

Solenoid Operated Cartridges

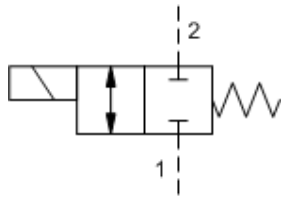
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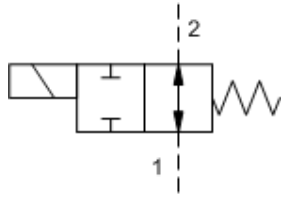
DLVB	2-way, solenoid-operated directional, Digital Logic Valve - pilot capacity1
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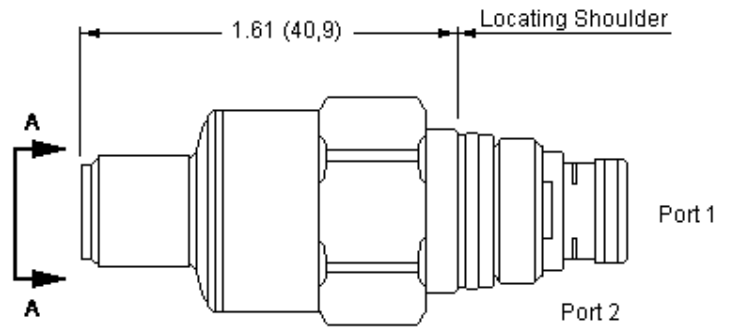
Series	Ports	Cavities
Series Z Cartridges 3/8-24 UNF Cartridge Thread 5 mm Valve Hex Size 11 - 14 Nm Valve Installation Torque	2-Port	T-382A
Series P Cartridges M16 Cartridge Thread 22,2 mm Valve Hex Size 27 - 33 Nm Valve Installation Torque	2-Port 2-Port (Deep) 3-Port	T-8A T-8DP T-9A
Series 0 Cartridges M16 Cartridge Thread 19,1 mm Valve Hex Size 25,4 mm Valve Hex Size 27 - 33 Nm Valve Installation Torque	2-Port 2-Port (Deep) 3-Port	T-162A T-162DP T-163A
Series 1 Cartridges M20 Cartridge Thread 22,2 mm Valve Hex Size 41 - 47 Nm Valve Installation Torque	2-Port 2-Port 3-Port 4-Port 4-Port 6-Port	T-10A T-13A T-11A T-21A T-31A T-61A
Series 2 Cartridges 1"-14 UNS Cartridge Thread 28,6 mm Valve Hex Size 61 - 68 Nm Valve Installation Torque	2-Port 2-Port 3-Port 4-Port 4-Port 4-Port (Dual path) 6-Port 6-Port	T-3A T-5A T-2A T-22A T-32A T-52AD T-52A T-62A
Series 3 Cartridges M36 Cartridge Thread 31,8 mm Valve Hex Size 203 - 217 Nm Valve Installation Torque	2-Port 3-Port 4-Port 4-Port 4-Port (Dual path) 6-Port 6-Port	T-16A T-17A T-23A T-33A T-53AD T-53A T-63A
Series 4 Cartridges M48 Cartridge Thread 41,3 mm Valve Hex Size 474 - 508 Nm Valve Installation Torque	2-Port 2-Port (Undercut) 3-Port 3-Port (Undercut) 4-Port 4-Port (Undercut) 4-Port 4-Port (Dual path) 6-Port 6-Port	T-18A T-18AU T-19A T-19AU T-24A T-24AU T-34A T-54AD T-54A T-64A



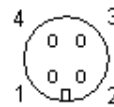
X-Control, C-Spool



X-Control, H-Spool



View A-A
Pin Diagram



- 1: +V Supply
- 2: NC
- 3: Supply Common
- 4: NC

in (mm)

This high-speed, low-power, solenoid-operated, 2-way, 2-position cartridge is a direct-acting, balanced-spool, pilot valve used to pilot other full-flow valves. The valve is available in either a normally open or normally closed configuration.

This cartridge can be installed directly into a cavity in the end of many of Sun's pilot-operated and ventable valves to provide integrated pilot control.

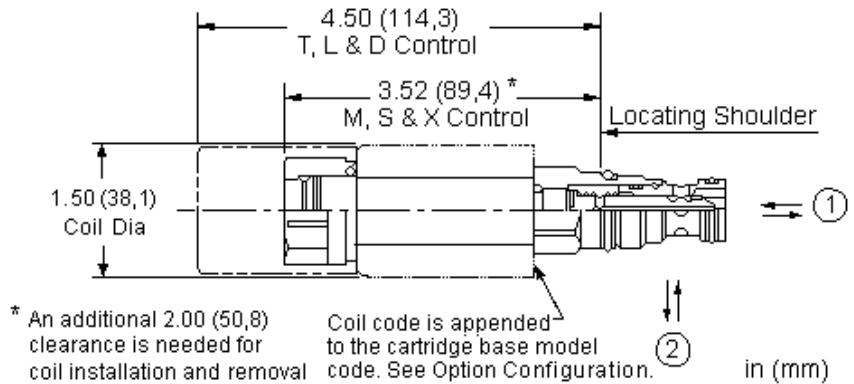
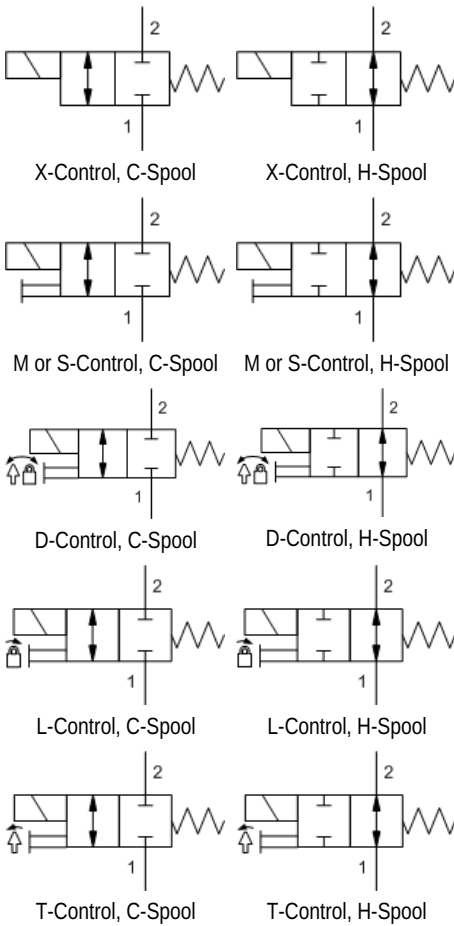
TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	41 cc/min.@350 bar
Switching Frequency	13 Hz
Response Time - Normally Closed Spool	12 ms
Response Time - Normally Open Spool	9 ms
Seal kit - Cartridge	Buna: 990708007
Seal kit - Cartridge	Viton: 990708006

CONFIGURATION OPTIONS

Model Code Example: DLVBXCNM12

CONTROL	(X)	SPOOL CONFIGURATION	(C)	SEAL MATERIAL	(N)	CONNECTOR	(M)
X Standard		C Normally Closed		N Buna-N		M M12 4 pin	
		H Normally Open		E EPDM		VOLTAGE	(12)
				V Viton		12 12 VDC	
						Standard Material/Coating	
						/LH Mild Steel, Zinc-Nickel	
						24 24 VDC	



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, balanced spool directional valve. The valve is available in either a normally open or normally closed configuration.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	EPDM: 990413014
Seal kit - Cartridge	Viton: 990413006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

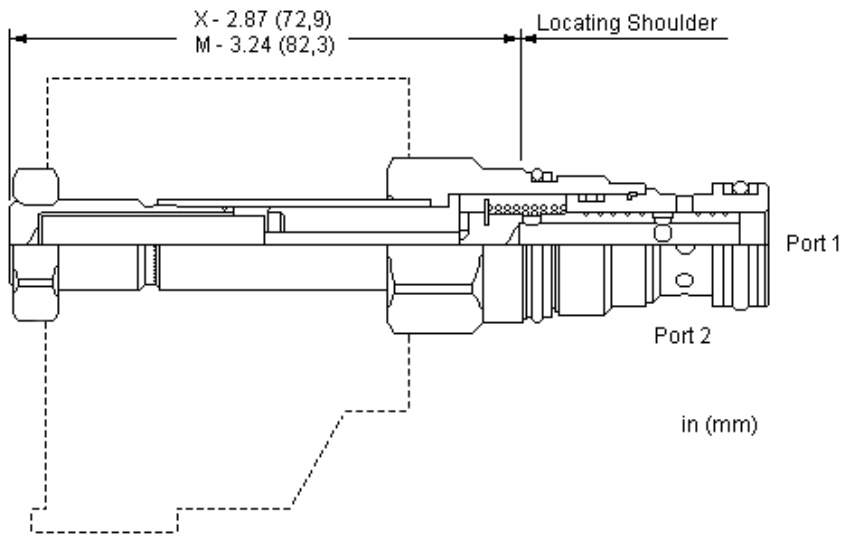
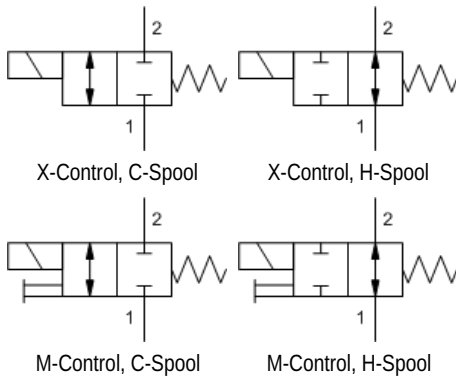
Model Code Example: **DLDAXCN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
M Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
D Twist/Lock (Dual) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
L Twist/Lock (Detent) Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available

MATERIAL/COATING

Standard Material/Coating



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, balanced spool directional valve. The valve is available in either a normally open or normally closed configuration.

TECHNICAL DATA

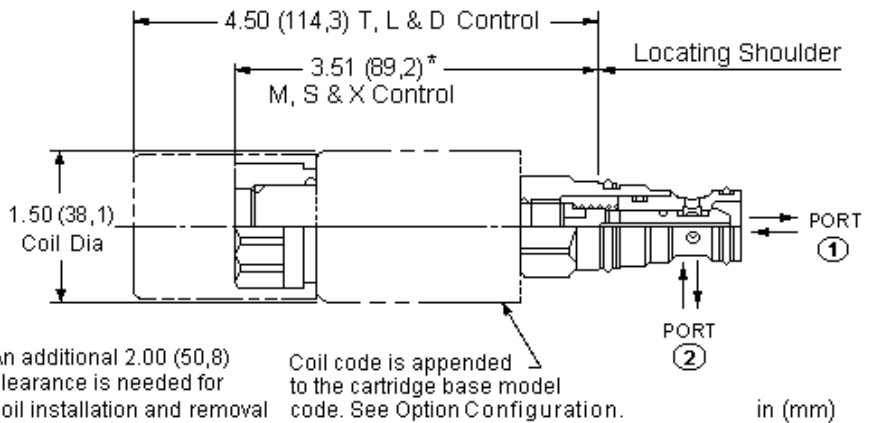
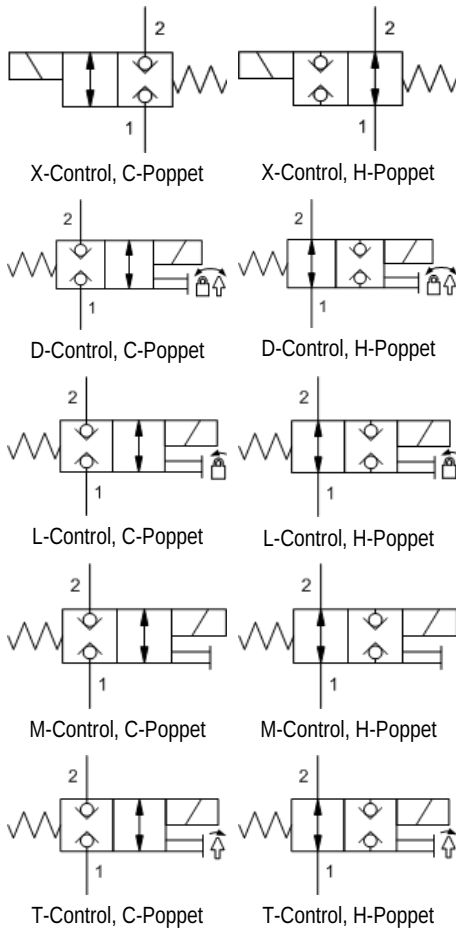
Maximum Operating Pressure	250 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min. @ 210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Viton: 990010006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DLDBXCN

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
M Manual Override	H Normally Open	V Viton	* Additional coil options are available



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is available in either a normally open or normally closed configuration. Due to the poppet style construction, this valve has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	EPDM: 990413014
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006

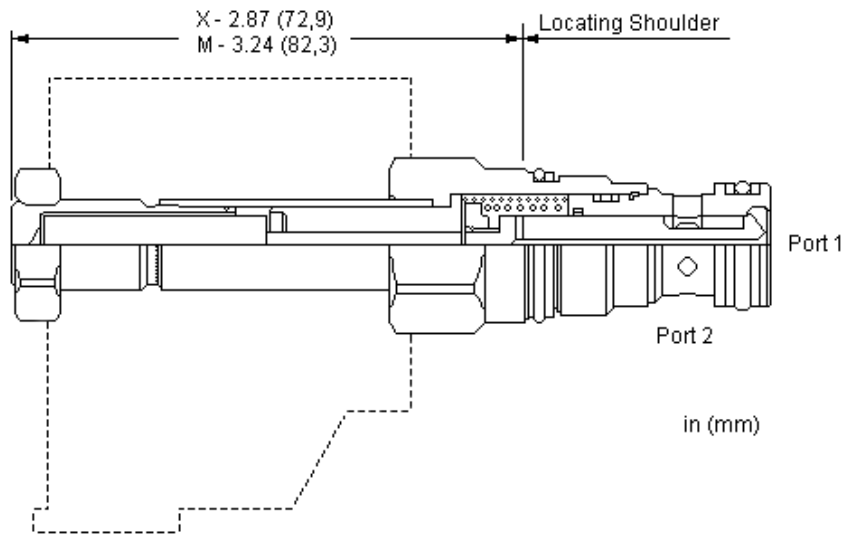
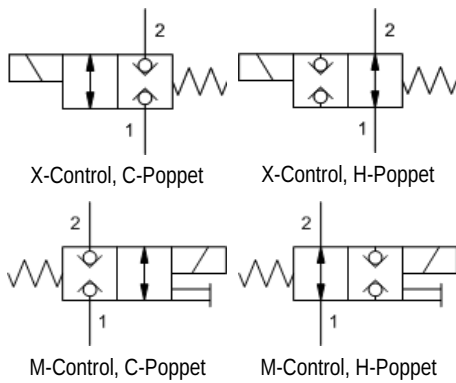
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DTDAXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is available in either a normally open or normally closed configuration. Due to the poppet style construction, this valve has extremely low leakage.

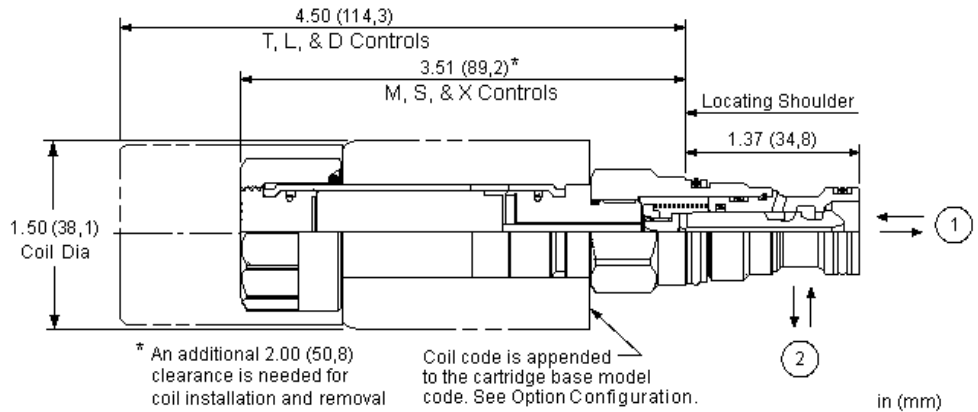
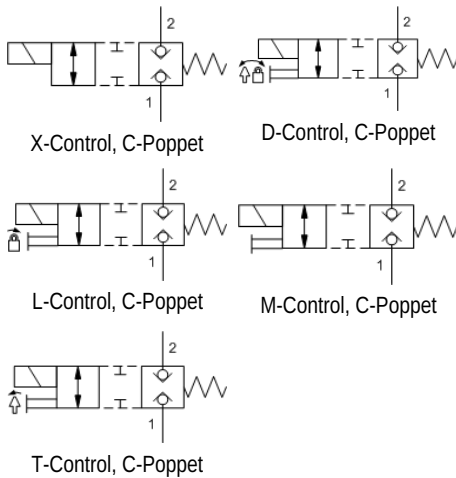
TECHNICAL DATA

Maximum Operating Pressure	250 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	EPDM: 990413014
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006

CONFIGURATION OPTIONS

Model Code Example: DTDBXCN

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
M Manual Override	H Normally Open	E EPDM	* Additional coil options are available
		V Viton	



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is only available in a normally closed configuration. Due to the poppet style construction, this valve has extremely low leakage.

Many poppet style directional valves pass a small amount of fluid when the pressure across them changes suddenly. This is due to the compressibility of the fluid. This valve has been designed to prevent this from happening.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006

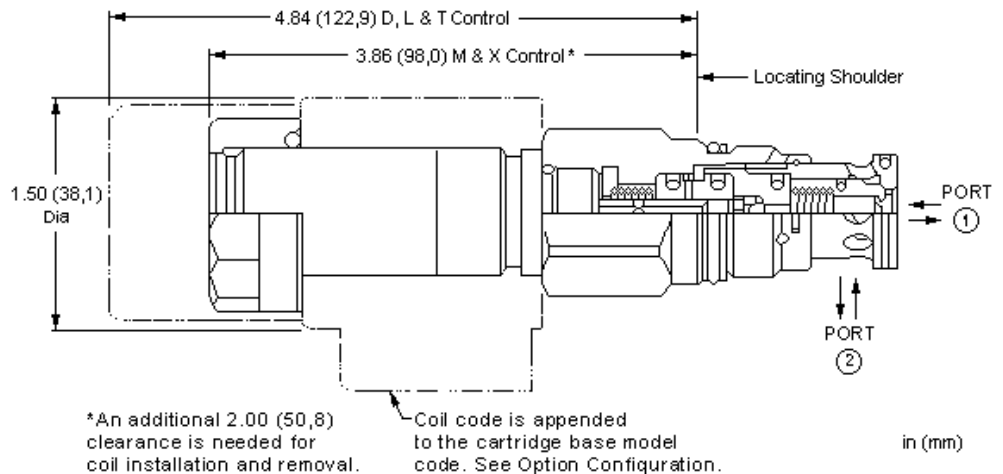
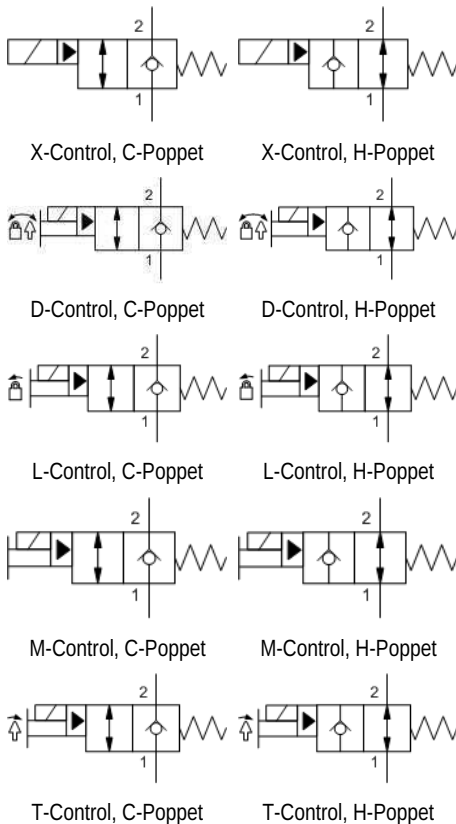
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DTCAXCN

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override		E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	Viton: 990310006

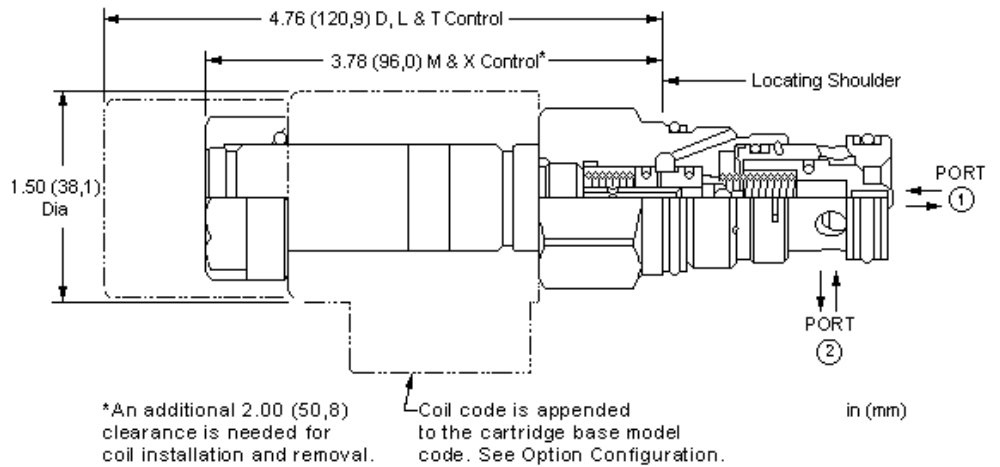
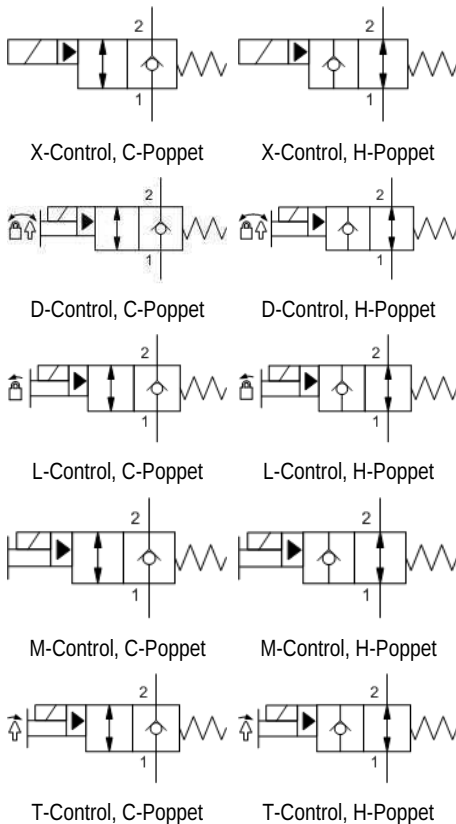
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DFCAXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

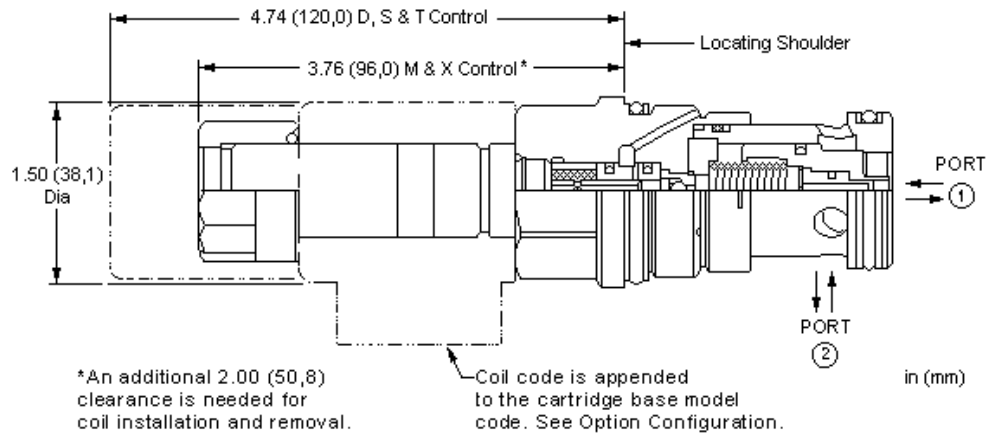
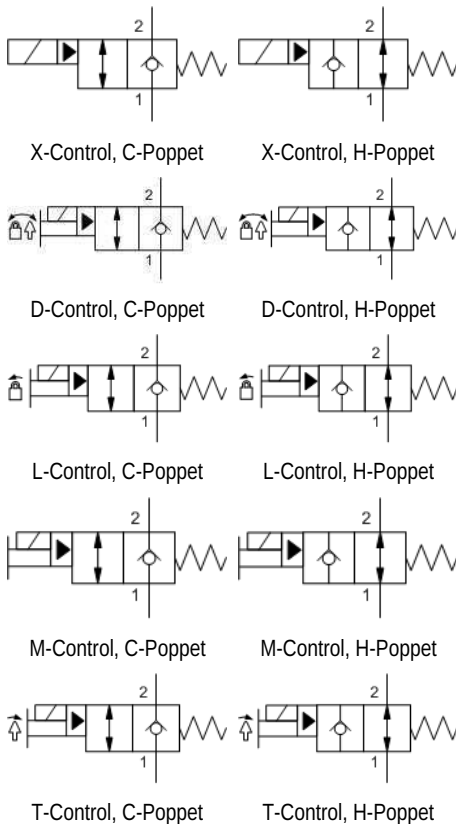
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DFDAXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Viton: 990016006

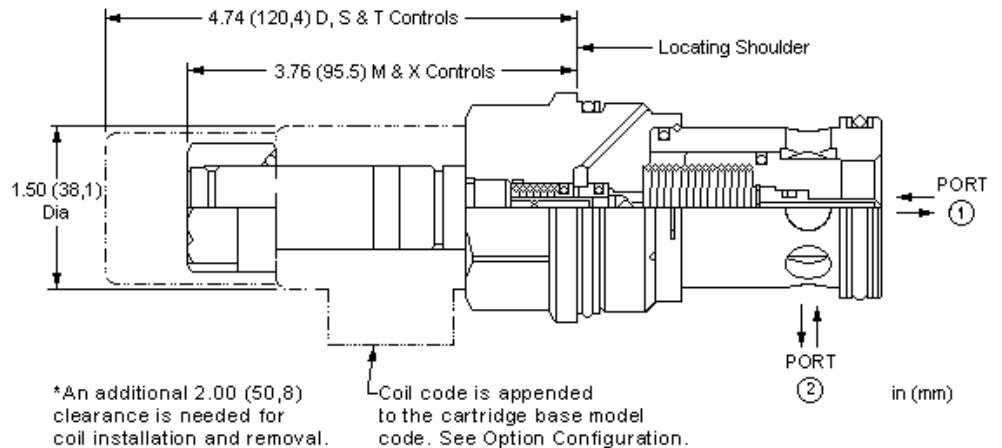
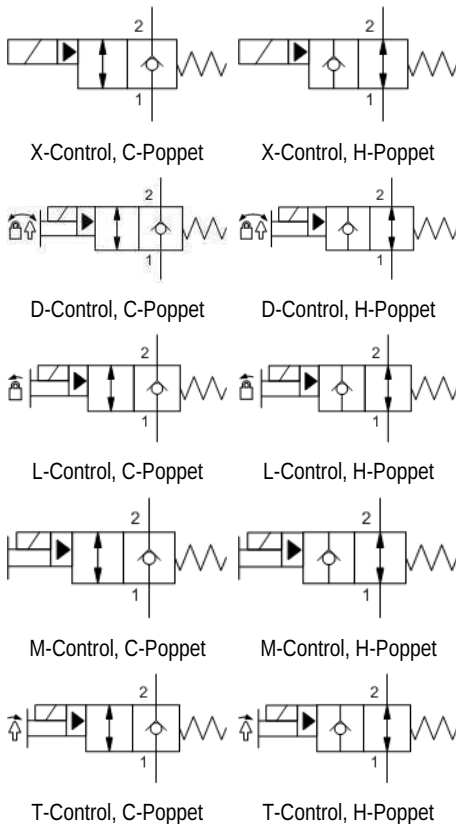
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DFEAXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Viton: 990018006

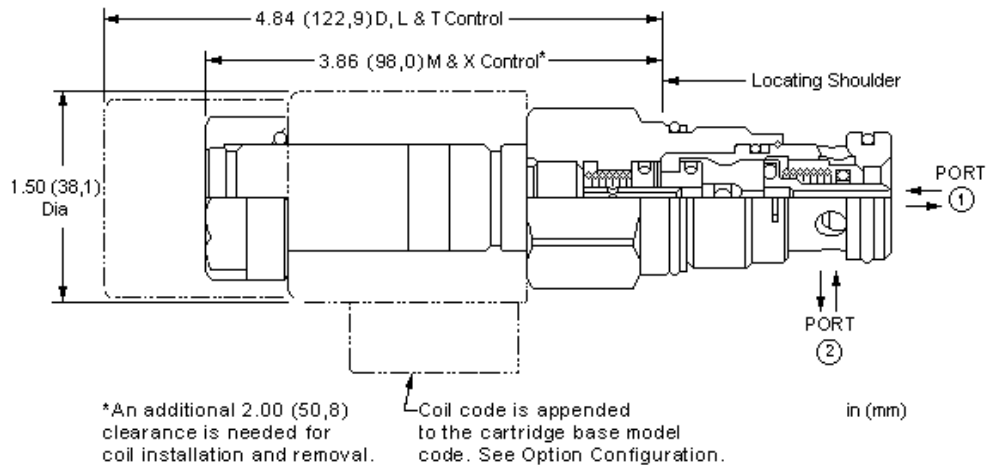
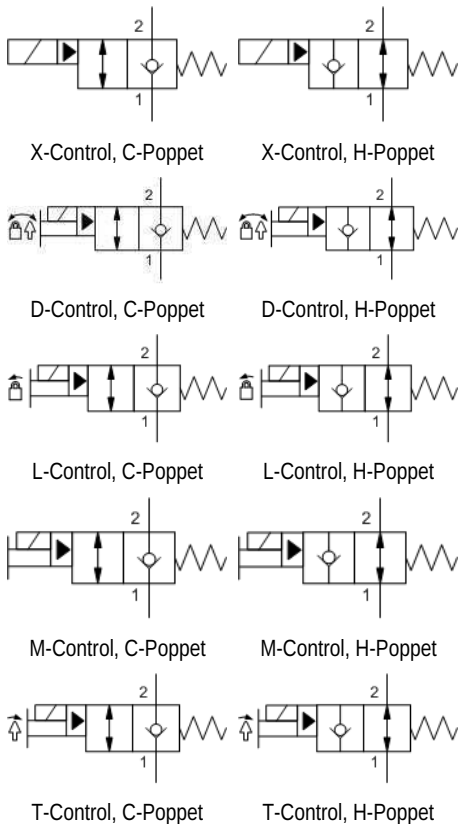
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DFFAXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	V Viton	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override			224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	Viton: 990310006

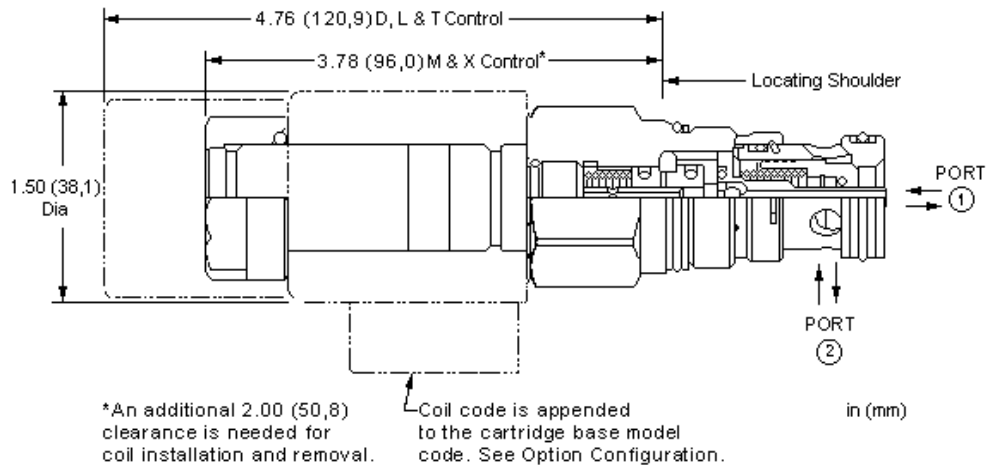
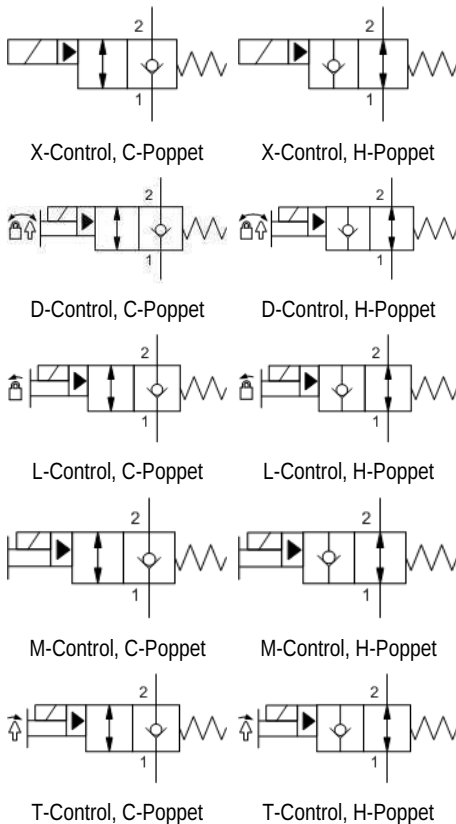
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DFCBXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	V Viton	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override			224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

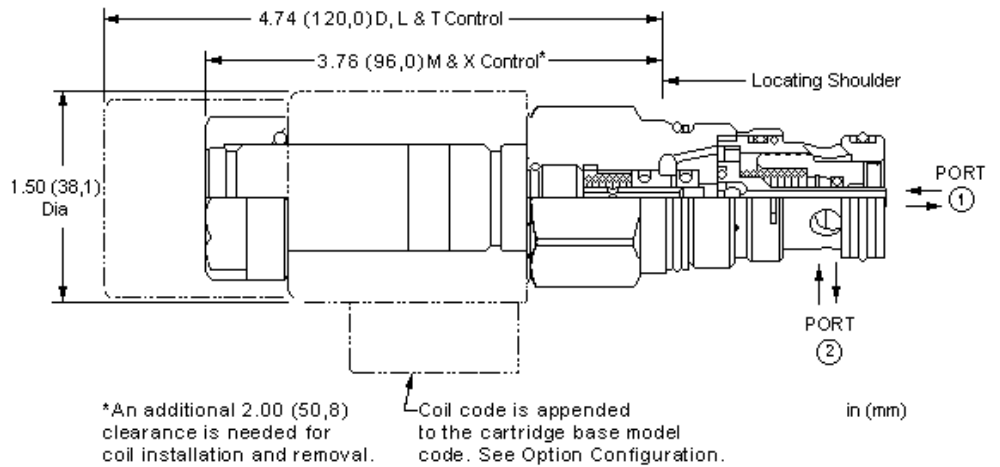
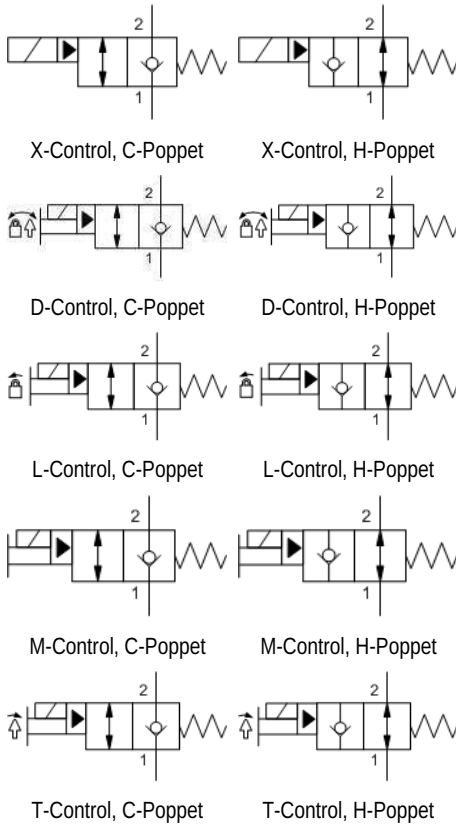
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DFDBXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Viton: 990016006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: **DFEBXCN**

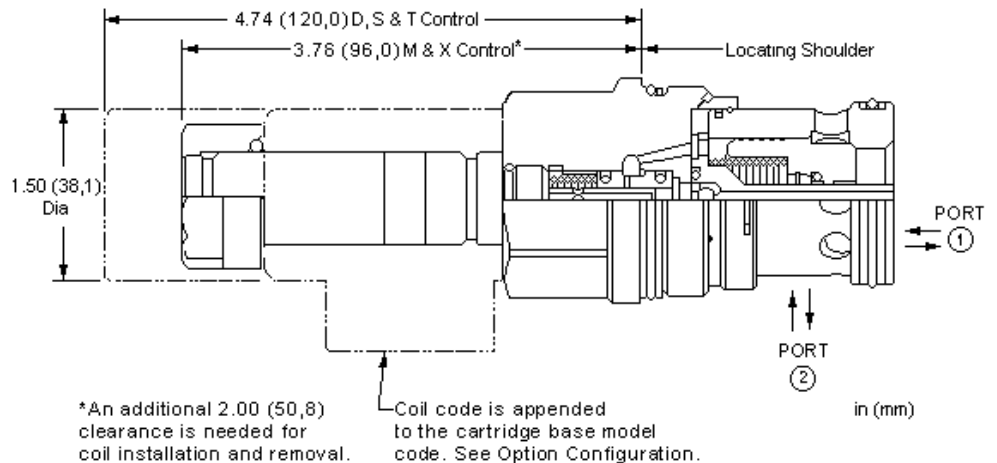
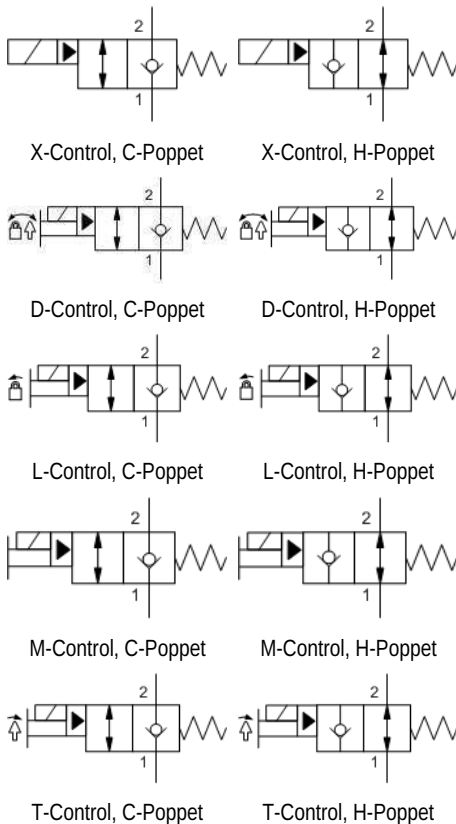
CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	V Viton	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override			224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available

MATERIAL/COATING

Standard Material/Coating

IAP Stainless Steel, Passivated



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Viton: 990018006

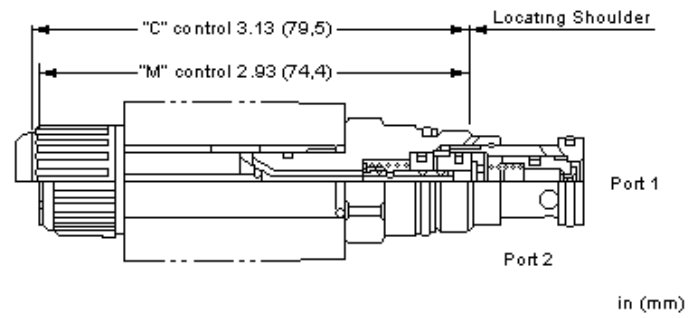
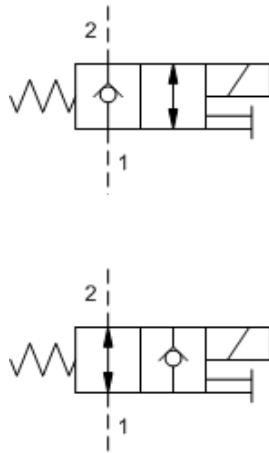
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DFFBXCN

CONTROL	(X) POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid controlled, 2-way, 2-position cartridge is a pilot-operated, poppet style directional valve with reverse free flow check. It is available in either a normally open or normally closed configuration. Due to its poppet style construction, it has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	3,5 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	EPDM: 990313014
Seal kit - Cartridge	Viton: 990310006

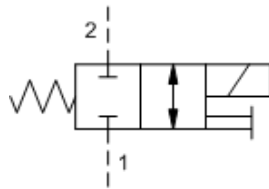
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

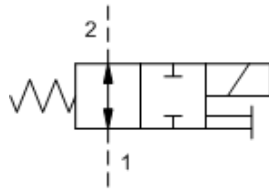
Model Code Example: DACCMCN

CONTROL	(M) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
M Manual Override	C Normally Closed	N Buna-N	No coil
C Concealed Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
		V Viton	224 DIN 43650-Form A, 24 VDC
			712 Twin Lead, 12 VDC
			724 Twin Lead, 24 VDC

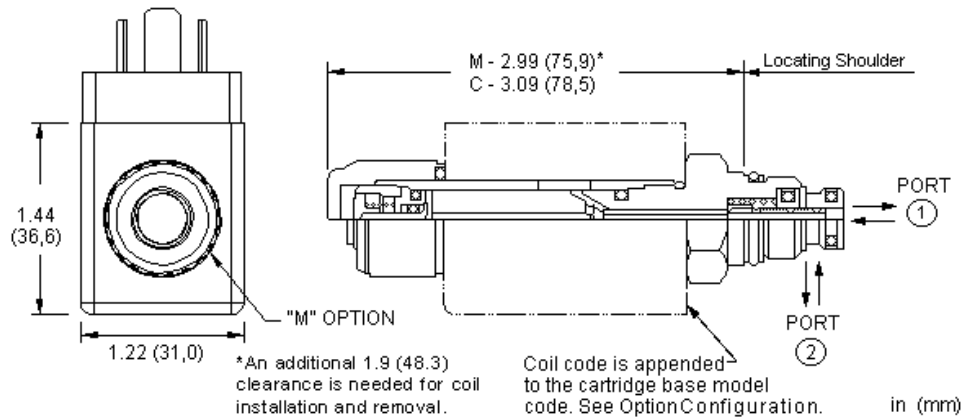
* Additional coil options are available



M or S-Control, C-Spool



M or S-Control, H-Spool



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, balanced spool pilot valve used to pilot other full-flow valves. The valve is available in either a normally open or normally closed configuration.

This cartridge can be installed directly into a cavity in the end of many of Sun's pilot operated and ventable valves to provide integrated pilot control.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Seal kit - Cartridge	Buna: 990008007
Seal kit - Cartridge	EPDM: 990308114
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990008006

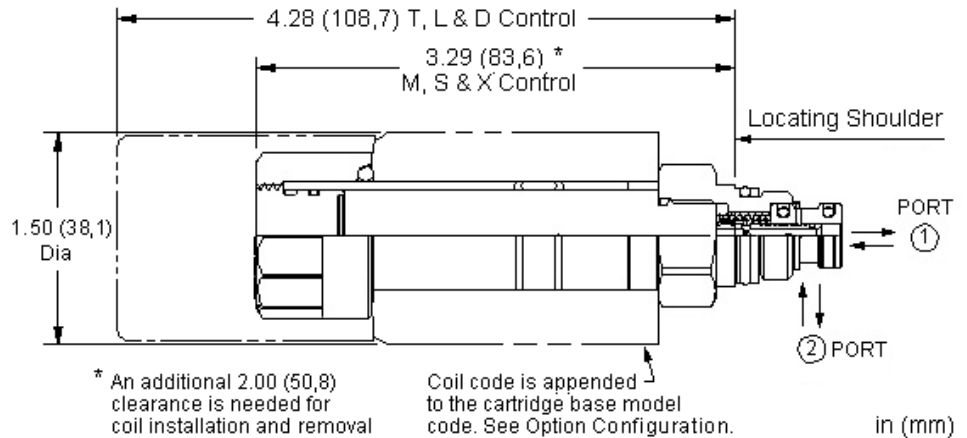
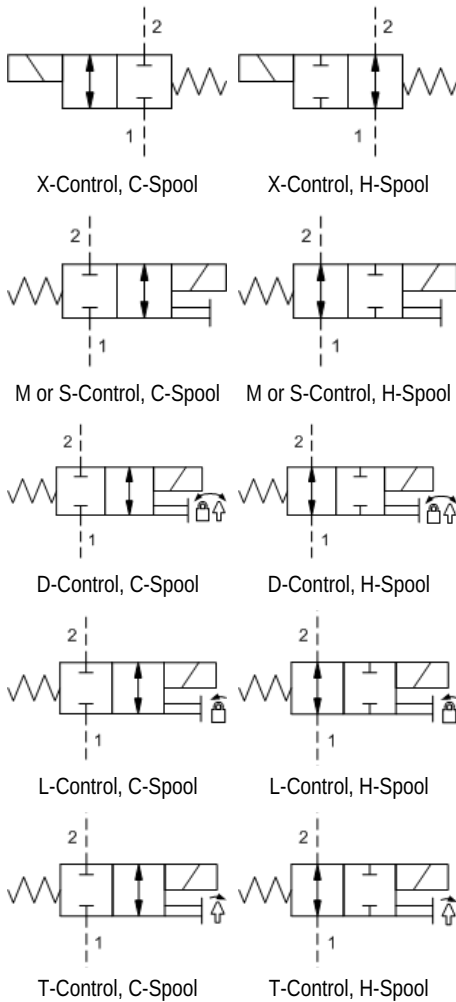
NOTES An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DAAAMCN

CONTROL	(M)	SPOOL CONFIGURATION	(C)	SEAL MATERIAL	(N)	COIL *
M Manual Override	C Normally Closed	N Buna-N				
C Concealed Manual Override	H Normally Open	E EPDM				
		V Viton				
			No coil			
			212 DIN 43650-Form A, 12 VDC			
			224 DIN 43650-Form A, 24 VDC			
			712 Twin Lead, 12 VDC			
			724 Twin Lead, 24 VDC			

* Additional coil options are available



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, balanced spool pilot valve used to pilot other full-flow valves. The valve is available in either a normally open or normally closed configuration.

This cartridge can be installed directly into a cavity in the end of many of Sun's pilot operated and ventable valves to provide integrated pilot control.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990008007
Seal kit - Cartridge	EPDM: 990008014
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990008006

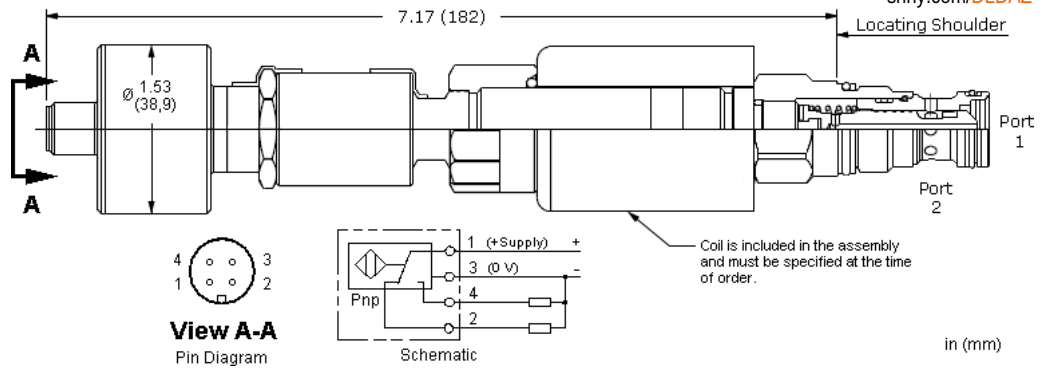
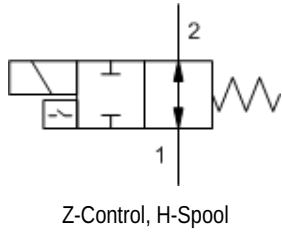
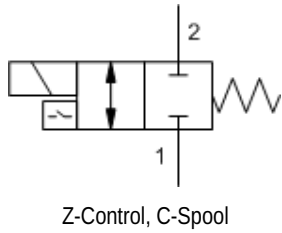
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DAALXCN

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, balanced spool directional valve. The valve is available in either a normally open or normally closed configuration.

The position switch provides confirmation that the valve is in the spring biased position.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min. @210 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	Viton: 990413006

NOTES An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

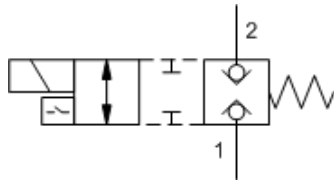
CONFIGURATION OPTIONS

Model Code Example: **DLDAZCN224**

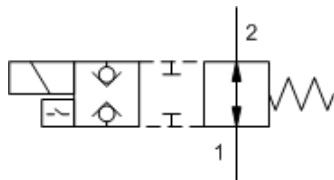
SPOOL CONFIGURATION (C) **SEAL MATERIAL** (N) **COIL *** (224)

C Normally Closed	N Buna-N	224 DIN 43650-Form A, 24 VDC
H Normally Open	V Viton	212 DIN 43650-Form A, 12 VDC
		912 Deutsch DT04-2P, 12 VDC
		924 Deutsch DT04-2P, 24 VDC

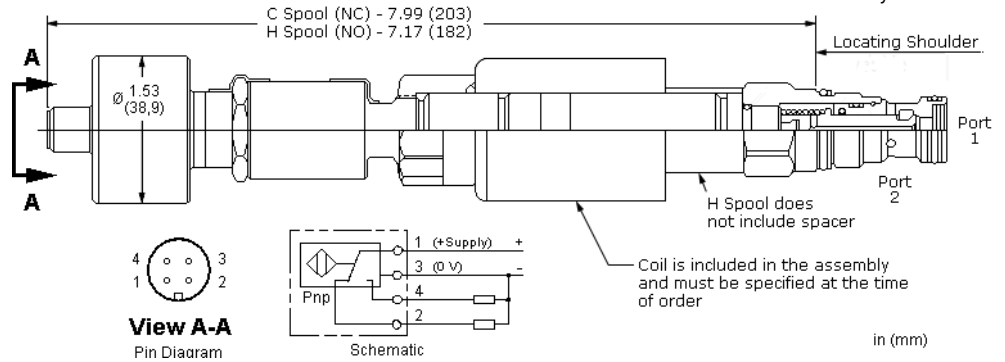
* Additional coil options are available



Z-Control, C-Poppet



Z-Control, H-Poppet



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, poppet-style directional valve. Due to the poppet-style construction, this valve has extremely low leakage.

Many poppet style directional valves pass a small amount of fluid when the pressure across them changes suddenly. This is due to the compressibility of the fluid. This valve has been designed to prevent this from happening.

The position switch provides confirmation that the valve is in the non-energized position.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	EPDM: 990413014
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006

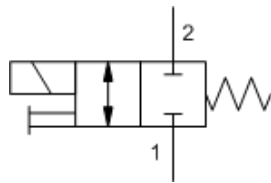
NOTES An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

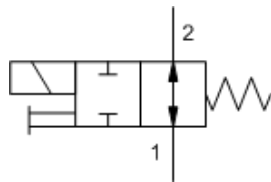
Model Code Example: DTCAZCN224

SPOOL CONFIGURATION	(C)	SEAL MATERIAL	(N)	COIL *	(224)
C Normally Closed		N Buna-N		224 DIN 43650-Form A, 24 VDC	
H Normally Open		E EPDM		212 DIN 43650-Form A, 12 VDC	
		V Viton		912 Deutsch DT04-2P, 12 VDC	
				924 Deutsch DT04-2P, 24 VDC	

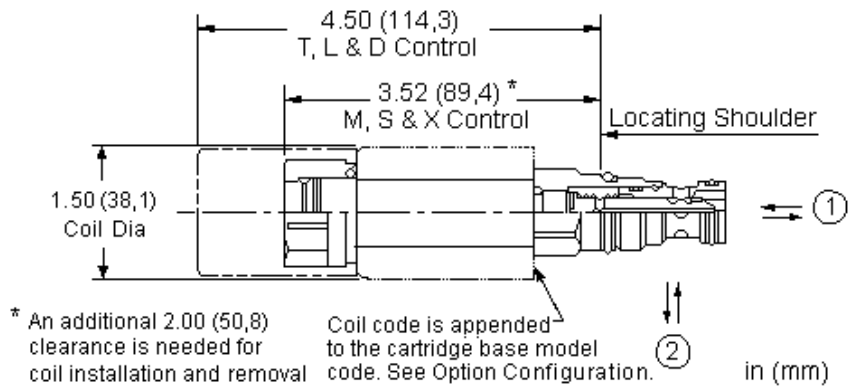
* Additional coil options are available



M or S-Control, C-Spool



M or S-Control, H-Spool



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, balanced spool valve with a soft shift feature. The soft shift feature greatly reduces system shock due to valve actuation. The valve is available in either a normally open or normally closed configuration.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	EPDM: 990413014
Seal kit - Cartridge	Viton: 990413006

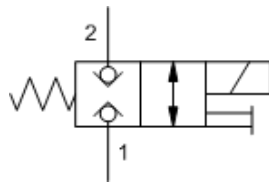
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

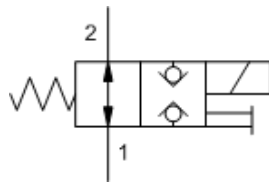
Model Code Example: DLDASCN

SPOOL CONFIGURATION	(C)	SEAL MATERIAL	(N)	COIL *
C Normally Closed	N Buna-N			No coil
H Normally Open	E EPDM			212 DIN 43650-Form A, 12 VDC
	V Viton			224 DIN 43650-Form A, 24 VDC
				712 Twin Lead, 12 VDC
				724 Twin Lead, 24 VDC
				912 Deutsch DT04-2P, 12 VDC
				924 Deutsch DT04-2P, 24 VDC

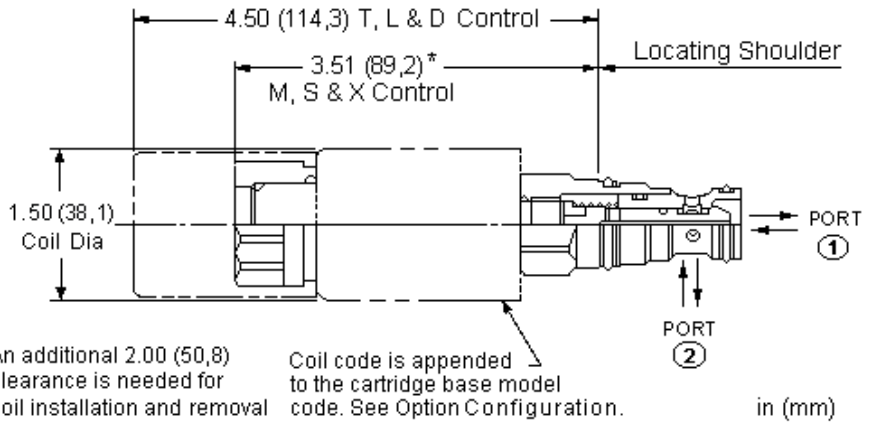
* Additional coil options are available



M-Control, C-Poppet



M-Control, H-Poppet



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, poppet-style valve with a soft shift feature. The soft shift feature greatly reduces system shock due to valve actuation. The valve is available in either a normally open or normally closed configuration. Due to its poppet-style construction, this valve has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	EPDM: 990413014
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006

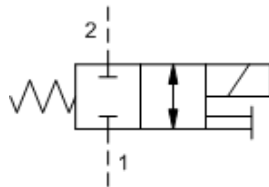
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

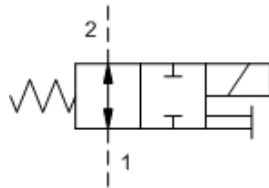
Model Code Example: DTDASCN

POPPET CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
C Normally Closed	N Buna-N	No coil
H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
	V Viton	224 DIN 43650-Form A, 24 VDC
		712 Twin Lead, 12 VDC
		724 Twin Lead, 24 VDC
		912 Deutsch DT04-2P, 12 VDC
		924 Deutsch DT04-2P, 24 VDC

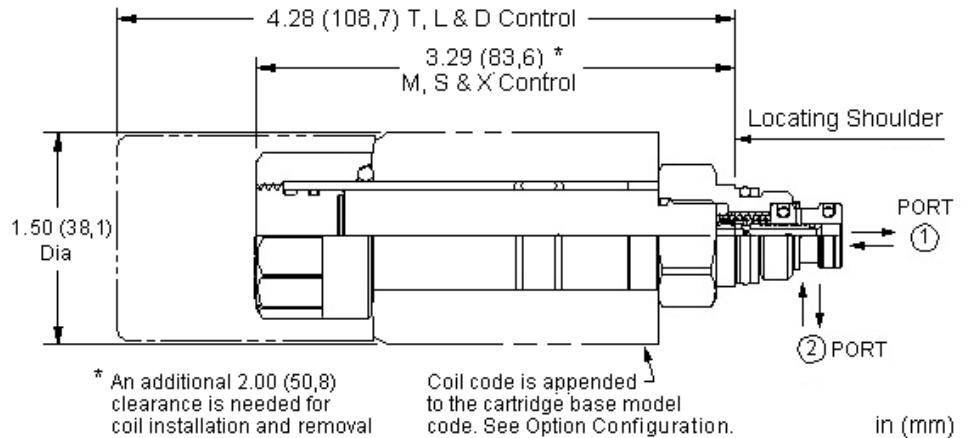
* Additional coil options are available



M or S-Control, C-Spool



M or S-Control, H-Spool



This solenoid-operated 2-way, 2-position cartridge is a direct-acting, balanced spool valve with a soft shift feature. The soft shift feature greatly reduces system shock due to valve actuation. The valve is available in either a normally open or normally closed configuration.

This cartridge can be installed directly into a cavity in the end of many of Sun's pilot operated and ventable valves to provide integrated pilot control.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min. @350 bar
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990008007
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990008006

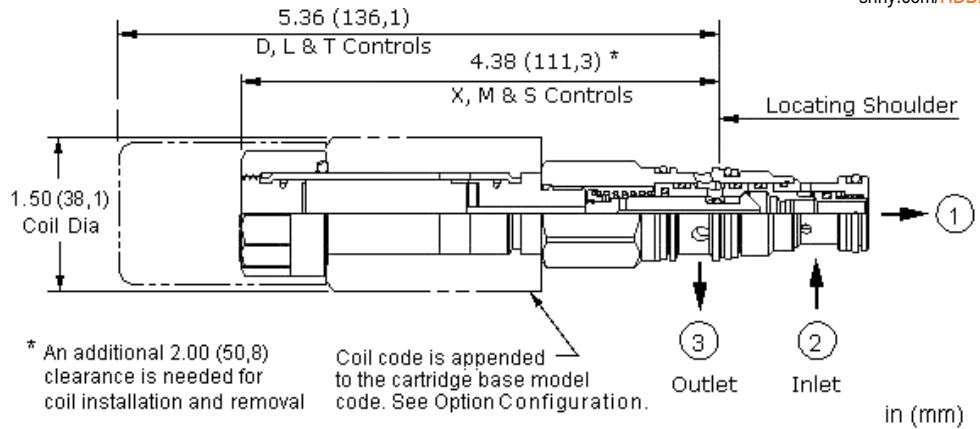
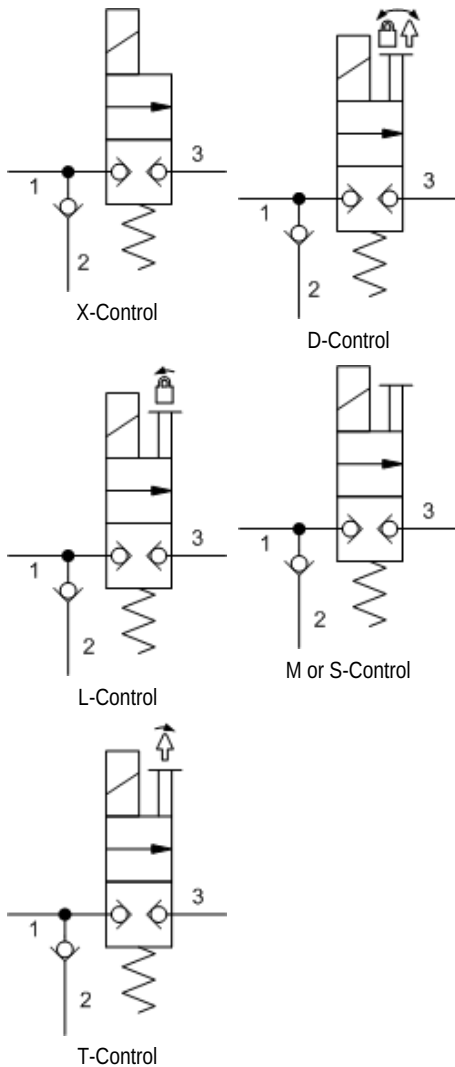
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DAALSCN

SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
C Normally Closed	N Buna-N	No coil
H Normally Open	E EPDM	212 DIN 43650-Form A, 12 VDC
	V Viton	224 DIN 43650-Form A, 24 VDC
		712 Twin Lead, 12 VDC
		724 Twin Lead, 24 VDC
		912 Deutsch DT04-2P, 12 VDC
		924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-after check cartridge is a hybrid valve incorporating a direct acting solenoid poppet valve teed in after the check function. The check valve flow is from the inlet (port 2) to the system (port 1). With the solenoid de-energized flow from (port 2) to (port 3) is blocked. This combination valve is typically used in lift/lower applications and can be integrated directly into the actuator.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Check Cracking Pressure	2 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

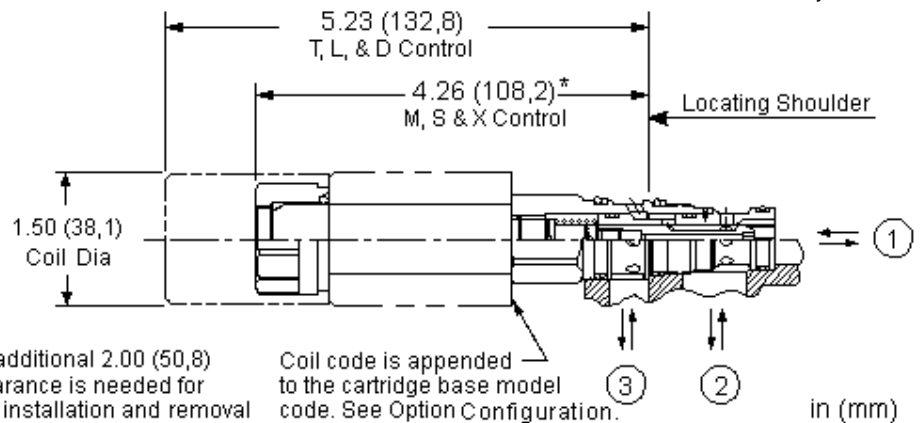
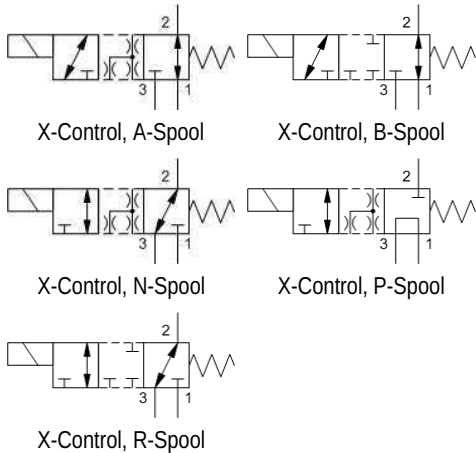
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: HDDAXCN

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Normally Closed	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override		V Viton	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override			224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, balanced spool directional valve.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990411007
Seal kit - Cartridge	EPDM: 990411014
Seal kit - Cartridge	Viton: 990411006

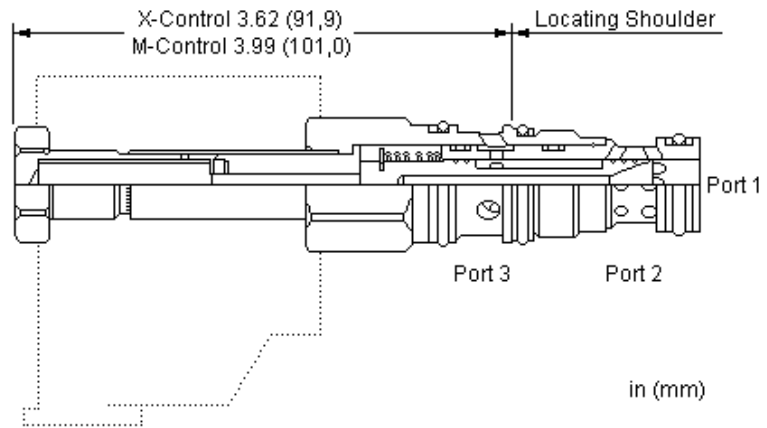
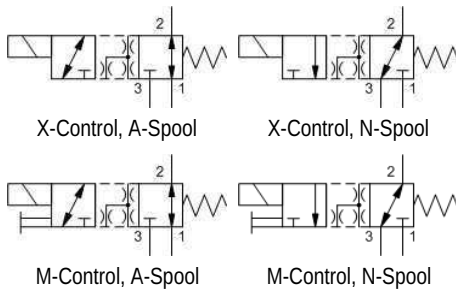
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DMDAXAN

CONTROL	(X) SPOOL CONFIGURATION	(A) SEAL MATERIAL	(N) COIL *
X No Manual Override	A Normally Open 1 to 2, Closed 2 to 3	N Buna-N	No coil
M Manual Override	N Normally Open 2 to 3, Closed 1 to 2	E EPDM	212 DIN 43650-Form A, 12 VDC
D Twist/Lock (Dual) Manual Override	B Normally Open 1 to 2, Closed 2 to 3, Closed Transition	V Viton	224 DIN 43650-Form A, 24 VDC
L Twist/Lock (Detent) Manual Override	P Normally Open 1 to 3, Closed 1 to 2		712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override	R Normally Open 2 to 3, Closed 1 to 2, Closed Transition		724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, balanced spool directional valve.

TECHNICAL DATA

Maximum Operating Pressure	250 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990811007
Seal kit - Cartridge	Viton: 990811006

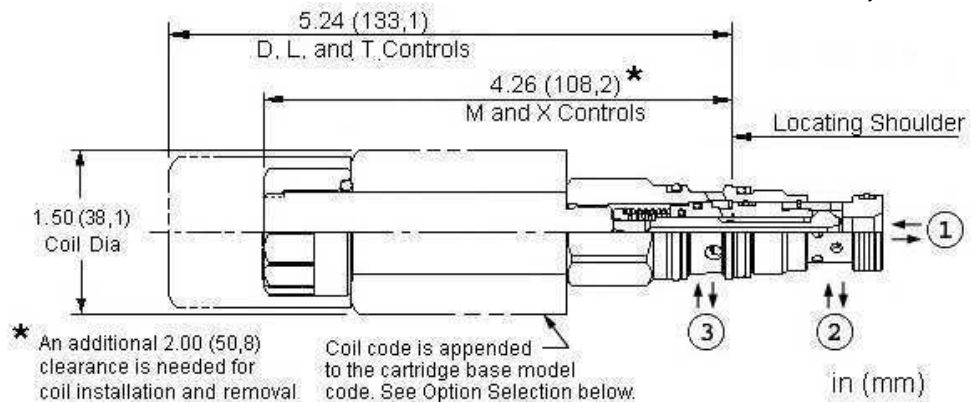
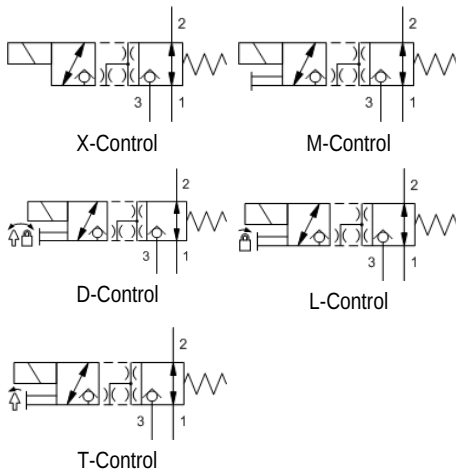
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DMDBXAN

CONTROL	(X)	SPOOL CONFIGURATION	(A)	SEAL MATERIAL	(N)	COIL *
X No Manual Override		A Normally Open 1 to 2, Closed 2 to 3		N Buna-N		No coil
M Manual Override		N Normally Open 2 to 3, Closed 1 to 2		V Viton		

* Additional coil options are available



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is normally open between port 1 and port 2 with port 3 blocked. Energizing the valve connects port 2 to 3 and blocks port 1. All flow paths are bidirectional and blocked paths are blocked in both directions. Due to the poppet style construction, this valve has extremely low leakage.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min. @350 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990411007
Seal kit - Cartridge	Viton: 990411006

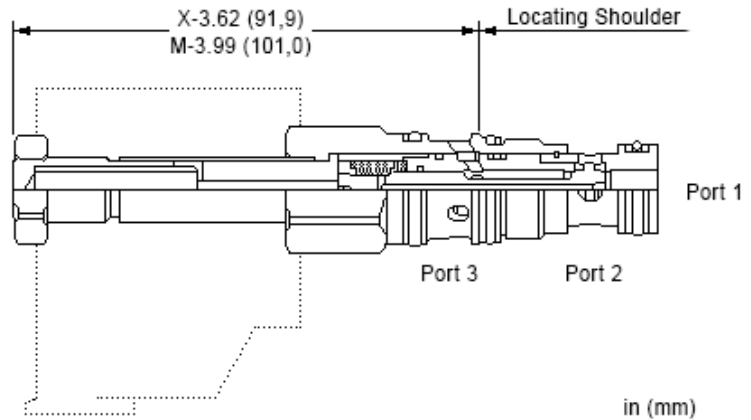
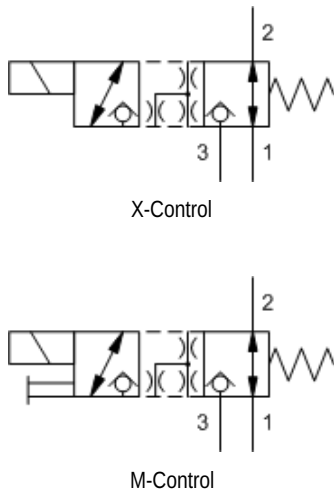
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DWDAXAN

CONTROL	(X) POPPET CONFIGURATION	(A) SEAL MATERIAL	(N) COIL *
X No Manual Override	A Normally Open 1 to 2, Closed 2 to 3	N Buna-N	No coil
M Manual Override (Standard)		E EPDM	212 DIN 43650-Form A, 12 VDC
D Twist/Lock (Dual) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
L Twist/Lock (Detent) Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is normally open between port 1 and port 2 with port 3 blocked. Energizing the valve connects port 2 to 3 and blocks port 1. All flow paths are bidirectional and blocked paths are blocked in both directions. Due to the poppet style construction, this valve has extremely low leakage.

TECHNICAL DATA

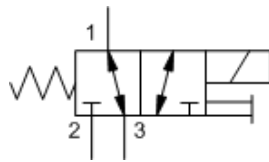
Maximum Operating Pressure	250 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990811007
Seal kit - Cartridge	Viton: 990811006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

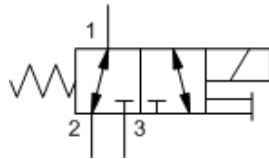
CONFIGURATION OPTIONS

Model Code Example: DWDBXAN

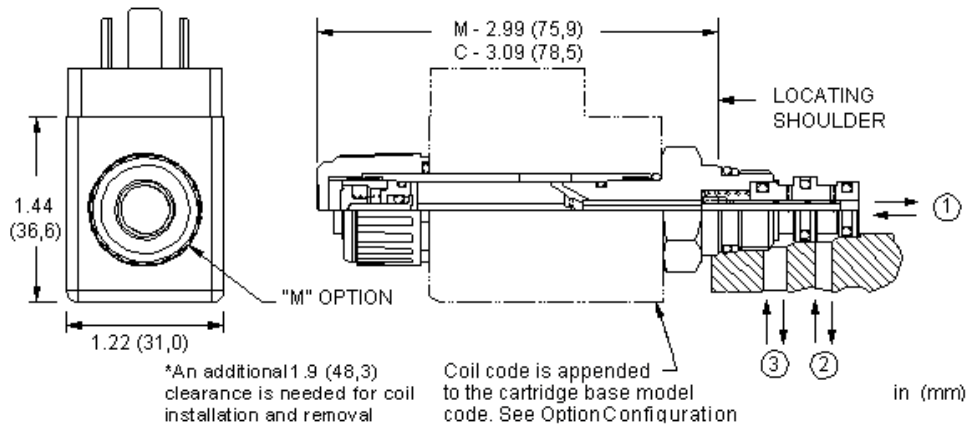
CONTROL	(X)	POPPET CONFIGURATION	(A)	SEAL MATERIAL	(N)	COIL *
X No Manual Override		A Normally Open 1 to 2, Closed 2 to 3		N Buna-N		No coil
M Manual Override				V Viton		* Additional coil options are available



M or S-Control, C-Spool



M or S-Control, H-Spool



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, balanced spool pilot valve used to pilot other full-flow valves. The valve is normally open between port 1 and port 2 or port 1 and port 3 and all flow paths are bidirectional.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	30 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min. @350 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Seal kit - Cartridge	Buna: 990009007
Seal kit - Cartridge	EPDM: 990309014
Seal kit - Cartridge	Polyurethane: 990009002
Seal kit - Cartridge	Viton: 990009006

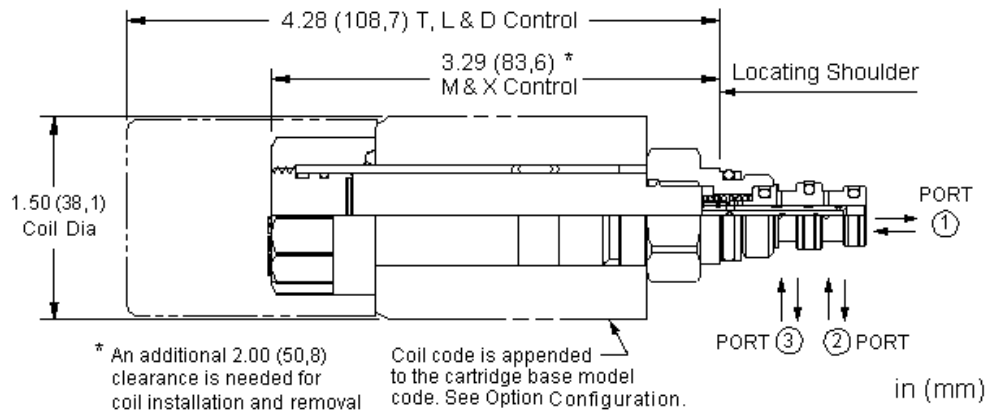
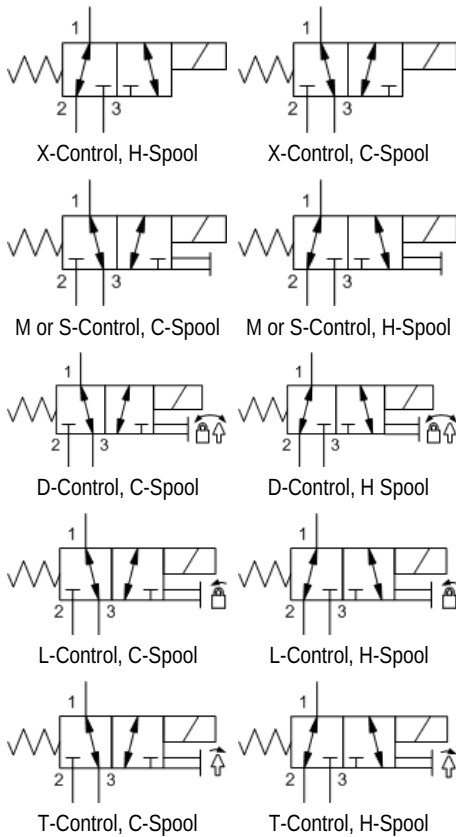
NOTES An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DBAAMCN

CONTROL	(M) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
M Manual Override	C Normally Open 1 to 3, Closed 1 to 2	N Buna-N	No coil
C Concealed Manual Override	H Normally Open 1 to 2, Closed 1 to 3	E EPDM	212 DIN 43650-Form A, 12 VDC
		V Viton	224 DIN 43650-Form A, 24 VDC
			712 Twin Lead, 12 VDC
			724 Twin Lead, 24 VDC

* Additional coil options are available



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, balanced spool pilot valve used to pilot other full-flow valves. The valve is normally open between port 1 and port 2 or port 1 and port 3 and all flow paths are bidirectional.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990009007
Seal kit - Cartridge	EPDM: 990309114
Seal kit - Cartridge	Polyurethane: 990009002
Seal kit - Cartridge	Viton: 990009006

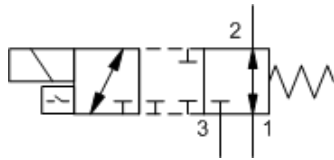
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

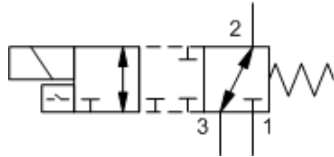
Model Code Example: DBALXHN

CONTROL	(X) SPOOL CONFIGURATION	(H) SEAL MATERIAL	(N) COIL *
X No Manual Override	H Normally Open 1 to 2, Closed 1 to 3	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	C Normally Open 1 to 3, Closed 1 to 2	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

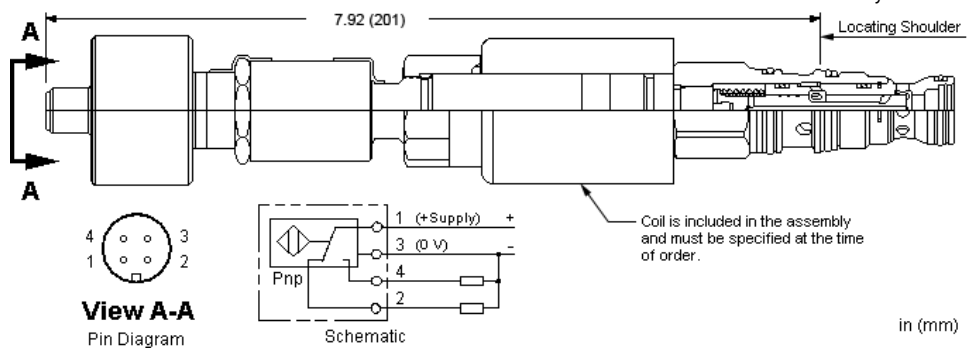
* Additional coil options are available



Z-Control, B-Spool



Z-Control, R-Spool



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, balanced spool directional valve. The transition between positions is closed. The closed transition greatly reduces the loss of oil when shifting which can be of particular importance in pilot control circuits.

The position switch provides confirmation that the valve is in the spring biased position.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990411007
Seal kit - Cartridge	EPDM: 990411014
Seal kit - Cartridge	Viton: 990411006

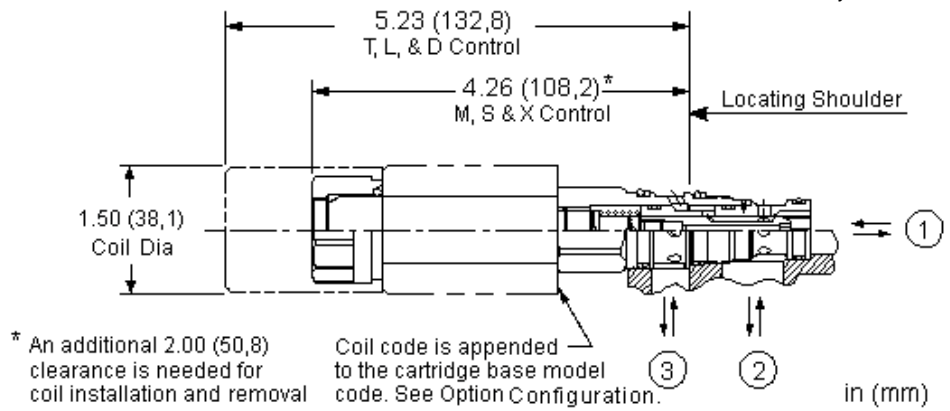
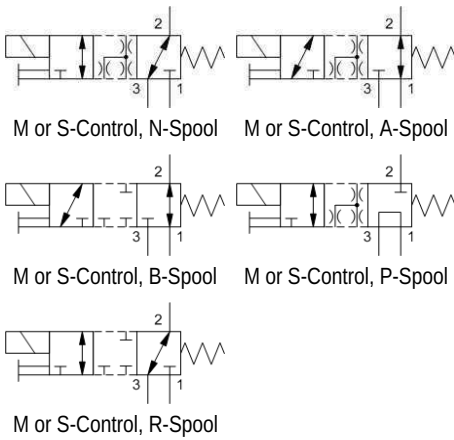
NOTES An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: **DMDAZBN224**

SPOOL CONFIGURATION	(B)	SEAL MATERIAL	(N)	COIL *	(224)
B Normally Open 1 to 2, Closed 2 to 3, Closed Transition	N Buna-N	224 DIN 43650-Form A, 24 VDC			
R Normally Open 2 to 3, Closed 1 to 2, Closed Transition	E EPDM	212 DIN 43650-Form A, 12 VDC			
	V Viton	912 Deutsch DT04-2P, 12 VDC			
		924 Deutsch DT04-2P, 24 VDC			

* Additional coil options are available



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, balanced spool directional valve.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990411007
Seal kit - Cartridge	EPDM: 990411014
Seal kit - Cartridge	Viton: 990411006

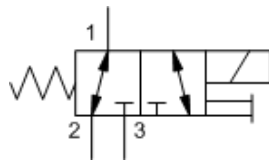
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

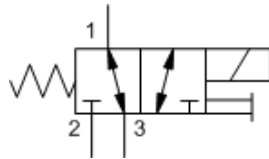
Model Code Example: DMDASNN

SPOOL CONFIGURATION	(N)	SEAL MATERIAL	(N)	COIL *
N Normally Open 2 to 3, Closed 1 to 2	N Buna-N	No coil		
A Normally Open 1 to 2, Closed 2 to 3	E EPDM	212 DIN 43650-Form A, 12 VDC		
B Normally Open 1 to 2, Closed 2 to 3, Closed Transition	V Viton	224 DIN 43650-Form A, 24 VDC		
P Normally Open 1 to 3, Closed 1 to 2		712 Twin Lead, 12 VDC		
R Normally Open 2 to 3, Closed 1 to 2, Closed Transition		724 Twin Lead, 24 VDC		
		912 Deutsch DT04-2P, 12 VDC		
		924 Deutsch DT04-2P, 24 VDC		

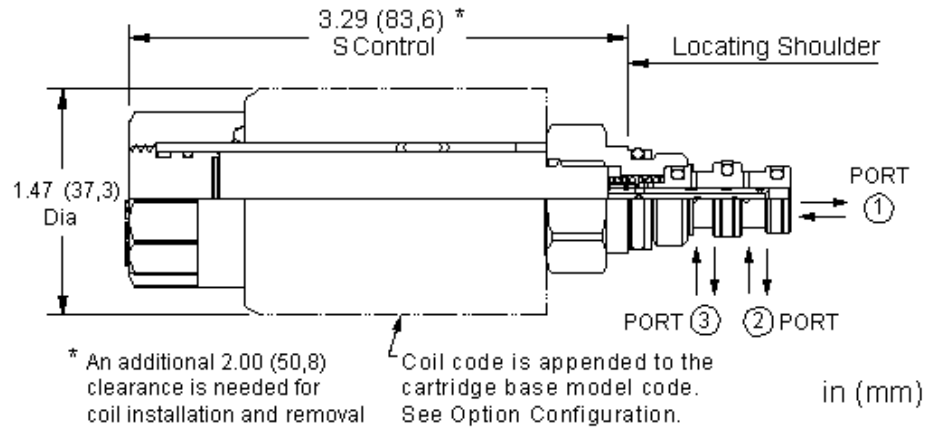
* Additional coil options are available



M or S-Control, H-Spool



M or S-Control, C-Spool



This solenoid-operated 3-way, 2-position cartridge is a direct-acting, balanced spool pilot valve used to pilot other full flow valves. It also includes the soft shift feature which greatly reduces system shock due to valve actuation. This valve is either normally open between port 1 and port 2 or port 1 and port 3 and all flow paths are bidirectional.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.@350 bar
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990009007
Seal kit - Cartridge	EPDM: 990309014
Seal kit - Cartridge	Polyurethane: 990009002
Seal kit - Cartridge	Viton: 990009006

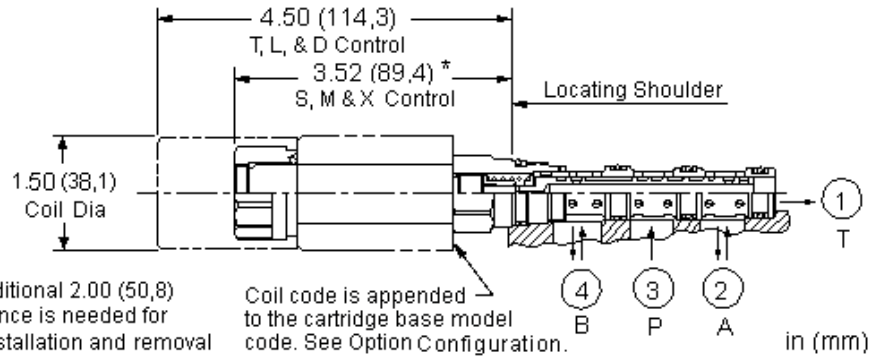
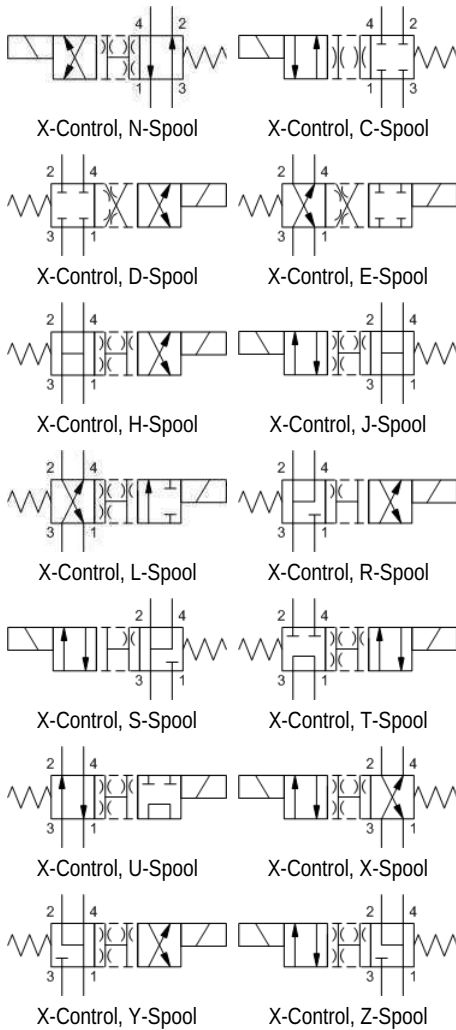
NOTES Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

CONFIGURATION OPTIONS

Model Code Example: DBALSHN

SPOOL CONFIGURATION	(H)	SEAL MATERIAL	(N)	COIL *
H Normally Open 1 to 2, Closed 1 to 3		N Buna-N		No coil
C Normally Open 1 to 3, Closed 1 to 2		E EPDM		212 DIN 43650-Form A, 12 VDC
		V Viton		224 DIN 43650-Form A, 24 VDC
				712 Twin Lead, 12 VDC
				724 Twin Lead, 24 VDC
				912 Deutsch DT04-2P, 12 VDC
				924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-operated 4-way, 2-position cartridge is a direct-acting, balanced spool directional valve.

TECHNICAL DATA

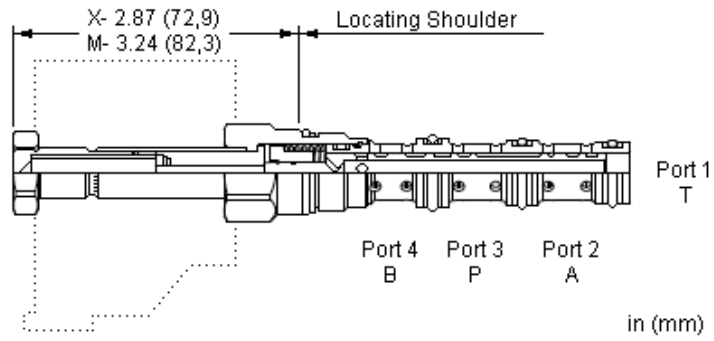
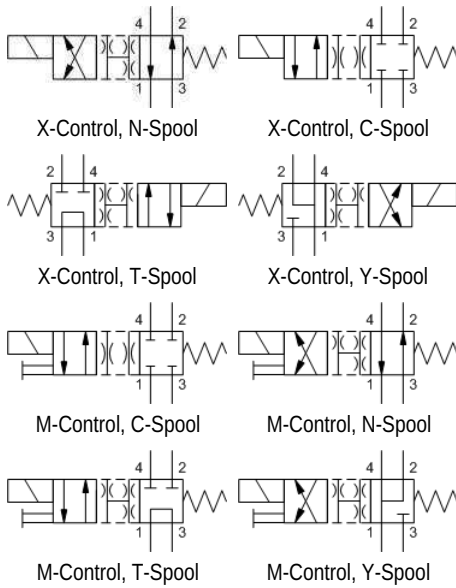
Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	160 cc/min. @210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	EPDM: 990431014
Seal kit - Cartridge	Viton: 990431006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DNDAXNN

CONTROL	(X) SPOOL CONFIGURATION	(N) SEAL MATERIAL	(N) COIL *
X No Manual Override	N Through, Shift to Cross	N Buna-N	No coil
M Manual Override	C Closed, Shift to Through	E EPDM	212 DIN 43650-Form A, 12 VDC
D Twist/Lock (Dual) Manual Override	D Closed, Shift to Cross	V Viton	224 DIN 43650-Form A, 24 VDC
L Twist/Lock (Detent) Manual Override	E Cross, Shift to Closed		712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override	H Open, Shift to Cross		724 Twin Lead, 24 VDC
	J Open, Shift to Through		912 Deutsch DT04-2P, 12 VDC
	L Cross, Shift to P to A, B and T Blocked		924 Deutsch DT04-2P, 24 VDC
	R Regen, Shift to Cross		* Additional coil options are available
	S Regen, Shift to Through		
	T Tandem, Shift to Through		
	U Through, Shift to Tandem		
	X Cross, Shift to Through		
	Y Motor, Shift to Cross		
	Z Motor, Shift to Through		



This solenoid-operated 4-way, 2-position cartridge is a direct-acting, balanced spool directional valve.

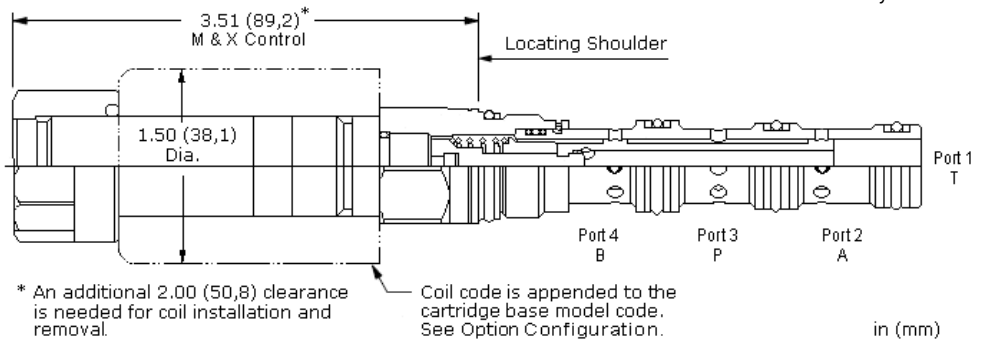
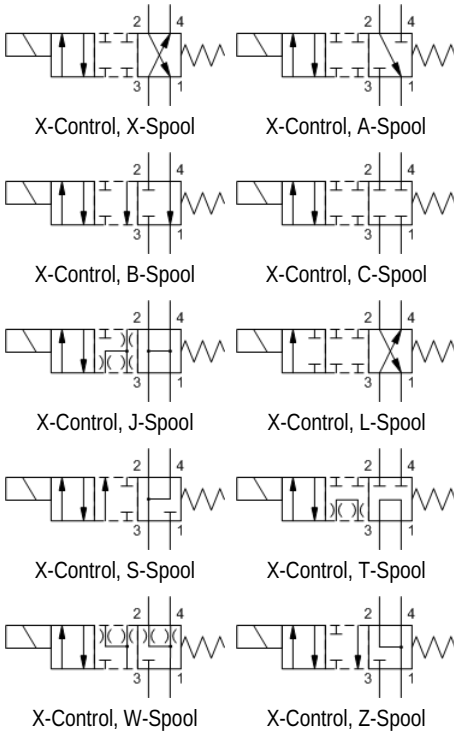
TECHNICAL DATA

Maximum Operating Pressure	250 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	160 cc/min. @210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	66 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	Viton: 990431006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS
Model Code Example: DNDBXNN

CONTROL	(X) SPOOL CONFIGURATION	(N) SEAL MATERIAL	(N) COIL *
X No Manual Override	N Through, Shift to Cross	N Buna-N	No coil
M Manual Override (Standard)	C Closed, Shift to Through	V Viton	* Additional coil options are available
	T Tandem, Shift to Through		
	Y Motor, Shift to Cross		



This solenoid-operated, 4-way, 2-position cartridge is a direct-acting, balanced spool directional valve. The transition between positions is closed. The closed transition greatly reduces the loss of oil when shifting which can be of particular importance in pilot control circuits.

TECHNICAL DATA

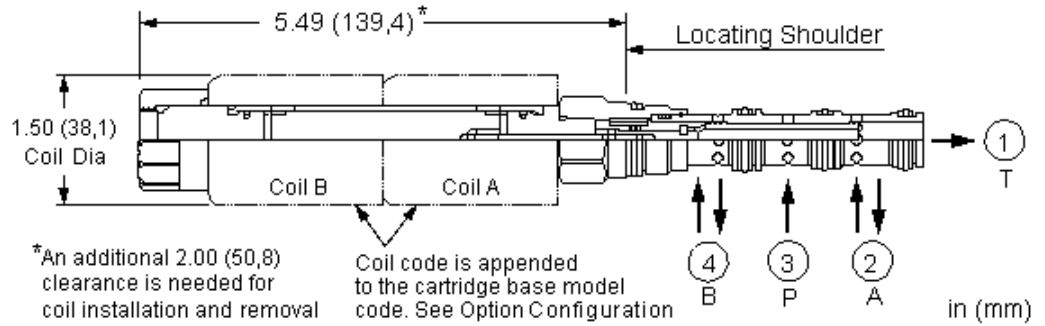
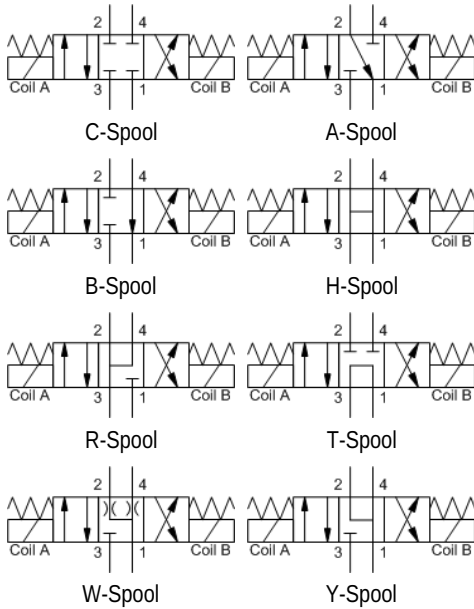
Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	160 cc/min. @210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	EPDM: 990431014
Seal kit - Cartridge	Viton: 990431006

NOTES Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

CONFIGURATION OPTIONS

Model Code Example: DNCA~~X~~XXN

CONTROL	(X) SPOOL CONFIGURATION	(X) SEAL MATERIAL	(N) COIL *
X No Manual Override	X Cross, Shift to Through	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override	C Closed, Shift to Through	E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override	A A to T, Shift to Through	V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override	B B to T, Shift to Through		712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override	J Open, Shift to Through		724 Twin Lead, 24 VDC
	L Cross, Shift to P to A, B and T Blocked		912 Deutsch DT04-2P, 12 VDC
	S Regen, Shift to Through		924 Deutsch DT04-2P, 24 VDC
	T Tandem, Shift to Through		* Additional coil options are available
	W A and B Bleed to T, Shift to Through		
	Z Motor, Shift to Through		



This direct acting, solenoid-operated, 4-way, 3-position spool valve is spring centered to the neutral position. When coil A is energized, the flow is from port 3 (P) to port 2 (A) and from port 4 (B) to port 1 (T). When coil B is energized, the flow is from port 3 to port 4 and from port 2 to port 1.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	160 cc/min. @210 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	EPDM: 990431014
Seal kit - Cartridge	Viton: 990431006

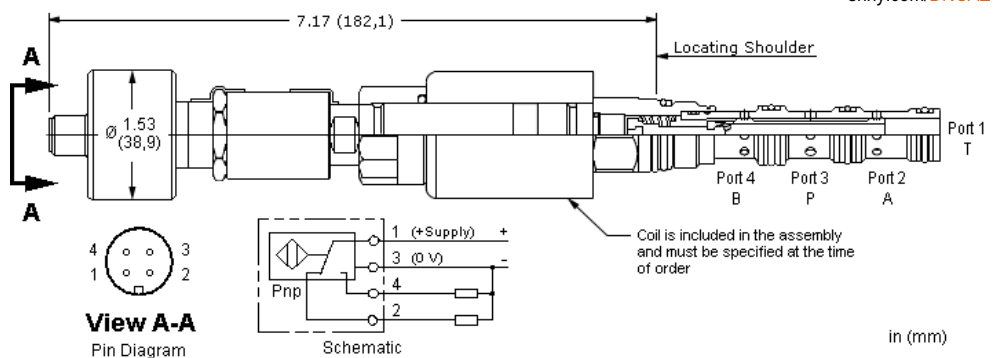
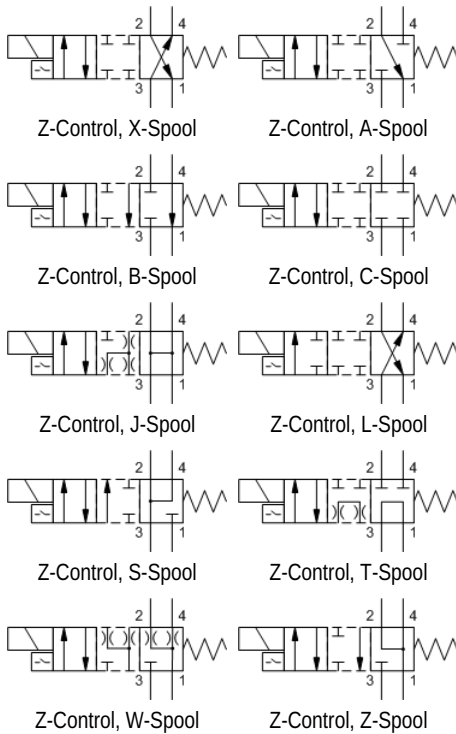
NOTES The two coils used in this assembly are interchangeable with one another, but once installed and wired, the coil closest to the hex body is considered Coil A, and the coil closest to the coil nut is Coil B.

CONFIGURATION OPTIONS

Model Code Example: **DNDCXCN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) COIL *
X No Manual Override	C Blocked Center	N Buna-N	No coil
	A A to T Center	E EPDM	212 DIN 43650-Form A, 12 VDC
	B B to T Center	V Viton	224 DIN 43650-Form A, 24 VDC
	H Open Center		712 Twin Lead, 12 VDC
	R Regen Center		724 Twin Lead, 24 VDC
	T Tandem Center		912 Deutsch DT04-2P, 12 VDC
	W A and B Bleed to T Center		924 Deutsch DT04-2P, 24 VDC
	Y A and B to T Center		

* Additional coil options are available



This solenoid-operated, 4-way, 2-position cartridge is a direct-acting, balanced spool directional valve. The transition between positions is closed. The closed transition greatly reduces the loss of oil when shifting which can be of particular importance in pilot control circuits.

The position switch provides confirmation that the valve is in the spring biased position.

TECHNICAL DATA

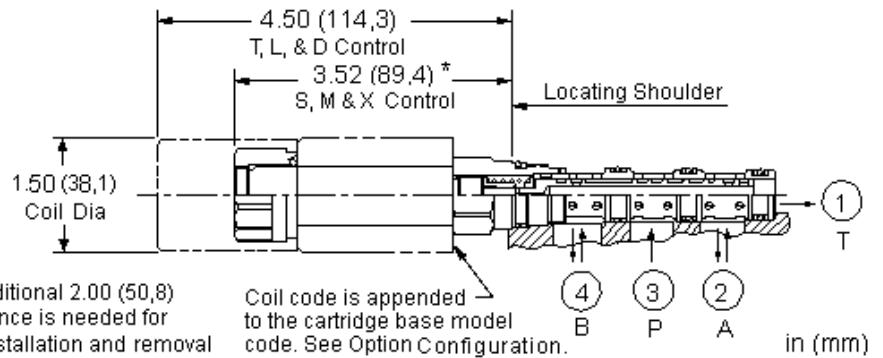
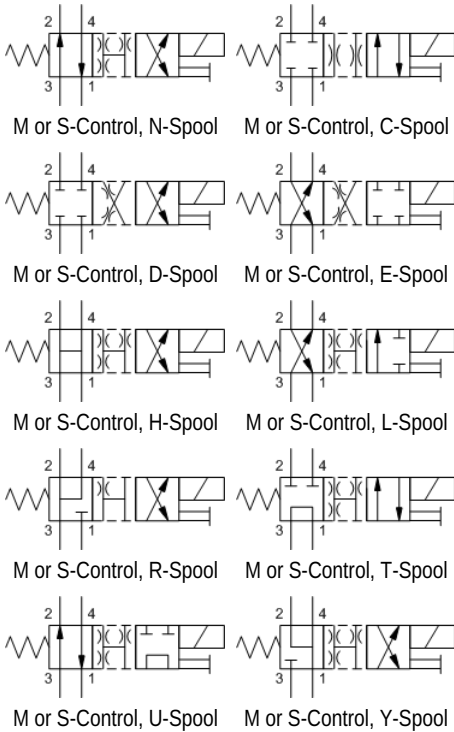
Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	160 cc/min. @210 bar
Switching Frequency	15000 cycles/hr
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	Viton: 990431006

CONFIGURATION OPTIONS

Model Code Example: DNCAZXN224

SPOOL CONFIGURATION	(X) SEAL MATERIAL	(N) COIL *	(224)
X Cross, Shift to Through	N Buna-N	224 DIN 43650-Form A, 24 VDC	
C Closed, Shift to Through	V Viton	212 DIN 43650-Form A, 12 VDC	
A A to T, Shift to Through		912 Deutsch DT04-2P, 12 VDC	
B B to T, Shift to Through		924 Deutsch DT04-2P, 24 VDC	
J Open, Shift to Through			
L Cross, Shift to P to A, B and T Blocked			
S Regen, Shift to Through			
T Tandem, Shift to Through			
W A and B Bleed to T, Shift to Through			
Z Motor, Shift to Through			

* Additional coil options are available



This solenoid-operated 4-way, 2-position cartridge is a direct-acting, balanced spool directional valve with a soft shift feature. The soft shift feature greatly reduces system shock due to valve actuation.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	160 cc/min. @210 bar
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990431007
Seal kit - Cartridge	EPDM: 990431014
Seal kit - Cartridge	Viton: 990431006

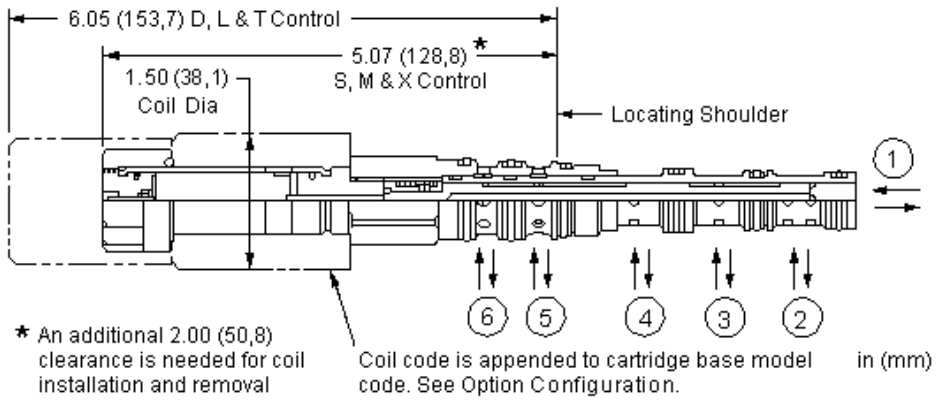
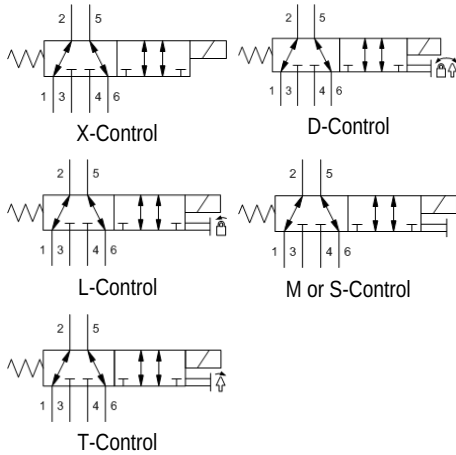
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DNDASNN

SPOOL CONFIGURATION	(N)	SEAL MATERIAL	(N)	COIL *
N Through, Shift to Cross	N	Buna-N		No coil
C Closed, Shift to Through	E	EPDM		212 DIN 43650-Form A, 12 VDC
D Closed, Shift to Cross	V	Viton		224 DIN 43650-Form A, 24 VDC
E Cross, Shift to Closed				712 Twin Lead, 12 VDC
H Open, Shift to Cross				724 Twin Lead, 24 VDC
L Cross, Shift to P to A, B and T Blocked				912 Deutsch DT04-2P, 12 VDC
R Regen, Shift to Cross				924 Deutsch DT04-2P, 24 VDC
T Tandem, Shift to Through				
U Through, Shift to Tandem				
Y Motor, Shift to Cross				

* Additional coil options are available



This solenoid-operated 6-way, 2-position cartridge is a direct-acting, balanced spool valve. The typical use for this valve is to select between two separate circuits. The de-energized condition connects P and T to the first circuit and when energized connects P and T to the second circuit.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Response Time - Typical	50 ms
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Switching Frequency	15000 cycles/hr
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990461007
Seal kit - Cartridge	EPDM: 990461014
Seal kit - Cartridge	Viton: 990461006

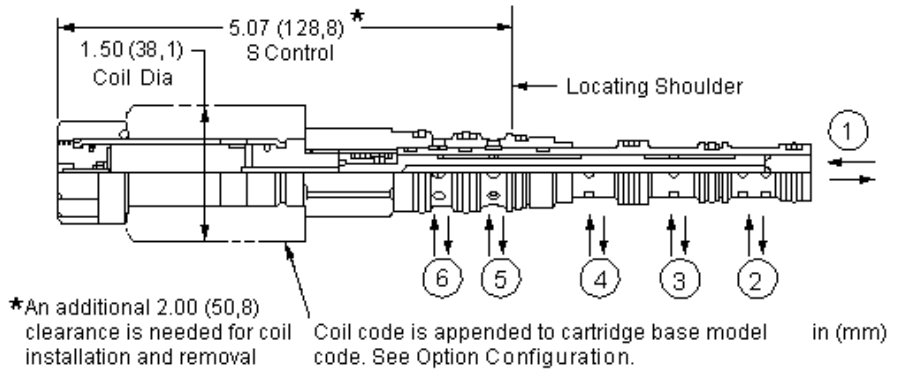
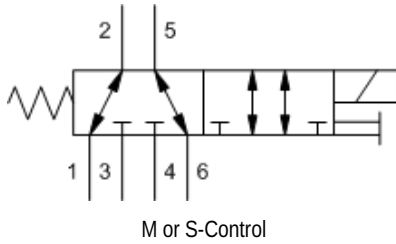
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DNDYXXN

CONTROL	(X) SPOOL CONFIGURATION	(X) SEAL MATERIAL	(N) COIL *
X No Manual Override	X -	N Buna-N	No coil
D Twist/Lock (Dual) Manual Override		E EPDM	212 DIN 43650-Form A, 12 VDC
L Twist/Lock (Detent) Manual Override		V Viton	224 DIN 43650-Form A, 24 VDC
M Manual Override			712 Twin Lead, 12 VDC
T Twist (Momentary) Manual Override			724 Twin Lead, 24 VDC
			912 Deutsch DT04-2P, 12 VDC
			924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



This solenoid-operated 6-way, 2-position cartridge is a direct-acting, balanced spool valve with a soft shift feature. The soft shift feature greatly reduces system shock due to valve actuation. The typical use for this valve is to select between two separate circuits. The de-energized condition connects P and T to the first circuit and when energized connects P and T to the second circuit.

TECHNICAL DATA

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@210 bar
Manual Override Force Requirement	33 N/100 bar @ Port 1
Manual Override Stroke	2,5 mm
Seal kit - Cartridge	Buna: 990461007
Seal kit - Cartridge	Viton: 990461006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
 - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

CONFIGURATION OPTIONS

Model Code Example: DNDYSXN

SPOOL CONFIGURATION	(X) SEAL MATERIAL	(N) COIL *
X -	N Buna-N E EPDM V Viton	No coil 212 DIN 43650-Form A, 12 VDC 224 DIN 43650-Form A, 24 VDC 712 Twin Lead, 12 VDC 724 Twin Lead, 24 VDC 912 Deutsch DT04-2P, 12 VDC 924 Deutsch DT04-2P, 24 VDC

* Additional coil options are available



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