							00	Cartridge	e Only	No Body	
	, Pilot Operated,							10S	#10 SAE	, AL	CP12-2-108	3
e, Poppe		Coil Vo	ltage					S10S	#10 SAE	, DUCTIL	E CP12-2-S1	OS
.,	3 1	Code	Description -					12S	#12 SAE	, AL	CP12-2-128	5
		H00	No Coil					S12S	#12 SAE	, DUCTIL	E CP12-2-S12	2S
		H12D	12 VDC					4B	1/2 BSP,	AL	CP12-2-4B	
		H24D	24 VDC					S4B	1/2 BSP,	DUCTILE	CP12-2-S4	3
			11					6B	3/4 BSP,	AL	CP12-2-6B	
	rmination							S6B	3/4 BSP,	DUCTILI	E CP12-2-S6	В
Code	Description			IP Rating				**Aluminu	m bodies ar	e to be used	for lower pressur	es less than
00	No Coil			-				210 bar (3	,000 psi)	Seal Op	tion	
FL	Flying Lead			IP69K						Code	Seal Material	Seal Kit
DE	Deutsch			IP69K						В	Buna	120017
AS	AMP Super Seal 1	.5 & Metri	Pack 150 type 1	IP69K		Manua	al Over	rides		V	Viton	120018
ASDB	AMP Super Seal v	vith Diode B	Bidirectional	IP69K	4	Code	Des	cription				
DEDB	Deutsch with Diod	e Bidirectio	nal	IP69K	t	PN	Pusl	n Pin				
FLDB	Flying Lead with D	Diode Bidire	ctional	IP69K	t	OPS	Pus	h Pin M/O	Nut for Pr	otection &	Actuation	
					t	PAT	Pue	n and Twis	t			

HSVP12 - NO - H12D - DE - PN - B - 00 Bodies





This is a normally open, pilot-operated, poppet-type 16-size solenoid valve. When de-energized, the SVP16-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required. This solenoid valve is a technical replacement for CP502-2.



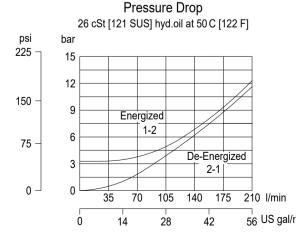
Shown with Robust Coil, Deutsch Connector

SPECIFICATIONS

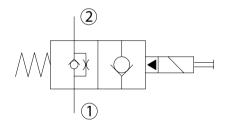
Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	152 l/min
[100 psi]	[40 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.73 kg [1.61 lb]
Cavity	SDC16-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



SCHEMATIC

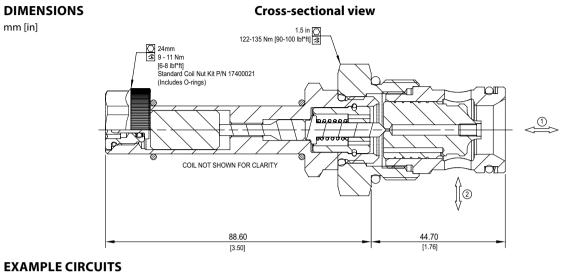


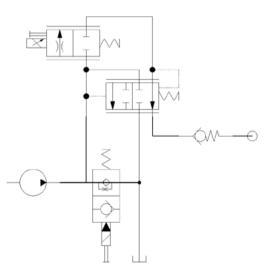


Solenoid Valves Technical Information 2-Way Poppet

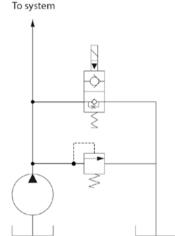
SVP16-NO

DIMENSIONS mm [in]





Pump unloading To system



			SVP16 - NC	- 12D .			00		Bodies		
			<u>501 10-10</u> C	- 120	뚜뜨	<u> </u>	<u><u> </u></u>		Code	Ports & Mater	al Body Nomenclature
Solenoi	id Valve									Cartridge Only	No Body
Normal	ly Onon Dil	ot Operated,							12S #	12 SAE, AL	SCD16-2-12S
									S12S #	12 SAE, DUCTILE	SDC16-2-S12S
16 Size	, Poppet Typ								16S #	16 SAE, AL	SDC16-2-16S
									S16S #	16 SAE, DUCTILE	SDC16-2-S16S
								_	6B 3	6/4 BSP, AL	SDC16-2-6B
									S6B 3	4 BSP, DUCTILE	SDC16-2-S6B
Coil Voltage									8B 1	BSP, AL	SDC16-2-8B
Description	Standard	Robust	Coil Termination						S8B 1	BSP, DUCTILE	SDC16-2-S8B
Description	Coil Code	Coil Code	Туре	Standard	IP Rating	Robust Coil	IP Rating		**Alu	minum bodies are to b	e used for pressures
No Coil with put*	00	R00		Coil Code		Code				han 210 bar (3,000 PS	
10 VDC	10D	R10D	No Coil Amp Junior		-	R00	-				
12 VDC	10D	R12D		7.0	IP67	-	-				
20 VDC	20D	R20D	Amp Junior with Diode		IP67	-	-			Seal Option	
20 VDC 24 VDC	20D 24D	R24D	AMP SuperSeal 1.5		IP67	AS	IP69K			Code Mater	
110 VAC**	110A		AMP SuperSeal with Diode		IP67	ASDB	IP69K			B Bun	
		-	Deutsch	DE	IP69K	DE	IP69K			V Vito	n 120020
220 VAC**	220A	-	Desutch with Diode		IP69K	DEDB	IP69K				
	il - plastic nut el nut P/N 173		Flying Leads		IP65	FL	IP69K				
(no coil O-rir		001010	Flying Leads with Diode		IP65	FLDB	IP69K		Manual C	Verride	
**DIN only - e	external rectifi	er needed	DIN 43650		IP65	-	-		Code		escription
			Metri-Pack 150 Type 2		-	M3	IP69K	·	PN	F	Push Pin
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K		0.000	Push Pin C	verride with Nut for
									OPS	Protect	ion & Actuation







This is a normally open, pilot-operated, poppet-type 16-size solenoid valve. When de-energized, the HSVP16-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

2-Way Poppet HSVP16-NO

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required.



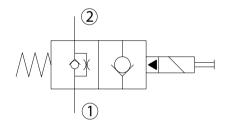
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

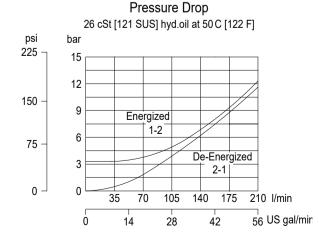
Rated pressure*	350 bar [5075 psi]*				
Rated flow at 7 bar	152 l/min				
[100 psi]	[40 US gal/min]				
Leakage	6 drops/min @				
	Rated pressure				
Weight	0.73 kg [1.61 lb]				
Cavity	SDC16-2				
Standard Coil	H16 29 Watt				

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES

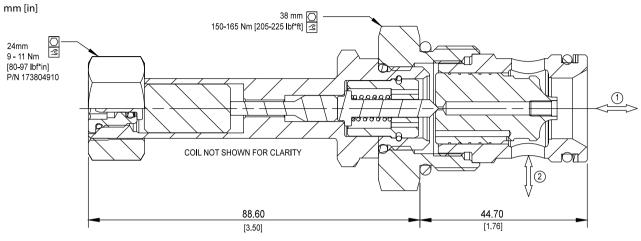




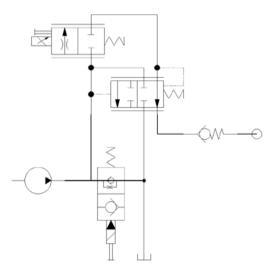
2-Way Poppet HSVP16-NO

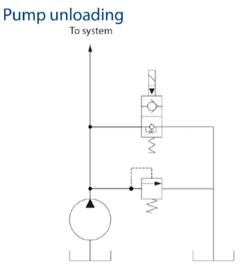


Cross-sectional view



EXAMPLE CIRCUITS





		HSVP16 - NO	- H12E) - DE - I	PN – E	3 - 00	Bodles					
					T -	гт		Ports a	& Materi	al	Body Nor	nenclatur
Brocouro	Solenoid Valve						00	Cartrid	ge Only		No Body	
	, Pilot Operated,						12S	#12 SA	AE, AL		SDC16-2-	12S
Size, Poppe		Coll Voltage					S12S	#12 SA	E, DUCT	TILE	SDC16-2	S12S
size, Poppe	at Type	Code Description					16S	#16 SA	NE, AL		SDC16-2-	-16S
		H00 No Col					S16S	#16 SA	E, DUC	TILE	SDC16-2-	S16S
		H12D 12 VDC					6B	3/4 BS	P, AL		SDC16-2	•6B
		H24D 24 VDC					S6B	3/4 BS	P,DUCTI	LE	SDC16-2-	S6B
		11240 24 000					8B	1 BSP,	AL		SDC16-2-	-8B
Coil Te	rmination		_	_			S8B	1 BSP,	DUCTIL	E	SDC16-2-	-S8B
Code	Description		IP Rating	g -l			**Aluminum	1 bodies	are to be u	sed fo	r lower press	ures less tha
00	No Coil		-				210 bar (3,6	000 psi)	Seal O	ptio	n	_
FL	Flying Lead		IP69K						Code	Se	al Materia	Seal Kit
DE	Deutsch		IP69K						В	Bu	na	120019
AS	AMP Super Seal 1.	5 & Metri Pack 150 type 1	IP69K			Manual	Overrides		V	Vite	on	120020
ASDB	AMP Super Seal w	th Diode Bidirectional	IP69K		1 -	Code	Description	1				
DEDB	Deutsch with Diode	Bidirectional	IP69K			PN	Push Pin					-1
FLDB	Flying Lead with Di	ode Bidirectional	IP69K		_	OPS	Push Pin M/	O Nut	ior Protec	ction	& Actuatio	n l
				_	_	PAT	Push and Ty					-
					L							





SCHEMATIC

(2)



OPERATION

This is a normally open, pilot-operated, poppet-type 20-size solenoid valve. When de-energized, the SVP20-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required. This solenoid valve is a technical replacement for CP503-2.



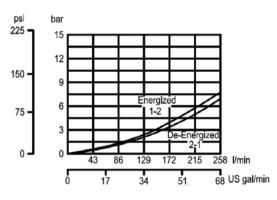
Shown with Robust Coil, Deutsch Connector

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	265 l/min
[100 psi]	[70 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	1.04 kg [2.29 lb]
Cavity	SDC20-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



Pressure Drop 26 cSt [121 SUS] hyd.oll at 50 C [122 F]



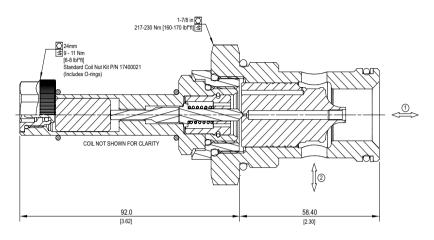


2-Way Poppet SVP20-NO

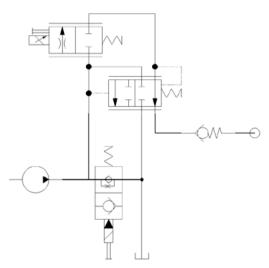
DIMENSIONS

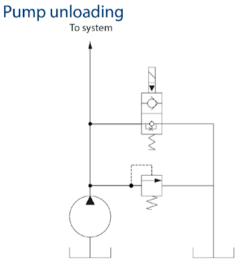
Cross-sectional view





EXAMPLE CIRCUITS





	<u>SVP20 - NO</u>	- <u>12D</u> ·	- <u>DE</u> - <u>I</u>	<u>PN - B</u> -	00		Bodies Code	Ports
Solenoid Valve								tridge C SAE, A
Normally-Open, Pilot Operated,						5		SAE, D
						1	20S #20	SAE, A
20 Size, Poppet Type) SAE, D
						[8		SP, AL
								SP, DU
Coil Voltage							10B 11/	4 BSP, J
Standard Robust	Coil Termination				<u> </u>		S10B 1 1/	4 BSP,
Description Coil Code Coil Code	Туре	Standard	IP Rating	Robust Coil	IP Rating		**Alumir	num bodi
No Coil, with nut* 00 R00		Coil Code		Code	J			n 210 bai
00 1100	No Coil	00	-	R00	-			
10 VDC 10D R10D	Amp Junior	AJ	IP67	-	-			Seal O
12 VDC 12D R12D	Amp Junior with Diode	AJD	IP67	-	-		Г	Code
20 VDC 20D R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K			B
24 VDC 24D R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K		-	<u>v</u>
110 VAC** 110A -	Deutsch	DE	IP69K	DE	IP69K		L	V
220 VAC** 220A -	Desutch with Diode	DED	IP69K	DEDB	IP69K		Manual O	worrido
*Standard coil - plastic nut and O-rings	Flying Leads	FL	IP65	FL	IP69K	l r		T
R-coil steel nut P/N 173804910	Flying Leads with Diode	FLD	IP65	FLDB	IP69K		Code	-
(no coil O-rings needed) **DIN only - external rectifier needed	DIN 43650	DN	IP65	-	-		PN	-
Dire only - external rectiller fielded	Metri-Pack 150 Type 2	-	-	M3	IP69K		OPS	Pu
	Metri-Pack 150 with Diode	-	-	M3DB	IP69K		SPS	

Bodie	S							
Code	Ports & Material	Body Nomenclature						
00	Cartridge Only	No Body						
16S	#16 SAE, AL	SCD20-2-16S						
S16S	#16 SAE, DUCTILE	SDC20-2-S16S						
20S	#20 SAE, AL	SDC20-2-6B						
S20S	#20 SAE, DUCTILE	SDC20-2-S6B						
8B	1 BSP, AL	SDC20-2-8B						
S8B	1 BSP, DUCTILE	SDC20-2-S8B						
10B	1 1/4 BSP, AL	SDC20-2-10B						
S10B	1 1/4 BSP, DUCTILE	SDC20-2-S10B						
	**Aluminum bodies are to be used for pressures less than 210 bar (3,000 PSI)							

Seal Opti	on	
Code	Material	Seal Kits
В	Buna	120011
V	Viton	120012

	Manual Ove	erride
_	Code	Description
	PN	Push Pin
	OPS	Push Pin Override with Nut for
	UF3	Protection & Actuation
	SPS	Screw Style





SCHEMATIC

(2)

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4



OPERATION

This is a normally open, pilot-operated, poppet-type 20-size solenoid valve. When de-energized, the HSVP20-NO severely restricts flow from port 1 to port 2, while allowing flow from port 2 to 1. When energized, the valve's poppet is shifted to block flow from port 2 to port 1, and allow reverse flow between port 1 to port 2 at a high pressure drop. This valve comes standard with a push pin type manual override.

HSVP20-NO

APPLICATIONS

This valve is designed for use for uni-directional blocking, load holding, clamping or gripping applications in hydraulic circuits where low internal leakage is required.



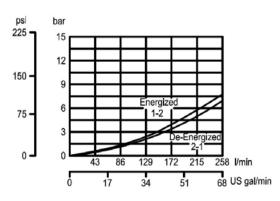
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	265 l/min
[100 psi]	[70 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	1.04 kg [2.29 lb]
Cavity	SDC20-2
Standard Coil	H16 29 Watt

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



Pressure Drop 26 cSt [121 SUS] hyd.oil at 50 C [122 F]

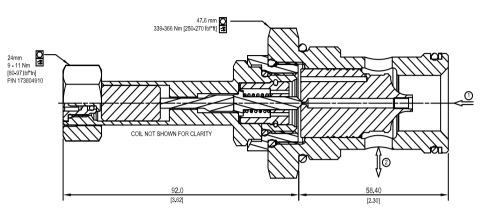


2-Way Poppet HSVP20-NO

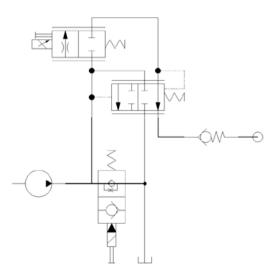
DIMENSIONS

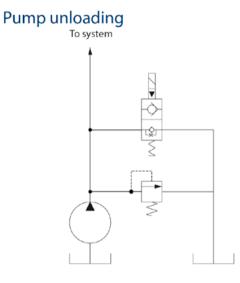






EXAMPLE CIRCUITS





		HSVP20 - NO	- H12D	- DF - PN - F	3 - 00	Bodles	6			
			<u> </u>	- 	ŤŤ	Code	Ports &	Material	Body Nom	enclatur
						00	Cartridge	Only	No Body	
High Pressure	Solenoid Valve				L	16S	#16 SAE	, AL	SDC20-2-	16S
Normally-Open	, Pilot Operated,					S16S	#16 SAE	, DUCTIL	E SDC20-2-	S16S
20 Size, Poppe	et Type	Coil Voltage				20S	#20 SAE	, AL	SDC20-2-	6B
		Code Description				S20S	#20 SAE,	DUCTILE	SDC20-2-	S6B
		H00 No Coil				8B	1 BSP, A	L	SDC20-2-	8B
		H12D 12 VDC				S8B	1 BSP, D	UCTILE	SDC20-2-	S8B
		H24D 24 VDC				10B	1 1/4 BSI	P, AL	SDC20-2-	10B
Coil Te	rmination					S10B	1 1/4 BSF	P, DUCTI	LE SDC20-2	-S10B
Code	Description		IP Rating						d for lower pressu	res less tha
00	No Coll		-			210 bar	(3,000 psl)	Seal O		
FL	Flying Lead		IP69K	·	L			Code	Seal Materia	Seal Ki
DE	Deutsch		IP69K					В	Buna	120011
AS		5 & Metrl Pack 150 type 1	IP69K	·	Manual	Overrides		V	Viton	120012
ASDB		th Diode Bidirectional	IP69K	┥└─ſ	Code	Descript	on			
DEDB Deutsch with Diode Bidirectional			IP69K	1 1	PN	Push Pin				1
FLDB	Flying Lead with Di		IP69K	1 1	OPS	Push Pln	M/O Nut fo	or Protect	on & Actuation	
	· · · · · · · · · · · · · · · · · · ·	isas Blaireadonai		나 나	PAT	Push and	Twiet			







This is a normally-open, pilot-operated, poppet-type 08-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

SVP08-NOR

APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve. The SVP08-NOR can operate at an inlet pressure of 315 bar on port 2 for 600,000 cycles.



Shown with Standard Coil, Deutsch Connector

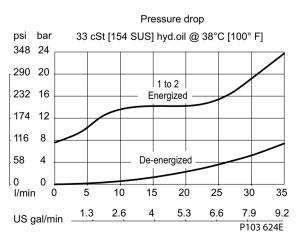
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	35 l/min
[100 psi]	[9 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.23 kg [0.51 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

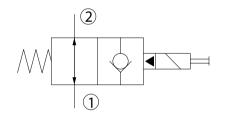
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC



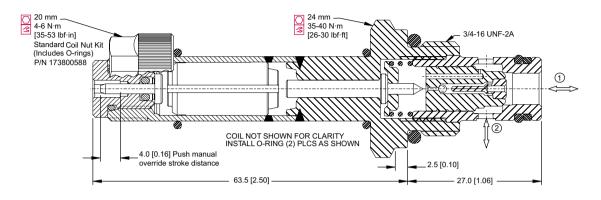


2-Way Poppet SVP08-NOR

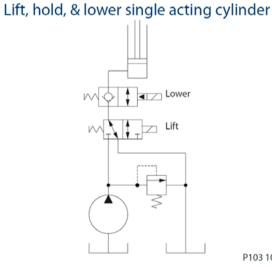
DIMENSIONS

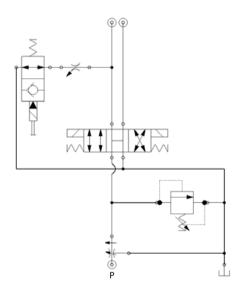
Cross-sectional view

mm [in]

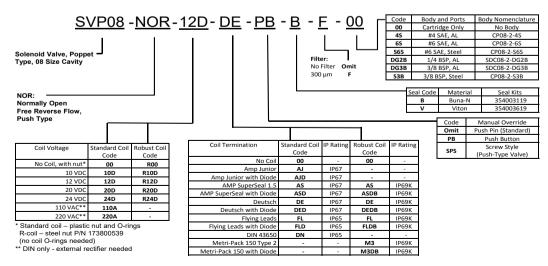


EXAMPLE CIRCUITS





ORDERING INFORMATION



P103 102E







This is a normally-open, pilot-operated, poppet-type 10-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

SVP10-NOR

APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve. The SVP10-NOR can operate at an inlet pressure of 315 bar on port 2 for 300,000 cycles.



Shown with Robust Coil, Metri-Pack Type 2 Connector

SPECIFICATIONS

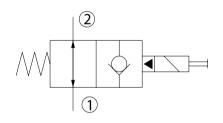
Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	80 l/min
[100 psi]	[21 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.43 kg [0.95 lb]
Cavity	SDC10-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

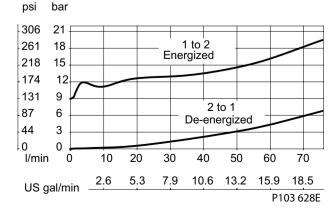
PERFORMANCE CURVES

SCHEMATIC



Pressure drop

33 cSt [154 SUS] hyd.oil @ 38°C [100° F]



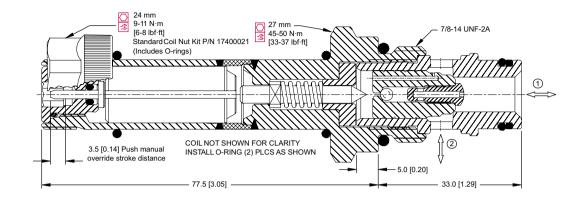


2-Way Poppet SVP10-NOR

DIMENSIONS

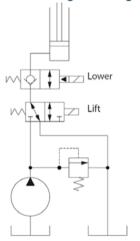
Cross-sectional view

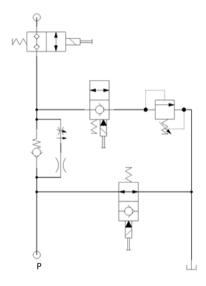
mm [in]



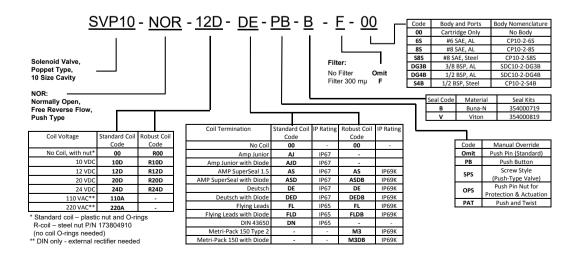
EXAMPLE CIRCUITS

Lift, hold, & lower single acting cylinder





ORDERING INFORMATION



P103 102E







This is a normally-open, pilot-operated, poppet-type 10-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

HSVP10-NOR

APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve.



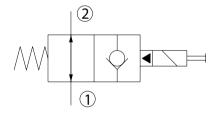
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

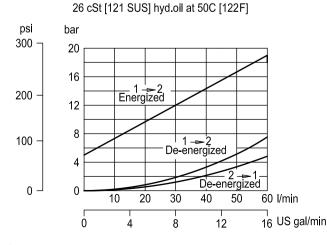
Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	65 l/min
[100 psi]	[17 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.42 kg [0.93 lb]
Cavity	SDC10-2
Standard Coil	H16 29 Watt

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



Pressure drop

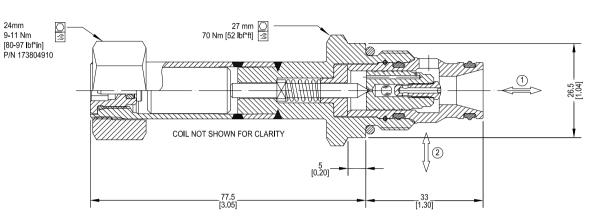


2-Way Poppet HSVP10-NOR

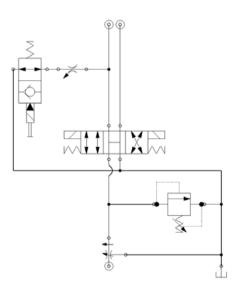
DIMENSIONS

Cross-sectional view





EXAMPLE CIRCUITS



ORDERING INFORMATION

<u>HSVP10 - NOR - H12D - DE - PN - P - 00</u>

						i L	Bodies	<u> </u>		
	re Solenoid Valve, —					1	Code	Port & Material	Body Nome	encla
	oen, Pilot-Operated, overse Flow.					l	00	Cartridge only	No Body	
	opet Type	Coil Ve	•				S3B	3/8 BSP, Ductile	SDC10-2-S	3B
Code Description		<u>n</u>			S4B	1/2 BSP, Ductile	SDC10-2-S	4B		
		H00	No Coil	4		l	S6S	#6 SAE, Ductile	SDC10-2-S	6S
		H12D	12 VDC				S8S	#8 SAE. Ductile	SDC10-2-S	85
		H24D	24 VDC			1		ninium bodies availa		
Coil Te	ermination			-				tion. Please consult		•
Code	Description			IP Rating		Seal C	ption		_	_
00	No Coll			-		Code		Seal Material	Seal kit	
FL	Flying Lead			IP 69k		Р	Polyur	ethane Single Seal	11132138	5
DE	Deutsch			IP 69k		V	Viton		35400081	19
AS	AMP SuperSeal 1.5 and	Metri-Pack	150 type 1		Manu	al Overric	de			
ASDB	•		••	IP 69k	Code	Descri	Description			
DEDB				IP 69k	PN	Push F	2in			
FLDB				IP 69k	OPS	Push Pin M/O Nut for Protection & Actuation			Actuation	
00	I Iying Lead with Diode E	nunectiona		IF UAK	PAT	1	and Twis			









This is a normally-open, pilot-operated, poppet-type 12-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type

2-Way Poppet SVP12-NOR

APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve. This solenoid valve is a technical replacement for CP501-4.



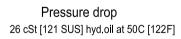
Shown with Robust Coil, Deutsch Connector

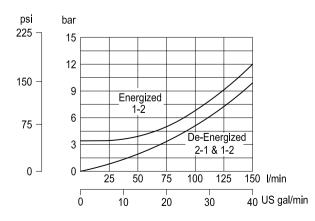
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	114 l/min
[100 psi]	[30 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.67 kg [1.47 lb]
Cavity	CP12-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

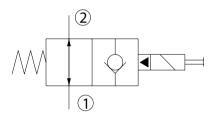
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES





SCHEMATIC

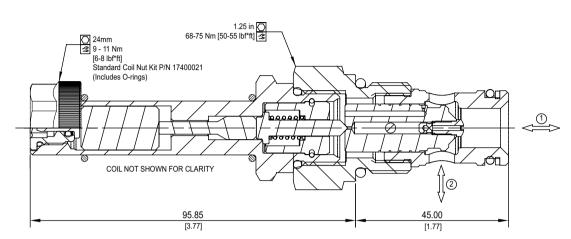




2-Way Poppet SVP12-NOR

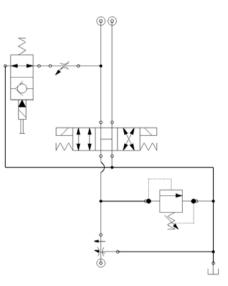
DIMENSIONS

mm [in]



Cross-sectional view

EXAMPLE CIRCUITS



Norm		Pilot Operated, ow, 12 Size,	SVP12 - NOR	- <u>12D</u> -	• <u>DE</u> - <u>I</u>	<u>PN - B</u> -	00		10S S10S 12S S12S 4B	Ports & Cartridge Only #10 SAE, AL #10 SAE, DU #12 SAE, AL #12 SAE, DU 1/2 BSP, AL	CTILE	Body Nomenclature No Body CP12-2-10S CP12-2-S10S CP12-2-12S CP12-2-S12S CP12-2-S12S CP12-2-4B
Coil Voltage										1/2 BSP, DUC 3/4 BSP, AL	TILE	CP12-2-S4B CP12-2-6B
Description	Standard Coil Code	Robust Coil Code	Coil Termination Type	Standard Coil Code	IP Rating	Robust Coil Code	IP Rating		**AI	3/4 BSP, DUC uminum bodies	are to be use	CP12-2-S6B d for pressures
No Coil, with nut*	00	R00	No Coil		-	R00	-		less	than 210 bar (3	,000 PSI)	
10 VDC	10D	R10D	Amp Junior	AJ	IP67	-	- 1					
12 VDC	12D	R12D	Amp Junior with Diode		IP67	-	-			Seal Opti	ion	
20 VDC	20D	R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K	L		Code		Seal Kits
24 VDC	24D	R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K			B	Buna	120017
110 VAC**	110A	-	Deutsch	DE	IP69K	DE	IP69K			v	Viton	120018
220 VAC**	220A	-	Desutch with Diode	DED	IP69K	DEDB	IP69K			-		
	il - plastic nut		Flying Leads		IP65	FL	IP69K			Manual Ove		
(no coil O-rir	l nut P/N 173	804910	Flying Leads with Diode	FLD	IP65	FLDB	IP69K			Code		Description
**DIN only - e		er needed	DIN 43650	DN	IP65	-	-			PN		Push Pin
			Metri-Pack 150 Type 2	-	-	M3	IP69K			OPS	Push Pin	Override with Nut for
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K			0P3	Prote	ction & Actuation







This is a normally-open, pilot-operated, poppet-type 12-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

HSVP12-NOR

APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve.



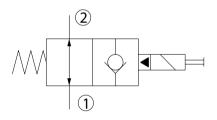
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

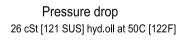
Rated pressure*	350 bar [5075 psi]*					
Rated flow at 7 bar	114 l/min					
[100 psi]	[30 US gal/min]					
Leakage	6 drops/min @					
	Rated pressure					
Weight	0.67 kg [1.47 lb]					
Cavity	CP12-2					
Standard Coil	H16 29 Watt					

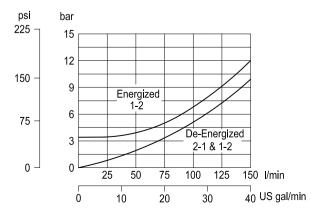
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES





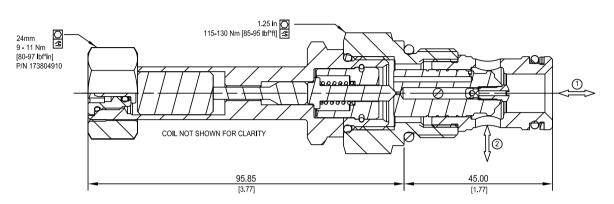


2-Way Poppet HSVP12-NOR

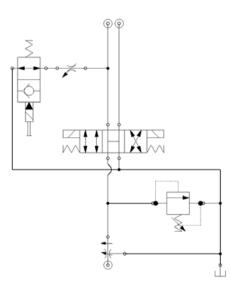
Cross-sectional view

DIMENSIONS

mm [in]



EXAMPLE CIRCUITS



			HSVF	212 - NOR	- H1	2D - D)E - P	'N - E	B - 00	Во	lies				
								— -	ΓŤ	Co	de	Ports &	Material	Body Nom	enclature
High F	ressure	Solenoid Valve								00		Cartridge	Only	No Body	
Norma	ally-Open	, Pilot Operated,								105		#10 SAE	, AL	CP12-2-108	3
Free	Reverse	Flow, 12 Size,	Coil Vo	ltage						S10)S	#10 SAE	, DUCTIL	E CP12-2-S1)S
Poppe	t Type		Code	Description]				125		#12 SAE	, AL	CP12-2-128	3
			H00	No Coil						S12	S	#12 SAE	, DUCTII	E CP12-2-S1	2S
			H12D	12 VDC						4B		1/2 BSP	AL	CP12-2-4B	
			H24D	24 VDC						S4E	3	1/2 BSP,	DUCTILE	CP12-2-S4	В
	C	rmination	-							6B		3/4 BSP	AL	CP12-2-6B	
						1				S6E	3	3/4 BSP	DUCTIL	E CP12-2-S6	3
	Code	Description			IP Ra	ting				**Alı	uminur	n bodies ar	e to be use	d for lower pressur	es less than
	00	No Coil			-					210 bar (3,000 psi) Seal Option					
	FL	Flying Lead			IP69K	(Code	Seal Material	Seal Kit
	DE	Deutsch			IP69K	(В	Buna	120017
	AS	AMP Super Seal 1.	5 & Metri	Pack 150 type 1	IP69ł	K			Manual	Overrie	loc		V	Viton	120018
	ASDB	AMP Super Seal w	ith Diode I	Bidirectional	IP69K	<			Code						1
	DEDB	Deutsch with Diode	Bidirectic	nal	IP69K	(I			Descr	•	n			-
	FLDB	Flying Lead with Di	odeBidire	ctional	IP69K	(PN	Push F					-
					1				OPS				Protecti	on & Actuation	-
									PAT	Push a	nd T	wist			







This is a normally-open, pilot-operated, poppet-type 16-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

SVP16-NOR

APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve. This solenoid valve is a technical replacement for CP502-4.

Shown with Robust Coil, **Deutsch Connector**

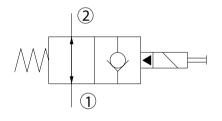
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	152 l/min
[100 psi]	[40 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	0.73 kg [1.61 lb]
Cavity	SDC16-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

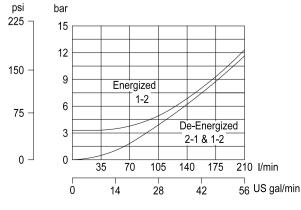
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES





Pressure Drop 26 cSt [121 SUS] hyd oil at 507C [122 7F]





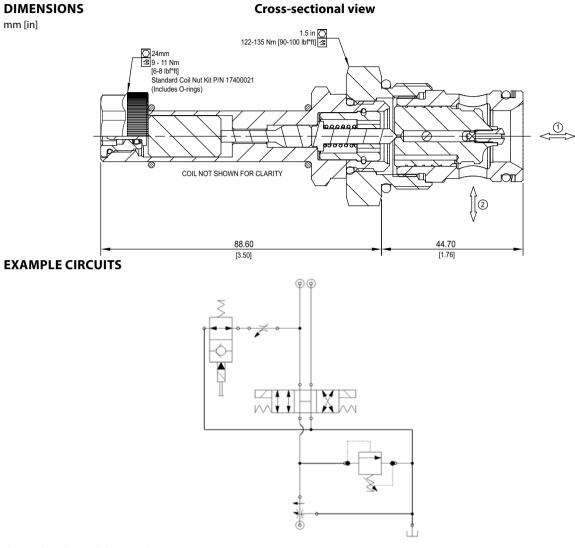
2-Way Poppet SVP16-NOR





DIMENSIONS

mm [in]



			SVP16 - NOR	- 12D -	DF - F	PN - B -	00	Bodies			
Solenoid	Valvo			<u></u>	<u>-</u>	ΤŤ	Ť	Code		Material	Body Nomenclatur
001011010	10.10								Cartridge On	у	No Body
Normally	-Open, Pilo	Operated,							12 SAE, AL		SCD16-2-12S
Free Rev	erse Flow,	16 Size,							12 SAE, DU	CTILE	SDC16-2-S12S
Poppet T	, NDO								16 SAE, AL		SDC16-2-16S
Fobber	ype								416 SAE, DU	CTILE	SDC16-2-S16S
									8/4 BSP, AL		SDC16-2-6B
									8/4 BSP, DU	CTILE	SDC16-2-S6B
Coil Voltage									BSP, AL		SDC16-2-8B
Description	Standard	Robust	Coil Termination					S8B 1	BSP, DUCT	ILE	SDC16-2-S8B
	Coil Code	Coil Code	Туре	Standard Coil Code	IP Rating	Robust Coil Code	IP Rating		minum bodies han 210 bar (3		ed for pressures
No Coil, with nut*	00	R00	No Coil		-	R00	-	1055 1		,000 F 31)	
10 VDC	10D	R10D	Amp Junior	AJ	IP67	-	-				
12 VDC	12D	R12D	Amp Junior with Diode	AJD	IP67	-	-				
20 VDC	20D	R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K		Seal Opt	Material	Seal Kits
24 VDC	24D	R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K		B	Buna	120019
110 VAC**	110A	-	Deutsch	DE	IP69K	DE	IP69K		v	Viton	120020
220 VAC**	220A	-	Desutch with Diode	DED	IP69K	DEDB	IP69K		•		
*Standard coi			Flying Leads	FL	IP65	FL	IP69K				
R-coil stee (no coil O-rin		804910	Flying Leads with Diode	FLD	IP65	FLDB	IP69K	Manual	Varrida		
**DIN only - e		er needed	DIN 43650	DN	IP65	-	-	Manual Override Code Description			
2 01119 0			Metri-Pack 150 Type 2	-	-	M3	IP69K	PN			h Pin
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K		Pus		ride with Nut for
								OPS			& Actuation







This is a normally-open, pilot-operated, poppet-type 16-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

HSVP16-NOR



APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve.

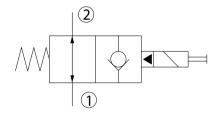
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

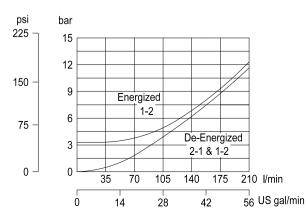
Rated pressure*	350 bar [5075 psi]*					
Rated flow at 7 bar	152 l/min					
[100 psi]	[40 US gal/min]					
Leakage	6 drops/min @					
	Rated pressure					
Weight	0.73 kg [1.61 lb]					
Cavity	SDC16-2					
Standard Coil	H16 29 Watt					

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



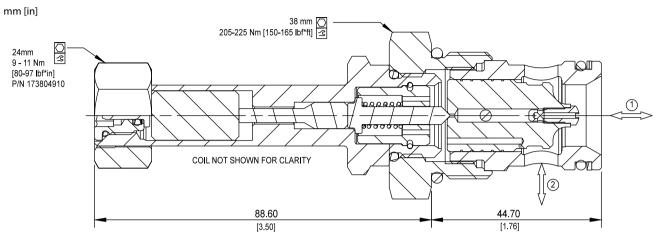
Pressure Drop 26 cSt [121 SUS] hyd.oil at 507C [122 7F]



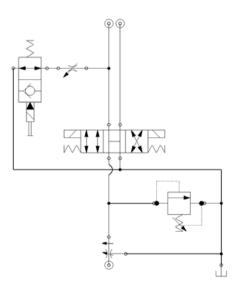
2-Way Poppet HSVP16-NOR

DIMENSIONS





EXAMPLE CIRCUITS



ORDERING INFORMATION

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		HSVP16 - NOR	- H12	2D - DE - PN -	B - 00	Bodles				
				$- \top \top$	ΤТ	Code	Ports &	. Materia	Body Nom	enclature
n Pressure	Solenoid Valve —					00	Cartridg	je Only	No Body	
ma ll y-Open	, Pilot Operated,				L	12S	#12 SA	E, AL	SDC16-2-1	12S
e Reverse	Flow, 16 Size,	Coll Voltage				S12S	#12 SA	E, DUCTI	LE SDC16-2-S	S12S
pet Type		Code Description				16S	#16 SA	E, AL	SDC16-2-1	16S
		H00 No Coil				S16S	#16 SA	E, DUCT	LE SDC16-2-8	S16S
		H12D 12 VDC				6B	3/4 BSF	P, AL	SDC16-2-6	6B
		H24D 24 VDC				S6B	3/4 BSF	,DUCTIL	.E SDC16-2-S	66B
Coil Te	rmination					8B	1 BSP,	AL	SDC16-2-8	3B
Code	Description		IP Rating			S8B	1 BSP,	DUCTILE	E SDC16-2-\$	S8B
00	No Coil		-	.9		**Aluminu 210 bar (3		re to be use Seal O	ed for lower pressu ption	res less that
FL	Flying Lead		IP69K				,,	Code	Seal Materia	Seal Kit
DE	Deutsch		IP69K					В	Buna	120019
AS	AMP Super Seal 1	.5 & Metri Pack 150 type 1	IP69K		Manual	Overrides		V	Viton	120020
ASDB	AMP Super Seal w	vith Diode Bidirectional	IP69K	r	Code	Descriptio				<u>-</u>
DEDB	Deutsch with Diod	e Bidirectional	IP69K		PN	Push Pin	///			_
FLDB	Flying Lead with D	iode Bidirectional	IP69K		OPS		1/O Nut fr	or Protoc	tion & Actuatior	_
				-				JI FIULECI	uon & Actuation	4
					PAT	Push and	i wist			







This is a normally-open, pilot-operated, poppet-type 20-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

SVP20-NOR



APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve. This solenoid valve is a technical replacement for CP503-4.

Shown with Standard H16 Coil, Deutsch Connector

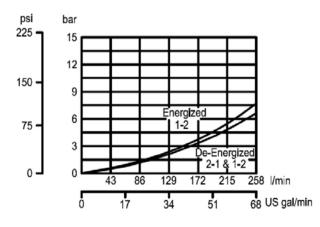
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]*
Rated flow at 7 bar	265 l/min
[100 psi]	[70 US gal/min]
Leakage	6 drops/min @
	Rated pressure
Weight	1.04 kg [2.29 lb]
Cavity	SDC20-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

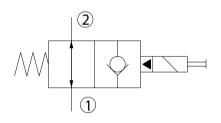
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES

Pressure Drop 26 cSt [121 SUS] hyd.oil at 50ウC [122 ウF]



SCHEMATIC



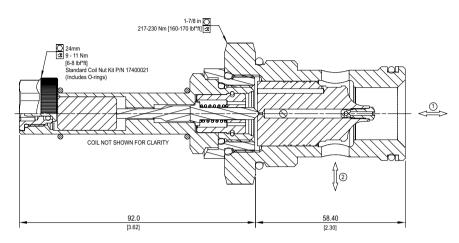


2-Way Poppet SVP20-NOR

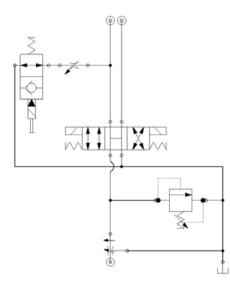
DIMENSIONS

Cross-sectional view

mm [in]



EXAMPLE CIRCUITS



			SVP20 - NOF	R - 12D	- DE -	PN - B -	00		Code	Ports 8	Material	Body Nomenclature	
Solen	oid Valve				T	\top \top	T			Cartridge On		No Body	
Norma	ally-Open, Pi	lot Operated,								16 SAE. AL		SCD20-2-16S	
Free F	Reverse Flow	v, 20 Size,								16 SAE, DU	ICTILE	SDC20-2-S16S	
Ponne	et Type	· · ·							20S #	20 SAE, AL		SDC20-2-6B	
i oppo	лтуро								S20S #	20 SAE, DU	ICTILE	SDC20-2-S6B	
									8B 1	BSP, AL		SDC20-2-8B	
									S8B 1	BSP, DUCT	ILE	SDC20-2-S8B	
Coil Voltage									10B 1	1/4 BSP, AL		SDC20-2-10B	
Description	Standard	Robust	Coil Termination						S10B 1	1/4 BSP, D	JCTILE	SDC20-2-S10B	
Description	Coil Code	Coil Code	Туре	Standard Coil Code	IP Rating	Robust Coil Code	IP Rating		**Aluminum bodies are to be used for pressures less than 210 bar (3.000 PSI)				
No Coil, with nut*	00	R00	No Coil	00	-	- R00 -			less t	nan 210 bar (3,000 PSI)		
10 VDC		R10D	Amp Junior	AJ	IP67	-	-			Seel On	ion		
12 VDC		R12D	Amp Junior with Diode	AJD	IP67	-	-			Seal Option Code Material		Seal Kits	
20 VDC		R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K			B	Buna	120011	
24 VDC		R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K			V	Viton	120012	
110 VAC**	110A	-	Deutsch	DE	IP69K	DE	IP69K			v	VIION	120012	
220 VAC**		-	Desutch with Diode	DED	IP69K	DEDB	IP69K		Manua	Override			
	oil - plastic nut el nut P/N 173		Flying Leads	FL	IP65	FL	IP69K				Desci	iption	
(no coil O-ri		504910	Flying Leads with Diode	FLD	IP65	FLDB	IP69K	-	PN	<u>, </u>	Push		
	external rectifi	er needed	DIN 43650	DN	IP65	-	-			Pus	Push Pin Override with Nut for		
			Metri-Pack 150 Type 2 -		-	M3	IP69K		OPS		Protection & Actuation		
			Metri-Pack 150 with Diode	-	-	M3DB	IP69K		SPS		Screw		







This is a normally-open, pilot-operated, poppet-type 20-size solenoid valve with free reverse flow. When de-energized the valve allows flow from port 1 to 2 and from port 2 to 1. When energized, the pilot poppet closes allowing the valve to act as a check valve flowing from port 1 to port 2, while blocking flow from port 2 to 1. This valve comes standard with a push pin type manual override.

HSVP20-NOR

APPLICATIONS

This is a low leakage valve designed for use in load holding applications or as a general purpose diverter or dump valve.



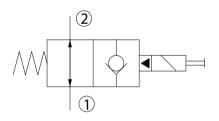
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]*				
Rated flow at 7 bar	265 l/min				
[100 psi]	[70 US gal/min]				
Leakage	6 drops/min @				
	Rated pressure				
Weight	1.04 kg [2.29 lb]				
Cavity	SDC20-2				
Standard Coil	H16 29 Watt				

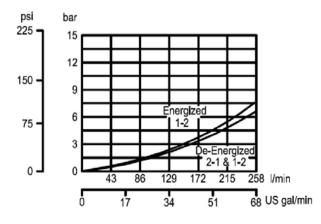
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES

Pressure Drop 26 cSt [121 SUS] hyd.oil at 50♭C [122 ♭F]



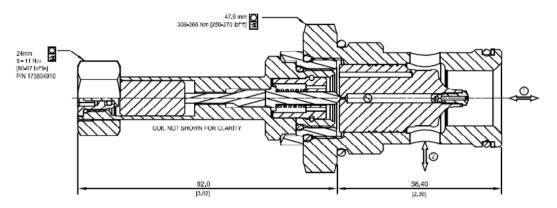


2-Way Poppet HSVP20-NOR

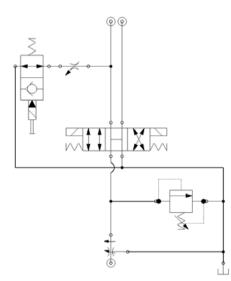
DIMENSIONS

Cross-sectional view

mm [in]



EXAMPLE CIRCUITS



ORDERING INFORMATION

HSVP20 - NOR - H12D - DE - PN - B - 00 Bodies Code Ports & Material Body Nomenclature

								Code	Ports &	Materia	Body Nome	enclatur
								00	Cartridge	Only	No Body	
ligh Press	sure S	olenoid Valve —					l	16S	#16 SAE,	AL	SDC20-2-1	6S
lormally-O)pen,	Pilot Operated,						S16S	#16 SAE,	DUCTILE	SDC20-2-S	516S
Free Reve	erse F	low, 20 Size,	Coil Vo					20S	#20 SAE,	AL	SDC20-2-6	В
Poppet Typ	эе		Code	Description				\$20\$	#20 SAE,I	DUCTILE	SDC20-2-S	6B
			H00	No Coil				8B	1 BSP, AL	_	SDC20-2-8	В
			H12D	12 VDC				S8B	1 BSP, DI	JCTILE	SDC20-2-S	S8B
			H24D	24 VDC				10B	1 1/4 BSF	, AL	SDC20-2-1	0B
Coi	il Ter	mination						S10B	1 1/4 BSP	, DUCTILE	SDC20-2-5	S10B
Coc	de	Description			IP Ratir			**Alumir	num bodles are	e to be used	for lower pressure	es less tha
00		No Coil			-	0		210 bar	r (3,000 psi) Seal Opt		ion	
FL		Flying Lead			IP69K	_				Code	Seal Material	Seal K
DE	-	Deutsch			IP69K	_				В	Buna	12001
AS		AMP Super Seal 1	.5 & Metri	Pack 150 type 1	IP69K		Manua	Overrides		V	Viton	12001
ASI	DB	AMP Super Seal w	vith Diode E	Bidirectional	IP69K		Code	Descript	on			
DED	EDB Deutsch with Diode Bidirectional			IP69K		PN	Push Pin					
FLD	ЭB	Flying Lead with D	iode Bidire	ctional	IP69K		OPS	Push Pin	M/O Nut fo	r Protectio	n & Actuation	
<u> </u>							PAT	Push and	Twist			1







Solenoid Valve, Spool Type, 2-Position, 2-Way, Normally Open, Push-Type. When de-energized, the SV08-22-01 allows flow in both directions. When energized, flow is blocked in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve comes standard with a one-direction, push-pin manual override.

SV08-22-01

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.



Shown with Standard Coil, Deutsch Connector

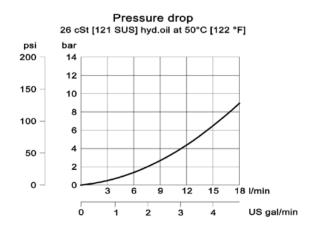
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	16 l/min
[100 psi]	[4 US gal/min]
Weight	0.29 kg [0.64 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

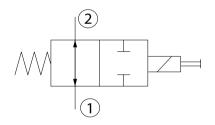
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

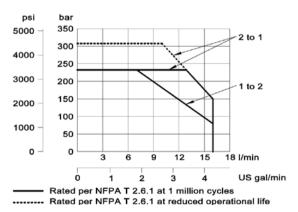
PERFORMANCE CURVES



SCHEMATIC



Operating envelope



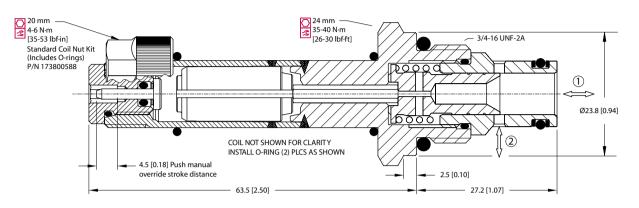


2-Way Spool SV08-22-01

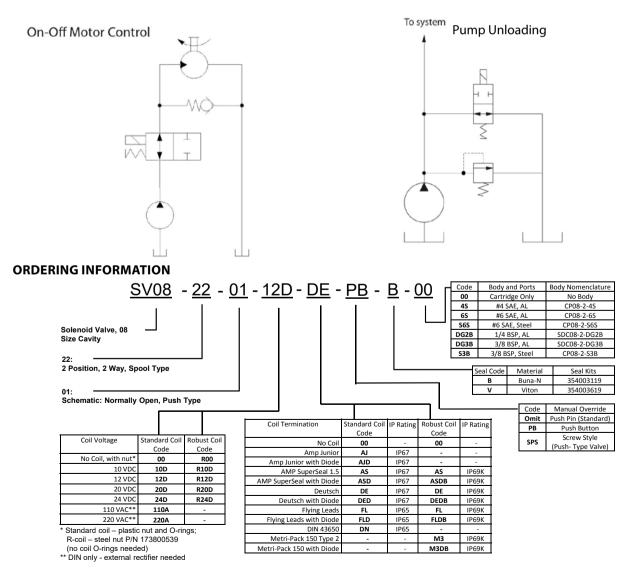
Cross-sectional view

DIMENSIONS

mm [in]



EXAMPLE CIRCUITS



BC332375861112en-000101 · February 2020







This is a Spool Type, 2-Position, 2-Way, Normally Open, Push-Type, 10-size Solenoid Valve. When de-energized, the HSV10-22-01 allows flow in both directions. When energized, flow is blocked in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

HSV10-22-01

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond guickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



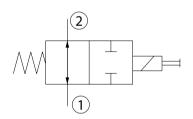
Shown with Standard H16 Coil, **Deutsch Connector**

SPECIFICATIONS

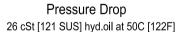
Cavity Standard Coil	SDC10-2 H16 29 Watt					
Weight	0.42 kg [0.93 lb]					
[100 psi]	[13 US gal/min]					
Rated flow at 7 bar	50 l/min					
Rated pressure*	350 bar [5075 psi]*					

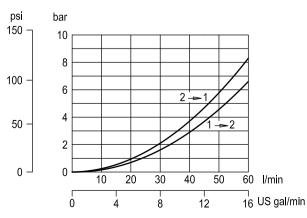
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC

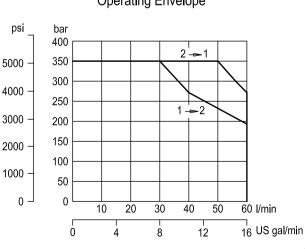


PERFORMANCE CURVES









Operating Envelope

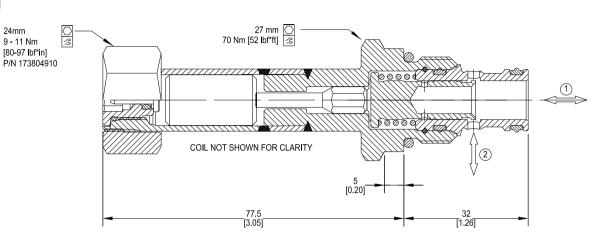


2-Way Spool HSV10-22-01

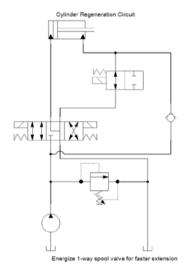
Cross-sectional view

DIMENSIONS

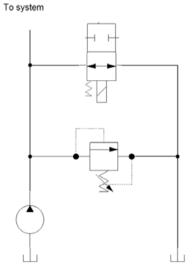
mm [in]



EXAMPLE CIRCUITS



Pump Unloading



ORDERING INFORMATION

HSV10 - 22 - 01 - H12D - DE - PN - P - 00

							Bodies	3					
gh Pressure Solenoid Valve, prmally-Open, Direct-Acting,						Code	Port & Material	Body Nome	nclatur				
Size, Spool Type Coil Voltage Code Description H00 No Coil H12D 12 VDC					00	Cartridge only	No Body						
			-				S3B	3/8 BSP, Ductile	SDC10-2-S				
		HOO	•	-			S4B	1/2 BSP, Ductile	SDC10-2-S				
				-			S6S	#6 SAE, Ductile	SDC10-2-S	6S			
		H24D		-			S8S	#8 SAE, Ductile SDC10-2		8S			
Coil Termination						*** Aluminium bodies available for lower pr application. Please consult factory for detai							
Code	Description			IP Rating		Seal C	••	tion. Please consult	factory for d	etalis.			
00	No Coil			-		Code	Seal Material		Seal kit	٦			
FL	Flying Lead			IP 69k		P	Polyu	ethane Single Seal	11132135	5			
DE	Deutsch			IP 69k									
AS	AMP SuperSeal 1.5 and Metri-Pack 150 type 1			IP 69k									
ASDB	AMP Super Seal with Diode Bidirectional			IP 69k	Code PN	Description Push Pin							
DEDB	DB Deutsch with Diode Bidirectional			IP 69k	OPS	Push Pin M/O Nut for Protection & Actuation							
FLDB	FLDB Flying Lead with Diode Bidirectional			IP 69k									
					PAT	Push a							







This is a 2-position, 2-way, normally open, pull-type, spool type solenoid valve. When de-energized, the HSV08-22-01 allows flow in both directions. When energized, flow is blocked in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

HSV08-22-01

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



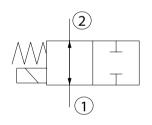
Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

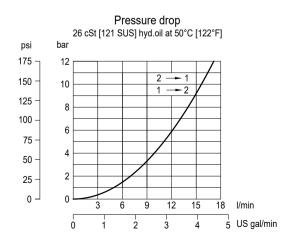
Rated pressure*	350 bar [5075 psi]							
Rated flow at 7 bar	13 l/min							
[100 psi]	[3.4 US gal/min]							
Weight	0.35 kg [0.77 lb]							
Cavity	SDC08-2							
Standard Coil	M13 20 Watt							
Robust Coil	R13 16 Watt							
	Robust Nut P/N 173800539							
	(no coil O-rings needed)							

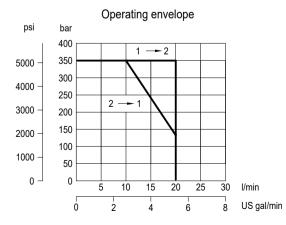
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

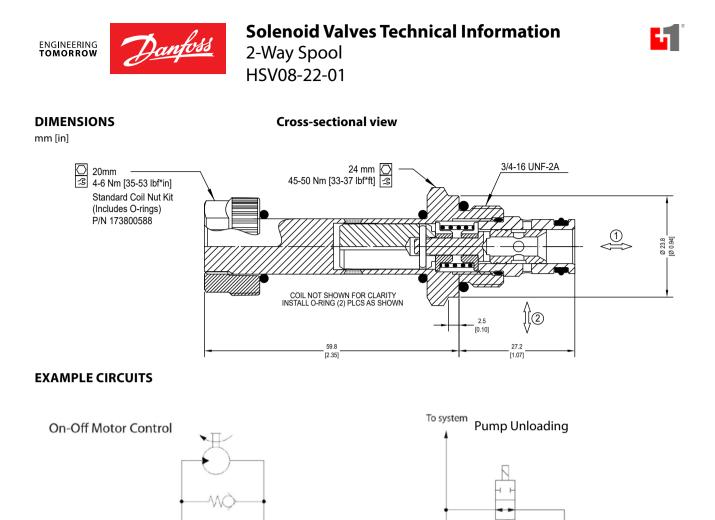
SCHEMATIC



PERFORMANCE CURVES







ORDERING INFORMATION

		HSV0	<u>8 - 22 - (</u>	<u>)1</u> -	<u> 12D</u> -	<u>DE</u> -	<u>X</u> (<u>C - </u>	<u>P</u> ·	- <u>0(</u>	<u>0</u>					
	re Solenoid Valve											Housing	S			
Normally-Op	en, 2 position, 2 v	vay, 08-Size.								L		Code	Ports & Material	Body I	Nomenclatur	e
Coil Voltage												00	Cartridge only	No Bo	dy	
Description	Standard Coil	Robust Coil Code										S3B	3/8 BSP, Steel	CP08-	2-S3B	
No Coil	Code 00	R00										S4B	1/2 BSP, Steel	CP08-	2-S4S	
12 VDC	12D	R12D										S6S	#6 SAE, Steel	CP08-	2-S6S	
24 VDC	24D	R24D											um bodies available for low			
	Coil Terminatio											liess than	210 bar (3000 psi)]. Please	consult	actory for deta	alis.
		Standard Coil	IP	Robust Coil	IP	1					Seal Opt	tion			_	
	Description		Code	Rating	Code	Rating			L		_	Code	Seal Material		Seal kit	
	No Coil		00	-	00	-						Р	Polyurethane Single Seal		11167278	
	Flying Lead Deutsch		FL	IP65	FL	IP69K										-
			DE	IP69K	DE	IP69K						Manual (Overrides			
	AMP SuperSe	eal 1.5	AS	IP67	AS	IP69K	1 L					Code	Description			
	AMP SuperSe	eal with Diode	ASD	IP67	ASDB	IP69K	1					XC	No manual override			
	Deutsch with	Diode	DED	IP69K	DEDB	IP69K]									
	Flying Lead w	rith Diode	FLD	IP65	FLDB	IP69K]									
	DIN 43650		DN	IP65	-	-]									

BC332375861112en-000101 • February 2020







Solenoid Valve, Spool Type, 2-Position, 2-Way, Normally Open, Pull-Type, 10-size. When de-energized, the SV10-22-01 allows flow in both directions. When energized, flow is blocked in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

SV10-22-01

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 120,000 cycles. In case of inlet from port 2 this value can be increased to 500,000 cycles.



Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

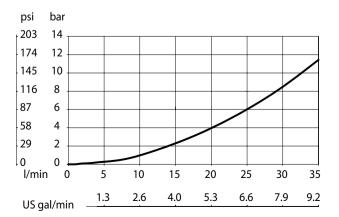
Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	27 l/min
[100 psi]	[7 US gal/min]
Weight	0.43 kg [0.95 lb]
Cavity	SDC10-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

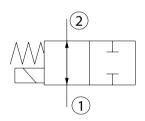
PERFORMANCE CURVES

Pressure drop 33 cSt [154 SUS] hyd.oil @ 38°C [100° F]

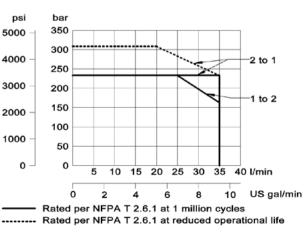


BC332375861112en-000101 · February 2020

SCHEMATIC





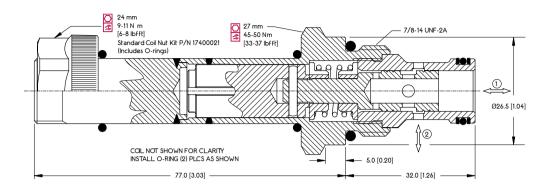




2-Way Spool SV10-22-01

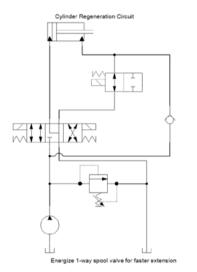
DIMENSIONS

mm [in]

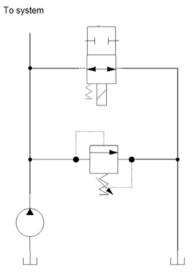


Cross-sectional view

EXAMPLE CIRCUITS







	0.40	00	04 40			~~				
	5V10	- 22 -	<u>01 - 12</u>	D - DE	- B - (JUr	Code	Body a	nd Ports	Body Nomenclature
-							00	Cartri	dge Only	No Body
	1	1		l I			6S	#6 S	AE, AL	CP10-2-6S
							8S	#8 S	AE, AL	CP10-2-8S
Solenoid Valve, 10 Siz	e						S8S	#8 SA	E, Steel	CP10-2-S8S
Cavity							DG3B		BSP, AL	SDC10-2-DG3B
							DG4B	1/2 6	BSP, AL	SDC10-2-DG4B
22: 2 Position, 2 Way, Spo	al Turna						S4B	1/2 B	SP, Steel	CP10-2-S4B
2 Position, 2 way, Spc	boi iype						c,	al Code	Material	Seal Kits
•							36	B	Buna-N	354004019
01:	0			L			H	v	Viton	354004019
Schematic: Normally (Pull Type	Open,							•	VICOII	354003415
			Coil Tern	nination	Standard Coil		Robust Coil			
Coil Voltage		Robust Coil			Code	IP Rating	Code	IP Ratin	g	
	Code	Code		No Coil	00	-	00	-		
No Coil, with nut*	00	R00	1	Amp Junior	AJ	IP67	-	-		
10 VDC	10D	R10D	Amp Jun	ior with Diode	AJD	IP67	-	-		
12 VDC	12D	R12D	AMP	SuperSeal 1.5	AS	IP67	AS	IP69K		
20 VDC	20D	R20D	AMP SuperS	eal with Diode	ASD	IP67	ASDB	IP69K		
24 VDC	24D	R24D	· · · ·	Deutsch	DE	IP67	DE	IP69K		
110 VAC**	110A	-	Deut	ch with Diode	DED	IP67	DEDB	IP69K		
220 VAC**	220A	-		Flying Leads	FL	IP65	FL	IP69K		
* Standard coil – plastic	nut and O-rir	ngs;	Flying Lea	ads with Diode	FLD	IP65	FLDB	IP69K		
R-coil – steel nut P/N	173804910	0.		DIN 43650	DN	IP65	-	-		
(no coil O-rings neede			Metri-Pa	ck 150, Type 2	-	-	M3	IP69K		
** DIN only - external re	ctifier needeo	I	Metri-Pack 1	50 with Diode	-	-	M3DB	IP69K		





Solenoid Valves Technical Information 2 Way, 2 Position Spool SV15-22-01



OPERATION

Solenoid Valve, Spool Type, 2-Position, 2-Way, Normally Open, Pull-Type, High Flow (15-Size). When de-energized, the SV15-22-01 allows flow in both directions. When energized, flow is blocked in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/NA and uses a metric M33x2 cavity (NCS 12/2) for high flow capability.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 100,000 cycles. In case of inlet from port 2 this value can be increased to 300,000 cycles.



Shown with Standard Coil, DIN Connector

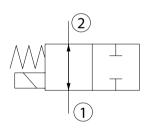
SPECIFICATIONS

Rated Pressure*	210 bar [3000 psi]**					
Maximum Rated Flow at 7 bar	60 l/min					
[100 psi]	[16 US gal/min]					
Weight including coil	0.65 kg [1.65 lbs]					
Cavity	NCS 12/2					
Coil	M19 33 Watt					
Diode (Optional)	Unidirectional					

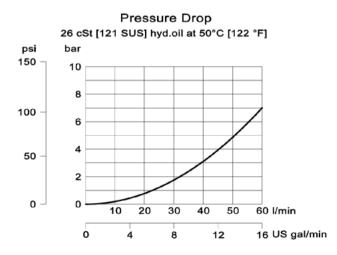
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

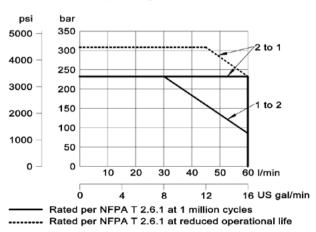
SCHEMATIC



PERFORMANCE CURVES

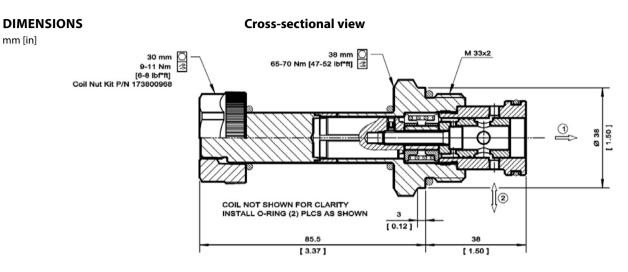






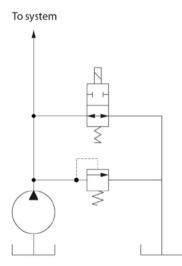


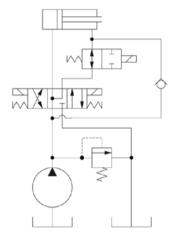
2 Way, 2 Position Spool SV15-22-01



EXAMPLE CIRCUITS

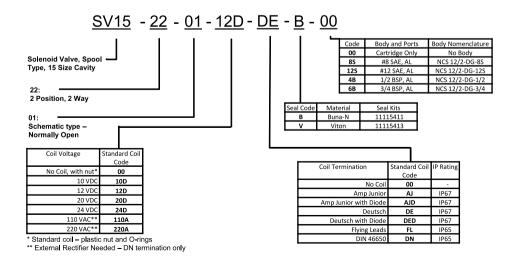
mm [in]





Cylinder regeneration circuit

Energize 2-way spool valve for faster extenstion









Solenoid Valve, Spool Type, 2-Position, 2-Way, Normally Closed, Pull-Type. When de-energized, the SV08-22-02 blocks flow in both directions. When energized, the spool shifts to allow flow in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

SV08-22-02



Shown with Robust Coil, Deutsch Connector

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	14 l/min
[100 psi]	[4 US gal/min]
Weight	0.29 kg [0.64 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

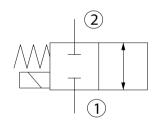
** See 315 bar pressure rating note on page 10.

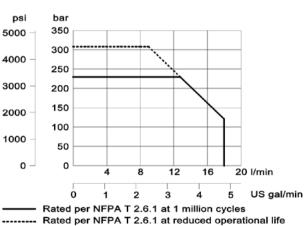
PERFORMANCE CURVES

Pressure drop 33 cSt [154 SUS] hyd.oil @ 38°C [100° F] psi bar 116 8 87 6 58 4 29 2 0 0 0 2 8 10 14 l/min 4 6 12 0.5 1.1 1.5 2.1 2.6 3.2 3.7 US gal/min

BC332375861112en-000101 · February 2020

SCHEMATIC





Operating envelope

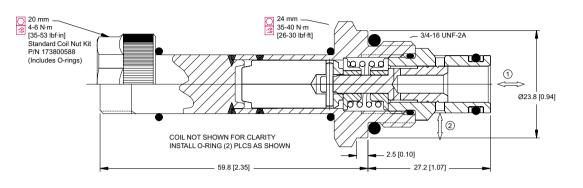


2-Way Spool SV08-22-02

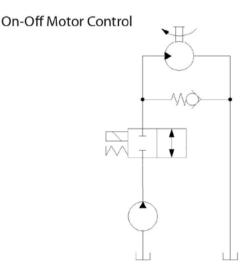
DIMENSIONS



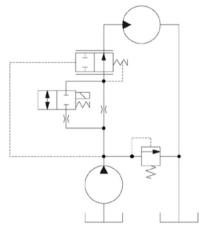
mm [in]



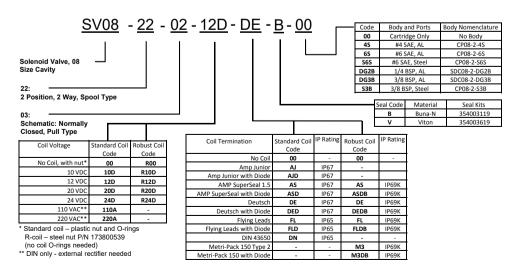
EXAMPLE CIRCUITS



Two-speed motor circuit



ORDERING INFORMATION



-







This is a 2-position, 2-way, normally closed, pull-type spool type solenoid valve. When de-energized, the HSV08-22-02 blocks flow in both directions. When energized, the spool shifts to allow flow in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

HSV08-22-02



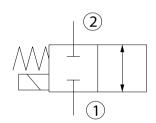
APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



Deutsch Connector

SCHEMATIC

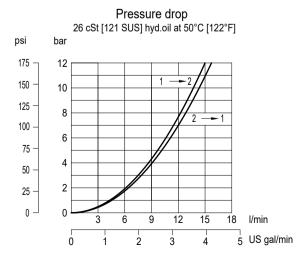


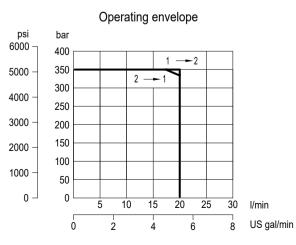
SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar	12 l/min
[100 psi]	[3.2 US gal/min]
Weight	0.35 kg [0.77 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES





BC332375861112en-000101 · February 2020

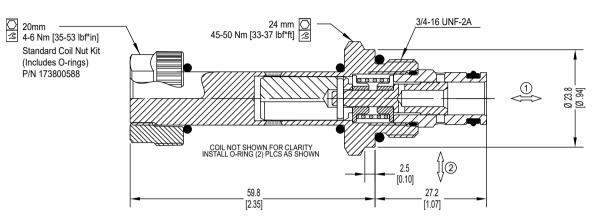


2-Way Spool HSV08-22-02

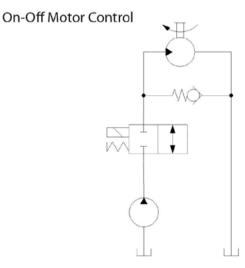
DIMENSIONS

Cross-sectional view

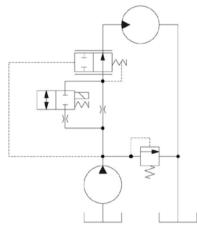




EXAMPLE CIRCUITS



Two-speed motor circuit



		<u>HSV08</u>	<u>3 - 22 - (</u>	<u>)2</u> - <u>)</u>	<u> 12D</u> -	<u>DE</u> -	<u>XC</u> ·	- <u>P</u> ·	- <u>0(</u>)			
	re Solenoid Valve									Housing	s		
Normally-Clo	osed, 2 position, 2	way, 08-Size.								Code	Ports & Material	Body	Nomenclature
Coil Voltage										00	Cartridge only	No Bo	dy
Description	Standard Coil Code	Robust Coil Code								S3B	3/8 BSP, Steel	CP08	2-S3B
No Coil	00	R00								S4B	1/2 BSP, Steel	CP08	2-S4S
12 VDC	12D	R12D								S6S	#6 SAE, Steel	CP08	2-S6S
24 VDC	24D	R24D									num bodies available for lo n 210 bar (3000 psi)]. Plea		
	Coil Terminati									liess triai	i 2 to bai (3000 psi)j. Plea	se consuit	lactory for details.
			Standard Coil	IP	Robust Coil	IP				Seal Op	tion		
	Description		Code	Rating	Code	Rating				Code	Seal Material		Seal kit
	No Coil		00	-	00	-				Р	Polyurethane Single S	eal	11167278
	Flying Lead		FL	IP65	FL	IP69K							
	Deutsch		DE	IP69K	DE	IP69K				Manual	Overrides		
	AMP SuperSe	eal 1.5	AS	IP67	AS	IP69K				Code	Description		
	AMP SuperSe	eal with Diode	ASD	IP67	ASDB	IP69K				XC	No manual override		
	Deutsch with	Diode	DED	IP69K	DEDB	IP69K							
	Flying Lead w	ith Diode	FLD	IP65	FLDB	IP69K							
	DIN 43650		DN	IP65	-	-							





4

OPERATION

Solenoid Valve, Spool Type, 2-Position, 2-Way, Normally Closed, Push-Type, 10-size. When de-energized, the SV10-22-02 blocks flow in both directions. When energized, the spool shifts to allow flow in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

SV10-22-02

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 120,000 cycles. In case of inlet from port 2 this value can be increased to 500,000 cycles.



Shown with Standard Coil, Deutsch Connector

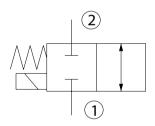
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	35 l/min
[100 psi]	[9 US gal/min]
Weight	0.43 kg [0.95 lb]
Cavity	SDC10-2
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

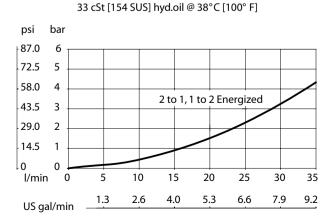
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

SCHEMATIC

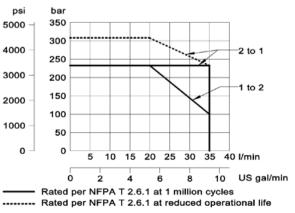


PERFORMANCE CURVES



Pressure drop

Operating envelope



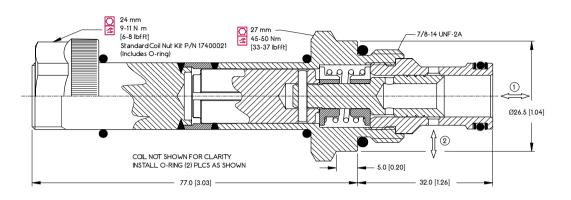


5

2-Way Spool SV10-22-02

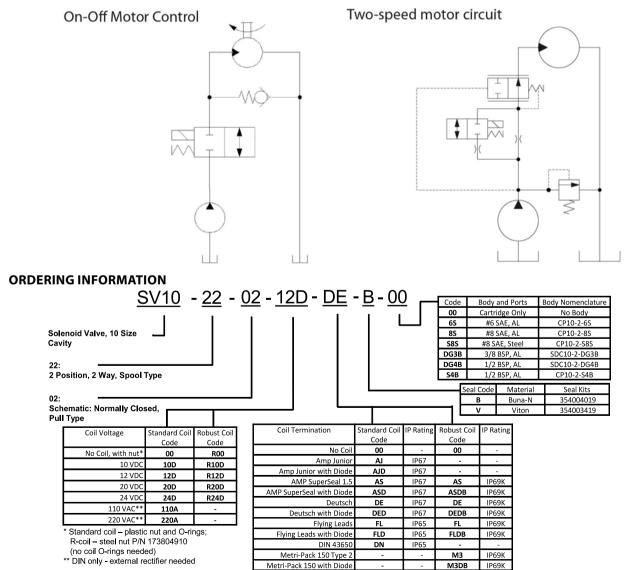
DIMENSIONS

mm [in]



Cross-sectional view

EXAMPLE CIRCUITS









This is a Spool Type, 2-Position, 2-Way, Normally Closed, Pull-Type, 10-size Solenoid Valve. When de-energized, the HSV10-22-02 blocks flow in both directions. When energized, the spool shifts to allow flow in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

2-Way Spool HSV10-22-02

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



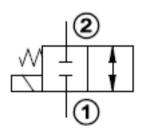
Shown with Standard H16 Coil, Deutsch Connector

SPECIFICATIONS

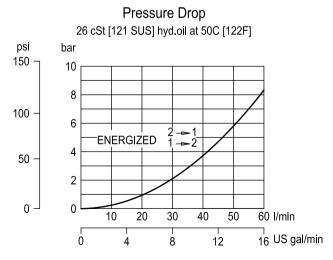
Rated flow at 7 bar	50 l/min					
[100 psi]	[13 US gal/min]					
Weight	0.42 kg [0.93 lb]					
Cavity	SDC10-2					
Standard Coil	H16 29 Watt					

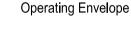
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

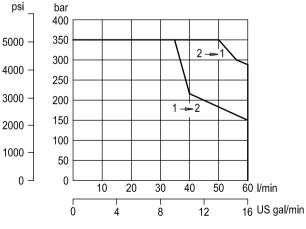
SCHEMATIC



PERFORMANCE CURVES







BC332375861112en-000101 · February 2020



2-Way Spool HSV10-22-02

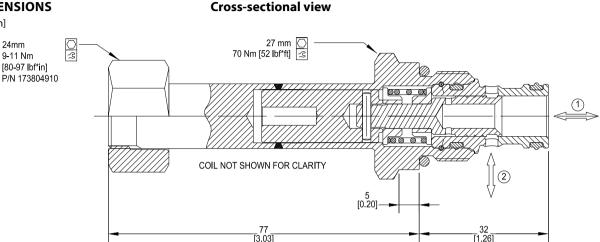


DIMENSIONS

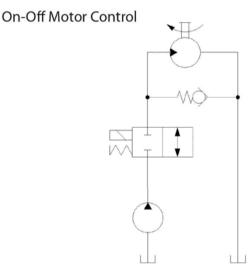
24mm

9-11 Nm [80-97 lbf*in]

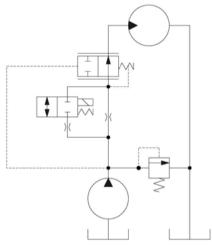
mm [in]



EXAMPLE CIRCUITS



Two-speed motor circuit



ORDERING INFORMATION

HSV10 - 22 - 02 - H12D - DE - XC - P - 00 Bodies High Pressure Solenoid Valve Code Ports & Material Body Nomenclature Normally-Closed, Direct Acting, 00 Cartridge Only No Body Coil Voltage 10 Size, Spool Type S3B SDC10-2-S3B 3/8 BSP, Ductile Code Description S4B 1/2 BSP, Ductile SDC10-2-S4B No Coil 00 SDC10-2-S6S S6S #6 SAE, Ductile H12D 12 VDC #8 SAE, Ductile SDC10-2-S8S **S8S** H24D 24 VDC *** Aluminum Bodies available for lower pressure **Coil Termination** applications. Please consult factory for details. IP Rating Code Description Seal Option No Coil 00 Code Seal Material Seal Kit FL Flying Lead IP69K P Polyurethane Single Seal 11132135 DE Deutsch IP69K AS AMP Super Seal 1.5 & Metri Pack 150 type 1 IP69K Manual Overrides ASDB AMP Super Seal with Diode Bidirectional IP69K Code Description DEDB Deutsch with Diode Bidirectional IP69K No Manual Override XC FLDB Flying Lead with Diode Bidirectional IP69K





Solenoid Valves Technical Information 2 Way, 2 Position Spool SV15-22-02



OPERATION

Solenoid Valve, Spool Type, 2-Position, 2-Way, Normally Closed, Pull-Type, High Flow (15-Size). When de-energized, the SV15-22-02 blocks flow in both directions. When energized, the spool shifts to allow flow in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/NC and uses a metric M33x2 cavity (NCS 12/2) for high flow capability.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 100,000 cycles. In case of inlet from port 2 this value can be increased to 300,000 cycles.



Shown with Standard Coil, DIN Connector

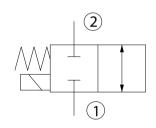
SPECIFICATIONS

Rated Pressure*	210 bar [3045 psi]**				
Maximum Rated Flow at 7 bar	60 l/min				
[100 psi]	[16 US gal/min]				
Weight including coil	0.65 kg [1.65 lbs]				
Cavity	NCS 12/2				
Coil	M19 33 Watt				
Diode (Optional)	Unidirectional				

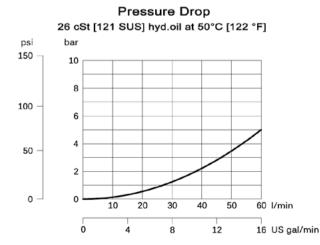
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

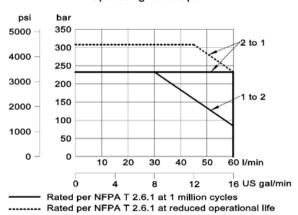
SCHEMATIC



PERFORMANCE CURVES

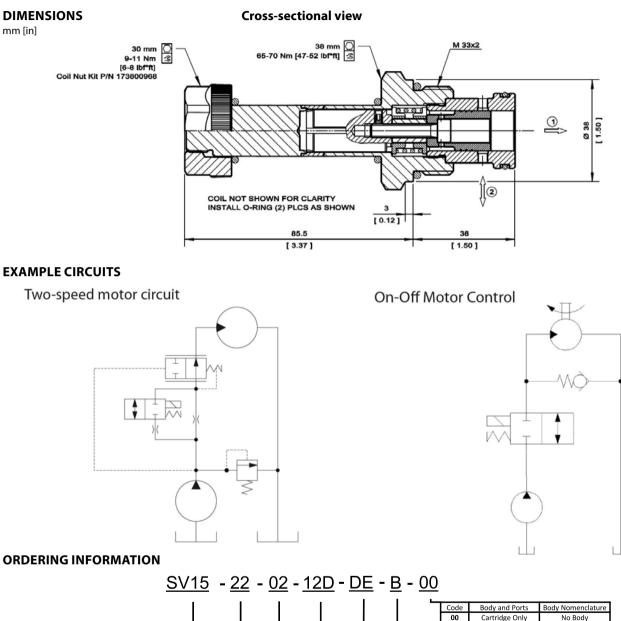


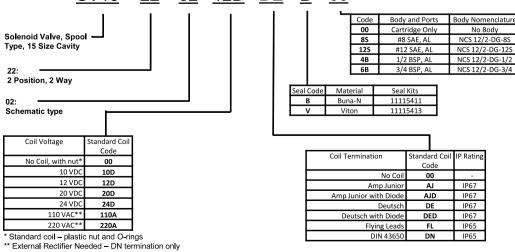
Operating envelope





2 Way, 2 Position Spool SV15-22-02











Solenoid Valve, Spool Type, 2-Position, 2-Way, Normally Open, Pull-Type. When de-energized, the SV08-22-03 allows flow in both directions. When energized, flow is blocked in both directions. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

SV08-22-03



APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.

Deutsch Connector

Shown with Robust Coil,

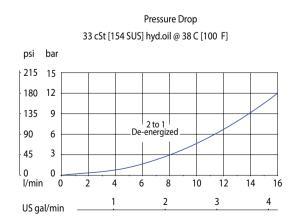
SPECIFICATIONS

••••••••••	
Rated pressure*	230 bar [3300 psi]**
Maximum flow at	12 l/min
rated pressure	[3.2 US gal/min]
Weight	0.29 kg [0.64 lb]
Cavity	SDC08-2
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

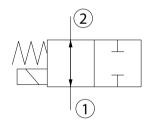
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC



Operating envelope psi bar 350 5000 2 to 1 300 4000 250 3000 200 1 to 2 150 2000 100 1000 50 0 0 18 l/min 6 12 15 3 9 US gal/min 0 2 3 4 1

Rated per NFPA T 2.6.1 at 1 million cycles Rated per NFPA T 2.6.1 at reduced operational life

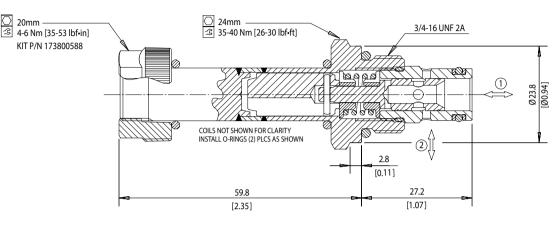


2-Way Spool SV08-22-03

DIMENSIONS

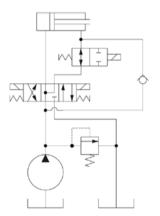
Cross-sectional view

mm [in]

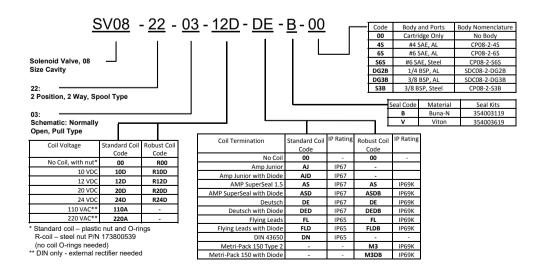


EXAMPLE CIRCUITS

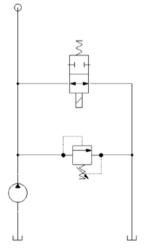
Cylinder regeneration circuit



Energize 2-way spool valve for faster extenstion



Pump Unloading









Solenoid Valve, Spool Type, 2-Position, 3-Way, Normally Closed, Push-Type. When de-energized, the SV08-23-01 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve comes standard with a one-direction, push-pin manual override.

APPLICATIONS

These spool-type valves are commonly used in a selector circuit, or as an on/off pilot control for a directional spool valve. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.



Shown with Standard Coil, Deutsch Connector

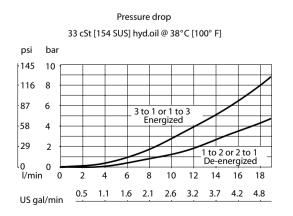
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	17 l/min
[100 psi]	[4.5 US gal/min]
Weight	0.31 kg [0.68 lb]
Cavity	SDC08-3
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

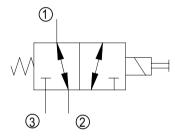
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

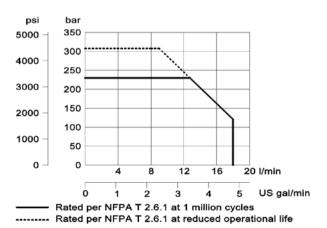
PERFORMANCE CURVES



SCHEMATIC



Operating envelope



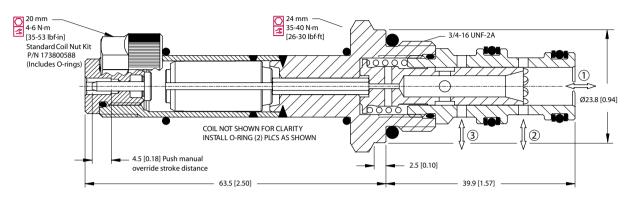


3-Way, 2-Position Spool SV08-23-01

DIMENSIONS



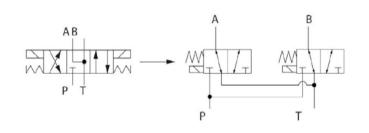
mm [in]

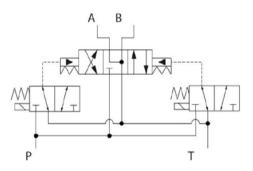


EXAMPLE CIRCUITS

Create a Low Pressure 4-Way, 3-Position Directional Control Valve

On/Off Pilot Control for Directional Spool Valve





-					_	~ ~				
S	SV08 -	-23 -0	<u>1 - 12D - DE</u> -	· PB -	В-()О г	Code	Body	and Ports	Body Nomenclature
		<u> </u>	<u>· · · · · · · · · · · · · · · · · · · </u>	<u> </u>	= -	<u> </u>	00	Cartri	idge Only	No Body
	1	1	i i İ	1	1		4S	#4 \$	SAE, AL	CP08-3-4S
							6S	#6 9	SAE, AL	CP08-3-6S
Solenoid Valve. 08							S6S	#6 SA	AE, Steel	CP08-3-S6S
Size Cavity							SE2B	1/4	BSP, AL	SDC08-3-SE2B
,							SE3B	3/8	BSP, AL	SDC08-3-SE3B
23:							S3B	#6 S/	AE, Steel	CP08-3-S3B
2 Position, 3 Way, Sp						-				
2 i Usition, 5 way, op	ooriype						Se	al Code	Material	Seal Kits
01:								В	Buna-N	354003210
Schematic: Push Typ	•						1	v	Viton	354003819
Concination 1 abit 1 yp	č									
							L		Code	Manual Override
Coil Voltage	Standard Coil	Robust Coil	Coil Termination	Standard Coil	IP Rating	Robust Co	il IP Rati	ing	Omit	Push Pin (Standard)
	Code	Code		Code		Code		Ŭ	PB	Push Button
No Coil, with nut*	00	R00	No Coil	00	-	- 00			SPS	Screw Style
10 VDC	10D	R10D	Amp Junior	AJ	IP67				515	(Push-Type Valve)
12 VDC	12D	R12D	Amp Junior with Diode	AJD	IP67	· ·				
20 VDC	20D	R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69	К		
24 VDC	24D	R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69	К		
110 VAC**	110A		Deutsch	DE	IP67	DE	IP69	к		
220 VAC**	220A	-	Deutsch with Diode	DED	IP67	DEDB	IP69	К		
* Standard coil – plastic			Flying Leads	FL	IP65	FL	IP69	К		
R-coil – steel nut P/N		'Y	Flying Leads with Diode	FLD	IP65	FLDB	IP69	К		
(no coil O-rings neede			DIN 43650	DN	IP65	•	-			
** DIN only - external re			Metri-Pack 150, Type 2	-	-	M3	IP69	К		
, o, oonurre		-	Metri-Pack 150 with Diode	-	-	M3DB	IP69	к		







This is a 2-Position, 3-Way, Normally Closed, Push-Type, Spool Type Solenoid Valve. When de-energized, the HSV08-23-01 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve comes standard with a push-pin manual override.

APPLICATIONS

These spool-type valves are commonly used in a selector circuit, or as an on/off pilot control for a directional spool valve. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



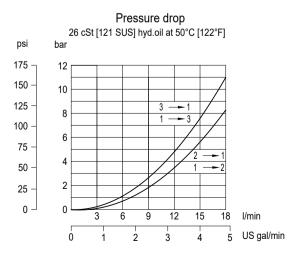
Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar	16 l/min
[100 psi]	[4.23 US gal/min]
Weight	0.35 kg [0.77 lb]
Cavity	SDC08-3
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

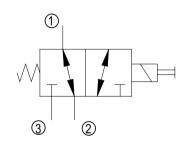
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



BC332375861112en-000101 · February 2020

SCHEMATIC



psi bar 6000 400 3 350 5000 2 300 4000 · 1 ---- 2 250 3000 -200 1 -3 150 2000 · 100 1000 -50 0 -0 10 15 25 30 l/min 5 20 2 8 US gal/min Ò 4 6

Operating envelope

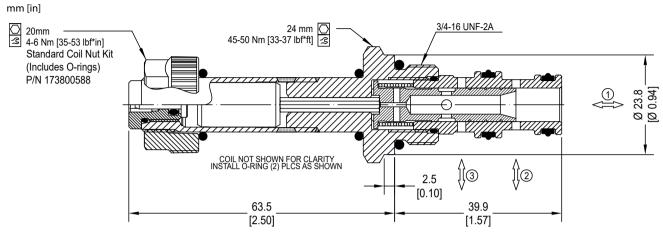


3-Way, 2-Position Spool HSV08-23-01



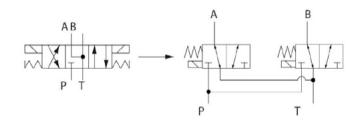
DIMENSIONS





EXAMPLE CIRCUITS

Create a Low Pressure 4-Way, 3-Position Directional Control Valve



		<u>HSV08</u>	<u>3 - 23 - (</u>	<u>)1 - 1</u>	<u> 12D -</u>	<u>DE -</u>	<u>PN</u> -	<u>P</u> -	00				
High Pressu	re Solenoid Valve									Housing	s		
2 position, 3	way, 08-Size.									Code	Ports & Material	Body N	lomenclature
Coil Voltage										00	Cartridge only	No Boo	dy
Description	Standard Coil Code	Robust Coil Code								S3B	3/8 BSP, Steel	CP08-3	3-S3B
No Coil	00	R00								S4S	#4 SAE, Steel	CP08-3	3-S4S
12 VDC	12D	R12D								S6S	#6 SAE, Steel	CP08-3	3-S6S
24 VDC	24D	R24D									num bodies available for low 210 bar (3000 psi)]. Please		
	Coil Terminati	on								•		oonourt	actory for detailo.
	Description		Standard Coil Code	IP Rating	Robust Coil Code	IP Rating				Seal Op Code	tion Seal Material		Seal kit
	No Coil		00	-	00	-				Р	Polyurethane Single Sea	al	11167282
	Flying Lead		FL	IP65	FL	IP69K							
	Deutsch		DE	IP69K	DE	IP69K				Manual	Overrides		
	AMP SuperSe	AMP SuperSeal 1.5		IP67	AS	IP69K				Code	Description		
	AMP SuperSeal with Diode		ASD	IP67	ASDB	IP69K				PN	Push Pin (Standard)		
	Deutsch with	Diode	DED	IP69K	DEDB	IP69K							
	Flying Lead w	ith Diode	FLD	IP65	FLDB	IP69K							
	DIN 43650		DN	IP65	-	-							





Solenoid Valves Technical Information 3-Way, 2-Position Spool SV10-23-01



OPERATION

Solenoid Valve, Spool Type, 2-Position, 3-Way, Normally Closed, Pull-Type. When de-energized, the SV10-23-01 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve comes standard with a one-direction, push-pin manual override.

APPLICATIONS

These spool-type valves are commonly used in a selector circuit, or as an on/off pilot control for a directional spool valve. Solenoid spooltype valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.



Shown with Robust Coil, Metri-Pack Type 2 Connector

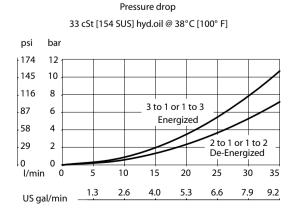
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	28 l/min
[100 psi]	[7 US gal/min]
Weight	0.42 kg [0.93 lb]
Cavity	SDC10-3
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

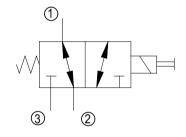
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

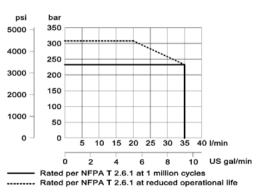
PERFORMANCE CURVES







Operating envelope



BC332375861112en-000101 · February 2020

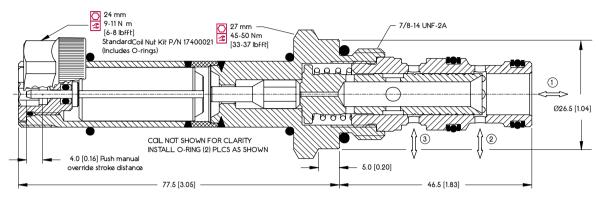


3-Way, 2-Position Spool SV10-23-01

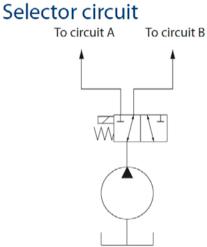
DIMENSIONS

Cross-sectional view

mm [in]



EXAMPLE CIRCUITS



	SV	10 - 23	<u>3</u> - <u>01</u> - <u>12D</u> ·	· DE -	PB -	- B - ()() —	Code	Body a	ind Ports	Body Nomenclature
	<u> </u>	<u> </u>			<u> </u>			00	Cartric	dge Only	No Body
		i I	1 I			1		6S	#6 S	AE, AL	CP10-3-6S
olenoid Valve. 10 Si								8S	#8 S	AE, AL	CP10-3-8S
avitv	ze	ן ו						S8S	#8 SA	E, Steel	CP10-3-S8S
avity								DG3E	3/8 E	BSP, AL	SDC10-3-DG3B
								DG4E	1/2 E	3SP, AL	SDC10-3-DG4B
3:								S4B	1/2 BS	SP, Steel	CP10-3-S4B
Position, 3 Way, Sp	ool Type										
									Seal Code	Materia	I Seal Kits
								_	В	Buna-N	354004210
1:									v	Viton	354003719
chematic: Push Typ											
chematic. I abii iyp	•										
	č		Coil Termination	Standard Coil	IP Rating	Robust Coil	IP Rating			Code	Manual Override
			Coil Termination	Standard Coil Code	IP Rating	Robust Coil Code	IP Rating	╵└		Code Omit	Manual Override Push Pin (Standard)
Coil Voltage	Standard Coil	Robust Coil	Coil Termination No Coil		IP Rating -		IP Rating				
Coil Voltage	Standard Coil Code	Code		Code	IP Rating - IP67	Code				Omit PB	Push Pin (Standard)
Coil Voltage No Coil, with nut*	Standard Coil		No Coil	Code 00	-	Code	-			Omit	Push Pin (Standard) Push Button
Coil Voltage	Standard Coil Code	Code	No Coil Amp Junior	Code 00 AJ AJD	- IP67	Code 00 -	-			Omit PB SPS	Push Pin (Standard) Push Button Screw Style
Coil Voltage No Coil, with nut*	Standard Coil Code 00	Code R00	No Coil Amp Junior Amp Junior with Diode	Code 00 AJ AJD	- IP67 IP67	Code 00 - -	-			Omit PB SPS OPS	Push Pin (Standard) Push Button Screw Style (Push-Type Valve) Push Pin Nut for
Coil Voltage No Coil, with nut* 10 VDC	Standard Coil Code 00 10D	Code R00 R10D	No Coil Amp Junior Amp Junior with Diode AMP SuperSeal 1.5	Code 00 AJ AJD AS	- IP67 IP67 IP67	Code 00 - - AS	- - - IP69K			Omit PB SPS OPS	Push Pin (Standard) Push Button Screw Style (Push-Type Valve) Push Pin Nut for
Coil Voltage No Coil, with nut* 10 VDC 12 VDC	Standard Coil Code 00 10D 12D	Code R00 R10D R12D	No Coil Amp Junior Amp Junior with Diode AMP SuperSeal 1.5 AMP SuperSeal with Diode	Code 00 AJ AJD AS ASD	IP67 IP67 IP67 IP67	Code 00 - - AS ASDB	- - - - - - - - - - - - - - - - - - -			Omit PB SPS OPS	Push Pin (Standard) Push Button Screw Style (Push-Type Valve) Push Pin Nut for Protection & Actuatio
Coil Voltage No Coil, with nut* 10 VDC 12 VDC 20 VDC	Standard Coil Code 00 10D 12D 20D	Code R00 R10D R12D R20D	No Coil Amp Junior Amp Junior with Diode AMP SuperSeal 1.5 AMP SuperSeal with Diode Deutsch	Code 00 AJ AJD AS ASD DE	IP67 IP67 IP67 IP67 IP67	Code 00 - - AS ASDB DE				Omit PB SPS OPS	Push Pin (Standard) Push Button Screw Style (Push-Type Valve) Push Pin Nut for Protection & Actuation
Coil Voltage No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC	Standard Coil Code 00 10D 12D 20D 24D	Code R00 R10D R12D R20D R24D	No Coil Amp Junior Amp Junior with Diode AMP SuperSeal 1.5 AMP SuperSeal with Diode Deutsch Deutsch with Diode	Code 00 AJ AJD AS ASD DE DED	IP67 IP67 IP67 IP67 IP67 IP67	Code 00 - - AS ASDB DE DEDB				Omit PB SPS OPS	Push Pin (Standard) Push Button Screw Style (Push-Type Valve) Push Pin Nut for Protection & Actuation
Coil Voltage No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC 110 VAC**	Standard Coil Code 00 10D 12D 20D 24D 110A 220A	Code R00 R10D R12D R20D R24D - -	No Coil Amp Junior Amp Junior with Diode AMP SuperSeal 1.5 AMP SuperSeal with Diode Deutsch Deutsch with Diode Flying Leads	Code 00 AJ AJD ASD DE DED FL FLD	IP67 IP67 IP67 IP67 IP67 IP67 IP65	Code 00 - AS ASDB DE DEDB FL				Omit PB SPS OPS	Push Pin (Standard) Push Button Screw Style (Push-Type Valve) Push Pin Nut for Protection & Actuatio
Coil Voltage No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC 110 VAC**	Standard Coll Code 00 10D 12D 20D 24D 110A 220A c nut and O-rir	Code R00 R10D R12D R20D R24D - -	No Coil Amp Junior Amp Junior with Diode AMP SuperSeal 1.5 AMP SuperSeal with Diode Deutsch with Diode Flying Leads Flying Leads with Diode	Code 00 AJ AJD ASD DE DED FL FLD	- IP67 IP67 IP67 IP67 IP67 IP65 IP65	Code 00 - AS ASDB DE DEDB FL				Omit PB SPS OPS	Push Pin (Standard) Push Button Screw Style (Push-Type Valve) Push Pin Nut for Protection & Actuatio





Solenoid Valves Technical Information 3-Way, 2-Position Spool HSV10-23-01



OPERATION

Solenoid Valve, Spool Type, 2-Position, 3-Way, Normally Closed, Pull-Type. When de-energized, the HSV10-23-01 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve comes standard with a one-direction, push-pin manual override.

APPLICATIONS

These spool-type valves are commonly used in a selector circuit, or as an on/off pilot control for a directional spool valve. Solenoid spooltype valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



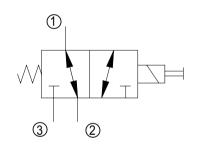
Shown with Robust Coil, Metri-Pack Type 1 Connector

SPECIFICATIONS

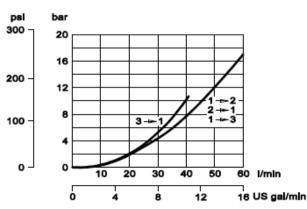
Cavity Standard Coil	SDC10-3 H16 29 Watt				
Weight	0.57 kg [1.26 lb]				
[100 psi]	[8 US gal/min]				
Rated flow at 7 bar	30 l/min				
Rated pressure*	350bar [5075 psi]*				

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES



Pressure drop 26 cSt [121 SUS] hyd.oil at 50°C [122 °F]

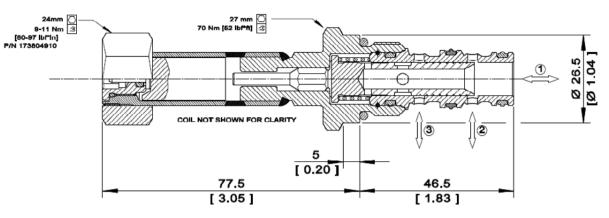


3-Way, 2-Position Spool HSV10-23-01

Cross-sectional view

DIMENSIONS

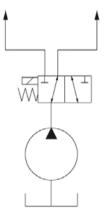
mm [in]



EXAMPLE CIRCUITS

Selector circuit

To circuit A To circuit B



ORDERING INFORMATION HSV10 - 23 - 01 - H12D - DE - PN - P - 00 Bodles High Pressure Solenoid Valve, Port & Material Body Nomenclature This is a direct-acting, 2-position, Code 3-way, spool-type solenoid valve. 00 Cartridge only No Body Coll Voltage SDC10-3-S3B Code Description S3B 3/8 BSP, Ductile S4B 1/2 BSP, Ductile SDC10-3-S4B HOO No Coll SDC10-3-S6S S6S #6 SAE, Ductile H12D 12 VDC #8 SAE, Ductile SDC10-3-S8S H24D 24 VDC **S8S** ** Aluminium bodies available for lower pressure Coll Termination application. Please consult factory for details. Code Description IP Rating Seal Option 00 No Coil Code Seal Material Seal kit FL Flying Lead IP 69k 11140113 P Polyurethane Single Seal DE Deutsch IP 69k Manual Override AS AMP SuperSeal 1.5 and Metri-Pack 150 type 1 IP 69k Description Code ASDB AMP Super Seal with Diode Bidirectional IP 69k PN Push Pin DEDB Deutsch with Diode Bidirectional IP 69k OPS Push Pin M/O Nut for Protection & Actuation FLDB Flying Lead with Diode Bidirectional IP 69k PAT Push and Twist

BC332375861112en-000101 • February 2020





Solenoid Valves Technical Information 3-Way, 2-Position Spool CP521-21



OPERATION

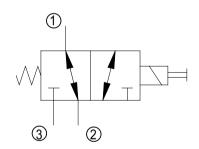
Solenoid Valve, Poppet Type, 2-Position, 3-Way, Pull-Type, 12-size. When de-energized, the CP521-21 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve comes standard with a one-direction, push-pin manual override.

APPLICATIONS

These spool-type valves are commonly used in a selector circuit, or as an on/off pilot control for a directional spool valve. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.



SCHEMATIC

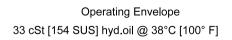


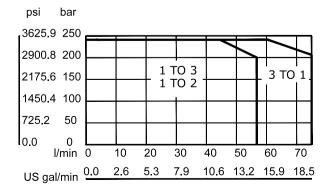
SPECIFICATIONS

Rated pressure*	240 bar [3500 psi]					
Rated flow at 7 bar	60 l/min					
[100 psi]	[16 US gal/min]					
Weight	0.80 kg [1.76 lb]					
Cavity	CP12-3					
Robust Coil	D14E 30 Watt					
(Standard)	Robust Nut P/N 321567					

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES





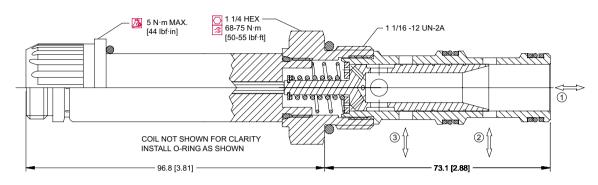


3-Way, 2-Position Spool CP521-21

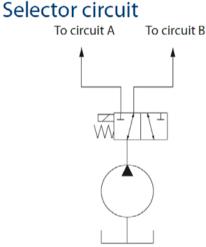
DIMENSIONS

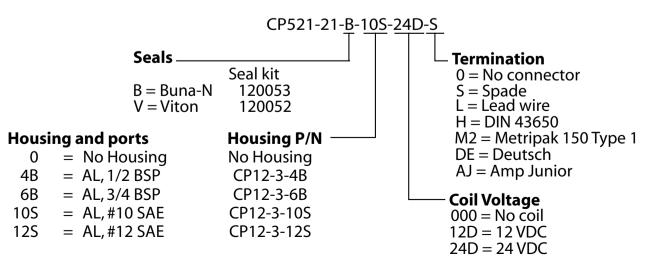
Cross-sectional view

mm [in]



EXAMPLE CIRCUITS









Solenoid Valves Technical Information 3-Way, 2-Position Spool SV08-23-02



OPERATION

This is a direct-acting, 3-way, 2-position, spool-type solenoid valve. Recommend the following connections: port 3 to inlet, port 1 to actuator and port 2 to drain. When de-energized, the SV08-23-02 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

Common applications include on-off control of single-acting cylinders, clutches, or motors. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.



Shown with Robust Coil, Metri-Pack Type 2 Connector

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	10 l/min
[100 psi]	[3 US gal/min]
Weight	0.31 kg [0.68 lb]
Cavity	SDC08-3
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

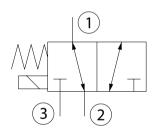
PERFORMANCE CURVES

US gal/min

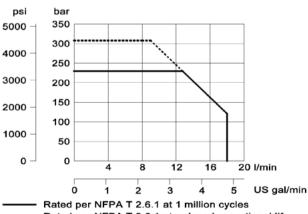
Pressure drop 33 cSt [154 SUS] hyd.oil @ 38°C [100° F] bar psi 348 24 290 20 232 16 174 12 3 to 1 or 1 to 3 116 8 Energized 58 4 1 to 2 or 2 to 1 **De-Eneraized** 10 0 l/min 0 2 4 6 8 10 12 14 16 18 2.1 3.2 3.7 0.5 1.1 1.6 2.6 4.2 4.8

BC332375861112en-000101 · February 2020

SCHEMATIC



Operating envelope



----- Rated per NFPA T 2.6.1 at reduced operational life



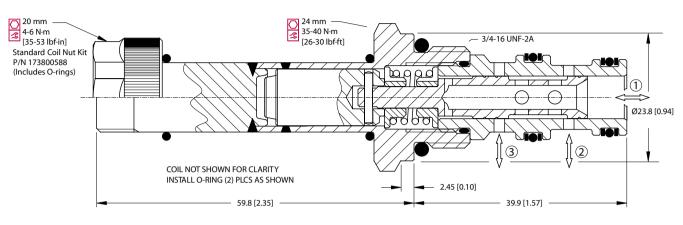
3-Way, 2-Position Spool SV08-23-02



DIMENSIONS

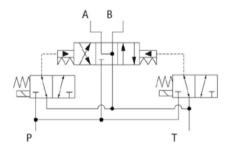
mm [in]



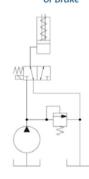


EXAMPLE CIRCUITS

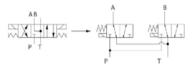
On/Off Pilot Control for Directional Spool Valve



r On/Off Pilot Control for Single-Acting Cylinder, Clutch or Brake



Create a Low Pressure 4-Way, 3-Position Directional Control Valve



Solenoid Valve, 08 Size Cavity 2 Position, 3 Way, Spool Ty 02: Schematic: Pull Type			<u>02</u> - <u>12</u>	<u></u> - <u>D</u>			<u>,</u>	Code 00 4S 6S S6S SE2B SE3B S3B	Cartric #4 S #6 S #6 SA 1/4 E 3/8 E	nd Ports Ige Only AE, AL AE, AL E, Steel SSP, AL E, Steel KSP, AL E, Steel Material Buna-N	Body Nomenclature No Body CP08-3-45 CP08-3-45 CP08-3-65 CP08-3-565 SDC08-3-5E28 SDC08-3-5E38 CP08-3-538 Seal Kits 354003210
Size Cavity 23: 2 Position, 3 Way, Spool Ty 02:	уре							45 65 565 5E2B 5E3B 53B	#4 S #6 SA #6 SA 1/4 E 3/8 E #6 SA	AE, AL AE, AL E, Steel SSP, AL SSP, AL E, Steel Material	CP08-3-45 CP08-3-65 SDC08-3-565 SDC08-3-5E2B SDC08-3-5E3B CP08-3-5E3B Seal Kits 354003210
Size Cavity 23: 2 Position, 3 Way, Spool Ty 02:	/pe							6S S6S SE2B SE3B S3B	#6 S #6 SA 1/4 E 3/8 E #6 SA	AE, AL E, Steel SSP, AL SSP, AL E, Steel Material	CP08-3-65 CP08-3-565 SDC08-3-SE2B SDC08-3-SE3B CP08-3-SE3B CP08-3-S3B Seal Kits 354003210
Size Cavity 23: 2 Position, 3 Way, Spool Ty 02:	/pe							S6S SE2B SE3B S3B	#6 SA 1/4 E 3/8 E #6 SA	E, Steel SSP, AL SSP, AL E, Steel Material	CP08-3-S65 SDC08-3-SE2B SDC08-3-SE3B CP08-3-S3B Seal Kits 354003210
Size Cavity 23: 2 Position, 3 Way, Spool Ty 02:	уре							SE2B SE3B S3B	1/4 E 3/8 E #6 SA	SP, AL SP, AL E, Steel Material	SDC08-3-SE2B SDC08-3-SE3B CP08-3-S3B Seal Kits 354003210
23: 2 Position, 3 Way, Spool Ty 02:	ype							SE3B S3B	3/8 E #6 SA	BSP, AL E, Steel Material	SDC08-3-SE3B CP08-3-S3B Seal Kits 354003210
2 Position, 3 Way, Spool Ty	/pe							S3B	#6 SA eal Code	E, Steel Material	CP08-3-S3B Seal Kits 354003210
2 Position, 3 Way, Spool Ty	/pe								ieal Code	Material	Seal Kits 354003210
02:	/pe										354003210
									В	Buna-N	
Schematic: Pull Type				4 L					v	Viton	354003819
Coil Voltage Standa	and Call	Robust Coil	Coil	Termination		Standard Coil Code	IP Rating	Robust Co Code	il IP Ratir	ıg	
	ode	Code		No Coil		00	-	00	-		
	00	R00		Amp Junior		AJ	IP67	-			
	00 0D	R10D	Amp	Junior with D	Diode	AJD	IP67				
	-	R10D		AMP SuperSea	al 1.5	AS	IP67	AS	IP69K		
	2D		AMP Su	perSeal with D	Diode	ASD	IP67	ASDB	IP69K		
	0D	R20D		Deutsch		DE	IP67	DE	IP69K		
	4D	R24D	0	Deutsch with Diode		DED	IP67	DEDB	IP69K		
	10A	-		Flying Leads		FL	IP65	65 FL			
	20A	-	Flyin	g Leads with D	Diode	FLD	IP65	FLDB	IP69K		
Standard coil – plastic nut a		ngs		DIN 43	3650	DN	IP65	-	-		
R-coil - steel nut P/N 17380	00539		Met	ri-Pack 150, Ty	ype 2	-	-	M3	IP69K		
(no coil O-rings needed) ** DIN only - external rectifier			Metri-Pa	ack 150 with D	Diode	-	-	M3DB	IP69K		







This is a direct-acting, 3-way, 2-position, spool-type solenoid valve. Recommend the following connections: port 3 to inlet, port 1 to actuator and port 2 to drain. When de-energized, the HSV08-23-02 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

Common applications include on-off control of single-acting cylinders, clutches, or motors. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



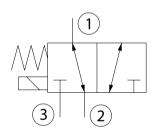
Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

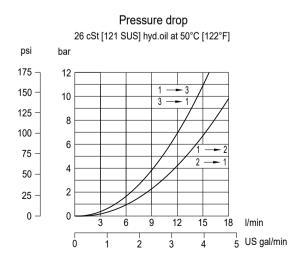
Rated pressure*	350 bar [5075 psi]					
Rated flow at 7 bar	16 l/min					
[100 psi]	[4.2 US gal/min]					
Weight	0.35 kg [0.77 lb]					
Cavity	SDC08-3					
Standard Coil	M13 20 Watt					
Robust Coil	R13 16 Watt					
	Robust Nut P/N 173800539					
	(no coil O-rings needed)					

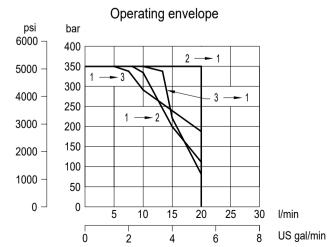
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC



PERFORMANCE CURVES





BC332375861112en-000101 · February 2020

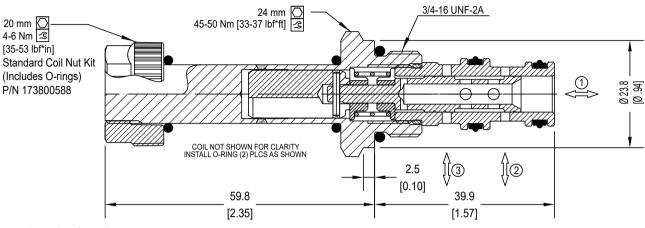


3-Way, 2-Position Spool HSV08-23-02

DIMENSIONS

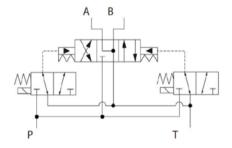
Cross-sectional view

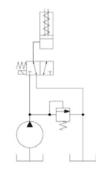




EXAMPLE CIRCUITS

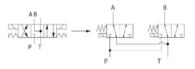
On/Off Pilot Control for Directional Spool Valve





On/Off Pilot Control for Single-Acting Cylinder, Clutch or Brake

Create a Low Pressure 4-Way, 3-Position Directional Control Valve



		HSV08	<u> </u>	<u>)2</u> -	<u> 12D -</u>	<u>DE -</u>	<u>XC -</u>	<u>P - (</u>	<u>)0</u>				
High Pressu	re Solenoid Valve									Housing	s		
2 position, 3	way, 08-Size.									Code	Ports & Material	Body	Nomenclature
Coil Voltage										00	Cartridge only	No Bo	
Description	Standard Coil	Robust Coil								S3B	3/8 BSP, Steel	-	-3-S3B
	Code 00	Code								S4S	#4 SAE, Steel	CP08	-3-S4S
No Coil	00 12D	R00								S6S	#6 SAE, Steel	CP08	-3-S6S
12 VDC 24 VDC	12D 24D	R12D R24D									num bodies available for lov		
24 VDC	Coil Terminatio									[less thar	1 210 bar (3000 psi)]. Pleas	e consult	factory for details.
			Standard Coil	IP	Robust Coil	IP				Seal Op	tion		
	Description		Code	Rating	-	Rating				Code	Seal Material		Seal kit
	No Coil		00	-	00	-				Р	Polyurethane Single Se	al	11167282
	Flying Lead		FL	IP65	FL	IP69K							
	Deutsch	Deutsch		IP69K	DE	IP69K				Manual Overrides			
	AMP SuperSe	AMP SuperSeal 1.5		IP67	AS	IP69K				Code	Description		
	AMP SuperSe	eal with Diode	ASD	IP67	ASDB	IP69K				XC	No manual override		
	Deutsch with	Diode	DED	IP69K	DEDB	IP69K							
	Flying Lead w	ith Diode	FLD	IP65	FLDB	IP69K							
	DIN 43650		DN	IP65	-	-							





This is a direct-acting, 3-way, 2-position, spool-type solenoid valve. Recommend the following connections: port 3 to inlet, port 1 to actuator and port 2 to drain. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The 09 Series valve uses a 10 size cavity with an 08 size tube and coil, providing an optimal product for high flow and low pressure, while minimizing pressure drop in the system.



Shown with Standard Coil and Filter

APPLICATIONS

Common applications include low-pressure on-off control of single-acting cylinders, clutches, or brakes. It is also optimal for hydraulically piloting large directional spool valves or for pilot cut-off valve of the control pressure of a valve or psiton pump. Refer to example circuits. Use the optional screen to help protect the actuator from large particles. Select the robust coil for those extreme environmental conditions – voltage extremes, high temperature, shock & vibration, chemicals, and/or water ingression.



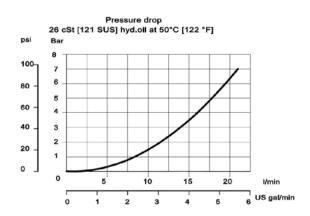
Shown with Robust Coil and Filter

SPECIFICATIONS

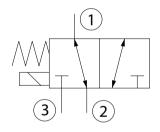
Rated pressure*	100 bar [1450 psi]						
Maximum flow at 7 bar	21 l/min [
[100 psi]	6 US gal/min]						
Leakage	20 ml/mln [1.22 ln ³ /mln]						
	at rated pressure						
Weight	0.354 kg [0.78 lb]						
Cavity	SDC10-3						
Standard Coil	M13 20 Watt						
Robust Coil	R13 16 Watt						
	Robust Nut P/N 173800539 No coil						
	O-rings needed.						

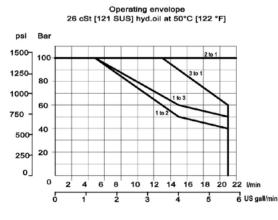
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



SCHEMATIC





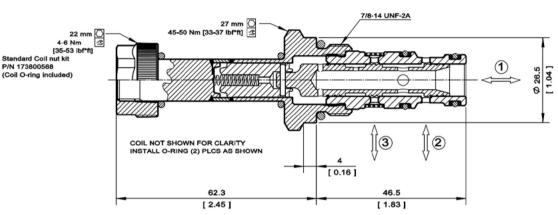


3-Way, 2-Position Spool SV09-23-02

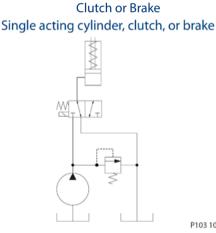


mm [in]





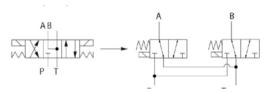
EXAMPLE CIRCUITS



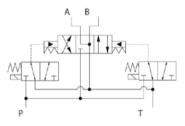
ORDERING INFORMATION

On/Off Pilot Control for Single-Acting Cylinder,

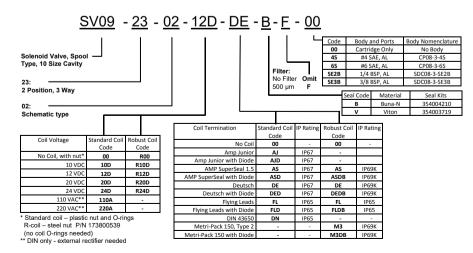
Create a Low Pressure 4-Way, 3-Position **Directional Control Valve**



On/Off Pilot Control for **Directional Spool Valve**



P103 111



P103 109







Solenoid Valve, Spool Type, 2-Position, 3-Way, Normally Closed, Pull-Type. Recommend the following connections: port 3 to inlet, port 1 to actuator and port 2 to drain. When de-energized, the SV10-23-02 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

Common applications include on-off control of single-acting cylinders, clutches, or motors. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



Shown with Standard Coil, Deutsch Connector

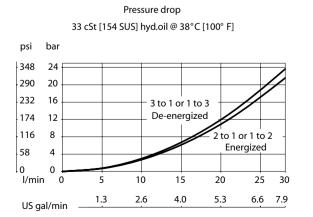
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	15 l/min
[100 psi]	[4 US gal/min]
Weight	0.42 kg [0.93 lb]
Cavity	SDC10-3
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

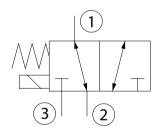
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC



Operating envelope bar 350 300 250 200 150 100 1000 -50

psi

5000

4000

3000

2000

0

0

0





3-Way, 2-Position Spool SV10-23-02

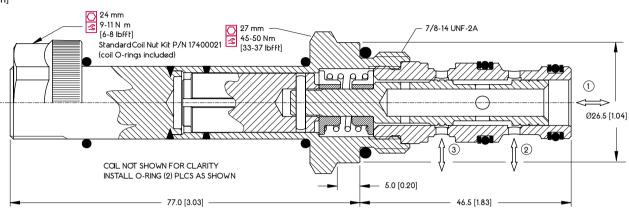




DIMENSIONS

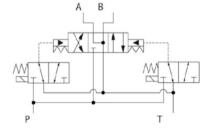




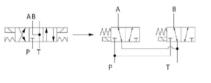


EXAMPLE CIRCUITS

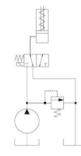


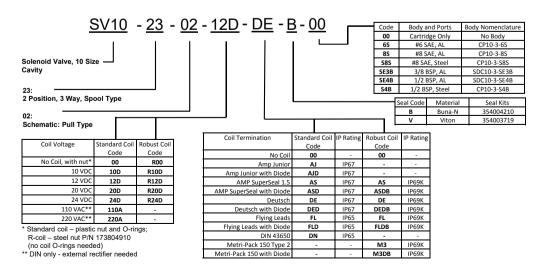
















3-Way, 2-Position Spool HSV10-23-02



Solenoid Valve, Spool Type, 2-Position, 3-Way, Normally Closed, Pull-Type. Recommend the following connections: port 3 to inlet, port 1 to actuator and port 2 to drain. When de-energized, the HSV10-23-02 allows flow from port 1 to port 2, while port 3 is blocked. When energized, flow is allowed from port 3 to port 1, while port 2 is blocked. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

Common applications include on-off control of single-acting cylinders, clutches, or motors. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. In case of inlet from port 2 this value can be increased to 500,000 cycles.



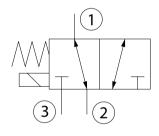
Shown with Robust Coil Deutsch Connector

SPECIFICATIONS

Rated pressure* Rated flow at 7 bar	350bar [5075 psi]* 28 l/min
[100 psi]	[7 US gal/min]
Weight	0.57 kg [1.26 lb]
Cavity	SDC10-3
Standard Coil	H16 29 Watt

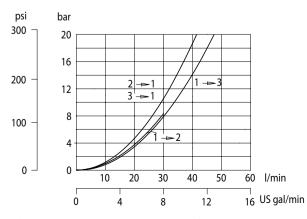
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).



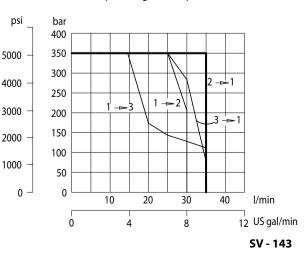


PERFORMANCE CURVES

Pressure drop 26 cSt [121 SUS] hyd.oil at 50ሳር [122 ሳF]



BC332375861112en-000101 · February 2020



Operating envelope



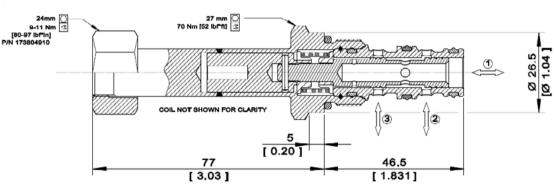


3-Way, 2-Position Spool HSV10-23-02

DIMENSIONS

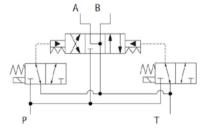
Cross-sectional view

mm [in]

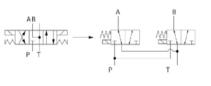


EXAMPLE CIRCUITS

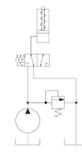
On/Off Pilot Control for Directional Spool Valve



Create a High Pressure 4-Way, 3-Position Directional Control Valve



On/Off Pilot Control for Single-Acting Cylinder, Clutch or Brake



ORDERING INFORMATION

<u>HSV10 - 23 - 02 - H12D - DE - XC - P - 00</u>													
High Pressure Solenoid Valve, This is a direct-acting, 2-position, 3-way, spool-type solenoid valve. Coil Voltage Code Descriptio H00 No Coll							Bodles						
							Code	Port & Material	Body Nome	nclature			
							00	Cartridge only	No Body				
			Code	Descriptio	n				S3B	3/8 BSP, Ductile	SDC10-3-S	3B	
			HOO	No Co					S4B	1/2 BSP, Ductle	SDC10-3-S	4B	
			H12D	12 VDC					S6S	#6 SAE, Ductile	SDC10-3-S	6S	
			H24D	24 VDC	7				S8S	#8 SAE, Ductile	SDC10-3-S	8S	
Coll Termination					_				*** Aluminium bodies available for lower pressure				
	Code	Description	IP Rating	Γ		application. Please consult factory for details.							
	00 No Coll FL Flying Lead				-		L	Seal Option					
					IP 69k			Code		Seal Material	Seal kit		
	DE				IP 69k			Р	Polyurethane Single Sea		11140113	3	
	AS				IP 69k		Manual Override						
	ASDB AMP Super Seal with Diode Bidirectional			IP 69k									
DEDB Deutsch with Diode Bidirectional				IP 69k	1	XC	Code Description						
	FLDB Flying Lead with Diode Bidirectional				IP 69k		70	NO Mar	No Manual Override				





Solenoid Valves Technical Information 3-Way, 2-Position Spool

SV08-23-03



This is a direct-acting, 3-way, 2-position, spool-type, 08-size solenoid valve. When de-energized, the SV08-23-03 allows flow between port 1 and port 2, while port 3 is blocked. When energized, flow is allowed between port 3 and port 2, while port 1 is blocked. This valve comes standard with a one-direction, push-pin manual override.

APPLICATIONS

Common applications include on-off control of single-acting cylinders, clutches, or motors. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.



Shown with Robust Coil, Metri-Pack Type 2 Connector

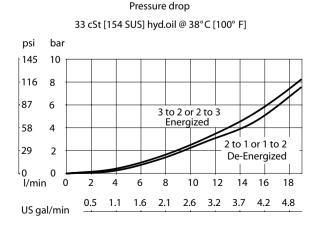
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	18 l/min
[100 psi]	[5 US gal/min]
Weight	0.31 kg [0.68 lb]
Cavity	SDC08-3
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

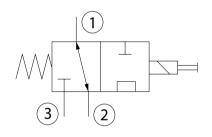
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

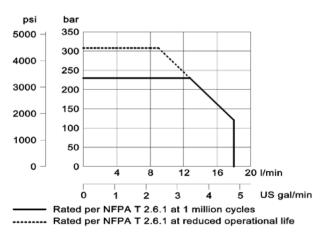
** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC





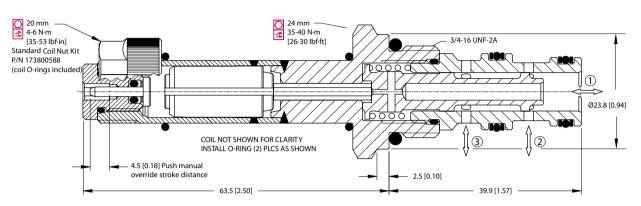


3-Way, 2-Position Spool SV08-23-03

Cross-sectional view

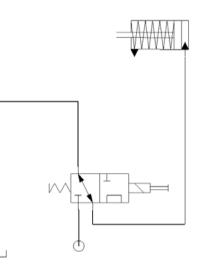
DIMENSIONS

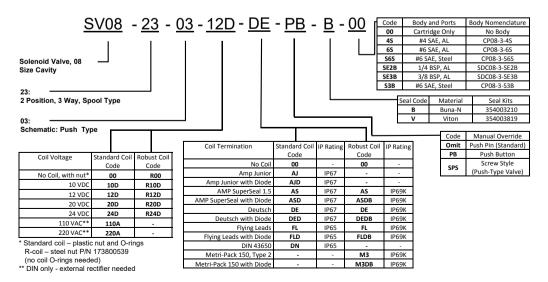
mm [in]



EXAMPLE CIRCUITS

Single Acting Cylinder









Solenoid Valves Technical Information 3-Way, 2-Position Spool



OPERATION

Solenoid Valve, Spool Type, 2-Position, 3-Way, 08 size. When de-energized, the SV08-23-04 allows flow from port 3 to port 2, blocking port 1. When energized, ports 2 and 1 are connected, blocking port 3. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

SV08-23-04



APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit like a single-acting cylinder, clutch, brake, circuit selector valve, or pilot for a large directional spool valve. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 400,000 cycles. In case of inlet from port 2 this value can be increased to 600,000 cycles.

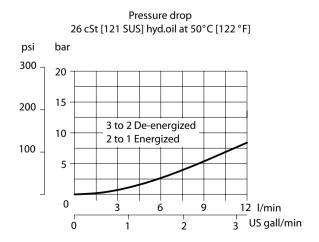
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**					
Rated flow at 7 bar	10 l/min					
[100 psi]	[3 US gal/min]					
Weight	0.31 kg [0.68 lb]					
Cavity	SDC08-3					
Standard Coil	M13 20 Watt					
Robust Coil	R13 16 Watt					
	Robust Nut P/N 173800539					
	(no coil O-rings needed)					

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

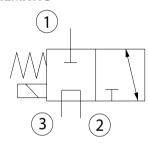
PERFORMANCE CURVES

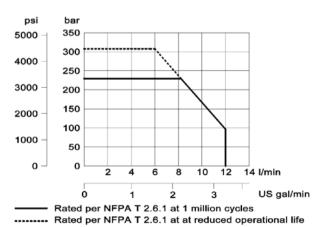


BC332375861112en-000101 · February 2020

Shown with Standard Coil, Deutsch Connector

SCHEMATIC



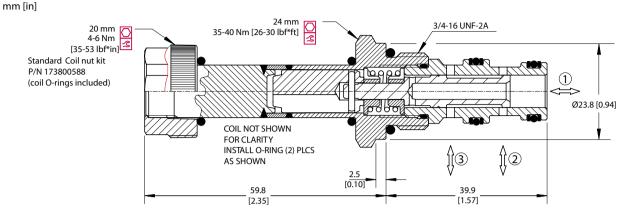




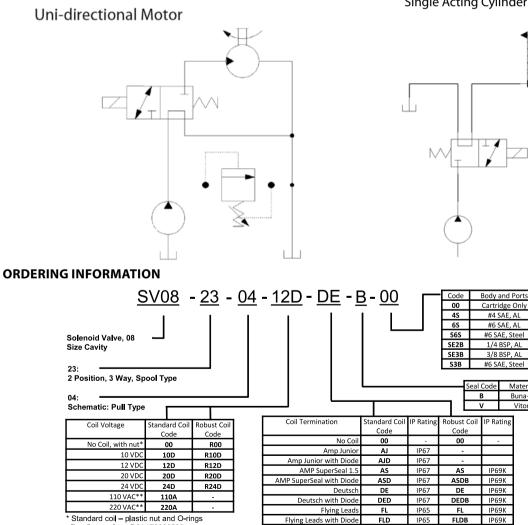
3-Way, 2-Position Spool SV08-23-04







EXAMPLE CIRCUITS



Flvin

DIN 43650

Metri-Pack 150, Type 2

Metri-Pack 150 with Dio

DN

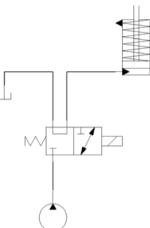
IP65

М3

M3DE

IP69K IP69K

Single Acting Cylinder



BC332375861112en-000101 · February 2020

R-coil – steel nut P/N 173800539 (no coil O-rings needed) ** DIN only - external rectifier needed

ody Nomenclatu No Body

CP08-3-45

CP08-3-65

CP08-3-S6S

SDC08-3-SE2B

SDC08-3-SE3B

CP08-3-S3B

Seal Kits

354003210

354003819

Materia

Buna-N

Viton





SCHEMATIC

3

2

3-Way, 2-Position Spool SV10-23-04



OPERATION

Solenoid Valve, Spool Type, 2-Position, 3-Way, 10-Size. When de-energized, the SV10-23-04 allows flow from port 3 to port 2, blocking port 1. When energized, ports 2 and 1 are connected, blocking port 3. Port 1 may be fully pressurized, but is not intended to be the inlet port. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit like a single-acting cylinder, clutch, brake, circuit selector valve, or pilot for a large directional spool valve. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can be pressurized to 315 Bar on port 2 for 500,000 operating cycles.



Shown with Robust Coil, Deutsch Connector

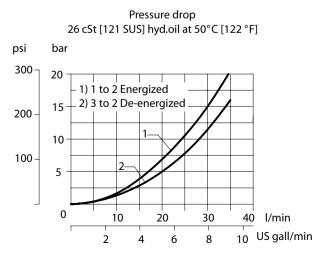
SPECIFICATIONS

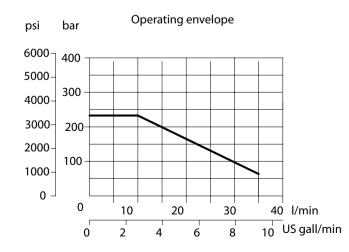
Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	20 l/min
[100 psi]	[5 US gal/min]
Weight	0.42 kg [0.93 lb]
Cavity	SDC10-3
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES





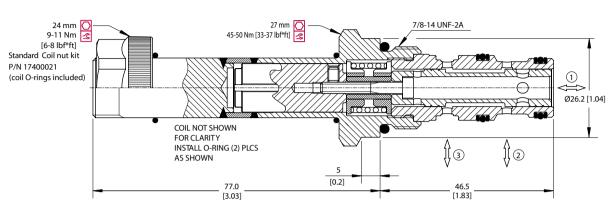


3-Way, 2-Position Spool SV10-23-04

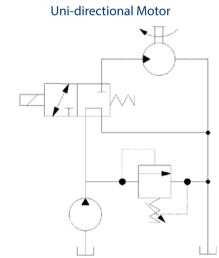
Cross-sectional view

DIMENSIONS

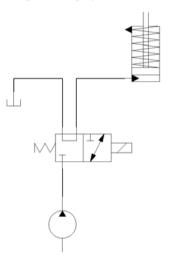
mm [in]



EXAMPLE CIRCUITS



Single Acting Cylinder



ORDERING INFORMATION

	- SV	10 - 2.	<u>3 - 04 - 12[</u>	ו-ע		3 - Ul	Ј г	Code	e Body a	and Ports	Body Nomenclatur
							_	00	Cartrie	dge Only	No Body
		1 1				L		65	#6 S	GAE, AL	CP10-3-6S
enoid Valve, 10 Siz	ze	1 1						85	#8 S	SAE, AL	CP10-3-8S
ity								S8S	#8 SA	AE, Steel	CP10-3-S8S
								L3B	3/81	BSP, AL	SDC10-3-SE3B
								L4B	1/2	BSP, AL	SDC10-3-SE4B
osition, 3 Way, Spe	oollype							S4B	1/2 B	SP, Steel	CP10-3-S4B
									1 I		
									Seal Code	Material	Seal Kits
ematic: Pull Type									B	Buna-N Viton	354004210 354003719
			Coil Termination		Standard Coil	ID Pating	Robust Coil	IR Pating		VICON	334003713
			Coil Termination	5	Standard Coil	IP Rating		IP Rating		Vitori	334003713
Coil Voltage	Standard Coil	Robust Coil			Code	IP Rating	Code	IP Rating		Viton	334003713
Coil Voltage		Robust Coil Code	N	lo Coil	Code 00	-		IP Rating -		Viton	334003713
Coil Voltage No Coil, with nut*	Standard Coil		N Amp J	lo Coil Junior	Code 00 AJ	- IP67	Code	IP Rating - -		Viton	334003713
-	Standard Coil Code	Code	N Amp Junior with	lo Coil Junior Diode	Code 00 AJ AJD	- IP67 IP67	Code 00 - -	-		Viton	334003713
No Coil, with nut*	Standard Coil Code 00	Code R00	N Amp Junior with AMP SuperSe	lo Coil Junior Diode eal 1.5	Code 00 AJ AJD AS	- IP67 IP67 IP67	Code 00 - - AS	- - - IP69K		viton	334003713
No Coil, with nut* 10 VDC	Standard Coil Code 00 10D	Code R00 R10D	N Amp Junior with AMP SuperSe AMP SuperSeal with	lo Coil Junior Diode eal 1.5	Code 00 AJ AJD	- IP67 IP67	Code 00 - -	-		viton	334003713
No Coil, with nut* 10 VDC 12 VDC	Standard Coil Code 00 10D 12D	Code R00 R10D R12D	N Amp Junior with AMP SuperSe AMP SuperSeal with	No Coil Junior Diode eal 1.5 Diode eutsch	Code 00 AJ AJD AS ASD	- IP67 IP67 IP67 IP67	Code 00 - - AS ASDB	- - - IP69K IP69K		viton	334003713
No Coil, with nut* 10 VDC 12 VDC 20 VDC	Standard Coil Code 00 10D 12D 20D	Code R00 R10D R12D R20D	N Amp Junior with AMP SuperSe AMP SuperSeal with De	No Coil Junior Diode eal 1.5 Diode eutsch Diode	Code 00 AJ AJD AS ASD DE	- IP67 IP67 IP67 IP67 IP67	Code 00 - - AS ASDB DE	- - - IP69K IP69K IP69K		viton	334003/13
No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC	Standard Coil Code 00 10D 12D 20D 24D	Code R00 R10D R12D R20D	N Amp Junior with AMP SuperSe AMP SuperSeal with De Deutsch with Flying	No Coil Junior Diode eal 1.5 Diode eutsch Diode Leads	Code 00 AJ AJD AS ASD DE DED	- IP67 IP67 IP67 IP67 IP67 IP67	Code 00 - - AS ASDB DE DEDB	- - - - - - - - - - - - - - - - - - -		viton	33400713
No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC 110 VAC** 220 VAC**	Standard Coil Code 00 12D 22D 24D 110A 220A	Code R00 R10D R12D R20D R24D - -	N Amp Junior with AMP SuperSeal with Destance Deutsch with Flying Leads with	No Coil Junior Diode eal 1.5 Diode eutsch Diode Leads	Code 00 AJ AJD AS ASD DE DED FL	- IP67 IP67 IP67 IP67 IP67 IP67 IP65	Code 00 - AS ASDB DE DEDB FL	- - - - - - - - - - - - - - - - - - -		viton	334003/13
No Coil, with nut* 10 VDC 12 VDC 20 VDC 24 VDC 110 VAC**	Standard Coil Code 00 10D 12D 24D 110A 220A nut and O-rir	Code R00 R10D R12D R20D R24D - -	N Amp Junior with AMP SuperSeal with Destance Deutsch with Flying Leads with	lo Coil Junior Diode eal 1.5 Diode eutsch Diode Leads Diode 43650	Code 00 AJ AJD AS ASD DE DED FL FLD	- IP67 IP67 IP67 IP67 IP67 IP65 IP65	Code 00 - AS ASDB DE DEDB FL	- - - - - - - - - - - - - - - - - - -		viton	33400713

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Solenoid Valves Technical Information 3 Way, 2 Position Spool SV15-23-04



OPERATION

Solenoid Valve, Spool Type, 2-Position, 3-Way, High Flow (15-Size). When de-energized, the SV15-23-04 allows flow from port 3 to port 2, blocking port 1. When energized, ports 2 and 1 are connected, blocking port 3. Port 1 may be fully pressurized, but is not intended to be the inlet port. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/3201 and uses a metric M33x2 cavity (NCS 12/3) for high flow capability.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit like a single-acting cylinder, clutch, brake, circuit selector valve, or pilot for a large directional spool valve. Solenoid spool-type valves are direct acting and respond guickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar for 100,000 cycles. In case of inlet from port 2 this value can be increased to 300,000 cycles.



Shown with Standard Coil, **Deutsch Connector**

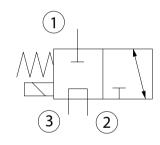
SPECIFICATIONS

Rated Pressure*	210 bar [3045 psi]**				
Maximum Rated Flow at 7 bar	50 l/min				
[100 psi]	[13 US gal/min]				
Weight including coil	0.89 kg [1.96 lbs]				
Cavity	NCS 12/3				
Coil	M19 33 Watt				
Diode (Optional)	Unidirectional				

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

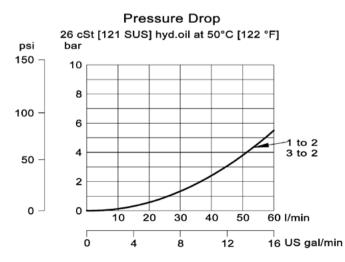
** See 315 bar pressure rating note on page 10.

SCHEMATIC

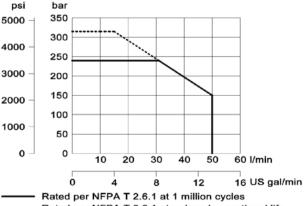


bar

PERFORMANCE CURVES



Operating envelope



----- Rated per NFPA T 2.6.1 at reduced operational life

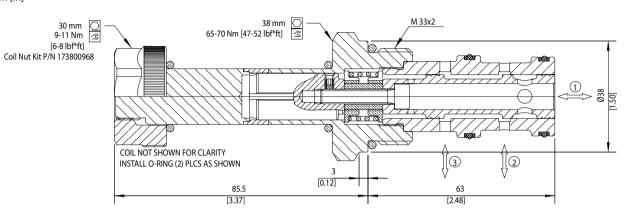


3 Way, 2 Position Spool SV15-23-04

Cross-sectional view

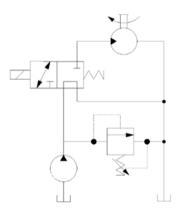
DIMENSIONS

mm [in]

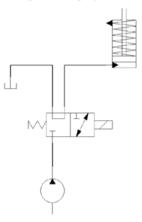


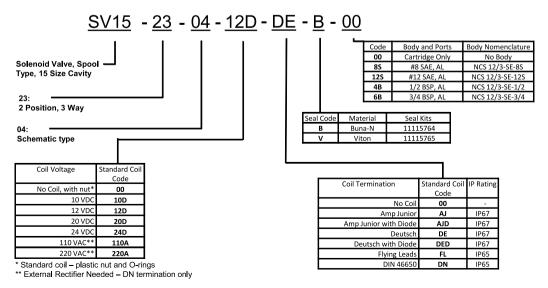
EXAMPLE CIRCUITS

Uni-directional Motor



Single Acting Cylinder









4-Way, 2-Position Spool SV08-24-01



OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, 08-size. When de-energized, the SV08-24-01 allows flow from port 3 to port 2, and from port 4 to port 1. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Can be used in combination to duplicate a four-way, three-position valve, creating an economical, compact function. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use



Shown with Standard Coil, Deutsch Connector

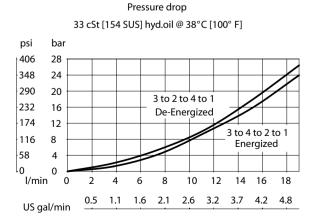
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	8 l/min
[100 psi]	[2 US gal/min]
Weight	0.32 kg [0.71 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

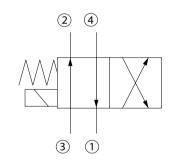
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

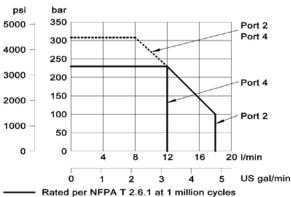
PERFORMANCE CURVES



SCHEMATIC



Operating envelope



Rated per NFPA T 2.6.1 at reduced operational life

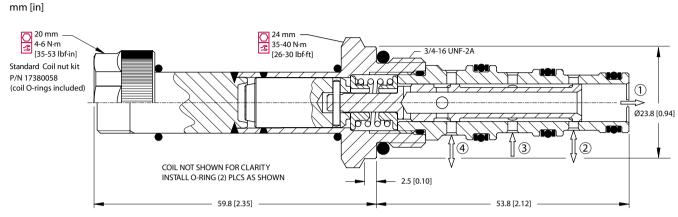


4-Way, 2-Position Spool SV08-24-01

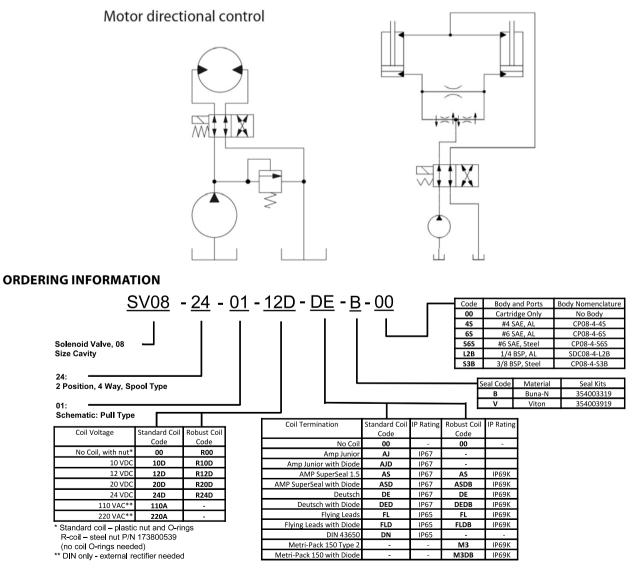
DIMENSIONS







EXAMPLE CIRCUITS







4-Way, 2-Position Spool HSV08-24-01



OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, 08-size. When de-energized, the HSV08-24-01 allows flow from port 3 to port 2, and from port 4 to port 1. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.



APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Can be used in combination to duplicate a four-way, three-position valve, creating an economical, compact function. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.

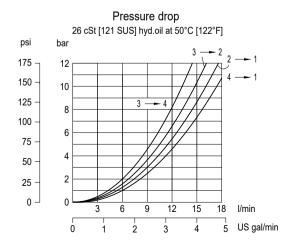


SPECIFICATIONS

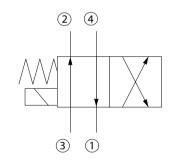
Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar	11 l/min
[100 psi]	[2.91 US gal/min]
Weight	0.35 kg [0.77 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

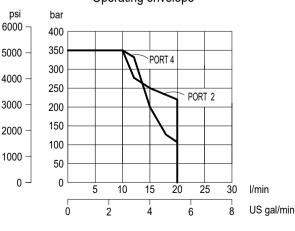
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



SCHEMATIC





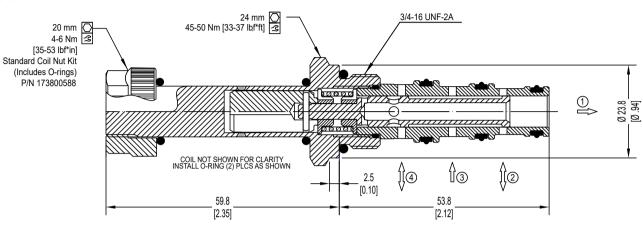


4-Way, 2-Position Spool HSV08-24-01

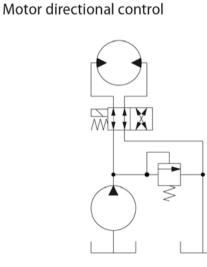
Cross-sectional view

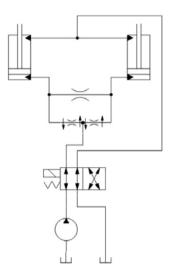
DIMENSIONS

mm [in]



EXAMPLE CIRCUITS





		HSV08	<u> 8 - 24 - (</u>	<u>)1 -</u>	<u> 12D -</u>	<u>DE -</u>	<u>XC</u>	- <u>P</u>	<u>- 0</u>	0					
High Pressur	e Solenoid Valve										Housing	8			
2 position, 4	way, 08-Size.								L		Code	Ports & Material	Body	Nomenclatu	re
Coil Voltage											00	Cartridge only	No B		
Description	Standard Coil Code	Robust Coil Code									S3B	3/8 BSP, Steel	_	3-4-S3B	
No Coil	00	R00									S6S	#6 SAE, Steel		3-4-S6S	
12 VDC	12D	R12D										um bodies available for lo 210 bar (3000 psi)]. Pleas			
24 VDC	24D	R24D												,	
	Coil Termination	on									0 10				
	Description		Standard Coil Code	IP Rating	Robust Coil Code	IP Rating					Seal Op Code	Seal Material		Seal kit	٦
	No Coil		00	-	00	-				P		Polyurethane Single Seal		11167316	
	Flying Lead		FL	IP65	FL	IP69K								-	
	Deutsch		DE	IP69K	DE	IP69K					Manual	Overrides			
	AMP SuperSe	eal 1.5	AS	IP67	AS	IP69K					Code Description				
	AMP SuperSe	eal with Diode	ASD	IP67	ASDB	IP69K					XC	No manual override			
	Deutsch with	Diode	DED	IP69K	DEDB	IP69K									
	Flying Lead w	ith Diode	FLD	IP65	FLDB	IP69K									
	DIN 43650		DN	IP65	-	-									





4-Way, 2-Position Spool SV09-24-01



OPERATION

This is a direct-acting, 4-way, 2-position, spool-type solenoid valve. Recommend the following connections: port 3 to inlet, ports 2 & 4 to actuator(s) and port 1 to drain. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The 09 Series valve uses a 10 size cavity with an 08 size tube and coil, providing an optimal product for high flow and low pressure, while minimizing pressure drop in the system.



Shown with Standard Coil and Filter

APPLICATIONS

Common applications include low-pressure on-off control of dual clutch systems or pressure-assist brakes. It can also be used for low pressure bi-directional control of motors. Refer to example circuits. Use the optional screen to help protect the actuator from large particles. Select the robust coil for those extreme environmental conditions – voltage extremes, high temperature, shock & vibration, chemicals, and/ or water ingression.

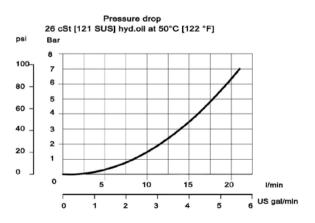
Shown with Robust Coil and Filter

SPECIFICATIONS

Rated pressure*	100 bar [1450 psi]				
Maximum flow at 7 bar	20 l/min				
[100 psi]	[5.33 US gal/min]				
Leakage	75 ml/mln				
	[5.6 ln ³ /mln]				
Weight Including coil	0.37 kg [0.78 lb]				
Cavity	SDC10-4				
Standard Coil	M13 20 Watt				
Robust Coil	R13 16 Watt				
	Robust Nut P/N 173800539				
	(no coil O-rings needed)				

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES



SCHEMATIC

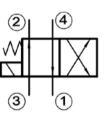
No Filter Option

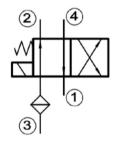
psi

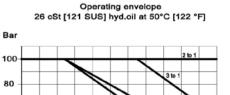
1500

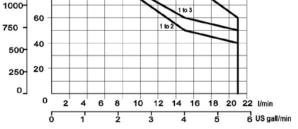
1250-

Filter Option









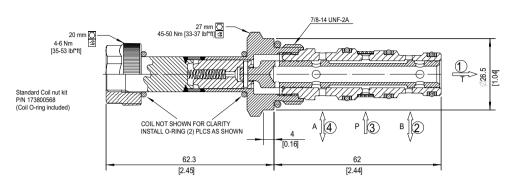


4-Way, 2-Position Spool SV09-24-01

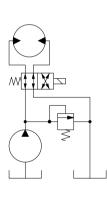
Cross-sectional view

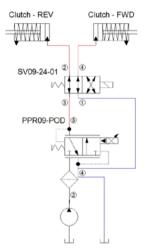
DIMENSIONS

mm [in]



EXAMPLE CIRCUITS Bi-Directional Control of Motors -Low Pressure Dual Clutch System Using Pressure Reducing Valve and 2-Position, 4-Way Solenoid





ORDERING INFORMATION

	<u>svog</u> -	- <u>24</u> -	<u>01</u> - <u>12</u>	<u>2D</u> - <u>DE</u> ·	- <u>B</u> -	- <u>F</u>	- <u>00</u>					
	1	1	1	i I	- I		L	Code	В	odv ai	nd Ports	Body Nomenclature
								00			ge Only	No Body
Solenoid Valve, Spoo								45			AE, AL	CP08-3-4S
Type, 10 Size Cavity						-		6S	1	#6 S/	AE, AL	CP08-3-65
						ilter:		SE2B		1/4 B	SP, AL	SDC08-3-SE2B
24:						lo Filte		SE3B		3/8 B	SP, AL	SDC08-3-SE3B
2 Position, 4 Way					5	00 µm	F					
									Seal C	_	Material	Seal Kits
01:									В	_	Buna-N	354001919
Normally Open				, —					v		Viton	354002019
Schematic				- · ··	<u>.</u>	1.0.1	10.0.1		0.1	10 0 V	_	
			Coll	Termination	Standa Co		IP Rating	Robust Code		IP Kat	ing	
Coil Voltage	Standard Coil	Robust Coil		No Coil				00			-	
	Code	Code		Amp Junior			- IP67			-		
No Coil, with nut*	00	R00	Am	p Junior with Diode			IP67				-	
10 VDC	10D	R10D		AMP SuperSeal 1.5			IP67	AS		IP69	v	
12 VDC	12D	R12D		perSeal with Diode		-	IP67	ASD	_	IP69		
20 VDC	20D	R20D	AlviP Su	Deutsch			IP67	DE		IP69		
24 VDC	24D	R24D		Deutsch with Diode			IP67	DED	_	IP69		
110 VAC**	110A	-		Flying Leads			IP65	FL		IP65		
220 VAC**	220A	-	Elvin	g Leads with Diode			IP65	FLD		IP65		
* Standard coil - plastic	c nut and O rin	las		DIN 43650			IP65	-	-		<u> </u>	
R-coil – steel nut P/N			Met	tri-Pack 150, Type 2	_	-		M3	-	IP69	ĸ	
(no coil O-rings neede				ack 150 with Diode		-		M3D	_	IP69		
** DIN only - external re		l	Wetrier	ack 150 with Dible		-		19130	-	11 0.5		

P103 114





Solenoid Valves Technical Information 4-Way, 2-Position Spool

SV10-24-01



Solenoid Valve, Spool Type, 2-Position, 4-Way, 10 size. When de-energized, the SV10-24-01 allows flow from port 3 to port 2, and from port 4 to port 1. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Can be used in combination to duplicate a fourway, three-position valve, creating an economical, compact function. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Port 1 is not intended as inlet (Tank only).

SPECIFICATIONS

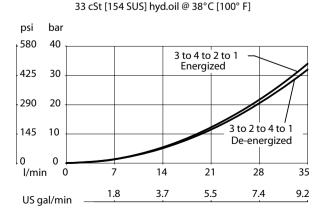
Rated pressure*	230 bar [3300 psi]**					
Rated flow at 7 bar	15 l/min					
[100 psi]	[4 US gal/min]					
Weight	0.45 kg [0.99 lb]					
Cavity	SDC10-4					
Standard Coil	M16 26 Watt					
Robust Coil	R16 20 Watt					
	Robust Nut P/N 173804910					
	(no coil O-rings needed)					

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

Pressure drop

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES

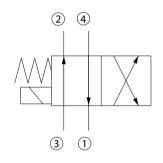


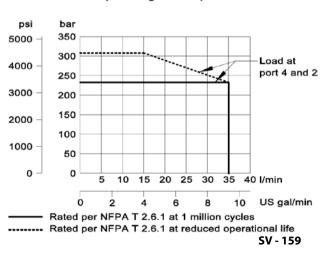
BC332375861112en-000101 · February 2020

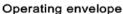


Shown with Robust Coil, Metri-Pack Type 2 Connector

SCHEMATIC









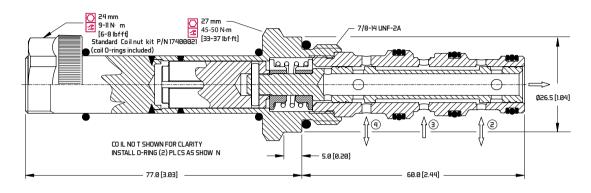


4-Way, 2-Position Spool SV10-24-01

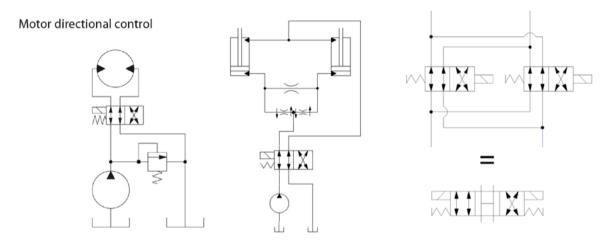
DIMENSIONS



mm [in]



EXAMPLE CIRCUITS



ORDERING INFORMATION

ç	SV/10	- 24 -	<u>01</u> - 12	D – DF	= _ F	3 - 00	_	Code	Dealer	and Ports	Body Nomenclature
9	<u>,,,,</u>		<u> </u>		= 5	<u> </u>		00			
				i i				6S		dge Only	No Body
										SAE, AL	CP10-4-6S
Solenoid Valve, 10 Size	• _							85		SAE, AL	CP10-4-85
Cavity								S85		AE, Steel	CP10-4-S8S
								L3B		BSP, AL	SDC10-4-L3B
24:								L4B		BSP, AL	SDC10-4-L4B
2 Position, 4 Way, Spoo	ol Type							S4B	1/2 B	SP, Steel	CP10-4-S4B
								s	eal Code	Material	Seal Kits
01:									В	Buna-N	354001919
Schematic: Pull Type									v	Viton	354002019
										_	
Coil Voltage	Standard Coil	Robust Coil		Coil Termination	n	Standard Coil	IP Rating		il IP Rati	ng	
con voltage	Code	Code				Code		Code		-	
No Coil, with nut*	00	R00			No Coil	00	-	00	<u> </u>		
10 VDC	10D	R10D		1	p Junior	AJ	IP67			-	
12 VDC	12D	R12D		Amp Junior wit		AJD	IP67	-	-	_	
20 VDC	20D	R20D	<u> </u>	AMP Supers			IP67	AS	IP69	_	
20 VDC			AIVI	P SuperSeal wit		ASD	IP67	ASDB	IP69	_	
	24D	R24D			Deutsch	DE	IP67	DE	IP69	-	
110 VAC**	110A	-		Deutsch wit		DED	IP67	DEDB	IP69	-	
220 VAC**	220A	-			g Leads	FL	IP65	FL	IP69		
* Standard coil – plastic	nut and O-rir	ngs		lying Leads wit			IP65	FLDB	IP69	4	
R-coil - steel nut P/N	173804910	-			43650	DN	IP65	-	· ·	-	
(no coil O-rings neede	d)			Metri-Pack 150		-	-	M3	IP69	_	
** DIN only - external re	ectifier needec	l –	Me	tri-Pack 150 wit	h Diode	-	-	M3DB	IP69		

BC332375861112en-000101 · February 2020





4-Way, 2-Position Spool HSV10-24-01



OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, 10-size. When de-energized, the HSV10-24-01 allows flow from port 3 to port 2, and from port 4 to port 1. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.



Shown with H Coil, Deutsch Connector

APPLICATIONS

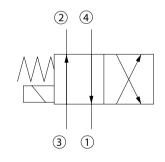
These spool-type valves are primarily used in mobile and industrial applications for blocking the flow of a 2-way function, pump unloading or cylinder regeneration. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.

SPECIFICATIONS

350 bar [5075 psi]*
25 l/min
[6.6 US gal/min]
0.45 kg [0.99 lb]
SDC10-4
H16 29Watt

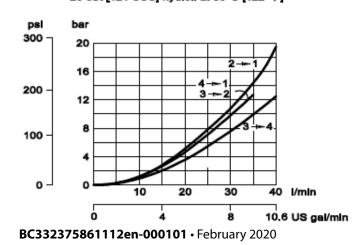
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

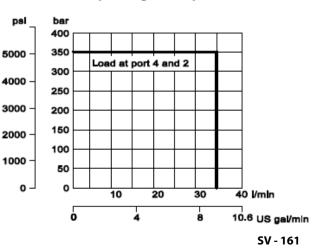




PERFORMANCE CURVES

Pressure drop 26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



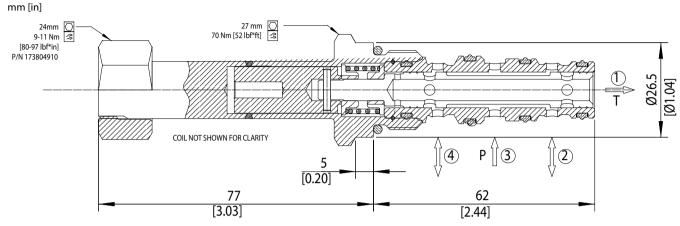




4-Way, 2-Position Spool HSV10-24-01

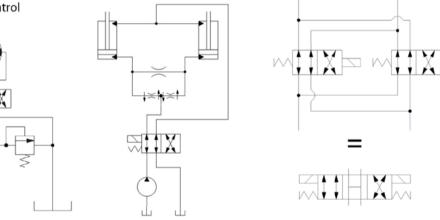


Cross-sectional view



EXAMPLE CIRCUITS

Motor directional control



ORDERING INFORMATION

	<u>HSV10 - 24 - 01</u> - <u>H12D</u> - <u>DE</u> - <u>XC</u> - <u>P</u> - <u>00</u>									
Hiah Pressure	Solenoid Valve,							Bodies		
5	-acting, 2-position,							Code	Port & Material	Body Nomenclature
4-way, spool-t	ype solenoid valve.	Coil Vol	tage					00	Cartridge only	No Body
		Code	Description					S3B	3/8 BSP, Ductile	SDC10-4-S3B
		H00	No Coil					S4B	1/2 BSP, Ductile	SDC10-4-S4B
		H12D	12 VDC					S6S	#6 SAE, Ductile	SDC10-4-S6S
		H24D	24 VDC					S8S	#8 SAE, Ductile	SDC10-4-S8S
Coil Terr	mination								inium bodies available	
Code	Description			IP Rating			application. Please consult factory for details.			
00	No Coil			-			Seal Option			
FL	Flying Lead			IP 69k			Code		Seal Material	Seal kit
DE	Deutsch			IP 69k			Р	Polyure	thane Single Seal	11143824
AS	AMP SuperSeal 1.5 and Metri-Pa	ck 150 typ	e 1	IP 69k		Manua	Ourserviele			
ASDB	ASDB AMP Super Seal with Diode Bidirectional			IP 69k		Manual Override				
DEDB Deutsch with Diode Bidirectional			IP 69k		Code	de Description No Manual Override				
FLDB	Flying Lead with Diode Bidirect	onal		IP 69k		XC			ue	

BC332375861112en-000101 · February 2020







OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-24-01 allows flow from port 3 to port 2, and from port 4 to port 1. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/4205 and uses a metric M33x2 cavity (NCS 12/4) for high flow capability.

APPLICATIONS

SPECIFICATIONS

Weight including coil

Maximum Rated Flow at 7 bar

Rated Pressure*

Diode (Optional)

[100 psi]

Cavity

Coil

Cycles).

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Use the optional screen to help protect the actuator from large particles. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).

210 bar [3045 psi]**

[16 US gal/min]

0.95 kg [2.09 lbs]

60 l/min

NCS 12/4

* Rated Pressure based on NFPA fatigue test standards (at 1 Million

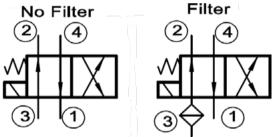
M19 33 Watt

Unidirectional

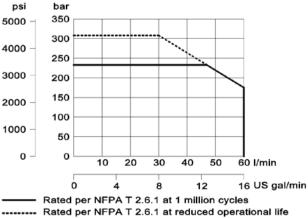


Shown with Standard Coil, DIN Connector

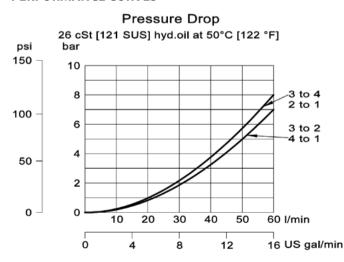
SCHEMATIC



Operating envelope



PERFORMANCE CURVES



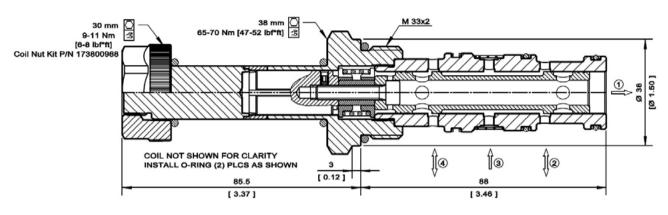


4 Way, 2 Position Spool SV15-24-01

Cross-sectional view

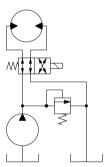
DIMENSIONS

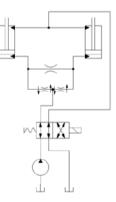
mm [in]

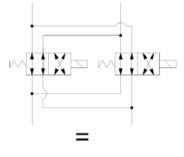


EXAMPLE CIRCUITS

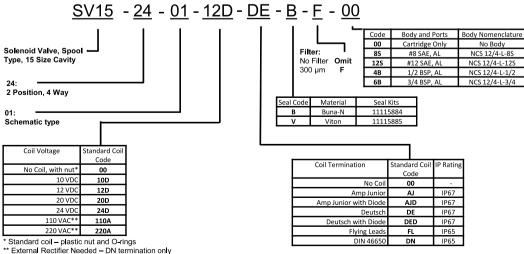
Motor directional control















Solenoid Valves Technical Information 4-Way, 2-Position Spool



OPERATION

This is a direct-acting, 2-position, 4-way, 08-size spool-type solenoid valve. When de-energized, the SV08-24-02 blocks flow to all ports. When energized, the spool shifts to allow flow from port 3 to 4, and from port 2 to 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

SV08-24-02

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Standard Coil, Deutsch Connector

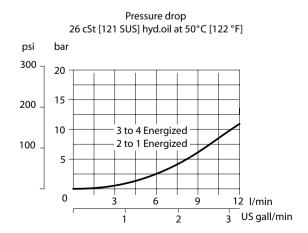
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	10 l/min
[100 psi]	[3 US gal/min]
Weight	0.31 kg [0.68 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

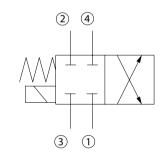
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

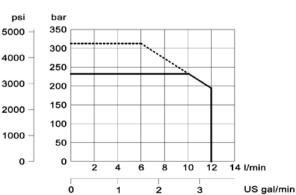
** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC





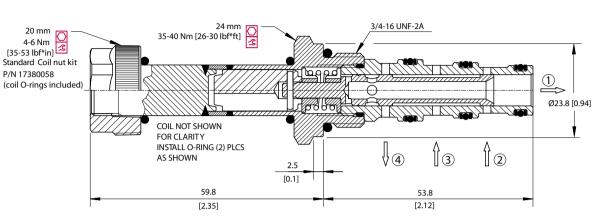
Rated per NFPA T 2.6.1 at 1 million cycles Rated per NFPA T 2.6.1 at reduced operational life



4-Way, 2-Position Spool SV08-24-02

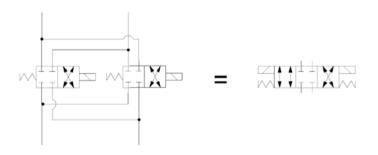
Cross-sectional view

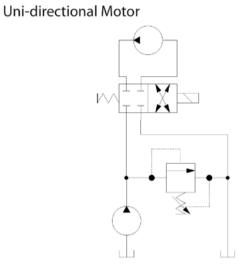
DIMENSIONS mm [in]



EXAMPLE CIRCUITS

Create a 4-Way 3-Position Valve Circuit





S	SV08 -	- 24 -	02 - 1	<u> 2D - DE - B</u>	- 00	_	Code	Body a	and Ports	Body Nomenclature
-					00	Cartri	dge Only	No Body		
	1		1	1 1 1			4S	#4 S	AE, AL	CP08-4-4S
							65	#6 S	AE, AL	CP08-4-6S
Solenoid Valve, 08							S6S	#6 SA	AE, Steel	CP08-4-S6S
Size Cavity							L2B	1/4	BSP, AL	SDC08-4-L2B
							S3B	3/8 B	SP, Steel	CP08-4-S3B
24:										
2 Position, 4 Way, Sp	ool Type							Seal Code	Material	Seal Kits
							L	В	Buna-N	354003319
02:							L	V	Viton	354003919
Schematic: Pull Type										
o il vi li				Coil Termination	Standard Coil	IP Rating	Robust Coil	IP Rating		
Coil Voltage	Standard Coil				Code	Ŭ	Code		1	
	Code	Code		No Coil	00	-	- 00		1	
No Coil, with nut*	00	R00		Amp Junior	AJ	IP67	-		1	
10 VDC	10D	R10D		Amp Junior with Diode	AJD	IP67	-		1	
12 VDC	12D	R12D		AMP SuperSeal 1.5	AS	IP67	AS	IP69K	1	
20 VDC	20D	R20D		AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K	1	
24 VDC	24D	R24D		Deutsch	DE	IP67	DE	IP69K	1	
110 VAC**	110A	-		Deutsch with Diode			DEDB	IP69K	1	
220 VAC**	220A	-		Flying Leads		IP65	FL	IP69K	1	
* Standard coil - plastic	c nut and O-ri	nas	· –	Flying Leads with Diode	FL FLD	IP65	FLDB	IP69K	1	
	R-coil – steel nut P/N 173800539 DIN 43650				DN	IP65			1	
(no coil O-rings need	ed)		- F	Metri-Pack 150, Type 2	-		M3	IP69K	1	
** DIN only - external re		d		Metri-Pack 150 with Diode			M3DB	IP69K	1	
-				mean ruck 150 with blode			111300	10.00	-	





4 Way, 2 Position Spool SV10-24-02



OPERATION

This is a direct-acting, 2-position, 4-way, 10-size spool-type solenoid valve. When de-engergized, the SV10-24-02 blocks flow to all ports. When energized, the spool shifts to allow flow from port 3 to 4, and from port 2 to 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Common appliations include unidirectional motor or cylinder control. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended for use as inlet (Tank only).

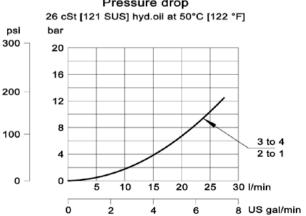
SPECIFICATIONS

Rated Pressure*	230 bar [3330 psi]**
Maximum Rated Flow at 7 bar	20 l/min
[100 psi]	[5.3 US gal/min]
Weight including coil	0.45 kg [1lbs]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)
Diode (Optional)	Standard Coil - Unidirectional
	Robust Coil - Bidirectional

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



Pressure drop



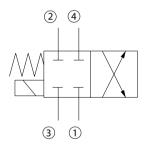


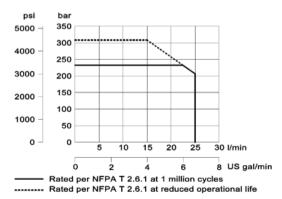
Shown with Standard Coil, Deutsch Connector



Shown with Robust Coil, Deutsch Connector

SCHEMATIC



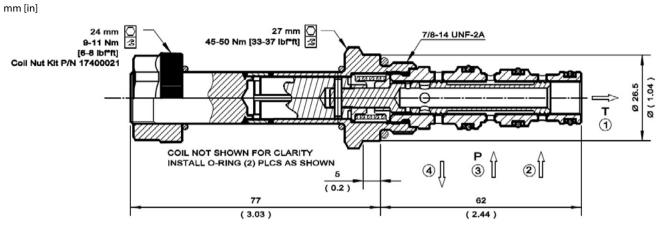




4 Way, 2 Position Spool SV10-24-02

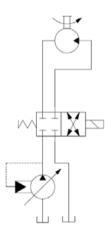
DIMENSIONS



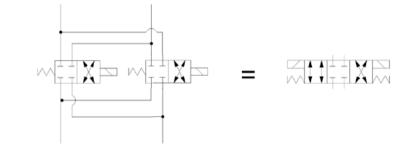


EXAMPLE CIRCUITS

Uni-directional Motor, Variable Pump



Create a 4-Way 3-Position Valve Circuit



S	SV10 -	- 24 -	$02 - \frac{1}{2}$	12D - DE - I	B - 00	_	Code	Body a	ind Ports	Body Nomenclature
		<u> </u>	<u> </u>				00		dge Only	No Body
	1	1	1	1 1	1 I		65		AE, AL	CP10-4-6S
Solenoid Valve, 10 Size							85		AE, AL	CP10-4-85
Cavity	· _						585		E, Steel	CP10-4-585
Cavity							L3B		BSP, AL	SDC10-4-L3B
							L4B		3SP, AL	SDC10-4-L4B
24:							S4B		SP, Steel	CP10-4-S4B
2 Position, 4 Way, Spoo	ol Type							1/2 0	51) 51001	0.10.10.10
							S	eal Code	Material	Seal Kits
02:								В	Buna-N	354001919
Schematic: Pull Type		-						v	Viton	354002019
			_		<u></u>				-	
Coil Voltage	Standard Coil	Robust Coil		Coil Termination	Standard Co	IP Rating		I IP Ratir	ng	
con voltage	Code	Code			Code	_	Code	<u> </u>	-	
No Coil, with nut*	00	R00		No Coi Amp Junio		-	- 00		-	
10 VDC	10D	R10D		Amp Junior with Diode		IP67	-	-	-	
12 VDC	12D	R12D					-	-	-	
20 VDC	20D	R20D		AMP SuperSeal 1.5		IP67	AS	IP69K		
20 VDC 24 VDC	20D 24D	R20D		AMP SuperSeal with Diode		IP67	ASDB DE	IP69k		
				Deutsch		DE IP67		IP69K		
110 VAC**	110A	-		Deutsch with Diode		IP67	DEDB	IP69K		
220 VAC**	220A	-		Flying Lead		IP65	FL	IP69k		
* Standard coil – plastic		igs		Flying Leads with Diode		IP65	FLDB	IP69K	<u> </u>	
R-coil – steel nut P/N				DIN 43650		IP65	-	-	-	
(no coil O-rings neede				Metri-Pack 150 Type 2			M3	IP69k		
** DIN only - external re	ctifier needed			Metri-Pack 150 with Diode	- 9	-	M3DB	IP69K		







OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-24-02 blocks flow to all ports. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The SV15 uses a 15 size cavity. This valve is a direct replacement for EDH 12/4206 and uses a metric M33x2 cavity (NCS 12/4) for high flow capability.

APPLICATIONS

These valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Use the optional screen to help protect the actuator from large particles. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Standard Coil, **Deutsch Connector**

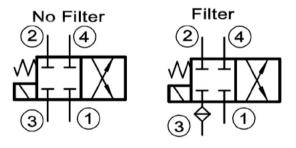
SPECIFICATIONS

Rated Pressure*	210 bar [3045 psi]**
Maximum Rated Flow at 7 bar	60 l/min
[100 psi]	[16 US gal/min]
Weight including coil	0.95 kg [2.09 lbs]
Cavity	NCS 12/4
Coil	M19 33 Watt
Diode (Optional)	Unidirectional

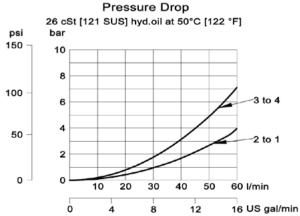
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

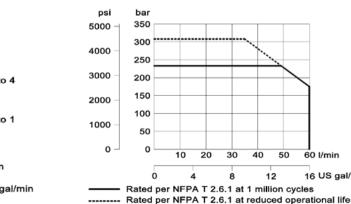
** See 315 bar pressure rating note on page 10.

SCHEMATIC



PERFORMANCE CURVES





Operating envelope

50

60 l/min

16 US gal/min

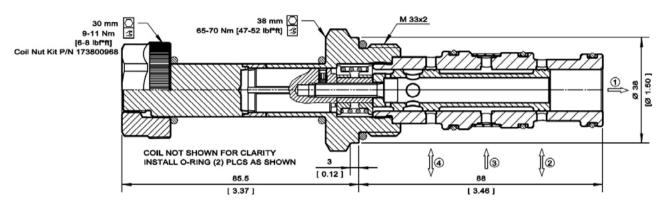


4 Way, 2 Position Spool SV15-24-02

Cross-sectional view

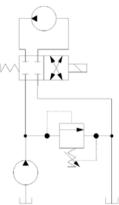
DIMENSIONS

mm [in]

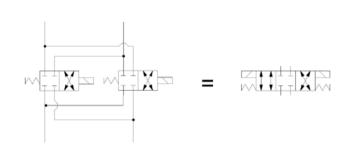


EXAMPLE CIRCUITS





Create a 4-Way 3-Position Valve Circuit



<u>S</u>	<u>- V15</u>	· <u>24</u> - <u>02</u>	- <u>12D</u> - <u>D</u>	<u>)</u> E - <u>E</u>	<u> -</u>	<u>F</u> - <u>00</u>	<u>)</u>			
Solenoid Valve, Spool Type, 15 Size Cavity 24: 2 Position, 4 Way						er: Filter Omit	Code 00 85 12S 4B 6B	Body and Cartridge #8 SAE, #12 SAE, 1/2 BSP, 3/4 BSP,	Only AL AL AL	Body Nomenclature No Body NCS 12/4-L-8S NCS 12/4-L-12S NCS 12/4-L-1/2 NCS 12/4-L-3/4
02: Schematic type				Seal		Material Buna-N Viton	Seal 1111 1111	5884		
Coil Voltage No Coil, with nut*	Standard Coil Code 00	1				Coil Terminati	on	Standard Coil	IP Rating	1
10 VDC	10D	1					No Coil	Code 00		4
12 VDC	12D					Ar	np Junior	AJ	IP67	1
20 VDC	20D	1				Amp Junior w	ith Diode	AJD	IP67	1
24 VDC	24D	1					Deutsch	DE	IP67]
110 VAC**	110A	1				Deutsch w		DED	IP67	4
220 VAC**	220A						ing Leads	FL	IP65	4
* Standard coil – plastic ** External Rectifier Ne				l		D	IN 46650	DN	IP65	1





OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-24-03 opens flow between all four ports. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/4207 and uses a metric M33x2 cavity (NCS 12/4) for high flow capability.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Standard Coil, Deutsch Connector

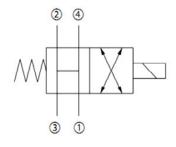
SPECIFICATIONS

Rated Pressure*	210 bar [3045 psi]**			
Maximum Rated Flow at 7 bar	50 l/min			
[100 psi]	[13 US gal/min]			
Weight including coil	0.95 kg [2.09 lbs]			
Cavity	NCS 12/4			
Coil	M19 33 Watt			
Diode (Optional)	Unidirectional			

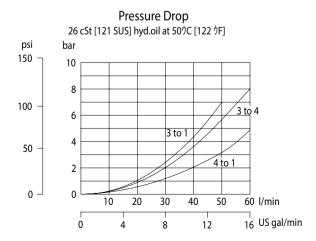
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

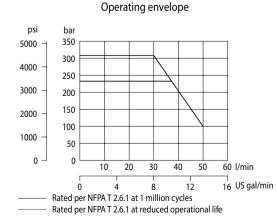
** See 315 bar pressure rating note on page 10.

SCHEMATIC



PERFORMANCE CURVES





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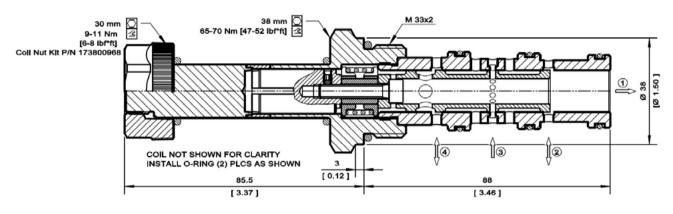


4 Way, 2 Position Spool SV15-24-03

Cross-sectional view

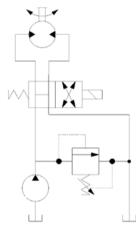
DIMENSIONS

mm [in]

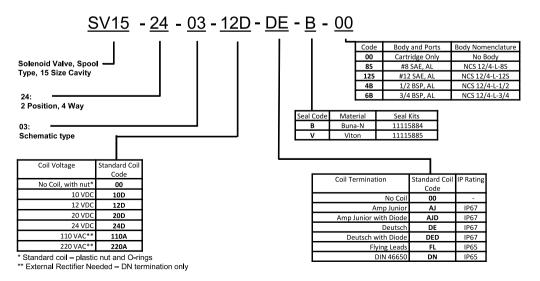


EXAMPLE CIRCUITS

Freewheel Uni-directional Motor



ORDERING INFORMATION



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Solenoid Valves Technical Information 4-Way, 2-Position Spool SV08-24-04



OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, 08 size. When de-energized, the SV08-24-04 allows flow from port 3 to port 1, while ports 2 and 4 are blocked. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Can be used in combination to duplicate a four-way, three-position valve, creating an economical, compact function. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use as inlet (Tank only).

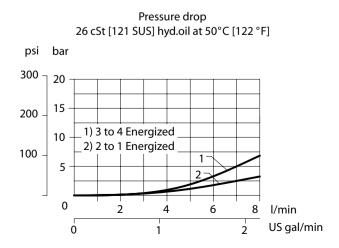
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	8 l/min
[100 psi]	[2 US gal/min]
Weight	0.31 kg [0.68 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES

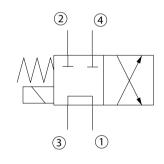


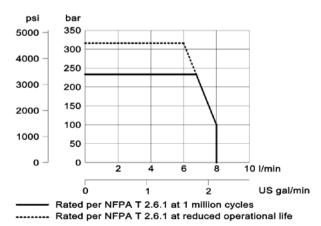
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Shown with Standard Coil, Deutsch Connector

SCHEMATIC





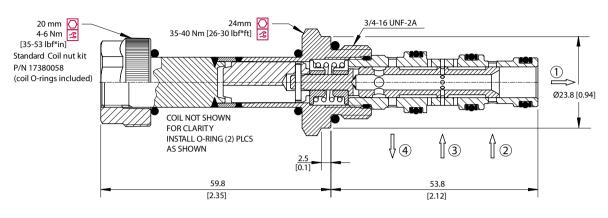


4-Way, 2-Position Spool SV08-24-04

Cross-sectional view

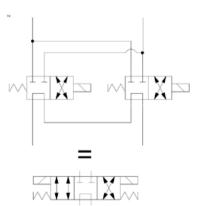
DIMENSIONS

mm [in]

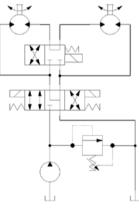


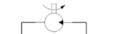
EXAMPLE CIRCUITS

Create a 4-Way 3-Position Valve Circuit

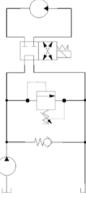


Series/Parallel

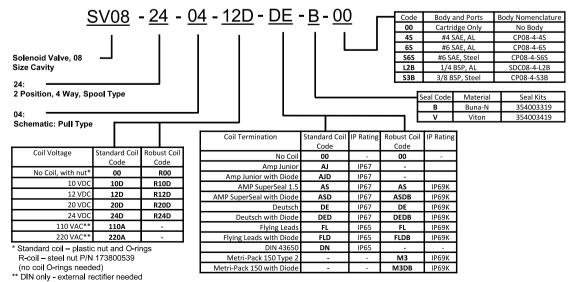




Uni-directional Motor Control



ORDERING INFORMATION



BC332375861112en-000101 · February 2020







OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-24-04 allows flow from port 3 to port 1, while ports 2 and 4 are blocked. When energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/4208 and uses a metric M33x2 cavity (NCS 12/4) for high flow capability.

APPLICATIONS

These valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Standard Coil, DIN Connector

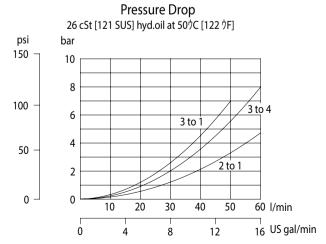
SPECIFICATIONS

Rated Pressure*	210 bar [3045 psi]**
Maximum Rated Flow at 7 bar	50 l/min
[100 psi]	[13 US gal/min]
Weight including coil	0.95 kg [2.09 lbs]
Cavity	NCS 12/4
Coil	M19 33 Watt
Diode (Optional)	Unidirectional

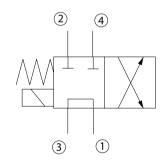
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

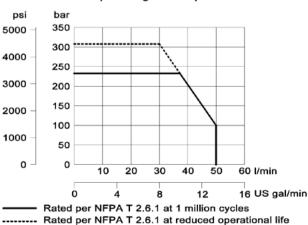
** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC





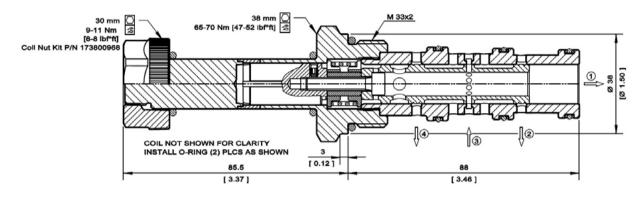


4 Way, 2 Position Spool SV15-24-04

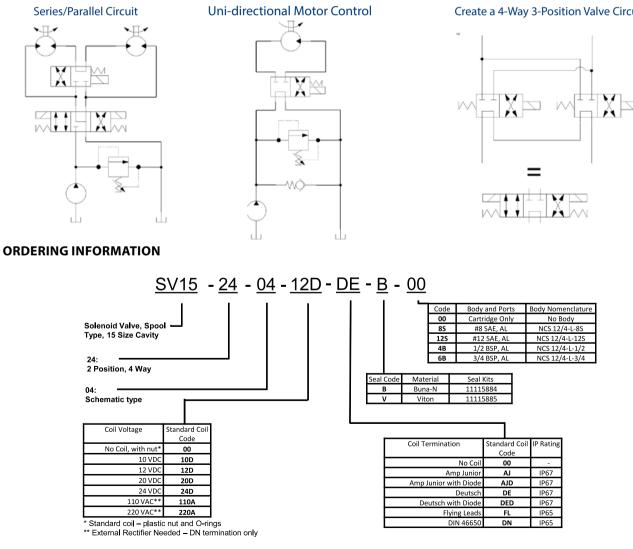
DIMENSIONS

Cross-sectional view

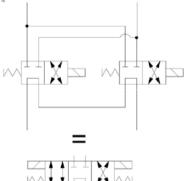
mm [in]



EXAMPLE CIRCUITS



Create a 4-Way 3-Position Valve Circuit







4-Way, 2-Position Spool SV10-24-12



OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, 10-size. When de-energized, the SV10-24-12 allows flow from port 3 to port 1, while ports 2 and 4 are blocked. When energized, the spool shifts to allow flow from port 2 to port 3, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).



Shown with Robust Coil, Metri-Pack Type 2 Connector

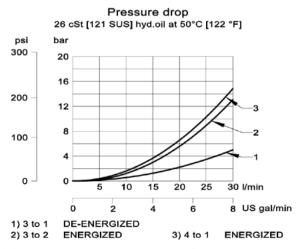
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	18 l/min
[100 psi]	[5 US gal/min]
Weight	0.31 kg [0.68 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

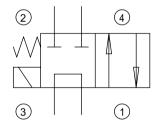
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

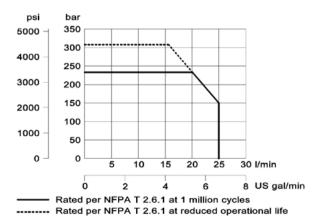
** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



SCHEMATIC



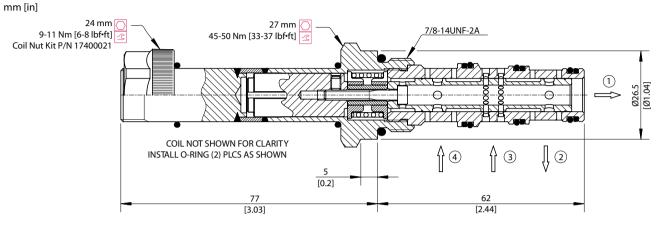




4-Way, 2-Position Spool SV10-24-12

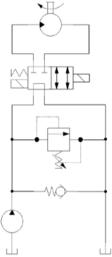
DIMENSIONS





EXAMPLE CIRCUITS

Uni-directional Motor



5	SV10 -	- 24 -	12 - 1	<u> 2D - DE -</u>	B - 00	_	Code	Rody	nd Ports	Body Nomenclature
9		<u> </u>	<u> </u>		<u> </u>		00		dge Only	No Body
	1	1	1	1 1	1 1		65 65		AE, AL	CP10-4-6S
0-1							85		AE, AL	CP10-4-03 CP10-4-85
	Solenoid Valve, 10 Size						585		E, Steel	CP10-4-885
Cavity							L3B		BSP, AL	SDC10-4-L3B
							L3B L4B			SDC10-4-L3B
24:	4:						S4B	1/2 BSP, AL 1/2 BSP, Steel		CP10-4-L4B
2 Position, 4 Way, Spoo	ol Type						340	1/2 D.	or, steel	CF10-4-34D
							Se	eal Code	Material	Seal Kits
12:								в	Buna-N	354001919
Schematic: Pull Type								v	Viton	354002019
									_	
Coil Voltage	Standard Coil	Robust Coil		Coil Termination	Standard Coi	I IP Rating		I IP Ratir	ng	
con voltage	Code	Code			Code		Code	_		
No Coil, with nut*	00	R00		No Co		-	00	-	_	
10 VDC				Amp Junio	_	IP67	-	-		
	10D	R10D		Amp Junior with Diode		IP67	-	-	_	
12 VDC	12D	R12D		AMP SuperSeal 1.		IP67	AS	IP69K		
20 VDC	20D	R20D	Α	MP SuperSeal with Diod	_	IP67	ASDB	IP69K		
24 VDC	24D	R24D		Deutsc	h DE	IP67	DE	IP69K		
110 VAC**	110A	-		Deutsch with Diod	e DED	IP67	DEDB	IP69K		
220 VAC**	220A	-		Flying Lead	s FL	IP65	FL	IP69K		
* Standard coil - plastic	* Standard coil – plastic nut and O-rings			Flying Leads with Diod	e FLD	IP65	FLDB	IP69K		
	R-coil – steel nut P/N 173804910			DIN 4365	0 DN	IP65	-	-		
(no coil O-rings neede				Metri-Pack 150 Type	2 -	-	M3	IP69K		
	** DIN only - external rectifier needed			Aetri-Pack 150 with Diod	e -	-	M3DB	IP69K		







OPERATION

Solenoid Valve, Spool Type, 2-Position, 3-Way, 10-Size. When de-energized, the SV10-24-05 allows flow from port 3 to port 4, and from port 2 to port 1. When energized, all ports are blocked. Port 1 may be fully pressurized, but is not intended to be the inlet port. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).



Shown with Standard Coil, Deutsch Connector

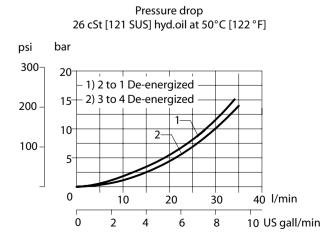
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**					
Rated pressure"	230 bai [3300 psi]					
Rated flow at 7 bar	25 l/min					
[100 psi]	[7 US gal/min]					
Weight	0.45 kg [0.99 lb]					
Cavity	SDC10-4					
Standard Coil	M16 26 Watt					
Robust Coil	R16 20 Watt					
	Robust Nut P/N 173804910					
	(no coil O-rings needed)					

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

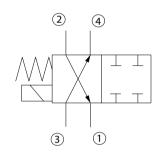
** See 315 bar pressure rating note on page 10.

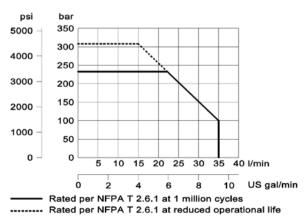
PERFORMANCE CURVES



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SCHEMATIC



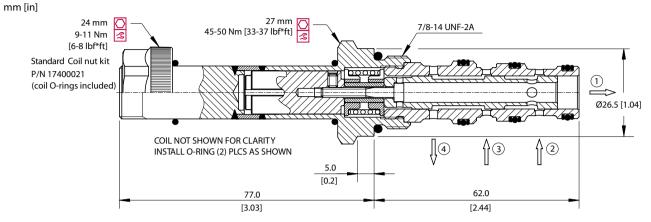




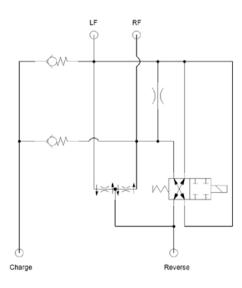
4-Way, 2-Position Spool SV10-24-05



Cross-sectional view



EXAMPLE CIRCUITS



S	SV10 -	- 24 -	<u>05 - 12D - DE -</u>	B - 00	_	Code	Body a	and Ports	Body Nomenclature
						00	Cartridge Only		No Body
	1	- 1	1 1 1	1 1		65		SAE, AL	CP10-4-6S
Solenoid Valve, 10 Size						85	#8 5	AE, AL	CP10-4-8S
Cavity						S8S	#8 S/	AE, Steel	CP10-4-S8S
oung						L3B	3/8	BSP, AL	SDC10-4-L3B
						L4B	1/2	BSP, AL	SDC10-4-L4B
24:						S4B	1/2 BSP, Steel		CP10-4-S4B
2 Position, 4 Way, Spor	ытуре								
						Se	eal Code	Material	Seal Kits
5:							В	Buna-N	354001919
Schematic: Pull Type							v	Viton	354002019
			Coil Termination	Standard Coi	I ID Pating	Robust Coi	I ID Rati		
Coil Voltage	Standard Coil	Robust Coil	contentination	Code	in noung	Code	i ii itaa	ъ	
	Code	Code	No			00	-		
No Coil, with nut*	00	R00	Amp Jur		IP67		-		
10 VDC	10D	R10D	Amp Junior with Did		IP67	-	-		
12 VDC	12D	R12D	AMP SuperSeal		IP67	AS	IP69	<	
20 VDC	20D	R20D	AMP SuperSeal with Did		IP67	ASDB	IP691		
24 VDC	24D	R24D	Deut		IP67	DE	IP69I	_	
110 VAC**	110A		Deutsch with Die	de DED	IP67	DEDB	IP69		
220 VAC**	220A		Flying Lea	ds FL	IP65	FL	IP69F	<	
			Flying Leads with Did		IP65	FLDB	IP69F	<	
	nut and O rin								
* Standard coil – plastic		ngs	DIN 436		IP65	-	-		
	173804910	igs		50 DN	IP65 -	- M3	- IP69H		





Solenoid Valves Technical Information 4 Way, 2 Position Spool SV10-24-06



OPERATION

This is a direct acting, 2-postion, 4-way spool type solenoid valve. When de-energized, the SV10-24-06 blocks flow to all ports. When energized, the spool shifts to allow flow from port 2 and 4 to port 1, while blocking flow to port 3. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve uses the SDC10-4 cavity.

APPLICATIONS

Common applications include switching a motor or cylinder between locked and free floating mode, or for fourth position float. Port 3 is closed independently of spool position. An external float can be created with this valve, without the need for an external "T" and hose. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).



Shown with Standard Coil, Deutsch Connectors



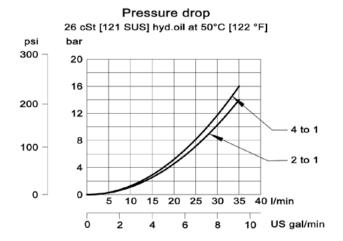
SPECIFICATIONS

Rated Pressure*	230 bar [3330 psi]**
Rated Flow at 10 bar	23 l/min
(145 psi)	[6 US gal/min]
Weight including coil	0.45 kg [1.0 lbs]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust nut P/N 173804910
	(No coil O-ring needed)
Diode (Optional)	Standard Coil - Unidirectional
	Robust Coil - Bidirectional

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

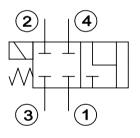
** See 315 bar pressure rating note on page 10.

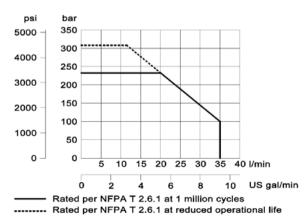
PERFORMANCE CURVES



SCHEMATIC

Shown with Robust Coil. Deutsch Connector





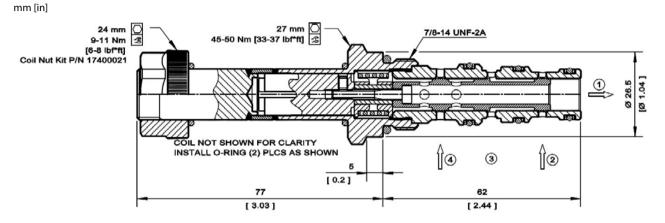


4 Way, 2 Position Spool SV10-24-06



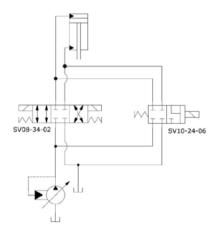
DIMENSIONS

Cross-sectional view



EXAMPLE CIRCUITS

Fourth Position Float



	V10 -	- 24 -	06 - 12D - DE - E	3 - 00	_	Code	Body a	nd Ports	Body Nomenclature
<u> </u>		<u> </u>		<u> </u>		00		dge Only	No Body
	1	1		I I		65		AE, AL	CP10-4-6S
enoid Valve, 10 Size						85		AE, AL	CP10-4-85
ity	_					585		E, Steel	CP10-4-585
ity						L3B		BSP, AL	SDC10-4-L3B
						L4B		BSP, AL	SDC10-4-L4B
						S4B		SP, Steel	CP10-4-S4B
sition, 4 Way, Spool	Туре					0.0	1/200	, , 01001	0110 1010
						Se	al Code	Material	Seal Kits
			_ _				В	Buna-N	354001919
ematic: Pull Type	· · · · · ·	Ī					v	Viton	354002019
							lun n	-	
Coil Voltage S	tandard Coil	Robust Coil	Coil Termination	Standard Coil Code	IP Rating	Robust Coil Code	IP Ratir	ng	
5	Code	Code	No Coil	00		00	· ·	-	
No Coil, with nut*	00	R00	Amp Junior	AJ	IP67	-	· ·		
10 VDC	10D	R10D	Amp Junior with Diode	AJD	IP67			-	
12 VDC	12D	R12D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K		
20 VDC	20D	R20D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K		
24 VDC	24D	R24D	Deutsch	DE	IP67	DE	IP69K		
110 VAC**	110A		Deutsch with Diode	DED	IP67	DEDB	IP69K		
220 VAC**	220A	-	Flying Leads	FL	IP65	FL	IP69K		
			Flying Leads with Diode	FLD	IP65	FLDB	IP69K		
tandard coil – plastic r		gs	DIN 43650		IP65	-	-		
-coil – steel nut P/N 17 o coil O-rings needed)			Metri-Pack 150 Type 2	-		M3	IP69K		





4-Way, 2-Position Spool SV10-24-07



Solenoid Valve, Spool Type, 2-Position, 4-Way, 10-Size. When de-energized, all ports on the SV10-24-07 are blocked. When energized, the spool shifts allow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

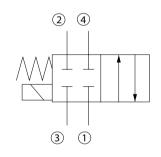


Shown with Standard Coil, Deutsch Connector

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can be operated with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).

SCHEMATIC



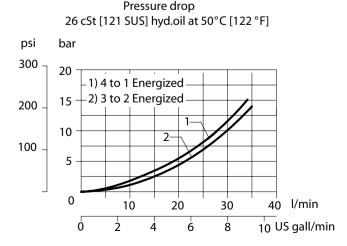
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	24 l/min
[100 psi]	[6 US gal/min]
Weight	0.45 kg [0.99 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

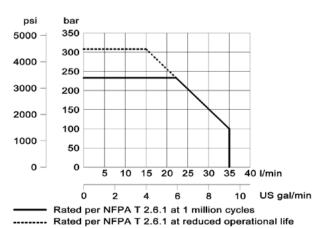
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



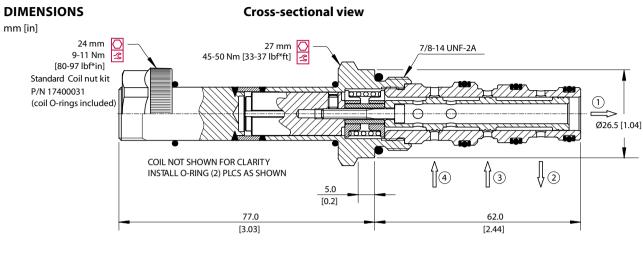
Operating envelope



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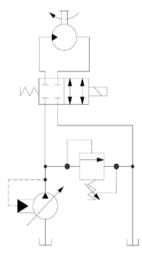


4-Way, 2-Position Spool SV10-24-07



EXAMPLE CIRCUITS

Uni-directional Motor



S	V10	_ 24 _	<u>07 - 12</u>	ים - חי	= _F	A _ 00				1.5	
<u>u</u>	<u>v i 0</u>	<u> </u>	<u>07 - 12</u>	<u>. </u>	=	<u>v - 00</u>		Code		and Ports	Body Nomenclature
								00		dge Only	No Body
				I I				6S		SAE, AL	CP10-4-6S
Solenoid Valve, 10 Size				I I				8S	#8 9	SAE, AL	CP10-4-8S
Cavity	—			I I				S8S	#8 SA	AE, Steel	CP10-4-S8S
				I I				L3B	3/8	BSP, AL	SDC10-4-L3B
24:				I I				L4B	1/2	BSP, AL	SDC10-4-L4B
24. 2 Position, 4 Way, Spoo	Tuno			I I				S4B	1/2 B	SP, Steel	CP10-4-S4B
2 Position, 4 Way, Spoo	Type			I I							
				I I				S	eal Code	Material	Seal Kits
07:				I I					В	Buna-N	354001919
Schematic: Pull Type									v	Viton	354002019
				Coil Terminatio		Standard Coil	ID Pating	Robust Coi	I ID Poti	2.0	
Coil Voltage	Standard Coil	Robust Coil		con reminatio		Code	IF Nating	Code	I IF Nau	'B	
-	Code	Code			No Coil	00	-	00	<u> </u>		
No Coil, with nut*	00	R00		Arr	p Junior	AJ	IP67		· ·		
10 VDC	10D	R10D		Amp Junior wi		AJD	IP67		· ·		
12 VDC	12D	R12D		AMP Supe			IP67	AS	IP69	(
20 VDC	20D	R20D	AM	P SuperSeal wi		ASD	IP67	ASDB	IP69I		
24 VDC	24D	R24D			Deutsch	DE	IP67	DE	IP69	<	
110 VAC**	110A	-		Deutsch wi	th Diode	DED	IP67	DEDB	IP69F	(
220 VAC**	220A	-		Flyi	ng Leads	FL	IP65	FL	IP69I	<	
* Standard coil - plastic	put and O rin			Flying Leads wi	th Diode	FLD	IP65	FLDB	IP69H	(
R-coil – steel nut P/N 1		193		DI	N 43650	DN	IP65	-	-		
(no coil O-rings needed				Metri-Pack 15	0 Type 2	-	-	M3	IP69F	(
** DIN only - external rec		I	Me	tri-Pack 150 wi	th Diode	-	-	M3DB	IP69F	(





Solenoid Valves Technical Information 4-Way, 2-Position Spool SV08-24-08



OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, 08-size. When de-energized, the SV08-24-08 allows flow from ports 2 and 4 to port 1, while port 3 is blocked. When energized, the spool shifts to allow flow from port 3 to 4, and from 2 to 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for connecting both sides of a motor (free-wheeling) or cylinder to tank when not energized. Then, when energized, the valve provides unidirectional flow to the motor or cylinder. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Robust Coil, Metri-Pack Type 2 Connector

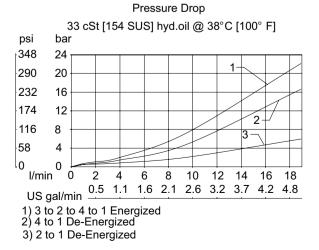
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	24 l/min
[100 psi]	[6 US gal/min]
Weight	0.45 kg [0.99 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

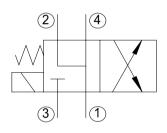
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

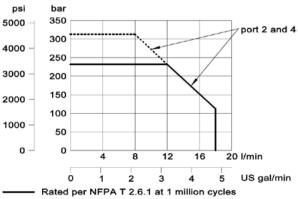
PERFORMANCE CURVES



SCHEMATIC



Operating envelope



------ Rated per NFPA T 2.6.1 at 1 million cycles

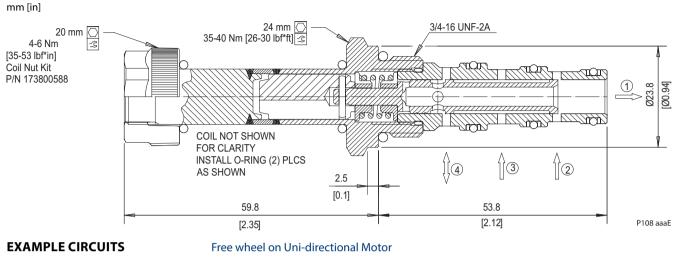


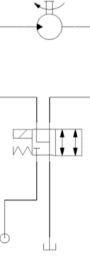
4-Way, 2-Position Spool SV08-24-08



DIMENSIONS

Cross-sectional view





Ρ

S	SV08	- 24 -	08 - 1	2 <u>D - D</u>	E - F	3 - 00	_	Code	Body	and Ports	Body Nomenclature
		<u> </u>	<u> </u>			<u> </u>		00	Cartr	dge Only	No Body
	1	1	1	1		1 1		4S	#4	SAE, AL	CP08-4-4S
								6S	#6	SAE, AL	CP08-4-6S
Solenoid Valve, 08								S6S	#6 S	AE, Steel	CP08-4-S6S
Size Cavity								L2B	1/4	BSP, AL	SDC08-4-L2B
								S3B	3/8 B	SP, Steel	CP08-4-S3B
24:									-		
2 Position, 4 Way, Sp	ool Type								Seal Code	Material	Seal Kits
								ļ	В	Buna-N	354003319
08:								l	v	Viton	354003919
Schematic: Pull Type Coil Voltage	Standard Coil	Robust Coil		Coil Terminat	-	Standard Coil Code	IP Rating	Code	Coil IP Rat	ing	
	Code	Code			No Coil	00	-	00	-		
No Coil, with nut*	00	R00			mp Junior	AJ	IP67	-		_	
10 VDC	10D	R10D		Amp Junior w		AJD	IP67	-			
12 VDC	12D	R12D			erSeal 1.5	AS	IP67	AS	IP69		
20 VDC	20D	R20D	A	MP SuperSeal w		ASD	IP67	ASDB			
24 VDC	24D	R24D			Deutsch	DE	IP67	DE	IP69		
110 VAC**	110A	-		Deutsch w		DED	IP67	DEDB			
220 VAC**	220A	-			ving Leads	FL	IP65	FL	IP69		
* Standard coil - plastic	nut and O-ri	nas		Flying Leads w		FLD	IP65	FLDB	IP69	К	
R-coil – steel nut P/N					DIN 43650	DN	IP65	-		_	
(no coil O-rings need				Metri-Pack 1		-	-	M3	IP69		
** DIN only - external r		d		letri-Pack 150 w	ith Diode	-	-	M3DB	IP69	К	





Solenoid Valves Technical Information 4-Way, 2-Position Spool CP531-21



OPERATION

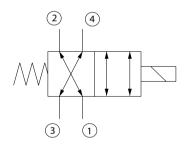
This is a solenoid valve, spool-type, 4-way, 2-position, 12-size. When de-engergized, the CP531-21 allows flow from port 3 to port 4, and from port 2 to port 1. When energized, flow s allowed from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve.



SCHEMATIC

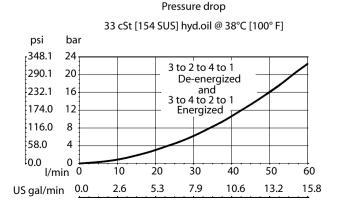


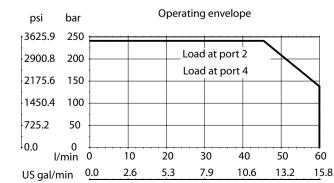
SPECIFICATIONS

Rated pressure*	240 bar [3500 psi]*
Rated flow at 7 bar	32 l/min
[100 psi]	[8 US gal/min]
Weight	0.82 kg [1.81 lb]
Cavity	SDC12-4
Robust Coil	D14E 30 Watt
(Standard)	Robust Nut P/N 321567

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

PERFORMANCE CURVES





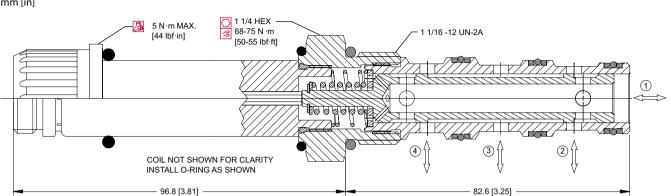


4-Way, 2-Position Spool CP531-21



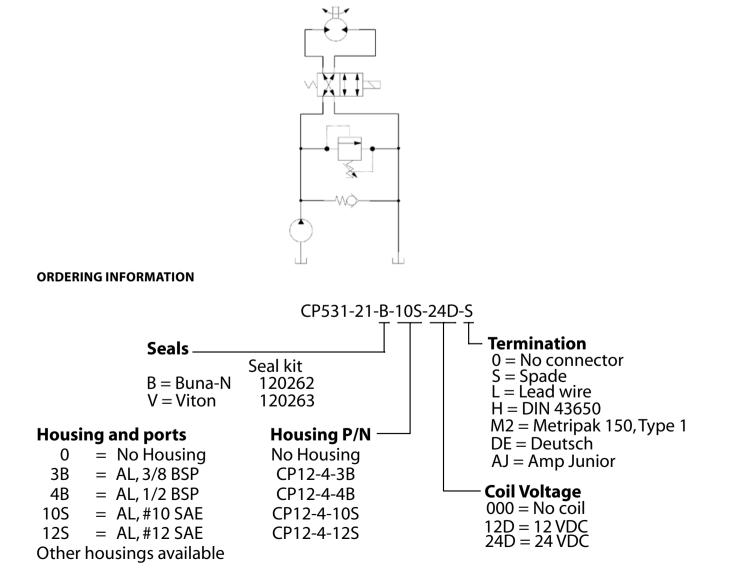
Cross-sectional view





EXAMPLE CIRCUITS

Bi-directional Motor







4-Way, 2-Position Spool SV10-24-13



OPERATION

Solenoid Valve, Spool Type, 2-Position, 4-Way, 10-Size. When de-energized, all ports on the SV10-24-13 are open. When energized, the spool shifts allow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.



APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for connecting both sides of a motor (free-wheeling) or cylinder to both the pressure and tank ports when not energized. Then, when energized, the valve provides unidirectional flow to the motor or cylinder. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can be operated with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).

Shown with Standard Coil, Deutsch Connector

SPECIFICATIONS

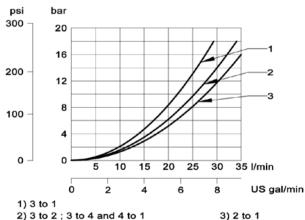
Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	21 l/min
[100 psi]	[6 US gal/min]
Weight	0.45 kg [0.99 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

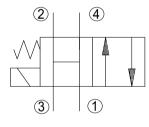
** See 315 bar pressure rating note on page 10.

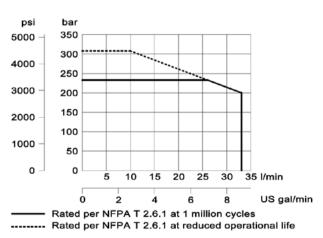
PERFORMANCE CURVES

Pressure drop 26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



SCHEMATIC



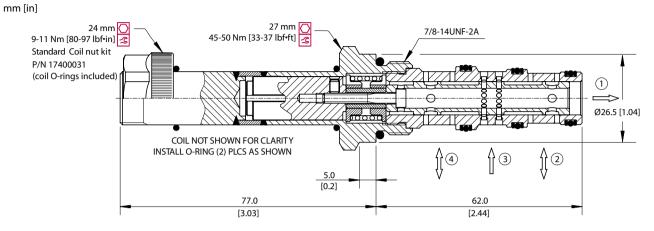




4-Way, 2-Position Spool SV10-24-13

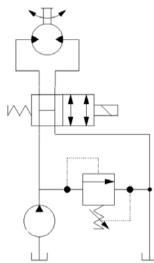
DIMENSIONS





EXAMPLE CIRCUITS

Free Wheel and Motor Control



ç	SV10	- 24 -	13 - 13	2D - DI	= _ F	3 - 00	_	Code	Rody	and Ports	Body Nomenclature
2	<u> </u>	<u> </u>	<u> </u>		= =	<u> </u>		00		dge Only	No Body
	1	1	1	1 1				65		AE, AL	CP10-4-6S
				1				85		AE, AL	CP10-4-85 CP10-4-85
Solenoid Valve, 10 Siz Cavity	e _			1				585		AL, AL	CP10-4-885
Cavity				1				L3B		BSP, AL	SDC10-4-L3B
				1				L3B L4B		BSP, AL	SDC10-4-L4B
24:				1				S4B		SP, Steel	CP10-4-S4B
2 Position, 4 Way, Spo	ool Type			1				0.0	1/20	or, oteer	
				1				s	eal Code	Material	Seal Kits
13:				1					В	Buna-N	354001919
Schematic: Pull Type				J '					v	Viton	354002019
				0.11.7						-	
Coil Voltage	Standard Coil	Robust Coil		Coil Terminatio	on	Standard Coi Code	I IP Rating	Robust Co Code	II IP Rati	ng	
ů	Code	Code			No Coil	00		00	-	-	
No Coil, with nut*	00	R00		Δn	Junior	AJ	IP67		· ·		
10 VDC	10D	R10D		Amp Junior wi		AJD	IP67		· ·		
12 VDC	12D	R12D		AMP Supe		AS	IP67	AS	IP691	(
20 VDC	20D	R20D	1A	MP SuperSeal wi		ASD	IP67	ASDB	1P691		
24 VDC	24D	R24D			Deutsch	DE	IP67	DE	IP691	-	
110 VAC**	110A			Deutsch wi		DED	IP67	DEDB	IP691		
220 VAC**	220A				ng Leads	FL	IP65	FL	IP69I		
				Flying Leads wi			IP65	FLDB	IP691		
* Standard coil – plasti		ings			N 43650		IP65				
R-coil – steel nut P/N				Metri-Pack 15		-		М3	IP69I	(
(no coil O-rings need ** DIN only - external r		d	м	etri-Pack 150 wi		-	· ·	M3DB	IP691		
Dini only - external r	ecuner neede	u .			an bhouc				1 051	<u>`</u>	





4-Way, 3-Position Spool SV08-34-02



OPERATION

This is an 08-size, 3-Position, 4-Way, spool type solenoid valve. When de-energized, the SV08-34-02 is closed center, blocking all flow. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The HSV08-34-02 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve comes standard with a manual override (one-direction, push-pin style). This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Robust Coils, Metri-Pack Type 2 Connectors

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	10 l/min
[100 psi]	[3 US gal/min]
Weight	0.55 kg [1.21 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

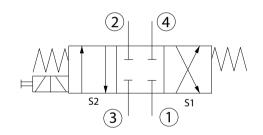
** See 315 bar pressure rating note on page 10.

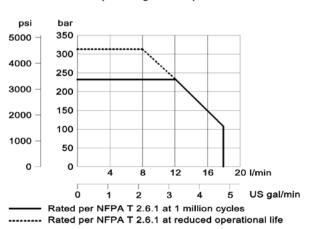
PERFORMANCE CURVES

33 cSt [154 SUS] hyd.oil @ 38°C [100° F] psi bar 435 30 363 25 290 20 3 to 2 to 4 to 1 218 15 S2-Energized 145 10 3 to 4 to 2 to 1 72.5 5 S1-Energized 0 0 l/min 0 2 6 8 10 12 18 4 14 16 1.6 0.5 2.1 2.6 3.2 3.7 4.2 4.8 1.1 US gal/min

Pressure drop

SCHEMATIC





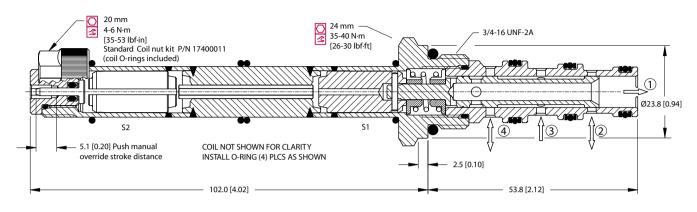


4-Way, 3-Position Spool SV08-34-02



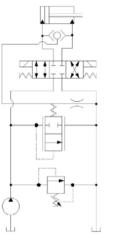
Cross-sectional view

mm [in]

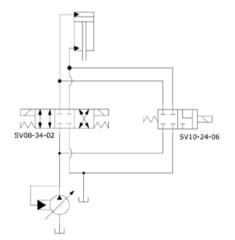


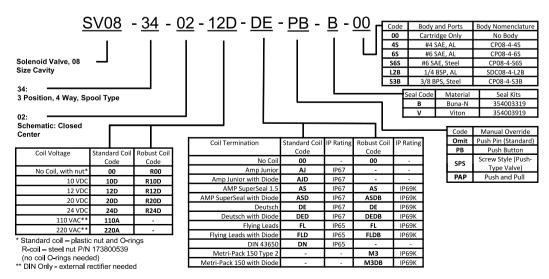
EXAMPLE CIRCUITS

Double Acting Cylinder with Unloading Valve



Fourth Position Float









4-Way, 3-Position Spool HSV08-34-02



OPERATION

This is an 08-size, 3-Position, 4-Way, spool type solenoid valve. When de-energized, the HSV08-34-02 is closed center, blocking all flow. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The HSV08-34-02 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Port 1 is not intended for use as inlet (Tank only).



Shown with Standard Coils, **Deutsch Connectors**

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]					
Rated flow at 7 bar	11 l/min					
[100 psi]	[2.91 US gal/min]					
Weight	0.55 kg [1.21 lb]					
Cavity	SDC08-4					
Standard Coil	M13 20 Watt					
Robust Coil	R13 16 Watt					
	Robust Nut P/N 173800539					
	(no coil O-rings needed)					

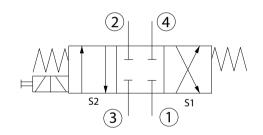
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

SCHEMATIC

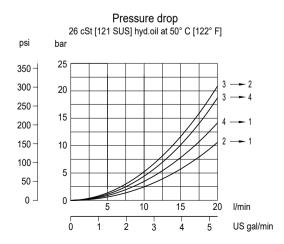
psi

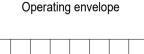
6000

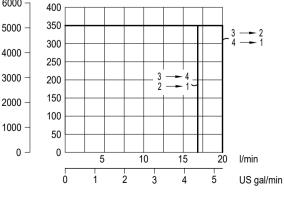
bar



PERFORMANCE CURVES





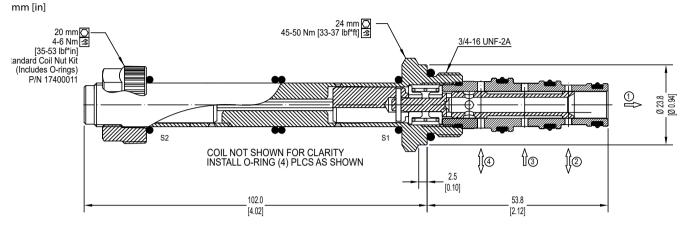




4-Way, 3-Position Spool HSV08-34-02

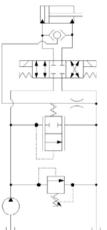
DIMENSIONS



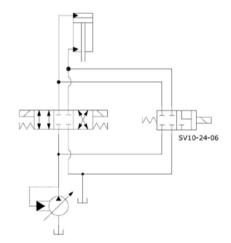


EXAMPLE CIRCUITS

Double Acting Cylinder with Unloading Valve



Fourth Position Float



		<u>HSV08</u>	<u>3 - 34 - (</u>	<u>)2</u> - <u>(</u>	<u> 12D -</u>	<u>DE -</u>	<u>PN</u> -	<u>P</u> -	00				
	re Solenoid Valve									Housing	s		
3 position, 4	way, 08-Size.									Code	Ports & Material	Body I	lomenclature
Coil Voltage										00	Cartridge only	No Bo	dy
Description	Standard Coil Code	Robust Coil Code								S3B	3/8 BSP, Steel	CP08-	4-S3B
No Coil	00	R00								S6S	#6 SAE, Steel	CP08-	4-S6S
12 VDC	12D	R12D									num bodies available for lov n 210 bar (3000 psi)]. Pleas		
24 VDC	24D	R24D								liego nigi	1210 bai (3000 pai)j. I leaa	e consult	actory for details.
	Coil Termination	on											
	Description		Standard Coil Code	IP Rating	Robust Coil Code	IP Rating				Seal Op Code	tion Seal Material		Seal kit
	No Coil		00	-	00	-				Р	Polyurethane Single Se	al	11167316
	Flying Lead		FL	IP65	FL	IP69K							
	Deutsch		DE	IP69K	DE	IP69K				Manual	Overrides		
	AMP SuperSe	eal 1.5	AS	IP67	AS	IP69K				Code	Description		
	AMP SuperSe	eal with Diode	ASD	IP67	ASDB	IP69K				PN	Push Pin (standard)		
	Deutsch with	Diode	DED	IP69K	DEDB	IP69K							
	Flying Lead w	ith Diode	FLD	IP65	FLDB	IP69K							
	DIN 43650		DN	IP65	-	-							





Solenoid Valves Technical Information 4-Way, 3-Position Spool SV10-34-02



OPERATION

This is a 10-size, 3-Position, 4-Way, spool type solenoid valve. When de-energized, the SV10-34-02 is closed center, blocking all flow. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The SV10-34-02 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve comes standard with a manual override (one-direction, push-pin style). Port 1 is not intended as inlet (Tank only).



Shown with Standard Coils, Deutsch Connectors

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	20 l/min
[100 psi]	[5 US gal/min]
Weight	0.81 kg [1.79 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

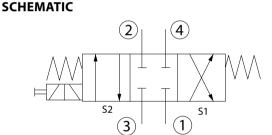
** See 315 bar pressure rating note on page 10.

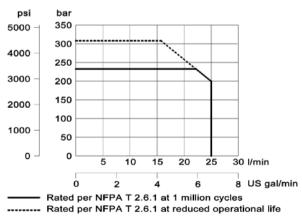
PERFORMANCE CURVES

33 cSt [154 SUS] hyd.oil @ 38°C [100° F] psi bar 232 16 3 to 2 to 4 to 1 174 12 S2-energized 116 8 58 4 3 to 4 to 2 to 1 S1-energized 0 0 l/min 4 8 16 20 0 12 24 28 2.1 3.2 4.2 5.3 6.3 7.4 1.1 US gal/min

Pressure drop

BC332375861112en-000101 · February 2020





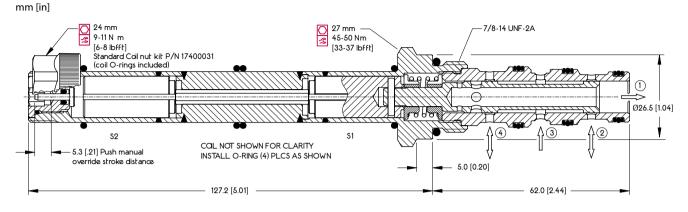


4-Way, 3-Position Spool SV10-34-02



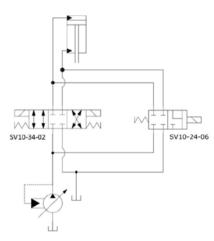
DIMENSIONS

Cross-sectional view

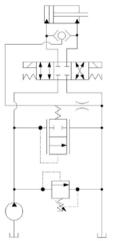


EXAMPLE CIRCUITS

Fourth Position Float



Double Acting Cylinder with Unloading Valve



		SV/10	<u>ب</u> (<u> 34</u> - <u>02</u> - <u>12D</u>	- DE .	. PR	- R -	00		1		1
		<u> 3 v I</u>	<u> </u>	<u>12D</u> - <u>12D</u>		<u> </u>	- <u>D</u> -	<u> </u>	Code		and Ports	Body Nomenclature
						1		- I	00		dge Only	No Body
									6S		SAE, AL	CP10-4-6S
									8S	-	SAE, AL	CP10-4-8S
Solenoid Valve, 10 Siz	ze Cavity –								S8S		AE, Steel	CP10-4-S8S
	•								L3B		BSP, AL	SDC10-4-L3B
				1 1 1					L4B		BSP, AL	SDC10-4-L4B
34:				-					S4B	1/2 B	SP, Steel	CP10-4-S4B
3 Position, 4 Way, Sp	ool Type									Seal Code	Materi	al Seal Kits
									٦	В	Buna-l	N 354001919
02:										v	Viton	354002019
Schematic: Closed											Code	Manual Override
Center				Coil Termination	Standard Coil	IP Rating	Robust Coil	IP Rating	-		Omit	Push Pin (Standard)
Coil Voltage	Standard Coil	Robust Coil			Code		Code				PB	Push Button
	Code	Code		No Coil	00	-	00	-			РВ	Screw Style
No Coil, with nut*	00	R00		Amp Junior	AJ	IP67	-	-			SPS	(Push-Type Valve)
10 VDC	10D	R10D		Amp Junior with Diode	AJD	IP67	-	-				Push Pin Nut for
12 VDC	12D	R12D		AMP SuperSeal 1.5	AS	IP67	AS	IP69K			OPS	Protection & Actuation
20 VDC	20D	R20D		AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K			PAT	Push and Twist
24 VDC	24D	R24D		Deutsch	DE	IP67	DE	IP69K			PAP	Push and Pull
110 VAC**	110A	-		Deutsch with Diode	DED	IP67	DEDB	IP69K				
220 VAC**	220A	-		Flying Leads	FL	IP65	FL	IP69K				
			I	Flying Leads with Diode	FLD	IP65	FLDB	IP69K				
* Standard coil – plastic			steel	DIN 43650	DN	IP65	-	-				
nut P/N 173804910 (I				Metri-Pack 150 Type 2	-	-	M3	IP69K				
** DIN only - external re	ectifier needed	i		Metri-Pack 150 with Diode	-	-	M3DB	IP69K				





Solenoid Valves Technical Information 4-Way, 3-Position Spool HSV10-34-02



OPERATION

This is a 10-size, 3-Position, 4-Way, spool type solenoid valve. When de-energized, the HSV10-34-02 is closed center, blocking all flow. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The HSV10-34-02 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Use the optional screen to help protect the actuator from large particles. This valve comes standard with a manual override (one-direction, push-pin style). Port 1 is not intended as inlet (Tank only).



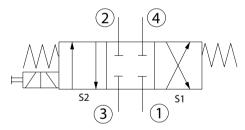
Shown with High Pressure Coils, Deutsch Connectors

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar	25 l/min
[100 psi]	[6.6 US gal/min]
Weight	0.85 kg [1.87 lb]
Cavity	SDC10-4
Standard Coil	H16 29 Watt

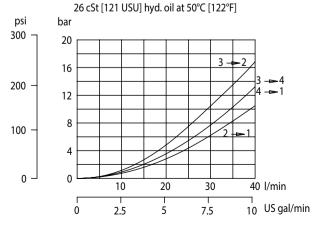
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).



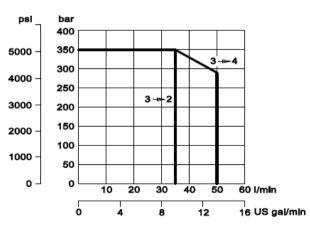


PERFORMANCE CURVES

Pressure drop



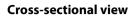
Operating envelope

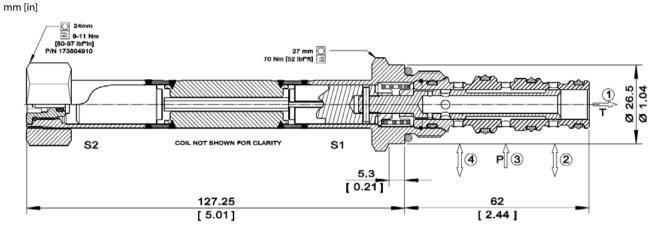




4-Way, 3-Position Spool HSV10-34-02

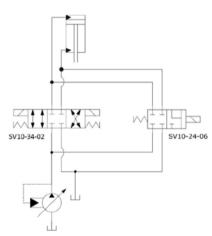
DIMENSIONS

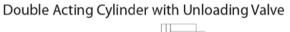


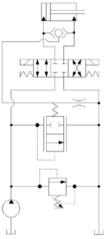


EXAMPLE CIRCUITS

Fourth Position Float







ORDERING INFORMATION

<u>HSV10 - 34 - 02 - H12D - DE - PN - P - 00</u>

D	Calara di di Valera							Bodies		
	Solenoid Valve, t-acting, 3-position,							Code	Port & Material	Body Nomenclature
	type solenoid valve.	Coil Vol	tage					00	Cartridge only	No Body
		Code	Description					S3B	3/8 BSP, Ductile	SDC10-4-S3B
		HOO	No Coil					S4B	1/2 BSP, Ductile	SDC10-4-S4B
		H12D	12 VDC					S6S	#6 SAE, Ductile	SDC10-4-S6S
		H24D	24 VDC					S8S	#8 SAE, Ductile	SDC10-4-S8S
Coil Teri	mination								inum bodies available	
Code	Description			IP Rating			Seal Op		on. Please consult fac	tory for details.
00	No Coil			-			Code		Seal Material	Seal kit
FL	Flying Lead			IP 69k			Р	Polyure	thane Single Seal	11143824
DE	Deutsch			IP 69k		Manual	Override			
AS	AMP SuperSeal 1.5 and Met	ri-Pack 150 typ	e 1	IP 69k		Code	Descript	ion		
ASDB	AMP Super Seal with Diode	Bidirectional		IP 69k		PN	Push Pir			
DEDB	Deutsch with Diode Bidirec	tional		IP 69k]	OPS			for Protection & Actu	ation
FLDB	Flying Lead with Diode Bidi	IP 69k		PAT	Push an					





4 Way, 3 Position Spool SV15-34-02



Solenoid Valve, Spool Type, 3-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-34-02 is closed center, blocking all flow. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/4306 and uses a metric M33x2 cavity (NCS 12/4) for high flow capability. The SV15-34-02 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Use the optional screen to help protect the actuator from large particles. This valve comes standard with a manual override (one-direction, push-pin style). This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).



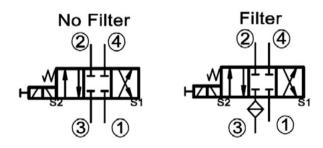
SPECIFICATIONS

Rated Pressure*	210 bar [3045 psi]**
Maximum Rated Flow at 7 bar	60 l/min
[100 psi]	[16 US gal/min]
Weight including coil	1.400 kg [3.09 lbs]
Cavity	NCS 12/4
Coil	M19 33 Watt
Diode (Optional)	Unidirectional

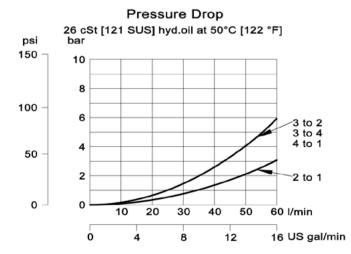
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

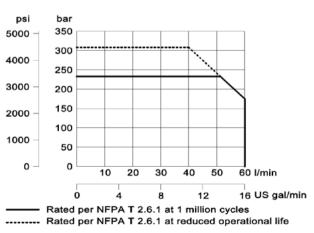
** See 315 bar pressure rating note on page 10.

SCHEMATIC



PERFORMANCE CURVES





Operating envelope

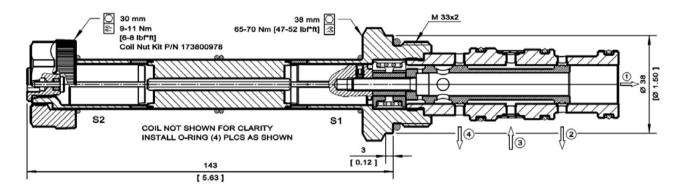


4 Way, 3 Position Spool SV15-34-02

Cross-sectional view

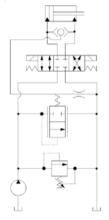
DIMENSIONS

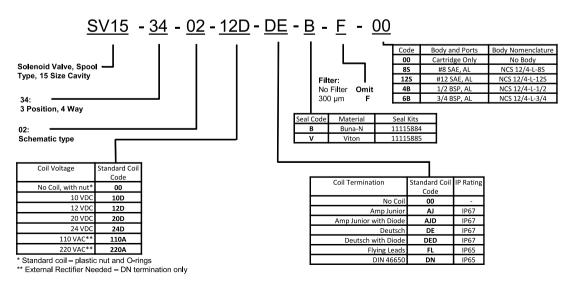
mm [in]



EXAMPLE CIRCUITS

Double Acting Cylinder with Unloading Valve











Solenoid Valves Technical Information 4-Way, 3-Position Spool

SV08-34-03



Solenoid Valve, Spool Type, 3-Position, 4-Way, 08-size. When de-energized, the SV08-34-03 is open center, and opens flow between all four ports. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The SV08-34-03 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Robust Coils, Deutsch Connectors

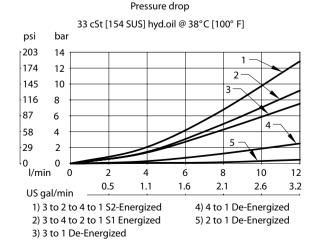
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	8 l/min
100 psi]	[2 US gal/min]
Weight	0.55 kg [1.21 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

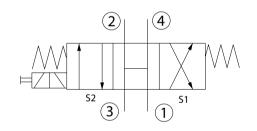
** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES

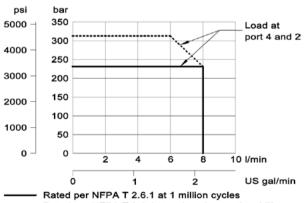


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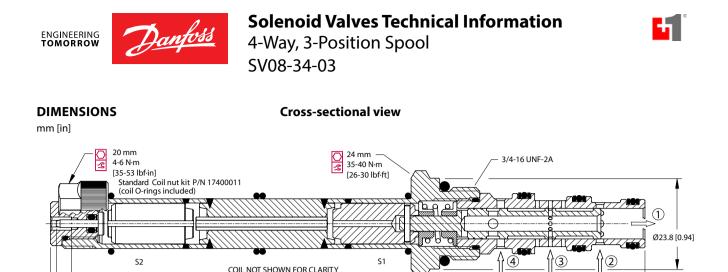
SCHEMATIC



Operating envelope



Rated per NFPA T 2.6.1 at reduced operational life



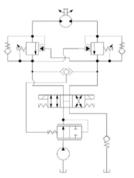
INSTALL O-RING (4) PLCS AS SHOWN

102.0 [4.02]

EXAMPLE CIRCUITS

5.1 [0.20] Push manual override stroke distance

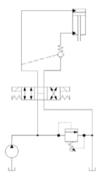
Directional motor control with dual counterbalance and pressure compensation



Double-acting cylinder control with single pilot-operated check.

53.8 [2.12] -

- 2.5 [0.10]



	21/02	_ '3/	03 <u>- 120 - D</u> E	- <u>-</u> DR .	- R .					
<u> </u>	000	- <u></u> -	<u>03</u> - <u>12D</u> - <u>De</u>	<u>- rb</u>		- <u>~~</u> r	Code		nd Ports	Body Nomenclature
					1	- 1 H	00		ge Only	No Body
						1 1	45	#4 SA	/	CP08-4-4S
0 - 1							<u>65</u>	#6 SA	-	CP08-4-6S
Solenoid Valve, 08 Size Cavity	_					-	S6S	#6 SAE	<i>,</i>	CP08-4-S6S
Size Cavity						-	L2B	1/4 B		SDC08-4-L2B
						L	S3B	3/8 BP	S, Steel	CP08-4-S3B
34:	17						Sea	al Code	Material	Seal Kits
3 Position, 4 Way, Sp	ool Type							в	Buna-N	354003319
								v	Viton	354003919
03:			- נ							
Schematic: Open Ce	nter					-			Code	Manual Override
			Coil Termination	Standard Coil	IP Rating	Robust Coil	IP Rating	1	Omit	Push Pin (Standard)
Coil Voltage	Standard Coil	Robust Coil		Code		Code			PB	Push Button
	Code	Code	No Co	il 00	-	00	-	1	SPS	Screw Style (Push-
No Coil, with nut*	00	R00	Amp Junio							Screw Style (Push-
10 VDC	10D		Amp Junio	r AJ	IP67	-	-	1		Type Valve)
	100	R10D	Amp Junior with Diod		IP67 IP67	-	-]	PAP	
12 VDC		R10D R12D		e AJD			- - IP69K			Type Valve)
12 VDC 20 VDC	12D		Amp Junior with Diod	e AJD 5 AS	IP67	-	- - IP69K IP69K			Type Valve)
	12D 20D	R12D	Amp Junior with Diod AMP SuperSeal 1.	e AJD 5 AS e ASD	IP67 IP67	- AS				Type Valve)
20 VDC	12D 20D	R12D R20D	Amp Junior with Diod AMP SuperSeal 1. AMP SuperSeal with Diod	e AJD 5 AS e ASD h DE	IP67 IP67 IP67	- AS ASDB	IP69K			Type Valve)
20 VDC 24 VDC	12D 20D 24D	R12D R20D	Amp Junior with Diod AMP SuperSeal 1. AMP SuperSeal with Diod Deutsci	e AJD 5 AS e ASD h DE e DED	IP67 IP67 IP67 IP67	- AS ASDB DE	IP69K IP69K			Type Valve)
20 VDC 24 VDC 110 VAC** 220 VAC**	12D 20D 24D 110A 220A	R12D R20D R24D -	Amp Junior with Diod AMP SuperSeal 1. AMP SuperSeal with Diod Deutsch Deutsch with Diod	e AJD 5 AS e ASD h DE e DED s FL	IP67 IP67 IP67 IP67 IP67	- AS ASDB DE DEDB	IP69K IP69K IP69K			Type Valve)
20 VDC 24 VDC 110 VAC** 220 VAC** * Standard coil – plasti	12D 20D 24D 110A 220A c nut and O-ri	R12D R20D R24D -	Amp Junior with Diod AMP SuperSeal 1. AMP SuperSeal with Diod Deutsch with Diod Flying Lead	e AJD 5 AS e ASD h DE e DED s FL e FLD	IP67 IP67 IP67 IP67 IP67 IP65	- AS ASDB DE DEDB FL	ІР69К ІР69К ІР69К ІР69К			Type Valve)
20 VDC 24 VDC 110 VAC** 220 VAC**	12D 20D 24D 110A 220A c nut and O-ri 173800539	R12D R20D R24D -	Amp Junior with Diod AMP SuperSeal 1. AMP SuperSeal with Diod Deutsch with Diod Flying Leads with Diod	e AJD 5 AS e ASD h DE e DED s FL e FLD 0 DN	IP67 IP67 IP67 IP67 IP67 IP65 IP65	- AS ASDB DE DEDB FL	ІР69К ІР69К ІР69К ІР69К			Type Valve)





Solenoid Valves Technical Information 4 Way, 3 Position Spool

SV15-34-03

OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-34-03 is open center, and opens flow between all four ports. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/4307 and uses a metric M33x2 cavity (NCS 12/4) for high flow capability. The SV15-34-03 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).



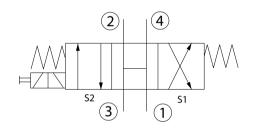
SPECIFICATIONS

	2101 [2045 :1**
Rated Pressure*	210 bar [3045 psi]**
Maximum Rated Flow at 7 bar	50 l/min
[100 psi]	[13 US gal/min]
Weight including coil	1.40 kg [3.09 lbs]
Cavity	NCS 12/4
Coil	M19 33 Watt
Diode (Optional)	Unidirectional

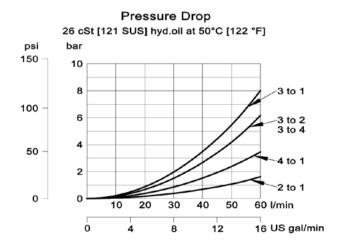
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

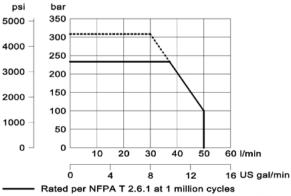
SCHEMATIC



PERFORMANCE CURVES

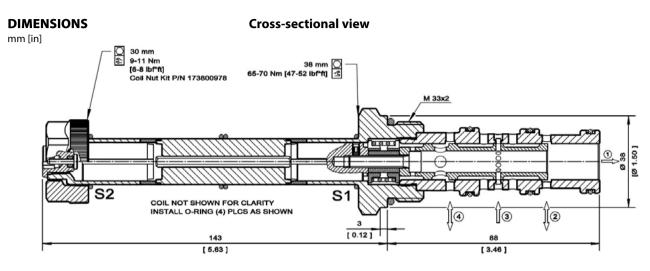


Operating envelope



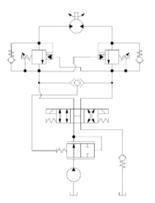


4 Way, 3 Position Spool SV15-34-03

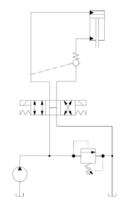


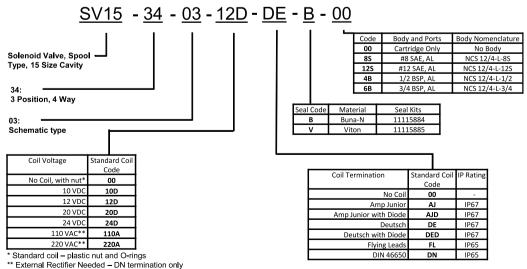
EXAMPLE CIRCUITS

Directional motor control with dual counterbalance and pressure compensation



Double-acting cylinder control with single pilot-operated check.









4-Way, 3-Position Spool SV10-34-03



OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, 10-size. When de-energized, the SV10-34-03 is open center, and opens flow between all four ports. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to 1. When coil S2 is energized, the spool shifts to allow flow flow from port 3 to port 4, and from port 2 to 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).



Shown with Standard Coils, Deutsch Connectors

SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	25 l/min
[100 psi]	[6.6 US gal/min]
Weight	0.81 kg [1.79 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

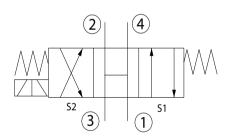
** See 315 bar pressure rating note on page 10.

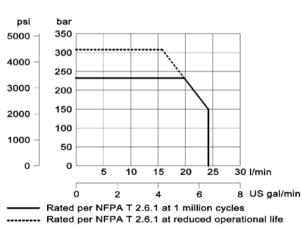
PERFORMANCE CURVES

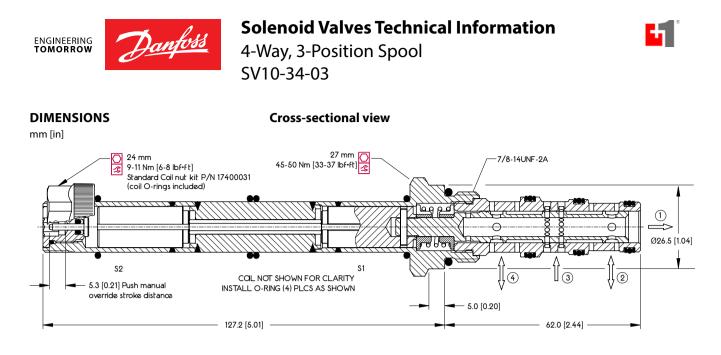
33 cSt [154 SUS] hyd.oil @ 38°C [100° F] psi bai 174 12 131 9 3 to 4 to 2 to 1 S2-eneraized 87 6 44 3 3 to 2 to 4 to 1 S1-energized 0 0 l/min 12 16 20 0 8 1.1 2.1 3.2 4.2 5.3 US gal/min

Pressure drop

SCHEMATIC

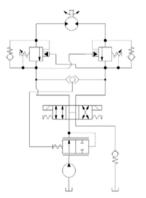




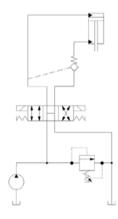


EXAMPLE CIRCUITS

Directional motor control with dual counterbalance and pressure compensation



Double-acting cylinder control with single pilot-operated check.



		<u>SV10</u>	<u>) - 3</u>	<u> 34</u> - <u>03</u> -	<u>12D</u>	- <u>DE</u> -	- <u>PB</u>	- <u>B</u> -	<u>00</u> г	Coc	e Body	and Ports	E	Body Nomenclature
										00	Cartr	idge Only		No Body
										65	#6	SAE, AL		CP10-4-6S
										85	#8	SAE, AL		CP10-4-8S
Solenoid Valve. 10 Siz	zo Cavity —									S8	5 #8 S.	AE, Steel		CP10-4-S8S
	Le Gavity									L3I	3/8	BSP, AL		SDC10-4-L3B
										L41	3 1/2	BSP, AL		SDC10-4-L4B
34:										S4I	3 1/2 E	SP, Steel		CP10-4-S4B
3 Position, 4 Way, Sp	ool Type										Seal Code	Materi	al	Seal Kits
										-	B	Buna-l		354001919
03:											v	Viton		354002019
Schematic: Open											V		-	
Center			1	Coil Termina	tion	Standard Coil	ID Pating	Robust Coil	IP Rating			Code		Manual Override
Coil Voltage	Standard Coil	Robust Coil		contermina	cion	Code	iii nating	Code	in nating			Omit	Pi	ush Pin (Standard)
con voltage	Code	Code			No Coil			00				PB		Push Button
No Coil, with nut*	00	R00		4	mp Junior	LA LA	IP67		-			SPS		Screw Style
10 VDC	10D	R10D		Amp Junior		-	IP67	<u> </u>	-					Push-Type Valve)
12 VDC	10D 12D	R10D			erSeal 1.5		IP67	AS	ІР69К			OPS		Push Pin Nut for
20 VDC	20D	R20D		AMP SuperSeal			IP67	ASDB	IP69K				Pro	tection & Actuation
20 VDC 24 VDC	20D 24D			Ann Supersean	Deutsch	DE	IP67	DE	IP69K			PAT		Push and Twist Push and Pull
-	= -=	R24D		Deutsch	with Diode		IP67	DEDB	IP69K			PAP		Push and Pull
110 VAC**	110A	-			ving Leads		IP65	FL	IP69K					
220 VAC**	220A	-		Flying Leads	1 0		IP65	FLDB	IP69K					
			ataal				IP65	-	-					
Standard coil – plastic	: nut and O-rir	nds: R-coll –												
Standard coil – plastic nut P/N 173804910 (r			steel	Metri-Pack	DIN 43650		1P05	 M3	- IP69K					







OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, 08-size. When de-energized, the SV08-34-04 allows flow from port 3 to port 1, while ports 2 and 4 are blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Robust Coils, Metri-Pack Type 2 Connectors

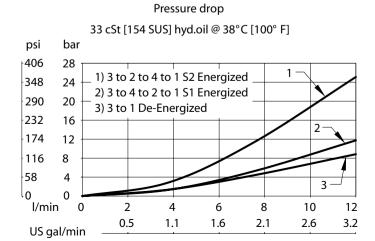
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	6 l/min
[100 psi]	[2 US gal/min]
Weight	0.55 kg [1.21 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

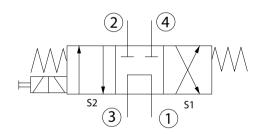
** See 315 bar pressure rating note on page 10.

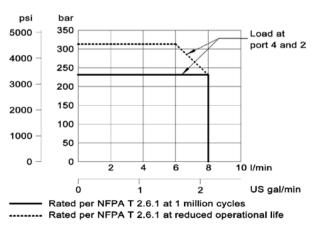
PERFORMANCE CURVES



BC332375861112en-000101 • February 2020

SCHEMATIC







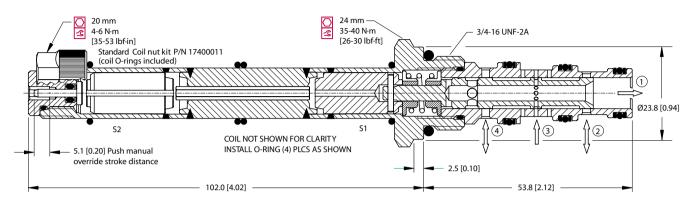
4-Way, 3-Position Spool SV08-34-04



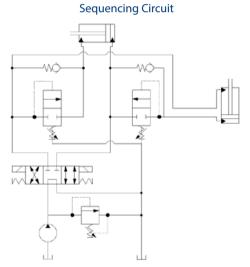
DIMENSIONS

Cross-sectional view

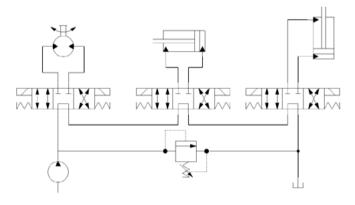
mm [in]



EXAMPLE CIRCUITS



Series Circuit - Open Center



c		24	01 10		סס	D	<u> </u>				
<u> </u>	<u>vuo</u> ·	- <u>54</u>	<u>04</u> - <u>12</u>	<u>D - DE</u>	- <u>PD</u>	- 므 -	л 20	Code	Body a	nd Ports	Body Nomenclature
							_ , -	00	Cartric	lge Only	No Body
							1 14	4S	#4 S.	AE, AL	CP08-4-4S
							பட	6S		AE, AL	CP08-4-6S
Solenoid Valve, 08							L	S6S	#6 SA	E, Steel	CP08-4-S6S
Size Cavity							L	L2B	1/4 E	SSP, AL	SDC08-4-L2B
								S3B	3/8 BF	PS, Steel	CP08-4-S3B
34:								Sea	l Code	Material	Seal Kits
3 Position, 4 Way, Sp	ooliype								в	Buna-N	354003319
									v	Viton	354003919
04:								_			
Schematic: Closed Center Work Ports										Code	Manual Override
			Coil T	ermination	Standard C	oil IP Rating	Robust Co	I IP Ratir	g	Omit	Push Pin (Standard)
Coil Voltage	Standard Coil	Robust Coil			Code	, in the second se	Code		Ŭ	PB	Push Button
	Code	Code		No Coil	00	-	00	-		SPS	Screw Style (Push-
No Coil, with nut*	00	R00		Amp Junior	AJ	IP67	-	-			Type Valve)
10 VDC	10D	R10D	Amp	Junior with Diode	AJD	IP67	-			PAP	Push and Pull
12 VDC	12D	R12D	А	MP SuperSeal 1.5	AS	IP67	AS	IP69K			
20 VDC	20D	R20D	AMP Sup	erSeal with Diode	ASD	IP67	ASDB	IP69K			
24 VDC	24D	R24D		Deutsch	DE	IP67	DE	IP69K			
110 VAC**	110A	-	D	eutsch with Diode	DED	IP67	DEDB	IP69K			
220 VAC**	220A	-		Flying Leads	FL	IP65	FL	IP69K			
* Standard coil - plastic	c nut and O-ri	ngs	Flying	Leads with Diode	FLD	IP65	FLDB	IP69K			
R-coil – steel nut P/N	173800539	-		DIN 43650	DN	IP65	-	-			
(no coil O-rings need			Metr	i-Pack 150, Type 2		-	M3	IP69K			
** DIN only - external re	ectifier needeo	Ł	Metri-Pa	ck 150 with Diode	-	-	M3DB	IP69K			





Solenoid Valves Technical Information 4 Way, 3 Position Spool SV15-34-04



OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-34-04 allows flow from port 3 to port 1, while ports 2 and 4 are blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/4308. The SV15-34-04 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).

SPECIFICATIONS

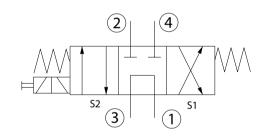
Rated Pressure*	210 bar [3045 psi]**
Maximum Rated Flow at 7 bar	50 l/min
[100 psi]	[13 US gal/min]
Weight including coil	1.400 kg [3.09 lbs]
Cavity	NCS 12/4
Coil	M19 33 Watt
Diode (Optional)	Unidirectional

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

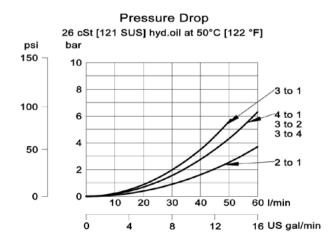
** See 315 bar pressure rating note on page 10.



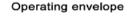
SCHEMATIC

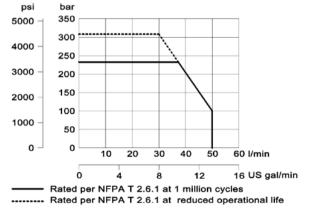


PERFORMANCE CURVES



BC332375861112en-000101 · February 2020





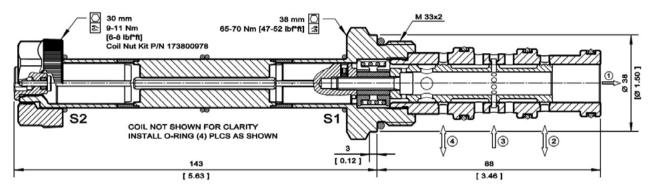


4 Way, 3 Position Spool SV15-34-04

Cross-sectional view

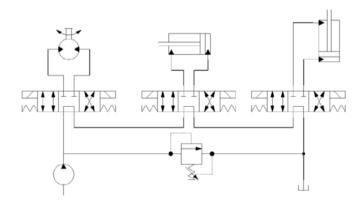
DIMENSIONS

mm [in]

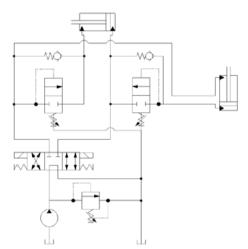


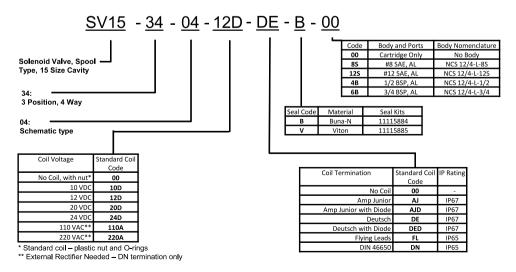
EXAMPLE CIRCUITS

Series Circuit - Open Center



Sequencing Circuit











OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, 10- size. When de-energized, the SV10-34-04 allows flow from port 3 to port 1, while ports 2 and 4 are blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

SV10-34-04

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Robust Coils. Deutsch Connectors

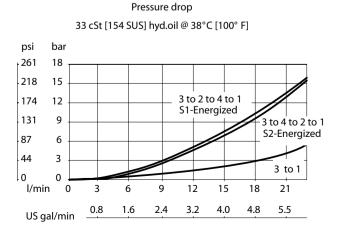
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	15 l/min [4 US gal/min]
[100 psi]	
Weight	0.81 kg [1.79 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

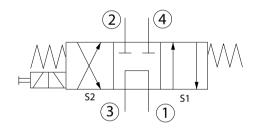
** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES

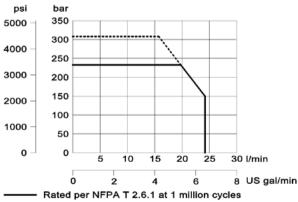


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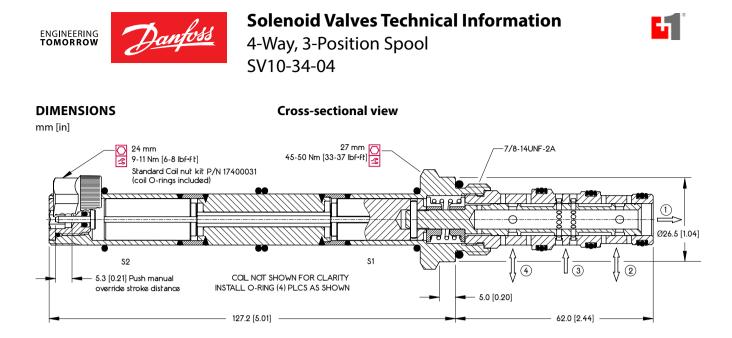
SCHEMATIC



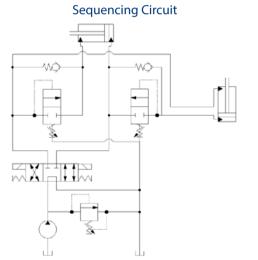
Operating envelope



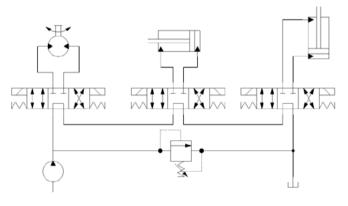
Rated per NFPA T 2.6.1 at reduced operational life



EXAMPLE CIRCUITS



Series Circuit - Open Center



		Q\/1() 2	0/ 10	חמ		DD	D	00		-		
		<u>3 v it</u>	2 - 2	<u> 34</u> - <u>04</u> - <u>12</u>	<u> </u>		<u> </u>	- 旦 -	<u>00</u> г	Code		ind Ports	Body Nomenclature
										00	_	dge Only	No Body
										6S		AE, AL	CP10-4-6S
										8S	_	AE, AL	CP10-4-8S
Solenoid Valve, 10 Siz	ze Cavity –									S8S		E, Steel	CP10-4-S8S
										L3B	3/8	BSP, AL	SDC10-4-L3B
										L4B	1/2	BSP, AL	SDC10-4-L4B
34:				-						S4B	1/2 B	SP, Steel	CP10-4-S4B
3 Position, 4 Way, Sp	ool Type										Seal Code	Materi	al Seal Kits
										–	В	Buna-	
04:											v	Viton	
Schematic: Closed					1						i	0.1	
Center Work Ports				Coil Termination		Standard Coil	IP Rating	Robust Coil	IP Rating			Code	Manual Override
Coil Voltage	Standard Coil	Robust Coil				Code		Code			-	Omit	Push Pin (Standard)
Ŭ	Code	Code		No	o Coil	00	-	00	-		-	PB	Push Button
No Coil, with nut*	00	R00		Amp J	unior	AJ	IP67	-	-			SPS	Screw Style
10 VDC	10D	R10D		Amp Junior with D	Diode	AJD	IP67	-	-		-		(Push-Type Valve) Push Pin Nut for
12 VDC	12D	R12D		AMP SuperSea	al 1.5	AS	IP67	AS	IP69K			OPS	Protection & Actuation
20 VDC	20D	R20D		AMP SuperSeal with D	Diode	ASD	IP67	ASDB	IP69K		ł	PAT	Push and Twist
24 VDC	24D	R24D		Dei	utsch	DE	IP67	DE	IP69K		-	PAP	Push and Pull
110 VAC**	110A	-		Deutsch with D	Diode	DED	IP67	DEDB	IP69K		l	FAF	Fusil allu Full
220 VAC**	220A	-		Flying L	eads	FL	IP65	FL	IP69K				
220 VAC**	220A	-		Flying Leads with D		FLD	IP65	FLDB	IP69K				
* Standard coil - plastic	nut and O-rir	ngs; R-coil –	steel	DIN 43650		DN	IP65	-	-				
nut P/N 173804910 (I				Metri-Pack 150 Ty	-	-	M3 IP69K						
** DIN only - external re	ectifier needeo	I		Metri-Pack 150 with D	Diode	-	-	M3DB	IP69K				







OPERATION

This is an 08-size, 3-Position, 4-Way, spool type solenoid Valve. When de-energized, the SV08-34-05 is float-center, allowing flow between ports 1, 2 and 4, while port 3 is blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Use the optional screen to help protect the actuator from large particles. This valve can operate with an inlet pressure of 315 bar on port 3 for 500,000 cycles. Port 1 is not intended for use as inlet (Tank only).

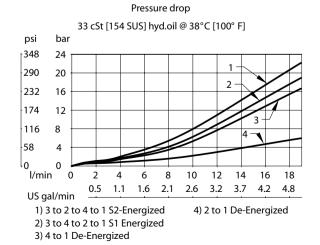
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	10 l/min
[100 psi]	[3 US gal/min]
Weight	0.55 kg [1.21 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

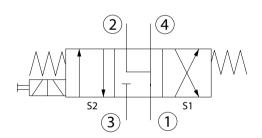
PERFORMANCE CURVES

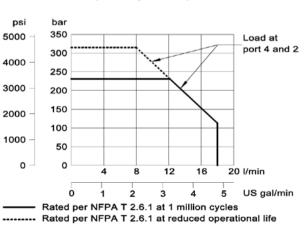


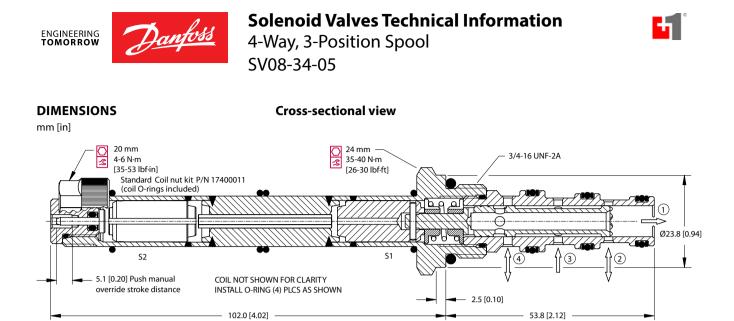


Shown with Standard Coils, Deutsch Connectors

SCHEMATIC

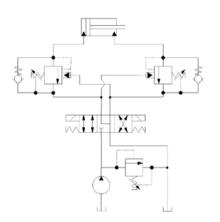


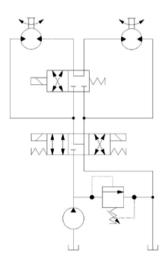




EXAMPLE CIRCUITS

Double-acting cylinder control with dual counterbalance





ORDERING INFORMATION

c		24 0		סס	D	<u> </u>	_			
<u> </u>	<u>ovuo</u> ·	- <u>34</u> - <u>C</u>	<u>)5 - 12D - DE</u>	- <u>PD</u> -	<u>D</u> -	<u>00</u> ч	ode Bo	ody and Por	ts	Body Nomenclature
					-		00 Ca	artridge On	ly	No Body
							4S	#4 SAE, AL		CP08-4-4S
							6S	#6 SAE, AL		CP08-4-6S
Solenoid Valve, 08						9	56S #	6 SAE, Stee	Ē	CP08-4-S6S
Size Cavity						L	2B	1/4 BSP, AL		SDC08-4-L2B
						S	5 3B 3,	/8 BPS, Stee	el	CP08-4-S3B
34:							Seal Co	ode Mat	orial	Seal Kits
3 Position, 4 Way, Sp	ool Type		1 1 1				B		a-N	354003319
			1 1 1				v	Vit		354003919
05:			-					VI	.011	334003313
Schematic: Float Cer	iter							C	ode	Manual Override
Coil Voltage	Standard Coil	Robust Coil	Coil Termination	Standard Coil	IP Rating	Robust Coil	IP Rating	6	mit	Push Pin (Standard)
con voltage	Code	Code	con remination	Code	ii Nating	Code	in Nating		РВ	Push Button
No Coil, with nut*	00	R00	No Coil	00	-	00	-		PS	Screw Style (Push-
10 VDC	10D	R10D	Amp Junior	AJ	IP67	-	-			Type Valve)
12 VDC	12D	R12D	Amp Junior with Diode	AJD	IP67	-	-	L P	AP	Push and Pull
20 VDC	20D	R20D	AMP SuperSeal 1.5	AS	IP67	AS	IP69K			
24 VDC	24D	R24D	AMP SuperSeal with Diode	ASD	IP67	ASDB	IP69K			
110 VAC**	110A	-	Deutsch	DE	IP67	DE	IP69K			
220 VAC**	220A	-	Deutsch with Diode	DED	IP67	DEDB	IP69K			
* Standard coil - plasti			Flying Leads	FL	IP65	FL	IP69K			
R-coil – steel nut P/N		.90	Flying Leads with Diode	FLD	IP65	FLDB	IP69K			
(no coil O-rings need			DIN 43650	DN	DN IP65 -		-			
** DIN only - external re		4	Metri-Pack 150 Type 2	-	-	M3	IP69K			
		-	Metri-Pack 150 with Diode	-	-	M3DB	IP69K			

2 Speed Circuit







OPERATION

This is an 08-size, 3-Position, 4-Way, spool type solenoid Valve. When de-energized, the HSV08-34-05 is float-center, allowing flow between ports 1, 2 and 4, while port 3 is blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. The HSV08-34-05 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2. **APPLICATIONS**

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Port 1 is not intended for use as inlet (Tank only).



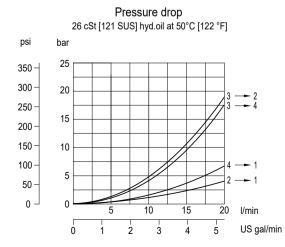
Shown with Standard Coils, Deutsch Connectors

SPECIFICATIONS

Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar	11 l/min
[100 psi]	[2.91 US gal/min]
Weight	0.55 kg [1.21 lb]
Cavity	SDC08-4
Standard Coil	M13 20 Watt
Robust Coil	R13 16 Watt
	Robust Nut P/N 173800539
	(no coil O-rings needed)

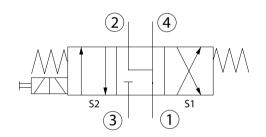
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

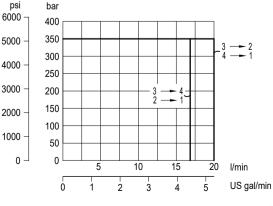
PERFORMANCE CURVES



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SCHEMATIC



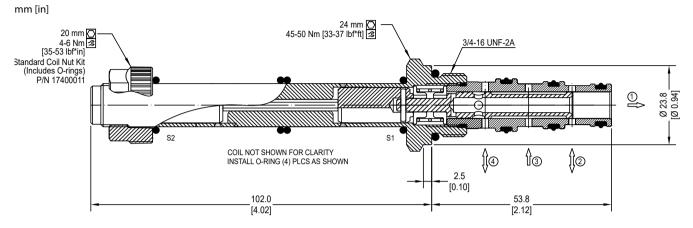




4-Way, 3-Position Spool HSV08-34-05

DIMENSIONS

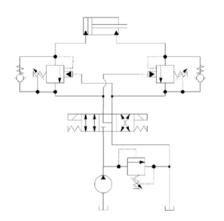


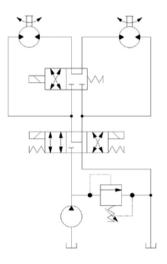


EXAMPLE CIRCUITS

2 Speed Circuit

Double-acting cylinder control with dual counterbalance





		<u>HSV08</u>	<u>3 - 34 - (</u>) <u>5</u> - 1	1 <u>2D</u> -	<u>DE - </u>	<u>PN</u> -	<u>P - (</u>	<u>00</u>						
	re Solenoid Valve									Housing	S				
3 position, 4	way, 08-Size.									Code	Ports & Material	Body N	Iomenclature		
Coil Voltage										00	Cartridge only	No Bo	dy		
Description	Standard Coil Code	Robust Coil Code								S3B	3/8 BSP, Steel	CP08-	4-S3B		
No Coil	00	R00								S6S	#6 SAE, Steel	CP08-	4-S6S		
12 VDC	12D	R12D									um bodies available for lowe				
24 VDC	24D	R24D								[less than	210 bar (3000 psi)]. Please	consult f	actory for details.		
	Coil Terminatio	on													
	Description		Standard Coil		Robust Coil					Seal Op Code	tion Seal Material		Seal kit		
	No Coil		Code 00	Rating	Code 00	Rating -				P Polyurethane Single S			11167316		
	Flying Lead		FL	IP65	FL	IP69K					r offarolitario offigio ooa				
	Deutsch		DE	IP69K	DE	IP69K					Manual Overrides				
	AMP SuperSe	eal 1.5	AS	IP67	AS	IP69K		Code Description			Description				
	AMP SuperSe	ASD	IP67	ASDB	IP69K					Push Pin (Standard)					
	Deutsch with	Diode	DED	IP69K	DEDB	IP69K									
	Flying Lead w	ith Diode	FLD	IP65	FLDB	IP69K									
	DIN 43650		DN	IP65	-	-									





OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, 10-size. When de-energized, the SV10-34-05 is float-center, allowing flow between ports 1, 2 and 4, while port 3 is blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. The SV10-34-05 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. **APPLICATIONS**

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).



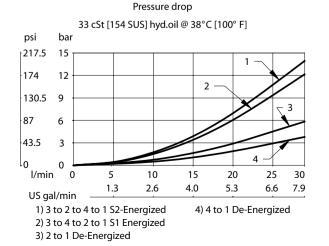
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	20 l/min
[100 psi]	[5 US gal/min]
Weight	0.81 kg [1.79 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

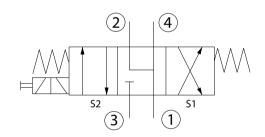
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

** See 315 bar pressure rating note on page 10.

PERFORMANCE CURVES



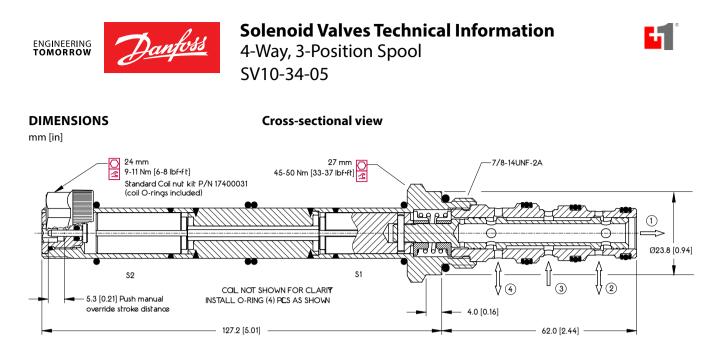
SCHEMATIC



psi bar 350 5000 300 4000 250 3000 200 150 2000 100 1000 50 n n 5 20 30 l/min 10 15 25 8 US gal/min Ò 2 4 6 Rated per NFPA T 2.6.1 at 1 million cycles ----- Rated per NFPA T 2.6.1 at reduced operational life

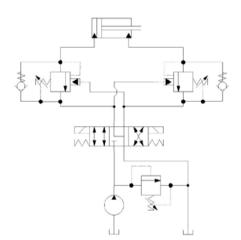
Operating envelope

BC332375861112en-000101 · February 2020



EXAMPLE CIRCUITS

Double-acting cylinder control with dual counterbalance



ORDERING INFORMATION

		SV/10	<u>ج</u> (34 - 05 - 120	ם - ר		R -	00				
		0110	<u>' - s</u>	<u>54</u> - <u>05</u> - <u>121</u>		<u>- FD</u>	- 브 -	<u> </u>	Code		and Ports	Body Nomenclature
									00		dge Only	No Body
									6S		SAE, AL	CP10-4-6S
									85		SAE, AL	CP10-4-8S
Solenoid Valve, 10 Si	ze Cavity –								S8S	#8 S/	AE, Steel	CP10-4-S8S
									L3B	3/8	BSP, AL	SDC10-4-L3B
									L4B	1/2	BSP, AL	SDC10-4-L4B
34:				-					S4B	1/2 B	SP, Steel	CP10-4-S4B
3 Position, 4 Way, Sp	ool Type									Seal Code	Materi	al Seal Kits
									-, t	B	Buna-I	
05:					L					v	Viton	
Schematic: Float									1 '			
Center				Coil Termination	Standard	Coil IP Rating	Robust Coil	IP Rating			Code	Manual Override
Coil Voltage	Standard Coil	Robust Coil			Code		Code	iii iidaanig			Omit	Push Pin (Standard)
con voltage	Code	Code		No Co			00	-			PB	Push Button
No Coil, with nut*	00	R00		Amp Juni		IP67		-			SPS	Screw Style
10 VDC	10D	R10D		Amp Junior with Diod	-	IP67						(Push-Type Valve)
12 VDC	10D	R12D		AMP SuperSeal 1	_	IP67	AS	IP69K			OPS	Push Pin Nut for
20 VDC	20D	R12D R20D		AMP SuperSeal with Diod		IP67	ASDB	IP69K				Protection & Actuation
				Deutse		IP67	DE	IP69K			PAT	Push and Twist
24 VDC	24D	R24D		Deutsch with Diog		IP67	DEDB	IP69K			PAP	Push and Pull
110 VAC**	110A	-		Flying Lea		IP67	FL	IP69K				
220 VAC**	220A	-	1	Flying Leads with Diod		IP65	FLDB	IP69K				
* Standard coil - plastic	nut and O-riv	nas: R-coil -	steel	DIN 4365	_	IP65	FLUB	IPO9K				
nut P/N 173804910 (51001	Metri-Pack 150 Type			 M3	- IP69K				
** DIN only - external re						-						
Diri only - external re	Sound needed			Metri-Pack 150 with Diod	ie -	-	M3DB	IP69K				





4-Way, 3-Position Spool HSV10-34-05



OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, 10-size. When de-energized, the SV10-34-05 is float-center, allowing flow between ports 1, 2 and 4, while port 3 is blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. The HSV10-34-05 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Port 1 is not intended as inlet (Tank only).



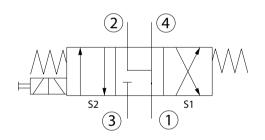
Shown with High Pressure Coils, Deutsch Connectors

SPECIFICATIONS

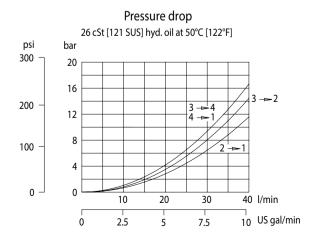
Rated pressure*	350 bar [5075 psi]*
Rated flow at 7 bar [100 psi]	25 l/min [6.6 US gal/min]
Weight	0.85 kg [1.85 lb]
Cavity	SDC10-4
Standard Coil	H16 29Watt

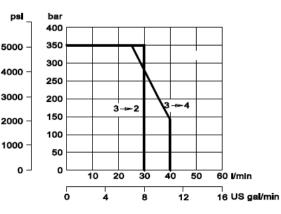
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).





PERFORMANCE CURVES





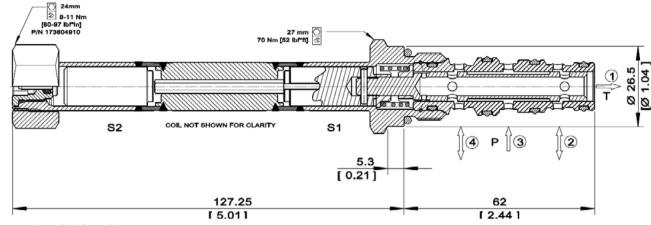


4-Way, 3-Position Spool HSV10-34-05

DIMENSIONS

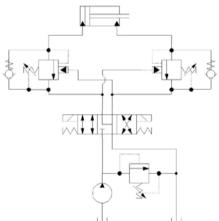
mm [in]





EXAMPLE CIRCUITS

Double-acting cylinder control with dual counterbalance



ORDERING INFORMATION

HSV10 - 34 - 05 - H12D - DE - PN - P - 00 Bodies High Pressure Solenoid Valve, Port & Material Body Nomenclature Code This is a direct-acting, 2-position, Cartridge only No Body 00 4-way, spool-type solenoid valve. Coil Voltage 3/8 BSP, Ductile SDC10-4-S3B S3B Description Code 1/2 BSP, Ductile SDC10-4-S4B S4B H00 No Coil #6 SAE, Ductile SDC10-4-S6S S6S 12 VDC H12D #8 SAE, Ductile SDC10-4-S8S S8S 24 VDC H24D *** Aluminum bodies available for lower pressure **Coil Termination** application. Please consult factory for details. Code Description IP Rating Seal Option No Coil Seal Material Seal kit 00 Code Polyurethane Single Seal FL Ρ 11143824 Flying Lead IP 69k IP 69k DE Deutsch Manual Override AMP SuperSeal 1.5 and Metri-Pack 150 type 1 AS IP 69k Description Code ASDB AMP Super Seal with Diode Bidirectional IP 69k ΡN Push Pin DEDB Deutsch with Diode Bidirectional IP 69k Push Pin M/O Nut for Protection & Actuation OPS FLDB Flying Lead with Diode Bidirectional IP 69k PAT Push and Twist BC332375861112en-000101 · February 2020 SV - 220





Solenoid Valves Technical Information 4 Way, 3 Position Spool SV15-34-05



Solenoid Valve, Spool Type, 3-Position, 4-Way, High Flow (15-Size). When de-energized, the SV15-34-05 is float-center, allowing flow between ports 1, 2 and 4, while port 3 is blocked. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. This valve is a direct replacement for EDH 12/4309 and uses a metric M33x2 cavity (NCS 12/4) for high flow capability. The SV15-34-05 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. Use the optional screen to help protect the actuator from large particles. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).



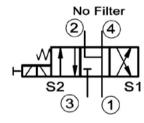
SPECIFICATIONS

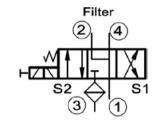
Rated Pressure*	210 bar [3045 psi]**
Maximum Rated Flow at 7 bar	60 l/min
[100 psi]	[16 US gal/min]
Weight including coil	1.400 kg [3.09 lbs]
Cavity	NCS 12/4
Coil	M19 33 Watt
Diode (Optional)	Unidirectional

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

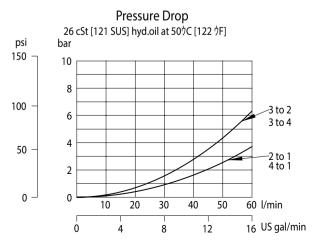
** See 315 bar pressure rating note on page 10.

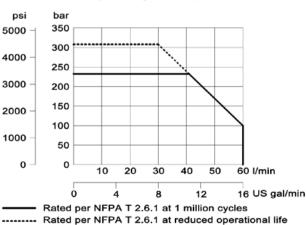
SCHEMATIC





PERFORMANCE CURVES





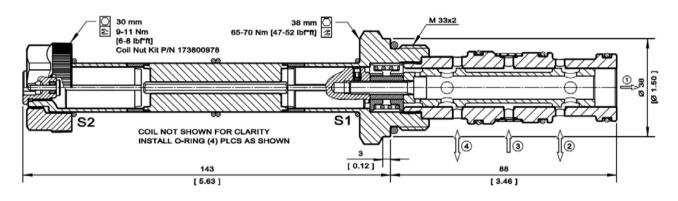


4 Way, 3 Position Spool SV15-34-05

Cross-sectional view

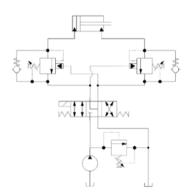
DIMENSIONS

mm [in]

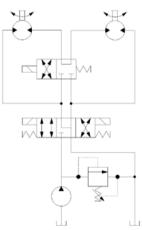


EXAMPLE CIRCUITS

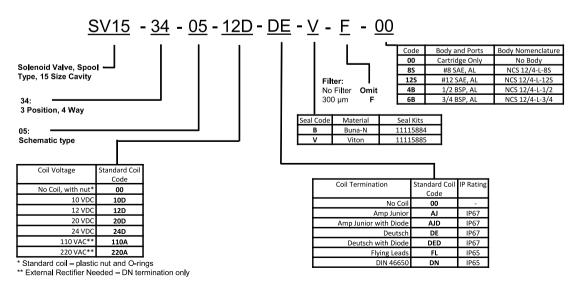
Double-acting cylinder control with dual counterbalance







ORDERING INFORMATION



BC332375861112en-000101 · February 2020







OPERATION

Solenoid Valve, Spool Type, 3-Position, 4-Way, 10-size. When de-energized, the SV10-34-11 allows flow from port 4 to 1, blocking port 2 and 3. When coil S1 is energized, the spool shifts to allow flow from port 3 to port 4, and from port 2 to 1. When coil S2 is energized, the spool shifts to allow flow from port 3 to port 2, and from port 4 to port 1. This valve comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2. Follow the "Operating Envelope" limits to ensure shifting of the valve during operation. **APPLICATIONS**

These spool-type valves are primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit. Solenoid spool-type valves are direct acting and respond quickly to coil voltage input. Spool valves will have some leakage due to spool clearance, so if your application requires no leakage at the working port(s), apply a low leakage poppet valve(s), like PO check valve, counterbalance valve, etc., in addition to this solenoid valve. This valve can operate with an inlet pressure of 315 bar on port 3 for 400,000 cycles. Port 1 is not intended as inlet (Tank only).



Shown with Robust Coils. Deutsch Connectors

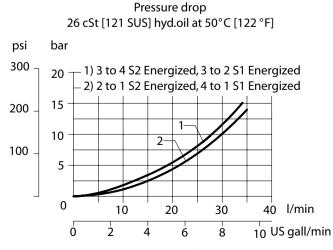
SPECIFICATIONS

Rated pressure*	230 bar [3300 psi]**
Rated flow at 7 bar	24 l/min
[100 psi]	6 US gal/min]
Weight	0.81 kg [1.79 lb]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

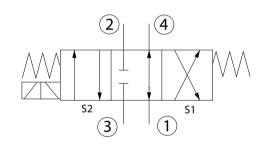
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

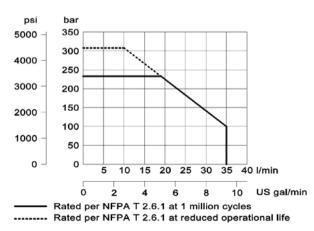
** See 315 bar pressure rating note on page 10.

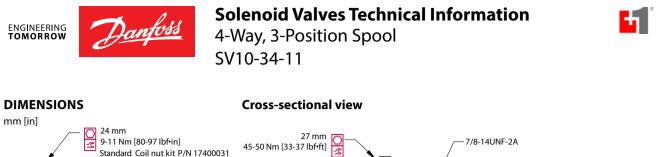
PERFORMANCE CURVES

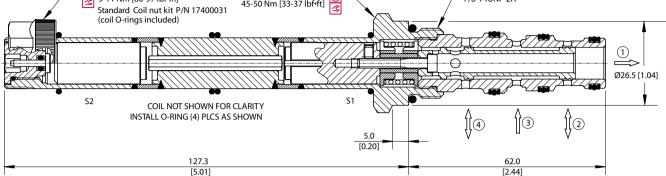


SCHEMATIC



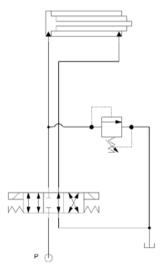






EXAMPLE CIRCUITS

Cushion Relief in Cylinder Application



ORDERING INFORMATION

		CV/40		01 11	100		ПΟ	D	00		_		
		<u>3v I</u>	<u> </u>	<u> 34</u> - <u>11</u>	- <u>12D</u>	- <u>DE</u> -	· <u>PD</u>	- <u>D</u> -	<u>00</u> г	Code		and Ports	Body Nomenclature
										00	_	dge Only	No Body
										65		GAE, AL	CP10-4-6S
										85	#8 5	SAE, AL	CP10-4-8S
Solenoid Valve, 10 Siz	e Cavity —									S8S	#8 SA	AE, Steel	CP10-4-S8S
										L3B	3/8	BSP, AL	SDC10-4-L3B
										L4B	1/2	BSP, AL	SDC10-4-L4B
34:				-						S4B	1/2 B	SP, Steel	CP10-4-S4B
3 Position, 4 Way, Sp	ool Type										Seal Code	Materi	al Seal Kits
										٦	В	Buna-1	N 354001919
11:											v	Viton	354002019
Schematic: 3P4W												<u> </u>	
				Coil Term	nination	Standard Coil	IP Rating	Robust Coil	IP Rating			Code	Manual Override
Coil Voltage	Standard Coil	Robust Coil				Code		Code			-	Omit	Push Pin (Standard)
_	Code	Code			No Coil	00	-	00	-		-	PB	Push Button
No Coil, with nut*	00	R00			Amp Junior	AJ	IP67	-	-			SPS	Screw Style
10 VDC	10D	R10D		Amp Jun	ior with Diode	AJD	IP67	-	-		-		(Push-Type Valve) Push Pin Nut for
12 VDC	12D	R12D	1	AMP	SuperSeal 1.5	AS	IP67	AS	IP69K			OPS	Protection & Actuation
20 VDC	20D	R20D		AMP SuperSe	eal with Diode	ASD	IP67	ASDB	IP69K		-	PAT	Push and Twist
24 VDC	24D	R24D			Deutsch	DE	IP67	DE	IP69K			PAT	Push and Pull
110 VAC**	110A	-		Deuts	sch with Diode	DED	IP67	DEDB	IP69K		l	PAP	Pusit dilu Puli
220 VAC**	220A				Flying Leads	FL	IP65	FL	IP69K				
220 VAC**	220A	-	I	Flying Lea	ads with Diode	FLD	IP65	FLDB	IP69K				
* Standard coil – plastic			steel	, , ,	DIN 43650	DN	IP65	-	-				
nut P/N 173804910 (r				Metri-Pa	ack 150 Type 2	-	-	M3	IP69K				
** DIN only - external re	ctifier needed	1		Metri-Pack 1	150 with Diode	-	-	M3DB	IP69K				

BC332375861112en-000101 · February 2020





Solenoid Valves Technical Information 4 Way, 3 Position Spool SV10-34-14

-

OPERATION

This is a direct acting, 3-position, 4-way spool type solenoid valve. When de-energized, the SV10-34-14 allows flow from port 3 to 2 and from port 4 to 1. When coil S1 is energized, the spool shifts to the float position, allowing flow from port 2 and 4 to port 1, while blocking flow to port 3. When coil S2 is energized, the spool shifts to allow flow from port 2 to 1, and from port 4 to 3. The SV10-34-14 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2. The SV10 uses a 10 size cavity and an optional 500 micron filter is available.

APPLICATIONS

These valves are typically used for directional control for motor or cylinder functions, to run forward, reverse, or float free. Applications for this schematic include street sweepers (broom height control) and windrower header height. Use a pressure reducing valve before the "P" port to manage the force. This valve can also be applied to a reversing fan drive with a pressure regulated variable pump. The schematic allows the fan to shift smoothly from forward to reverse. Additionally, if the fan drive loses power, the spool shifts to the center position and the fan turns in the forward direction. This valve can operate with an inlet pressure of 315 bar on port 3 for 300,000 cycles. Port 1 is not intended for use as inlet (Tank only).



Shown with Standard Coils, Deutsch Connectors



Shown with Robust Coils, Deutsch Connectors

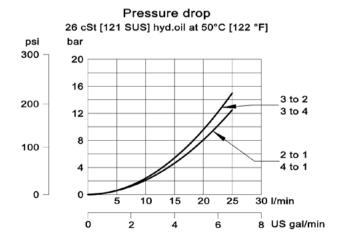
SPECIFICATIONS

Rated Pressure*	230 bar [3330 psi]
Maximum Rated Flow at 7 bar	17 l/min
[100 psi]	[4.5 US gal/min]
Weight including coil	0.81 kg [1.79 lbs]
Cavity	SDC10-4
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

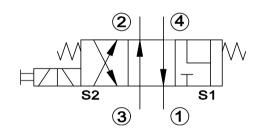
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

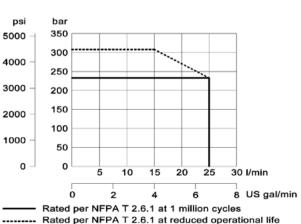
** See 315 bar pressure rating note on page 10.

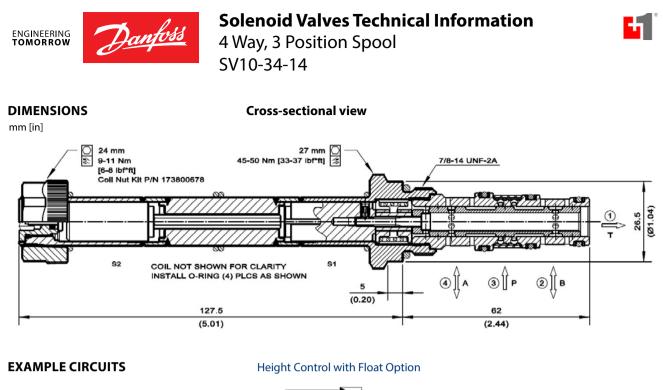
PERFORMANCE CURVES



SCHEMATIC







PRMP 064

ORDERING INFORMATION

		SV/10	ר ר	<u> 34 - 14</u>	12D			R	F	$\cap \cap$		1		
		<u>3 v i c</u>	<u> -</u> -	<u>)4 - 14</u>	- <u>120</u>		- <u>F D</u>	- <u>D</u> ·		<u>оо</u> г	Code	,	and Ports	Body Nomenclature
											00	-	idge Only	No Body
											<u>6S</u>	-	SAE, AL	CP10-4-6S
										-	85	-	SAE, AL	CP10-4-8S
Solenoid Valve, 10 Si	ze Cavity –										S8S	_	AE, Steel	CP10-4-S8S
	•								o Filter	Omit	L3B		BSP, AL	SDC10-4-L3B
								Fi	lter 500 mµ	F	L4B		BSP, AL	SDC10-4-L4B
34:											S4B	1/2 B	SP, Steel	CP10-4-S4B
3 Position, 4 Way, Sp	ool Type											Seal Code	Materi	al Seal Kits
										-		В	Buna-I	N 354001919
14:												v	Viton	354002019
Schematic: Raise, Lo	wer,	-											<u> </u>	
Float				Coil Termir	nation	Standard (Coil IP Rating	Robust Coi	il IP Rating				Code Omit	Manual Override
Coil Voltage	Standard Coil	Robust Coil	1			Code	ľ	Code	Ű					Push Pin (Standard) Push Button
	Code	Code			No Coil	00	-	00	-				PB	
No Coil, with nut*	00	R00	1		Amp Junior	AJ	IP67	-	-				SPS	Screw Style (Push-Type Valve)
10 VDC	10D	R10D	1	Amp Junic	or with Diode	AJD	IP67	-	-					Push Pin Nut for
12 VDC	12D	R12D	1	AMP S	SuperSeal 1.5	AS	IP67	AS	IP69K				OPS	Protection & Actuation
20 VDC	20D	R20D	i i	AMP SuperSea	al with Diode	ASD	IP67	ASDB	IP69K				PAT	Push and Twist
24 VDC	24D	R24D	1		Deutsch	DE	IP67	DE	IP69K				PAT	Push and Pull
110 VAC**	110A		1	Deutsc	h with Diode	DED	IP67	DEDB	IP69K				FAF	T doit dia t di
220 VAC**	220A		1		Flying Leads	FL	IP65	FL	IP69K					
220 VAC	220A	-	1	Flying Lead	ls with Diode	FLD	IP65	FLDB	IP69K					
Standard coil – plasti	c nut and O-rii	ngs; R-coil –	steel	/ 0	DIN 43650		IP65	-	-					
nut P/N 173804910 (no coil O-ring	s needed)		Metri-Pac	k 150 Type 2	-	-	M3	IP69K					
* DIN only - external re	ectifier needeo	ł		Metri-Pack 15	0 with Diode	-	-	M3DB	IP69K					





Solenoid Valves Technical Information 5 Way, 3 Position Spool SV10-35-02



OPERATION

This is a direct acting, 3-position, 5-way spool type solenoid valve. When de-energized, the SV10-35-02 blocks flow at all five ports. When coil S1 is energized, the spool shifts to allow flow from port 5 to port 4 (with load sense reference to port 1) and port 2 to port 3. When coil S2 is energized, the spool shifts to allow flow from port 5 to port 1), and from port 4 to 3. The SV10-35-02 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

The SV10-35 family is designed to control the direction of flow in load sensing systems. Having the load sense port integrated into the spool eliminates the need for check and/or shuttle valves between the SV10-35 and the work function. It is recommended to apply an orifice or flow regulator to bleed down the signal, if this feature is not included in the pump. Apply a check or shuttle valve at port 1 for your load sense signal. With a 02-spool, in the center position, work ports are blocked. In load holding applications, pilot to open check or counter balance valves are recommended. When controlling a cylinder, the base or cap end can be connected to either ports 2 or 4, providing symmetrical metering. For use with the PAP override, load sense pressure must be limited to 150 bar.



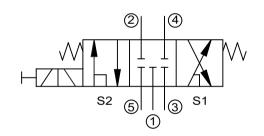
Shown with Standard Coils, Deutsch Connectors

SPECIFICATIONS

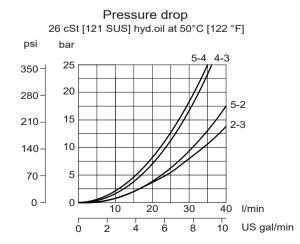
Rated Pressure*	230 bar [3330 psi]
Maximum Rated Flow at 7 bar	18 l/min
[100 psi]	[4.8 US gal/min]
Weight including coil	0.9 kg [1.98 lbs]
Cavity	SDC10-5
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

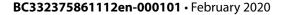
* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

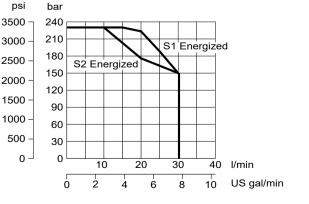
SCHEMATIC



PERFORMANCE CURVES





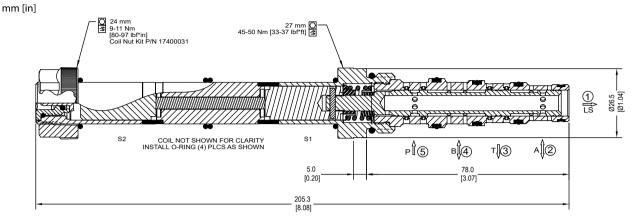




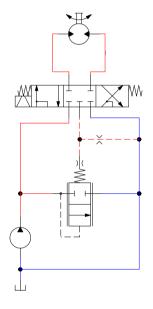
5 Way, 3 Position Spool SV10-35-02







EXAMPLE CIRCUITS



ORDERING INFORMATION

		51	10-3	55-UZ	-12	DE-PE	D-E	2-0	0				
Solenoid Valv	Ve									Housi	, č		
3 position, 5		-Size.						L		Code	Ports & Material	Body Nomer	clature
Call valtage	Standard	Call Dub								00	Cartridge Only	No Body	
- 5			ust Coil							6S	#6 SAE, AL	SDC10-5-6	S
00 = No Coil	00		00							8S	#8 SAE, AL	SDC10-5-8	S
12 VDC	12D		12D							S8S	#8 SAE, Steel	SDC10-5-S	8S
24 VDC	24D	R	24D							L3B	3/8 BSP, AL	SDC10-5-L	3B
Coil termination										L4B	1/2 BSP, AL	SDC10-5-L	4B
Description		Standard		Robust	IP					S4B	1/2 BSP, Steel	SDC10-5-S	4B
			Rating	Coil Code	Rating					Seal	s		
No Coil		00	-	00	-		L			- Code	e Material	Seal kit	
Flying Lead		FL	IP65	FL	IP69K					В	Buna-N	11192395	
Deutsch		DE	IP69K	DE	IP69K					V	Viton	11192396	
AMP SuperSeal 1.5		AS	IP67	AS	IP69K					Manu	al Override		
Amp Junior		AJ	IP67	-	-						Manual Override		
Metri-Pack 150 Type	2	-	-	M3	IP69K					-			
Flying Lead with Dio	de	FLD	IP65	FLDB	IP69k						Push Pin (Stand	iard)	
Deutsch with Diode		DED	IP69K	DEDB	IP69K					PB	Push Button		
AMP SuperSeal with	n Diode	ASD	IP67	ASDB	IP69k					SPS			/
Amp Junior with Dio		AJD	IP67	-	-					-	Push Pin Nut fo	r Protection	& Actuatio
Metri-Pack 150 with		-	-	M3DB	IP69k					PAT	Push and Twist		
DIN 43650		DN	IP65	-	-					PAP	Push and Pull		

<u>SV10-35-02</u>-<u>12D</u>-<u>DE</u>-<u>PB</u>-<u>B</u>-<u>00</u>





Solenoid Valves Technical Information 4 Way, 3 Position Spool SV10-35-05



OPERATION

This is a direct acting, 3-position, 5-way spool type solenoid valve. When de-energized, the SV10-35-05 blocks flow at ports 5 and 1, while allowing flow from ports 2 and 4 to port 3. When coil S1 is energized, the spool shifts to allow flow from port 5 to port 4 (with load sense reference to port 1) and port 2 to port 3. When coil S2 is energized, the spool shifts to allow flow from port 5 to port 4 to port 3. The SV10-35-05 comes standard with a one-direction, push-pin manual override. When the manual override is pushed, the spool shifts following the logic of energizing S2.

APPLICATIONS

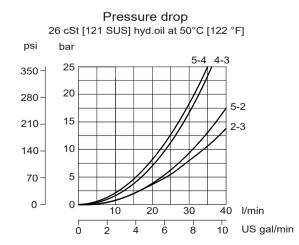
The SV10-35 family is designed to control the direction of flow in load sensing systems. Having the load sense port integrated into the spool eliminates the need for check and/ or shuttle valves between the SV10-35 and the work function. It is recommended to apply an orifice or flow regulator to bleed down the signal, if this feature is not included in the pump. Apply a check or shuttle valve at port 1 for your load sense signal. The 05-spool center provides a path to tank. In load holding applications, pilot to open check or counter balance valves are recommended. When controlling a cylinder, the base or cap end can be connected to either ports 2 or 4, providing symmetrical metering. For use with the PAP override, load sense pressure must be limited to 150 bar.

SPECIFICATIONS

Rated Pressure*	230 bar [3330 psi]
Maximum Rated Flow at 7 bar	18 l/min
[100 psi]	[4.8 US gal/min]
Weight including coil	0.9 kg [1.98 lbs]
Cavity	SDC10-5
Standard Coil	M16 26 Watt
Robust Coil	R16 20 Watt
	Robust Nut P/N 173804910
	(no coil O-rings needed)

* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

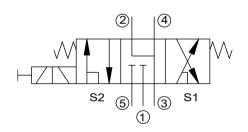
PERFORMANCE CURVES

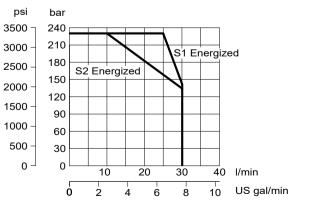




Shown with Standard Coils, Deutsch Connectors

SCHEMATIC



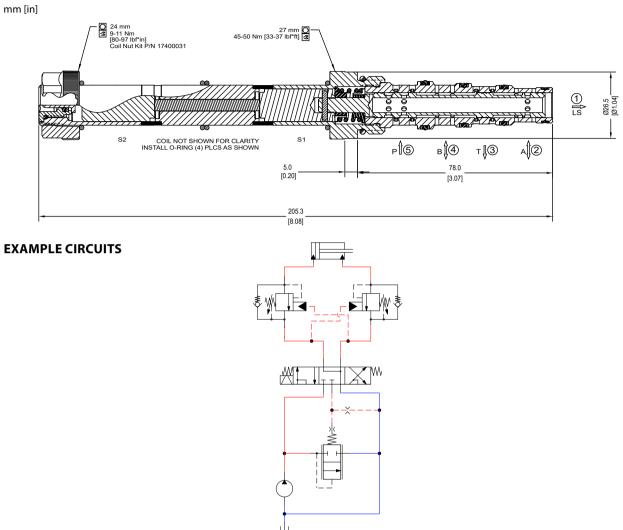




4 Way, 3 Position Spool SV10-35-05

DIMENSIONS





ORDERING INFORMATION

<u>SV10-35-05-12D-DE-PB-B-00</u>

Solenoi	d Va	lve							
3 positi	on, ł	5 way, 1	0-Siz	ze.		_			
Coil volt	age	Standard	Coil	Robu	st Coil				
00 = No	Coil	00		C	00				
12 VDC		12D		R1	I2D				
24 VDC		24D		R2	24D				
Coil terminat	tion								
Description				ndard Code	IP Rating	Robu Coil (IP Rating	3
No Coil				00	-	0	0	-	1
Flying Lead				FL	IP65	FL		IP69K	1
Deutsch			DE		IP69K	D	E	IP69K	-
AMP SuperSe	al 1.5	5		AS	IP67	A	s	IP69K	
Amp Junior			AJ		IP67	-		-	1
Metri-Pack 15	0 Тур	e 2		-	-	M	3	IP69K	
Flying Lead wi	ith Di	ode	F	LD	IP65	FLI	DB	IP69K	-
Deutsch with [Diode		C	DED	IP69K	DE	DB	IP69K	-
AMP SuperSe	al wit	th Diode	4	SD	IP67	AS	DB	IP69k	
Amp Junior wi	th Die	ode	Æ	AJD .	IP67	-		-	
Metri-Pack 15	0 with	n Diode		-	-	М3	DB	IP69k	
DIN 43650				DN	IP65	-	-	-	٦

2_6	3-00				
$\underline{B}-\underline{B}-\underline{00}$ Housings					
		Code	Ports & Material	Body Nomenclature	
		00	Cartridge Only	No Body	
		6S	#6 SAE, AL	SDC10-5-6S	
		8S	#8 SAE, AL	8 SAE, AL SDC10-5-8S	
		S8S	#8 SAE, Steel	SDC10-5-S8S	
		L3B	3/8 BSP, AL	SDC10-5-L3B	
		L4B	1/2 BSP, AL	SDC10-5-L	4B
		S4B	1/2 BSP, Steel	SDC10-5-S	4B
		Seals			
	Code		Material	Seal kit	
		В	Buna-N	11192395	
		V	Viton	11192396	
Manual Override					
Code Manual Override					
Omit			Push Pin (Standard)		
PB			Push Button		
SPS			Screw Style (Push-Type Valve)		
		OPS	S Push Pin Nut for Protection & Actuat		
PAT			Push and Twist		
PAP			Push and Pull		

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