



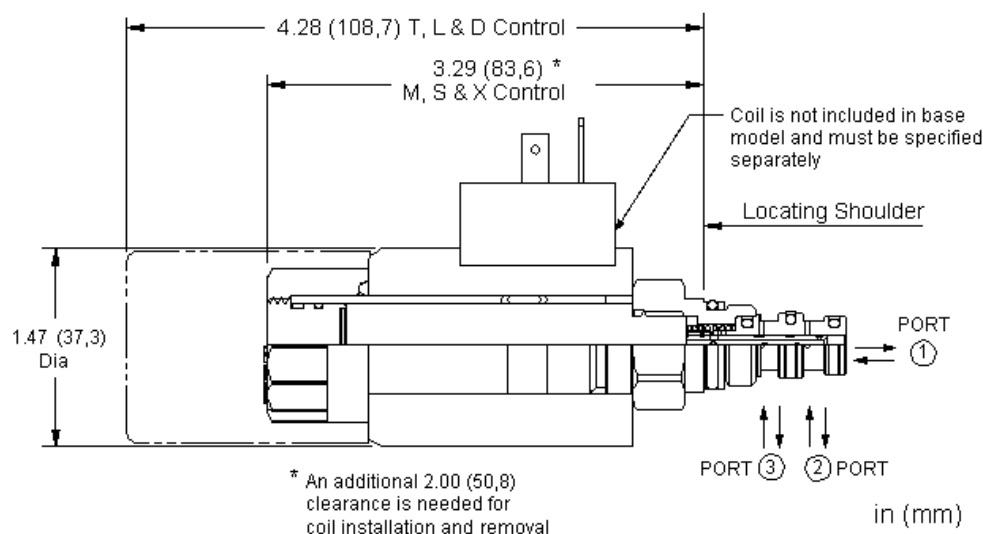
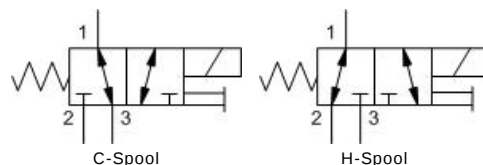
3-way, soft shift, solenoid-operated directional spool valve - pilot capacity

Capacity:
.25 gpm (1 L/min.)

Model:
DBALS

Product Description

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.

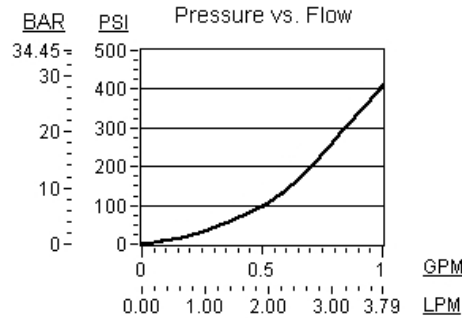


Technical Features

- The soft shift cartridge is interchangeable with the standard cartridge, however, the performance limits are lower.
- The soft shift feature can greatly reduce shock due to valve actuation but should not be counted upon in applications where timing is critical. If you need accurate ramping or timing control, consider Sun's electro-proportional valves.
- The soft shift feature results in significant increase in response time over Sun's standard solenoid. Response time is dependant on flow, pressure, coil voltage, oil viscosity and ambient temperature. Typical response time ranges from 150 ms to 300 ms.
- For consistent soft shift performance, port 1 should be at a positive pressure.
- This valve comes with a manual override control. Other manual control options such as T or D, cannot be ordered with the soft shift control but can be installed easily in the field. See Twist/Lock Manual Override link above for details.
- The solenoid tube assembly is fatigue rated for 5000 psi (350 bar) service.
- This valve is direct actuated and requires no minimum hydraulic pressure for operation.
- This valve utilizes a wet armature design. This means that the working fluid surrounds the armature and is exposed to the heat generated by the coil. This can be a factor if the coil is energized for long periods of time. Some fluids, notably water/glycol mixtures, break down at these temperatures over time and form varnishes that will affect the function of the cartridge.
- Coils are interchangeable with other Sun Series 1 solenoid products and can be mounted on the tube in either direction.
- Coil connector options offer ratings up to IP69K. See individual coil product pages for details. Additional weatherized coils and kits are available for more complete environmental protection.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

Technical Data

	U.S. Units	Metric Units
Cavity		T-9A
Capacity	.25 gpm	1 L/min.
Manual Override Force Requirement	10 lbs/1000 psi @ Port 1	6,6 kgs/100 bar @ Port 1
Manual Override Stroke	.10 in.	2,5 mm
Maximum Operating Pressure	5000 psi	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi	0,7 cc/min.@350 bar
Series (from Cavity)		Series P
Solenoid Tube Diameter	.75 in.	19 mm
Valve Hex Size	7/8 in.	22,2 mm
Valve Installation Torque	20 - 25 lbf ft	27 - 33 Nm
Seal Kits - Cartridge		Buna: 990-009-007
Seal Kits - Cartridge		Viton: 990-009-006
Model Weight	0.56 lb.	0.25 kg.



DBAL-SHN-***

Spool Configuration

Seal Material

Coil

Standard Options

Standard Options

*** See Coil Options Below

C Normally Open 1 to 3, Closed 1 to 2
H Normally Open 1 to 2, Closed 1 to 3

N Buna-N
V Viton

Standard Coil Options

AMP Junior Timer	Deutsch DT04-2P	DIN 43650 4 pin (Hirschman)	Metri-Pack	SAE J858A	Twin Lead

*** no coil

211 DIN 43650 4 pin (Hirschman) 115 VAC
212 DIN 43650 4 pin (Hirschman) 12 VDC
214 DIN 43650 4 pin (Hirschman) 14 VDC
223 DIN 43650 4 pin (Hirschman) 230 VAC
224 DIN 43650 4 pin (Hirschman) 24 VDC

524 SAE J858A 24 VDC
528 SAE J858A 28 VDC
536 SAE J858A 36 VDC
612 AMP Junior Timer 12 VDC
614 AMP Junior Timer 14 VDC
624 AMP Junior Timer 24 VDC

812 Metri-Pack 12 VDC
814 Metri-Pack 14 VDC
824 Metri-Pack 24 VDC
828 Metri-Pack 28 VDC
836 Metri-Pack 36 VDC
848 Metri-Pack 48 VDC

228	DIN 43650 4 pin (Hirschman) 28 VDC	628	AMP Junior Timer 28 VDC	912	Deutsch DT04-2P 12 VDC
236	DIN 43650 4 pin (Hirschman) 36 VDC	636	AMP Junior Timer 36 VDC	914	Deutsch DT04-2P 14 VDC
248	DIN 43650 4 pin (Hirschman) 48 VDC	712	Twin Lead 12 VDC	924	Deutsch DT04-2P 24 VDC
297	DIN 43650 4 pin (Hirschman) 24 VAC	724	Twin Lead 24 VDC	928	Deutsch DT04-2P 28 VDC
298	DIN 43650 4 pin (Hirschman) 220 VDC	728	Twin Lead 28 VDC	936	Deutsch DT04-2P 36 VDC
299	DIN 43650 4 pin (Hirschman) 127 VDC	736	Twin Lead 36 VDC	948	Deutsch DT04-2P 48 VDC
514	SAE J858A 14 VDC				
<i>Embedded Coil Options</i>					
2E12V	DIN 43650 4 pin (Hirschman) programmable via IR link coil/power saver 12 VDC 0-10V	4E12V	Deutsch DT04-6P programmable via IR link coil/power saver 12 VDC 0- 10V	4E24V	Deutsch DT04-6P programmable via IR link coil/power saver 24 VDC 0- 10V
2E24V	DIN 43650 4 pin (Hirschman) programmable via IR link coil/power saver 24 VDC 0-10V				
<i>Additional Options</i>					
<i>Additional Coils</i>					
512	SAE J858A 12 VDC	71219	Twin Lead to Delphi Weather-Pack Connector, 9 inch lead length, 12 VDC	72419	Twin Lead to Delphi Weather-Pack Connector, 9 inch lead length 24 VDC
548	SAE J858A 48 VDC	714	Twin Lead 14 VDC	748	Twin Lead 48 VDC
648	AMP Junior Timer 48 VDC				