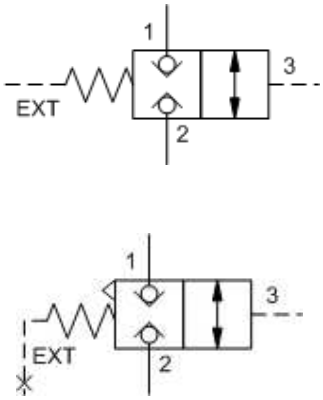
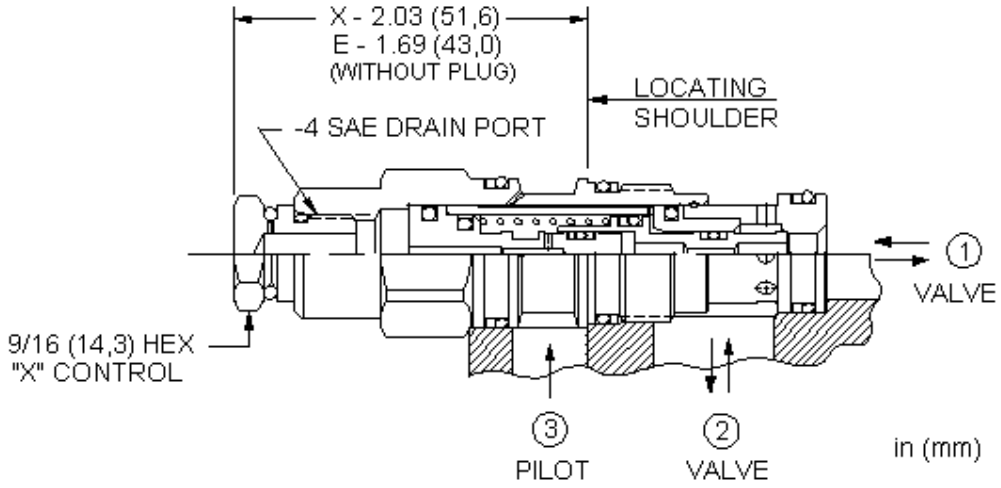
MODEL
DKDC

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-11A

sunhydraulics.com/model/DKDC





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.01 in^3
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990311007
Seal kit - Cartridge	Viton: 990311006
Model Weight	0.30 lb.

CONFIGURATION OPTIONS

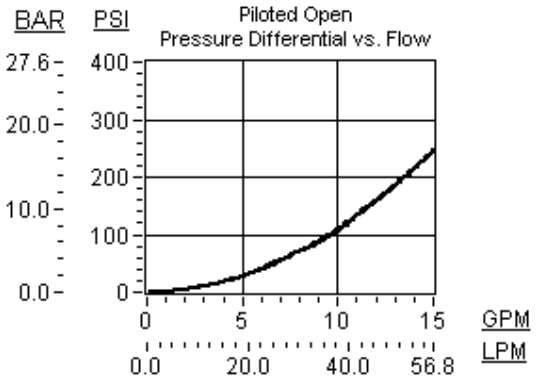
Model Code Example: DKDCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
E External 4-SAE Drain Port	**H** 400 psi (28 bar)	**N** Buna-N	Standard Material/Coating
X Standard Pilot, Atmospheric Vent		**E** EPDM	**/LH** Mild Steel, Zinc-Nickel
		V Viton	

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 400 psi (30 bar).
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- These valves have positive seals between port 2 and the pilot area.
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

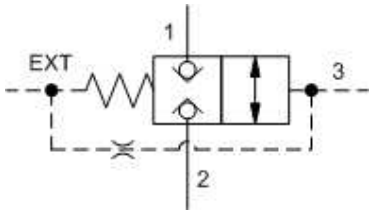
PERFORMANCE CURVES

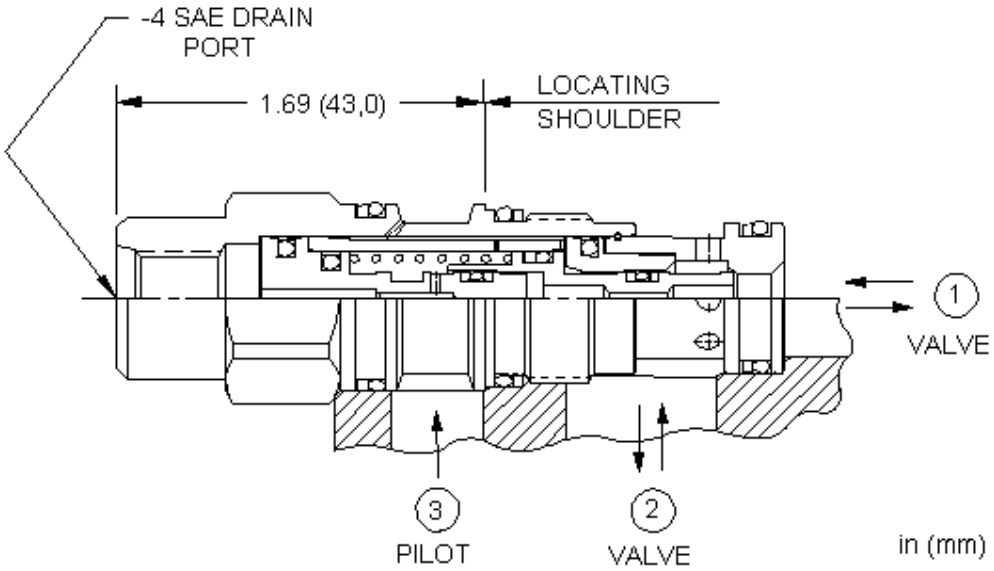


MODEL
DKDD

Normally closed, balanced poppet, logic element - vent-to-open
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-11A

snhy.com/DKDD





This is a normally closed, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the closed position. Venting the external port shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.01 in³
Pilot Passage into Valve	.031 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.30 lb.

CONFIGURATION OPTIONS

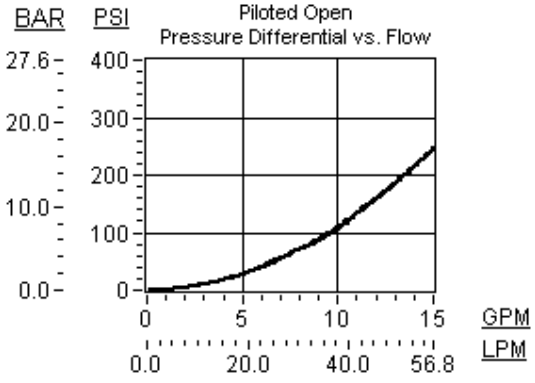
Model Code Example: DKDDEHN

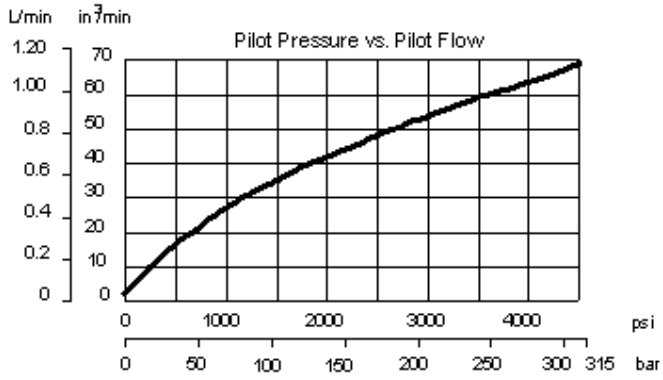
CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 400 psi (28 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 400 psi (30 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

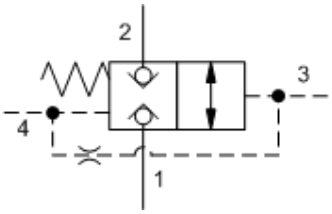


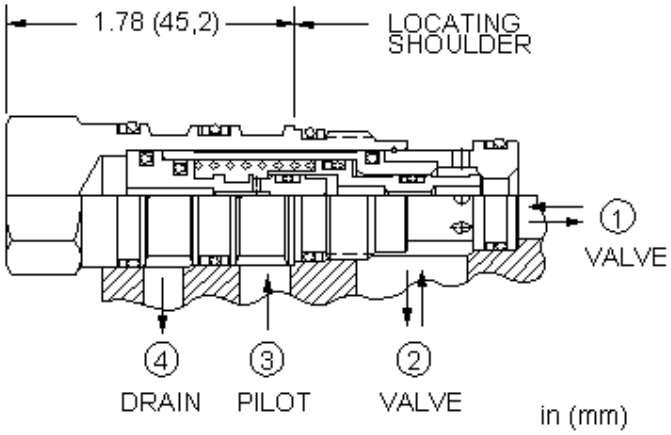


MODEL
DKDR

Normally closed, balanced poppet, logic element - vent-to-open
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-21A

sunhydraulics.com/model/DKDR





This is a normally closed, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the closed position. Venting port 4 shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.35 lb.

CONFIGURATION OPTIONS

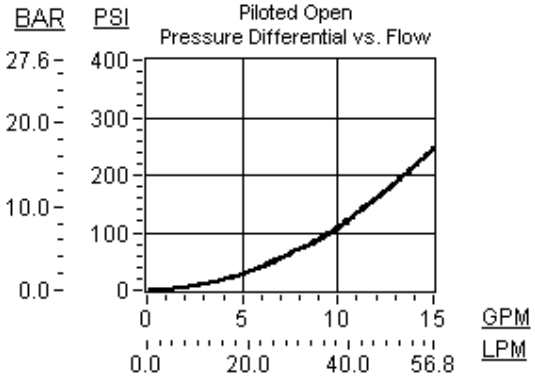
Model Code Example: DKDRXHN

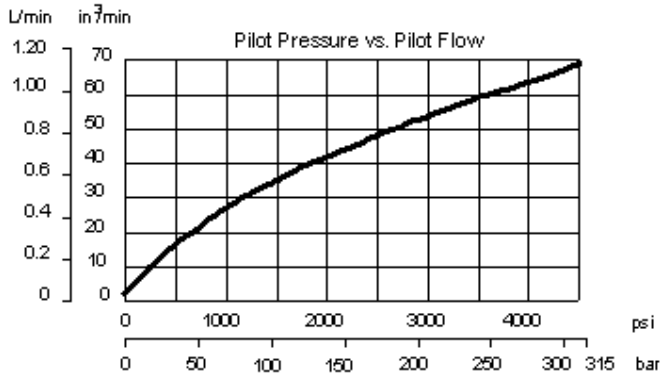
CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Vent to Operate	**H** 400 psi (28 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated
			/LH Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES





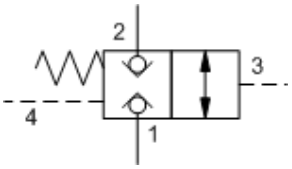
RELATED MODELS

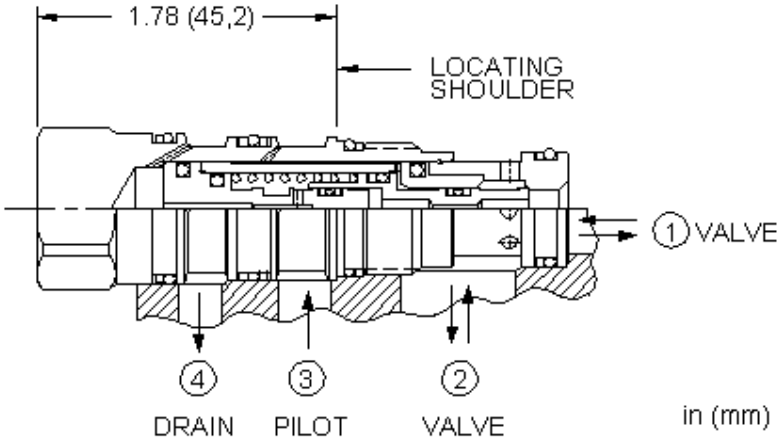
- DKDR8 Normally closed, balanced poppet, logic element with integral T-8A control cavity - vent-to-open

MODEL
DKDS

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-21A

snhy.com/DKDS





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.01 in³
Pilot Passage into Valve	.03 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	EPDM: 990021014
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.35 lb.

CONFIGURATION OPTIONS

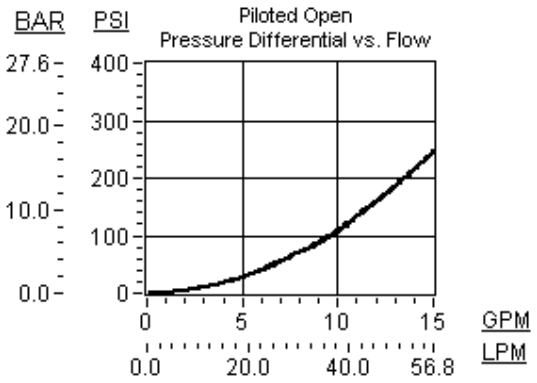
Model Code Example: DKDSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 400 psi (28 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated
			/LH Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 400 psi (30 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- All ports will accept 5000 psi (350 bar).
- 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.

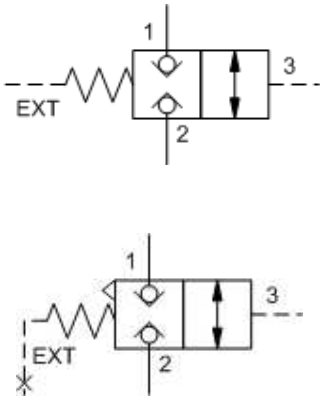
PERFORMANCE CURVES

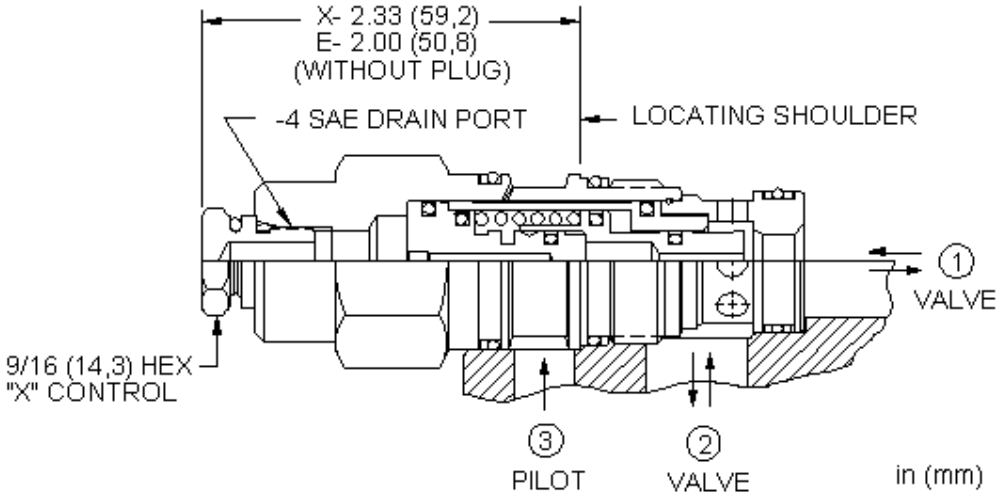


MODEL
DKFC

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-2A

snhy.com/DKFC





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 drops/min.@1000 psi
Pilot Volume Displacement	.02 in^3
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.60 lb.

CONFIGURATION OPTIONS

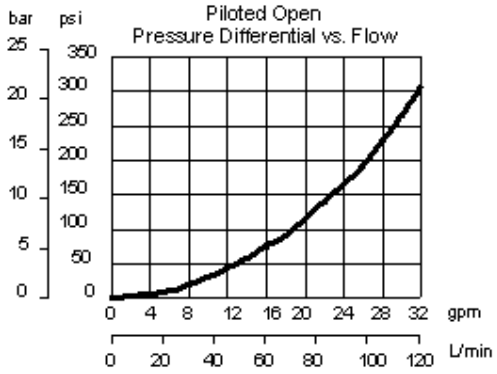
Model Code Example: DKFCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
X Standard Pilot, Atmospheric Vent		**V** Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

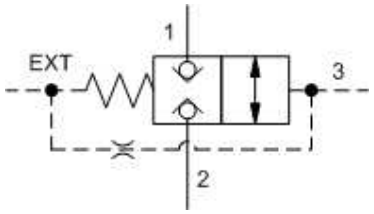
PERFORMANCE CURVES

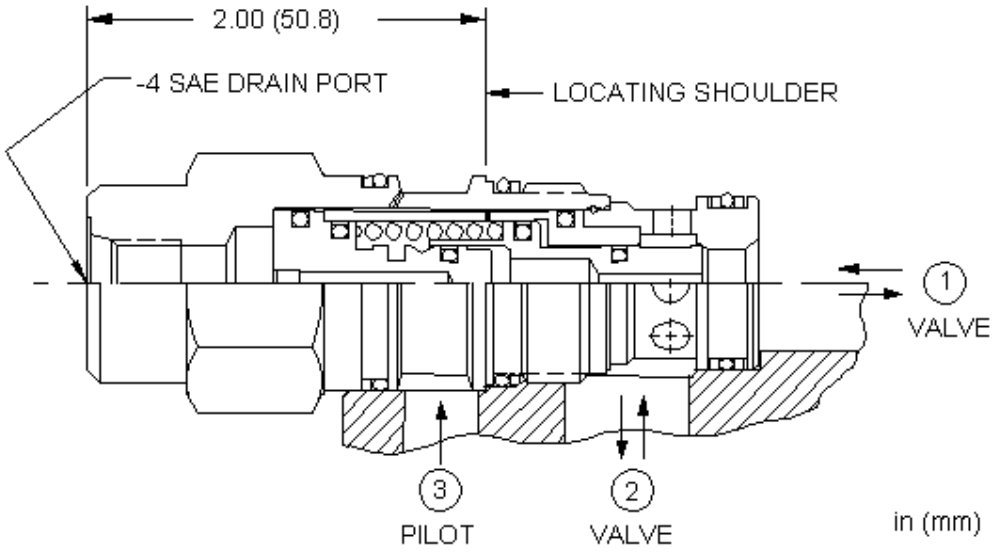


MODEL
DKFD

Normally closed, balanced poppet, logic element - vent-to-open
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-2A

sunhydraulics.com/model/DKFD





This is a normally closed, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the closed position. Venting the external port shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.02 in^3
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.60 lb.

CONFIGURATION OPTIONS

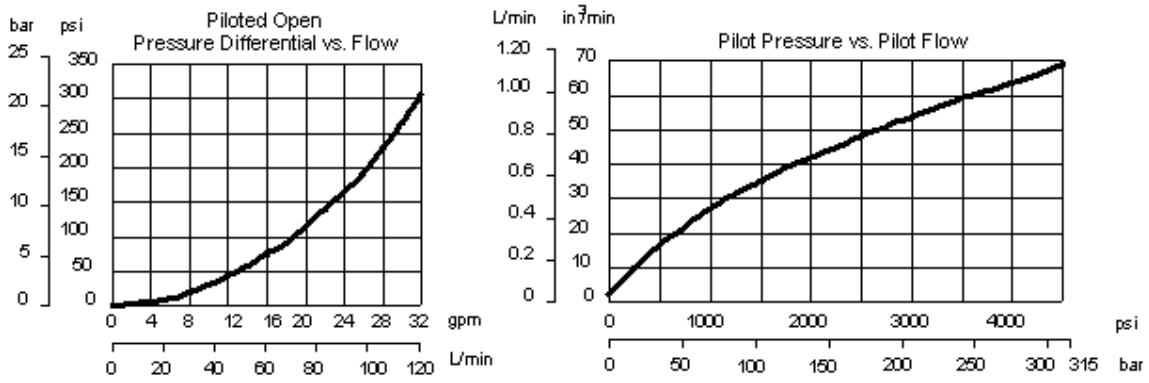
Model Code Example: DKFDEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at port 1 and port 2, with the external drain port open and a minimum pilot pressure of 300 psi (20 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

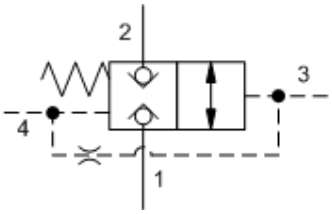
PERFORMANCE CURVES

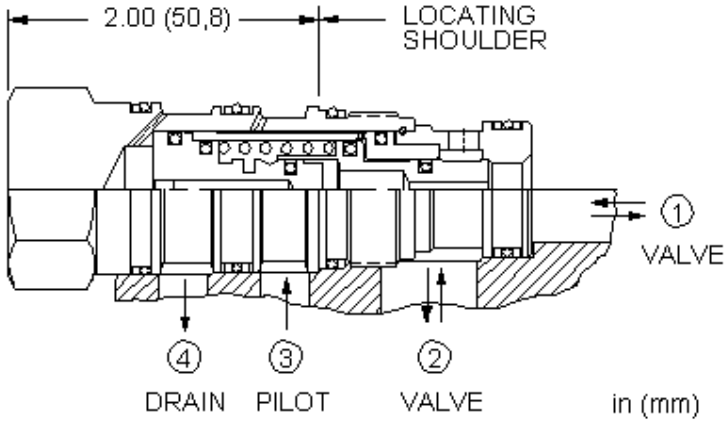


MODEL
DKFR

Normally closed, balanced poppet, logic element - vent-to-open
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-22A

sunhydraulics.com/model/DKFR





This is a normally closed, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the closed position. Venting port 4 shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-22A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006
Model Weight	0.63 lb.

CONFIGURATION OPTIONS

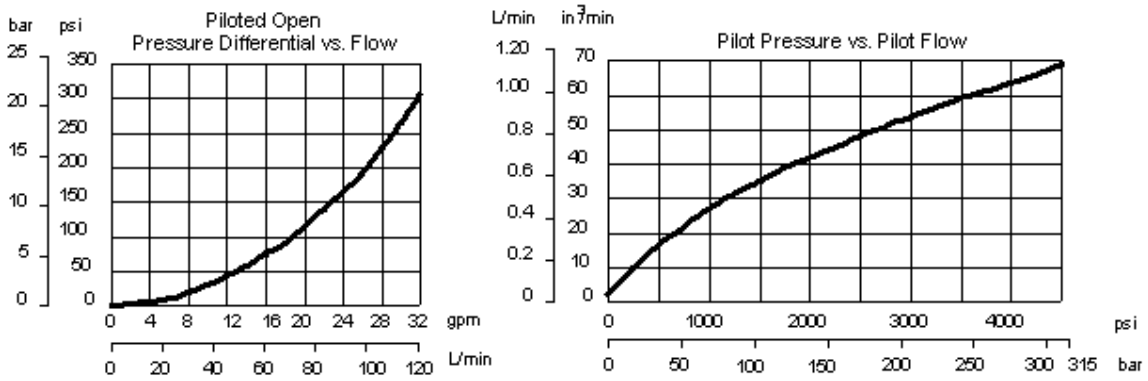
Model Code Example: DKFRXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
X Vent to Operate	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



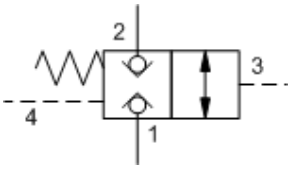
RELATED MODELS

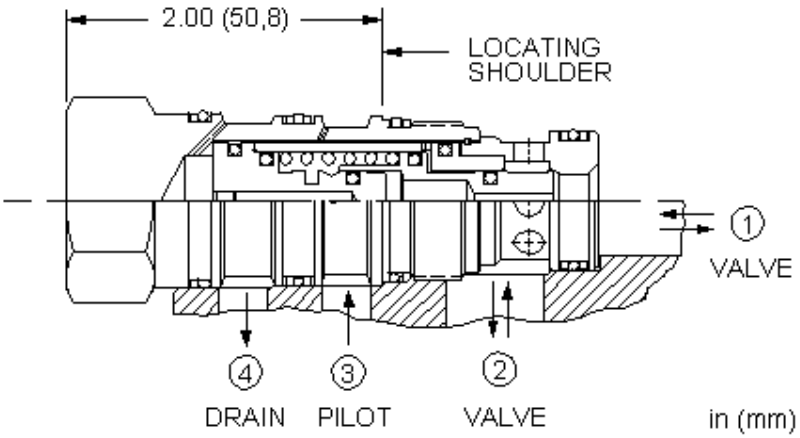
- DKFR8 Normally closed, balanced poppet, logic element with integral T-8A control cavity - vent-to-open

MODEL
DKFS

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-22A

snhy.com/DKFS





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-22A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.02 in^3
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	EPDM: 990022014
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006
Model Weight	0.63 lb.

CONFIGURATION OPTIONS

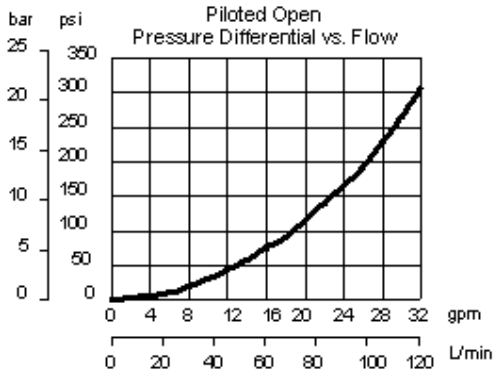
Model Code Example: DKFSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves are hydraulically balanced between port 1 and port 2.
- All ports will accept 5000 psi (350 bar).
- 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.

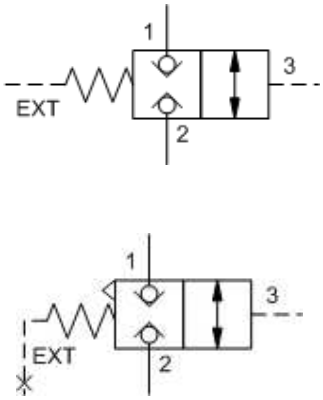
PERFORMANCE CURVES

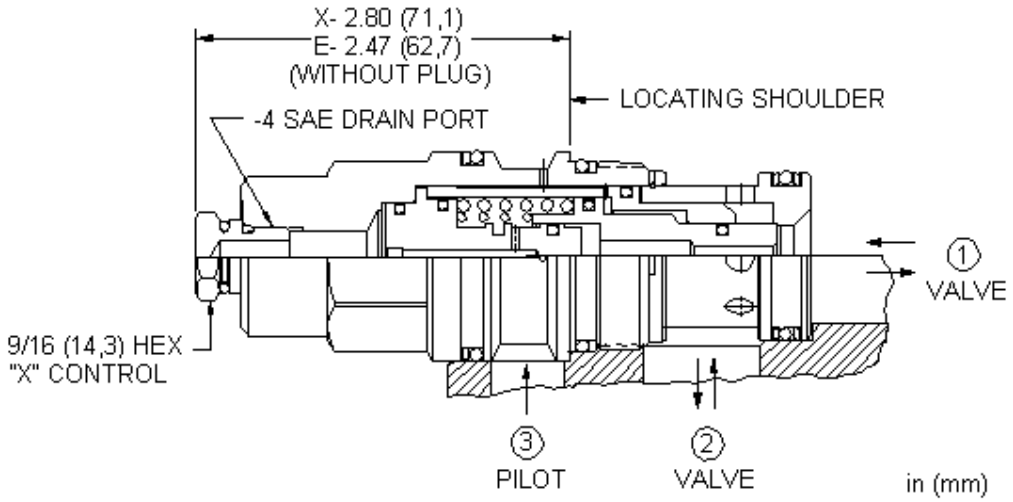


MODEL
DKHC

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-17A

snhy.com/DKHC





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.05 in^3
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.33 lb.

CONFIGURATION OPTIONS

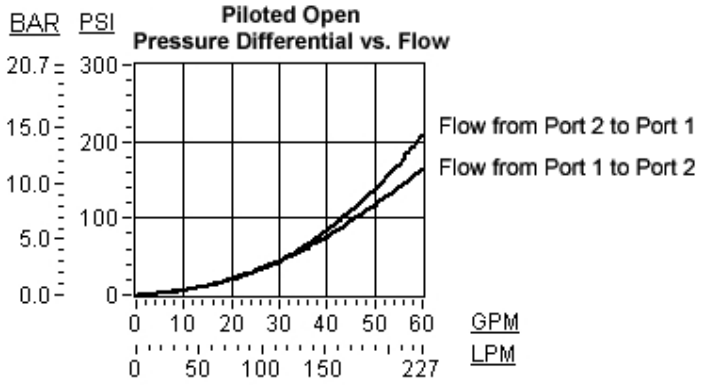
Model Code Example: DKHCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
X Standard Pilot, Atmospheric Vent		**V** Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

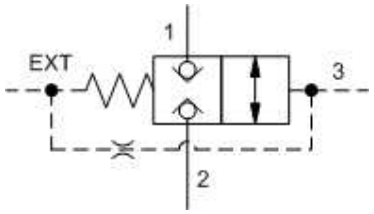
PERFORMANCE CURVES

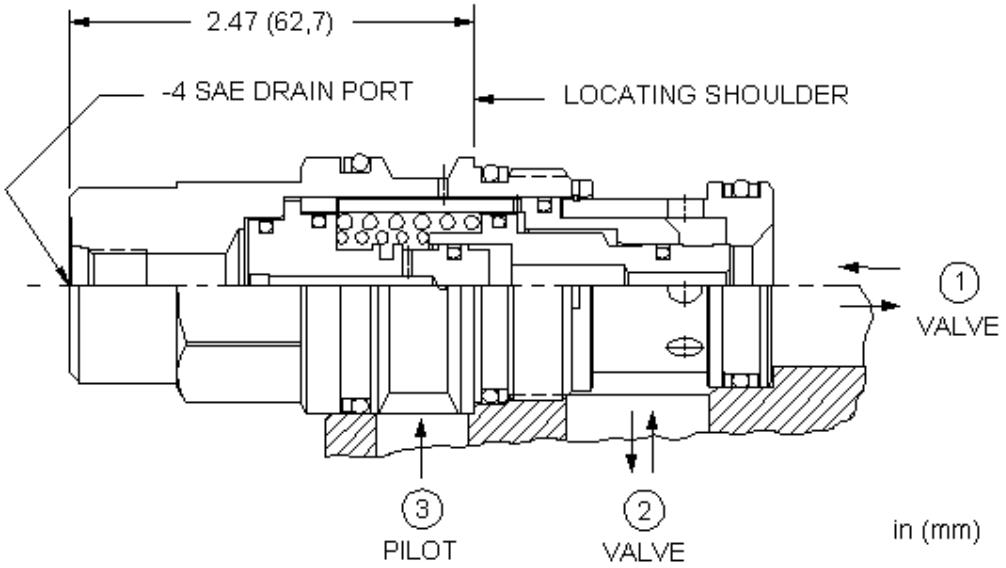


MODEL
DKHD

Normally closed, balanced poppet, logic element - vent-to-open
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-17A

sunhydraulics.com/model/DKHD





This is a normally closed, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the closed position. Venting the external port shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.05 in^3
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.34 lb.

CONFIGURATION OPTIONS

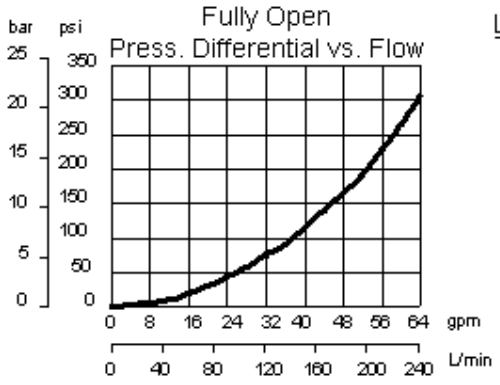
Model Code Example: DKHDEHN

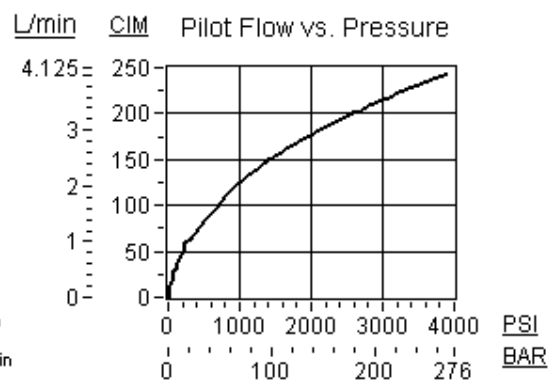
CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at port 1 and port 2, with the external drain port open and a minimum pilot pressure of 300 psi (20 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

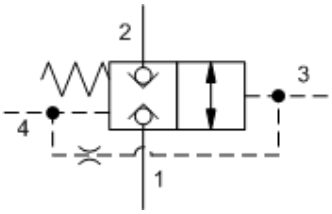


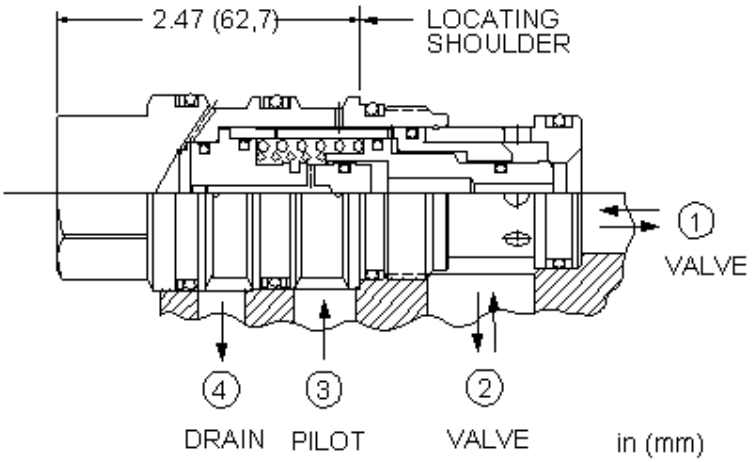


MODEL
DKHR

Normally closed, balanced poppet, logic element - vent-to-open
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-23A

sunhydraulics.com/model/DKHR





This is a normally closed, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the closed position. Venting port 4 shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-23A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006
Model Weight	1.48 lb.

CONFIGURATION OPTIONS

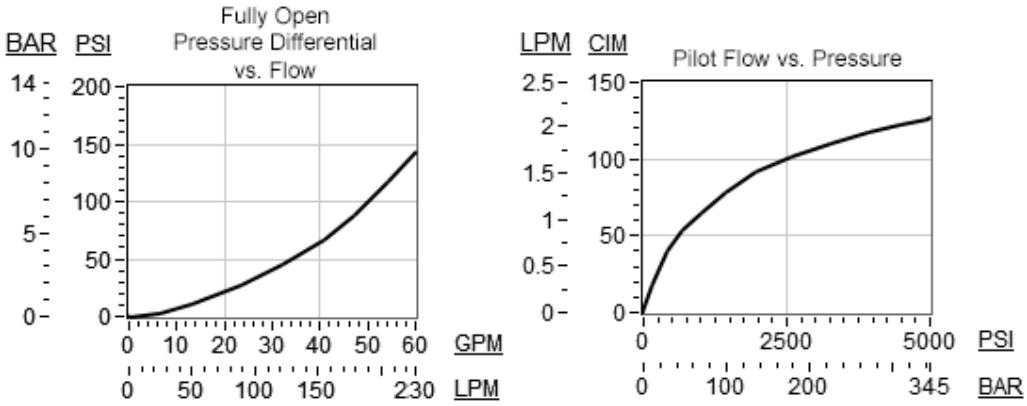
Model Code Example: DKHRXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
X Vent to Operate	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



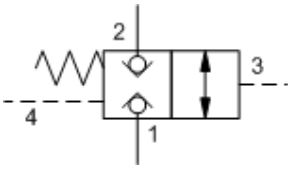
RELATED MODELS

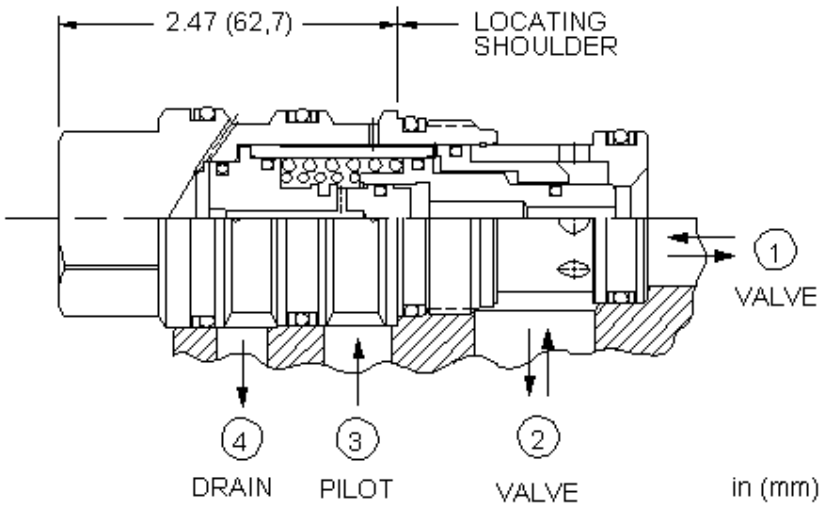
- DKHR8 Normally closed, balanced poppet, logic element with integral T-8A control cavity - vent-to-open

MODEL
DKHS

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-23A

snhy.com/DKHS





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-23A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.05 in³
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	EPDM: 990023014
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006
Model Weight	1.47 lb.

CONFIGURATION OPTIONS

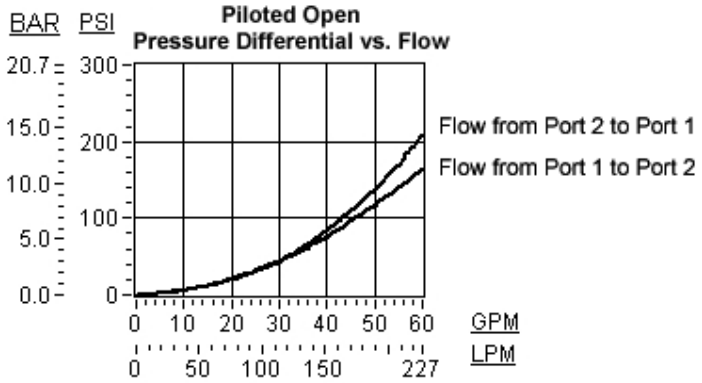
Model Code Example: DKHSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves are hydraulically balanced between port 1 and port 2.
- All ports will accept 5000 psi (350 bar).
- 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.

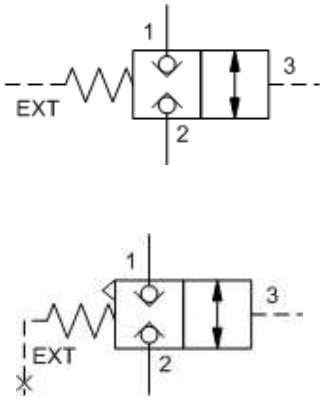
PERFORMANCE CURVES

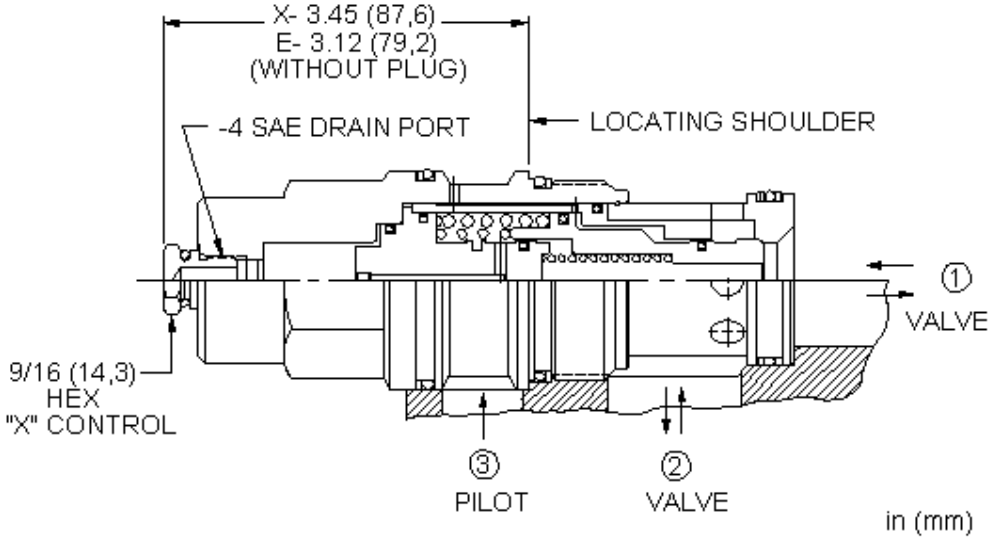


MODEL
DKJC

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-19A

sunhydraulics.com/model/DKJC





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.17 in^3
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	3.02 lb.

CONFIGURATION OPTIONS

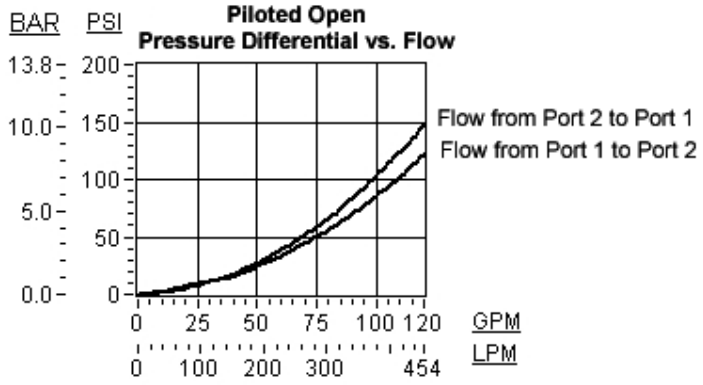
Model Code Example: DKJCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
X Standard Pilot, Atmospheric Vent		**E** EPDM	**/AP** Stainless Steel, Passivated
		V Viton	

TECHNICAL FEATURES

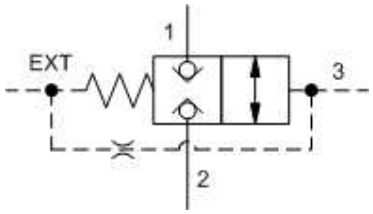
- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

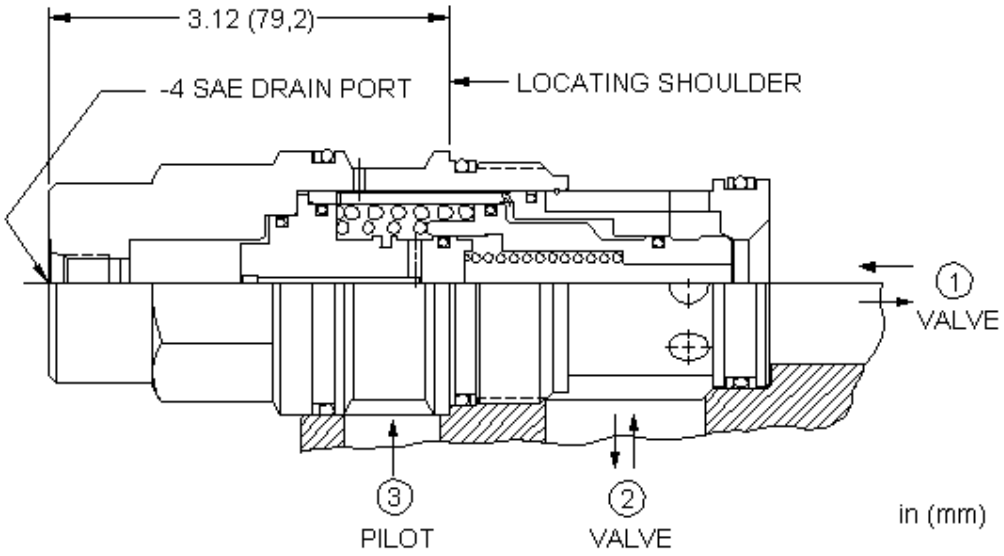
PERFORMANCE CURVES



Normally closed, balanced poppet, logic element - vent-to-open
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-19A

sunhydraulics.com/model/DKJD





This is a normally closed, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the closed position. Venting the external port shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.17 in³
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	3.02 lb.

CONFIGURATION OPTIONS

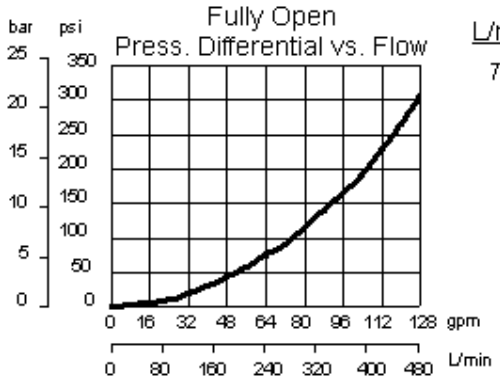
Model Code Example: DKJDEHN

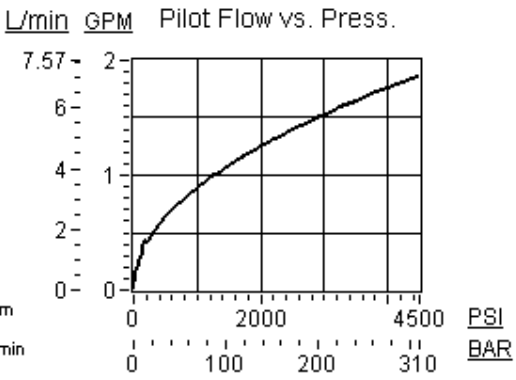
CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at port 1 and port 2, with the external drain port open and a minimum pilot pressure of 300 psi (20 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

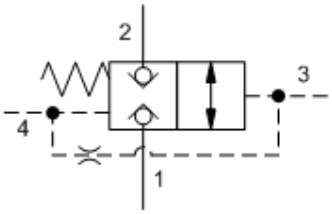


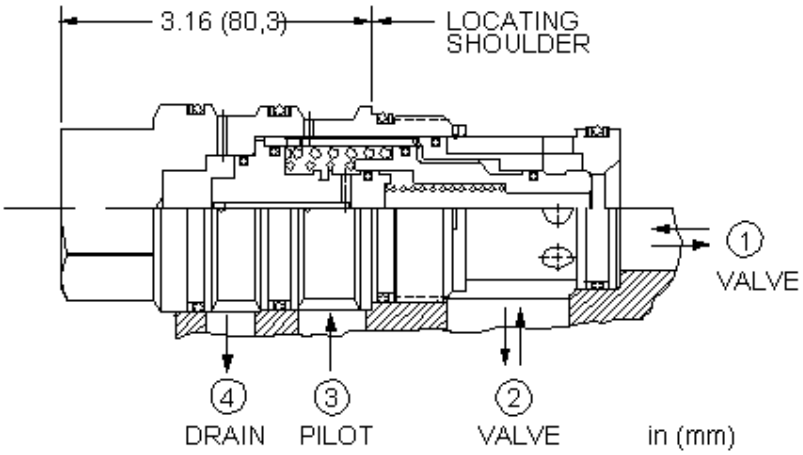


MODEL
DKJR

Normally closed, balanced poppet, logic element - vent-to-open
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-24A

snhy.com/DKJR





This is a normally closed, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the closed position. Venting port 4 shifts it to the open position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-24A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006
Model Weight	3.33 lb.

CONFIGURATION OPTIONS

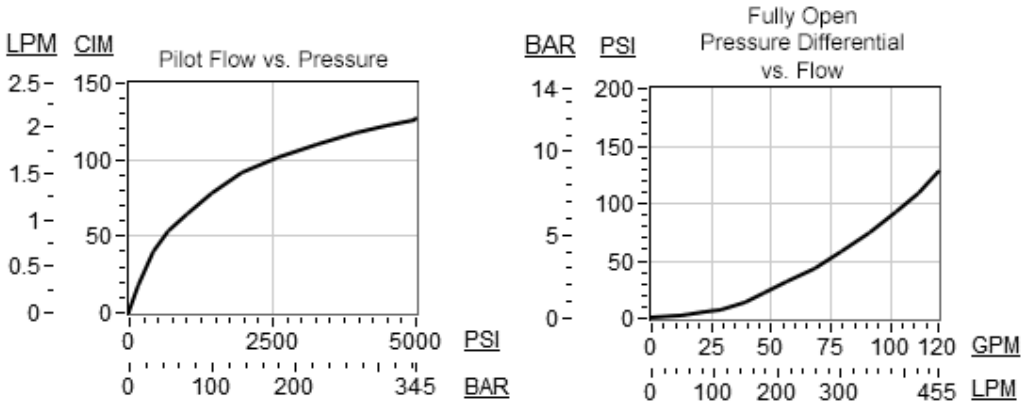
Model Code Example: DKJRXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
X Vent to Operate	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



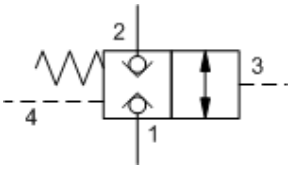
RELATED MODELS

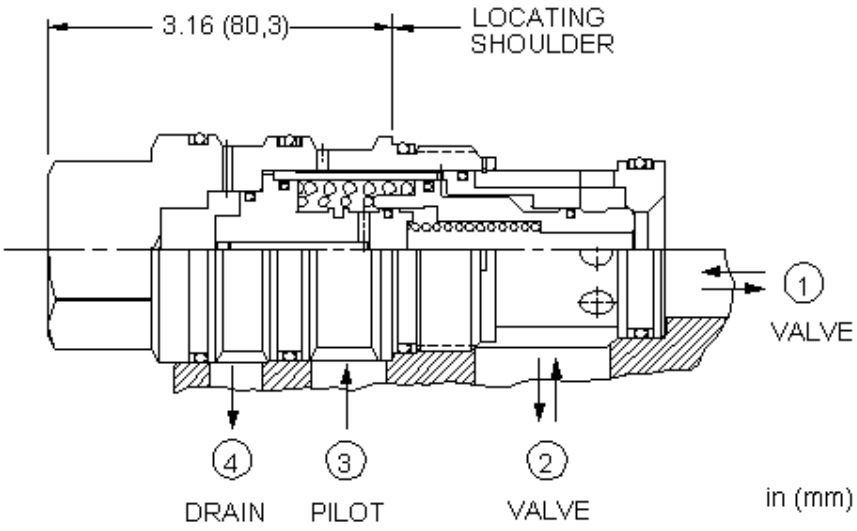
- DKJR8 Normally closed, balanced poppet, logic element with integral T-8A control cavity - vent-to-open

MODEL
DKJS

Normally closed, balanced poppet, logic element - pilot-to-open
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-24A

snhy.com/DKJS





This is a normally closed, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-24A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.17 in^3
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006
Model Weight	3.33 lb.

CONFIGURATION OPTIONS

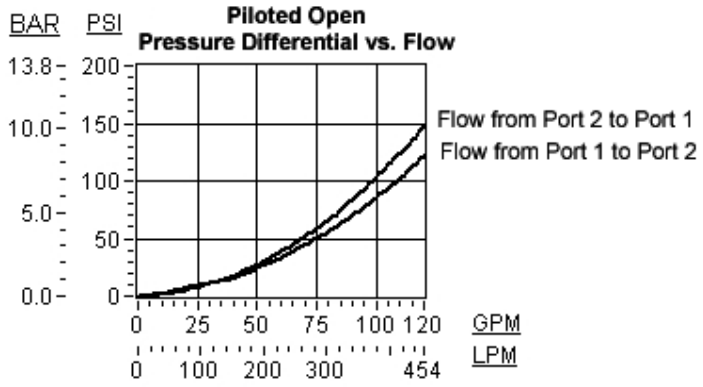
Model Code Example: DKJSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves are hydraulically balanced between port 1 and port 2.
- All ports will accept 5000 psi (350 bar).
- 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.

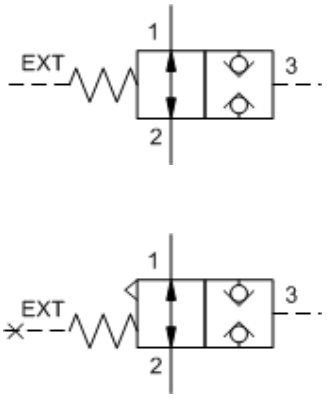
PERFORMANCE CURVES

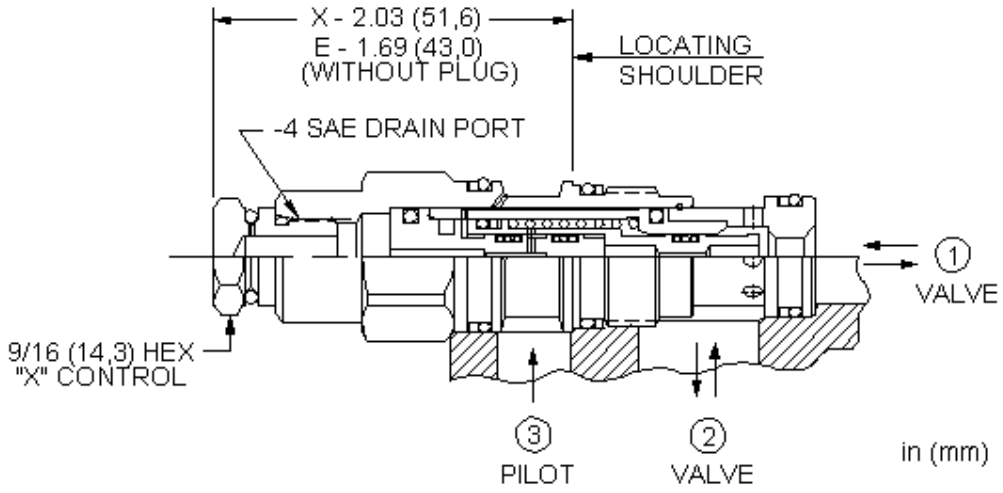


MODEL
DODC

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-11A

snhy.com/DODC





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.01 in^3
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990311007
Seal kit - Cartridge	Viton: 990311006
Model Weight	0.31 lb.

CONFIGURATION OPTIONS

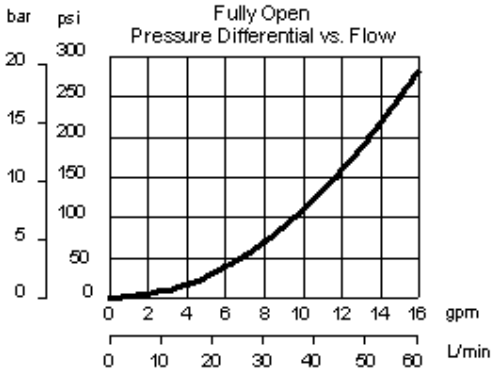
Model Code Example: DODCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
E External 4-SAE Drain Port	**H** 400 psi (28 bar)	**N** Buna-N	Standard Material/Coating
X Standard Pilot, Atmospheric Vent		**V** Viton	**/AP** Stainless Steel, Passivated
			/LH Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 400 psi (30 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

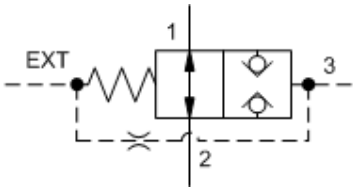
PERFORMANCE CURVES

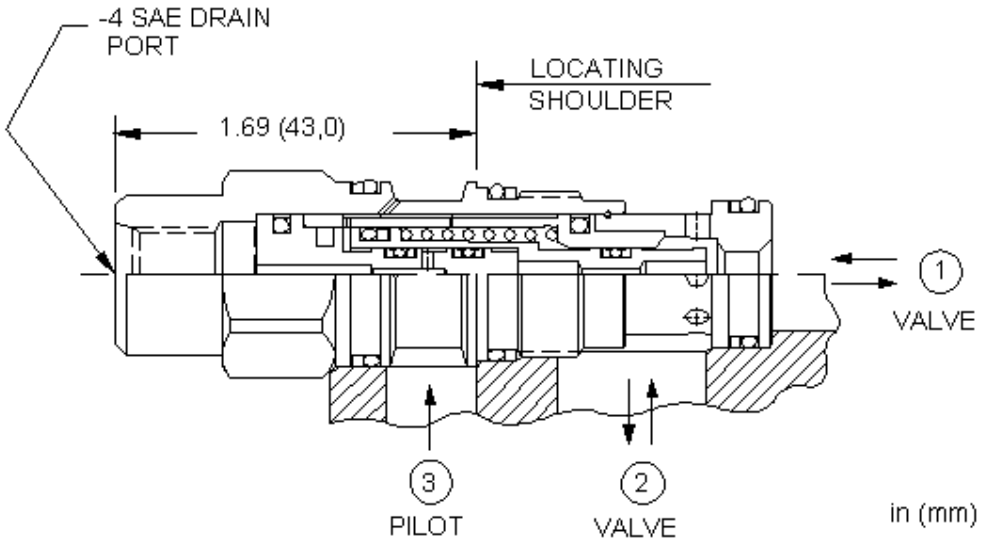


MODEL
DODD

Normally open, balanced poppet, logic element - vent-to-close
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-11A

sunhydraulics.com/model/DODD





This is a normally open, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the open position. Venting the external port shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.01 in^3
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.31 lb.

CONFIGURATION OPTIONS

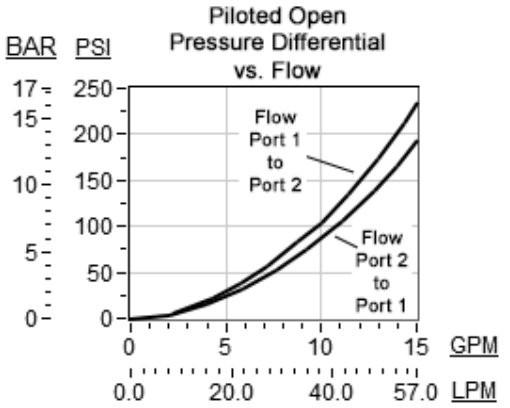
Model Code Example: DODDEHN

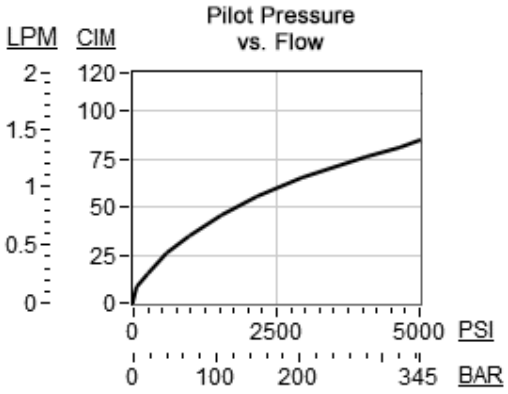
CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 400 psi (28 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 400 psi (30 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

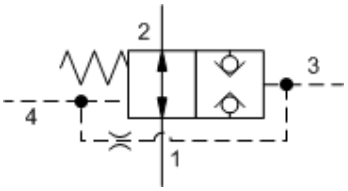


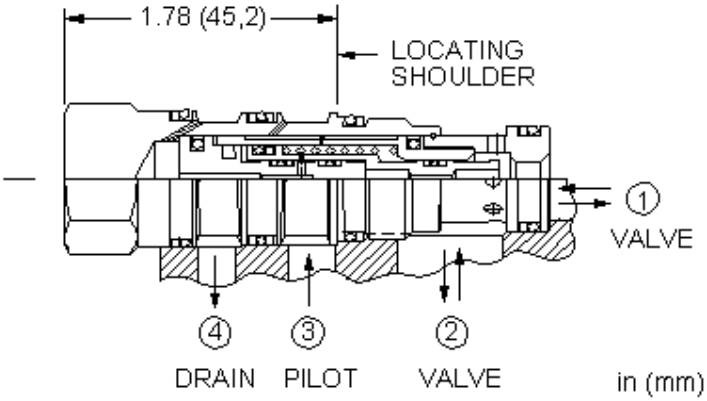


MODEL
DODR

Normally open, balanced poppet, logic element - vent-to-close
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-21A

sunhydraulics.com/model/DODR





This is a normally open, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the open position. Venting port 4 shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.35 lb.

CONFIGURATION OPTIONS

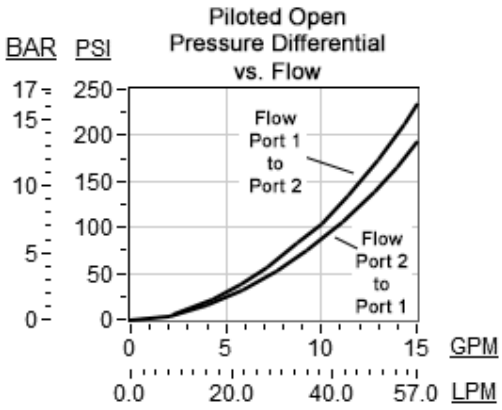
Model Code Example: DODRXHN

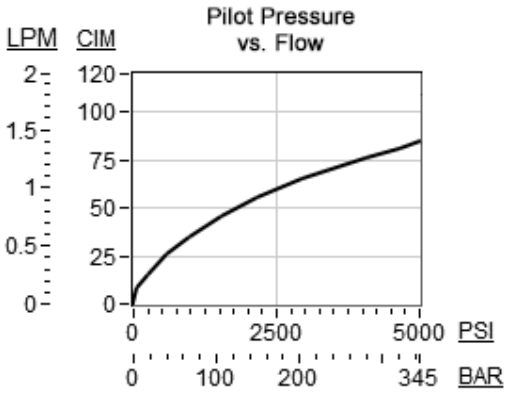
CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Vent to Operate	**H** 400 psi (28 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



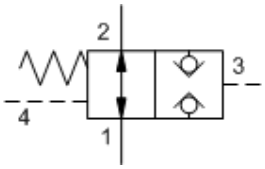


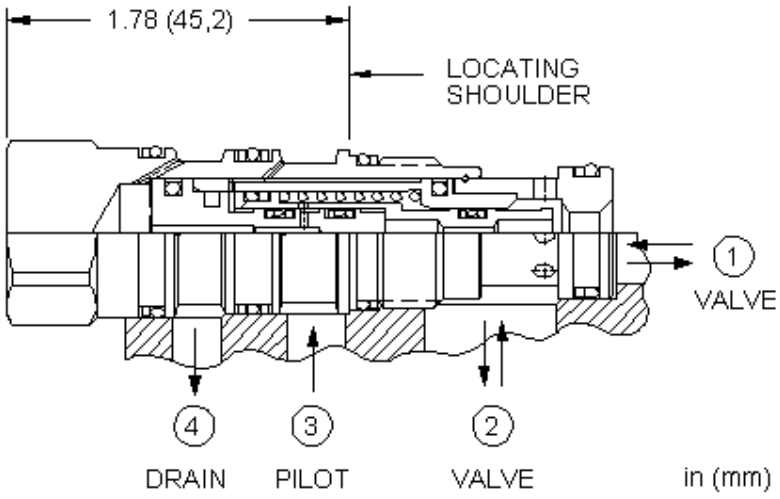
RELATED MODELS

- DODR8 Normally open, balanced poppet, logic element with integral T-8A control cavity - vent-to-close

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-21A

snhy.com/DODS





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	15 gpm
Minimum Pilot Pressure Required to Shift Valve	400 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.01 in^3
Pilot Passage into Valve	.03 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	EPDM: 990021014
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.35 lb.

CONFIGURATION OPTIONS

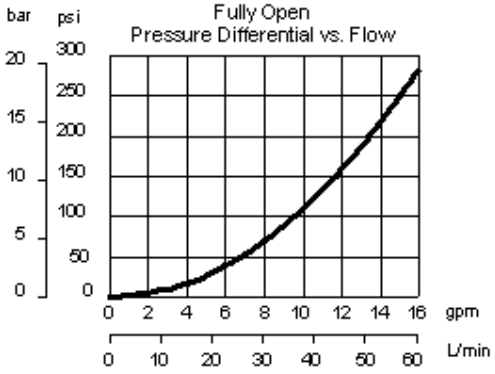
Model Code Example: DODSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 400 psi (28 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 400 psi (30 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- All ports will accept 5000 psi (350 bar).
- 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.

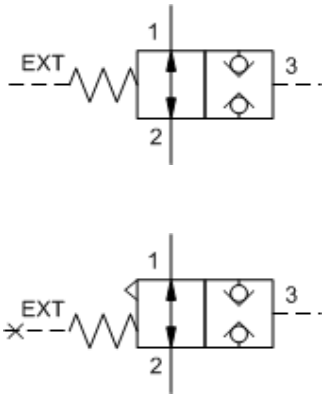
PERFORMANCE CURVES

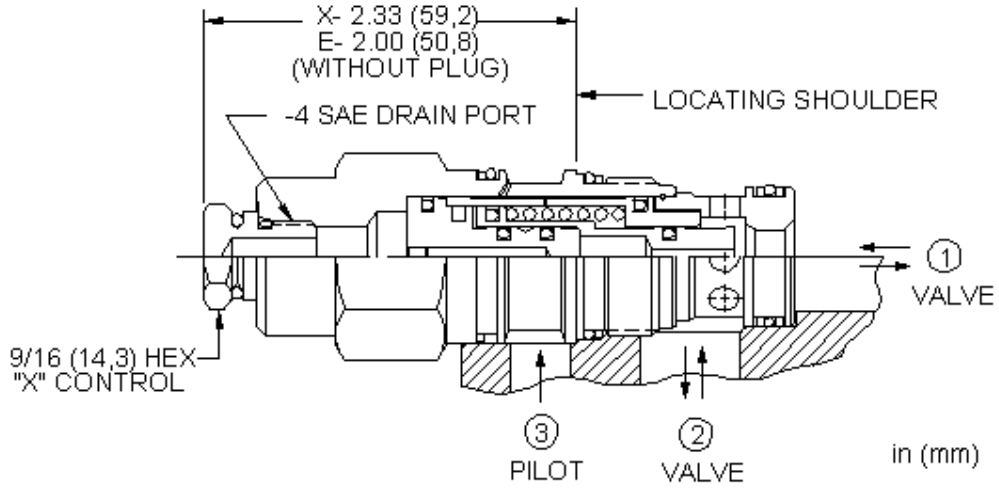


MODEL
DOFC

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-2A

sunhydraulics.com/model/DOFC





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.02 in^3
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.60 lb.

CONFIGURATION OPTIONS

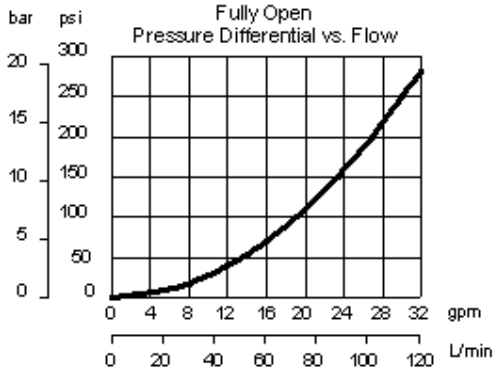
Model Code Example: DOFCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
X Standard Pilot, Atmospheric Vent		**V** Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

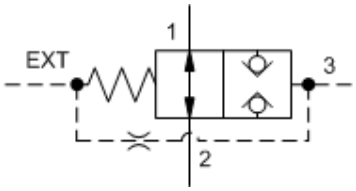
PERFORMANCE CURVES

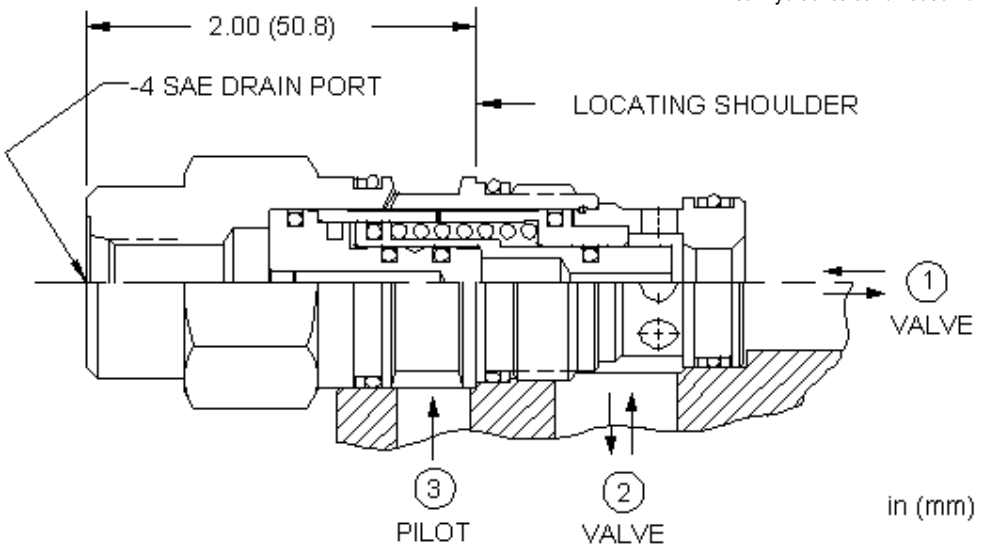


MODEL
DOFD

Normally open, balanced poppet, logic element - vent-to-close
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-2A

sunhydraulics.com/model/DOFD





This is a normally open, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the open position. Venting the external port shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.02 in^3
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.60 lb.

CONFIGURATION OPTIONS

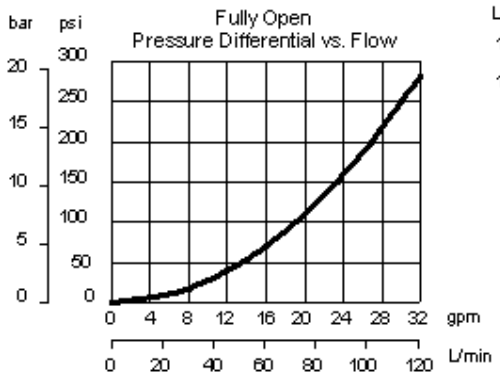
Model Code Example: DOFDEHN

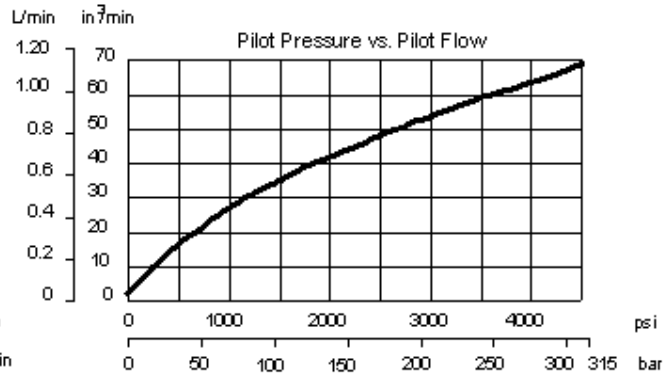
CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at port 1 and port 2, with the external drain port open and a minimum pilot pressure of 300 psi (20 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

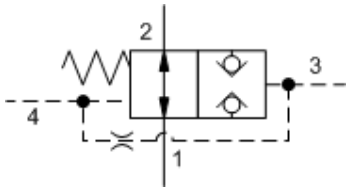


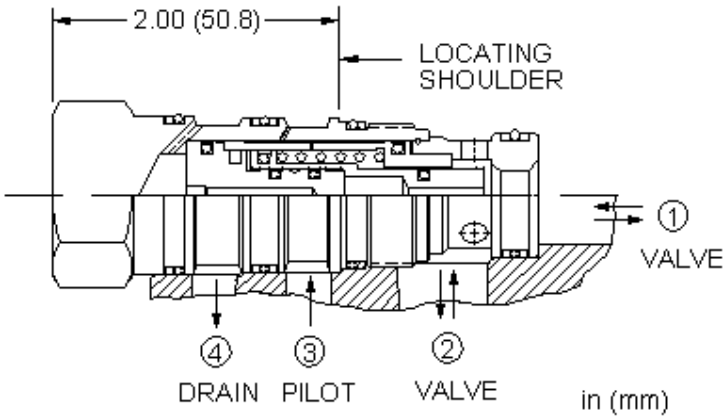


MODEL
DOFR

Normally open, balanced poppet, logic element - vent-to-close
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-22A

sunhydraulics.com/model/DOFR





This is a normally open, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the open position. Venting port 4 shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-22A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006
Model Weight	0.63 lb.

CONFIGURATION OPTIONS

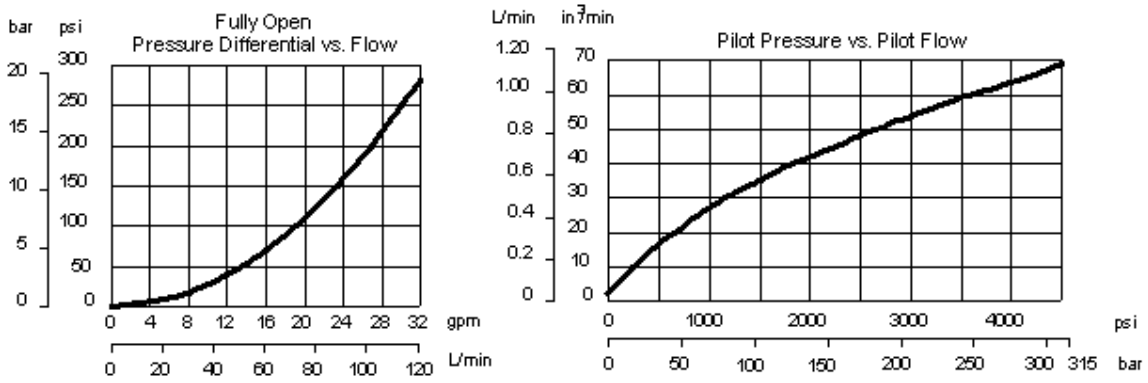
Model Code Example: DOFRXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
X Vent to Operate	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



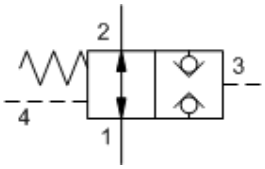
RELATED MODELS

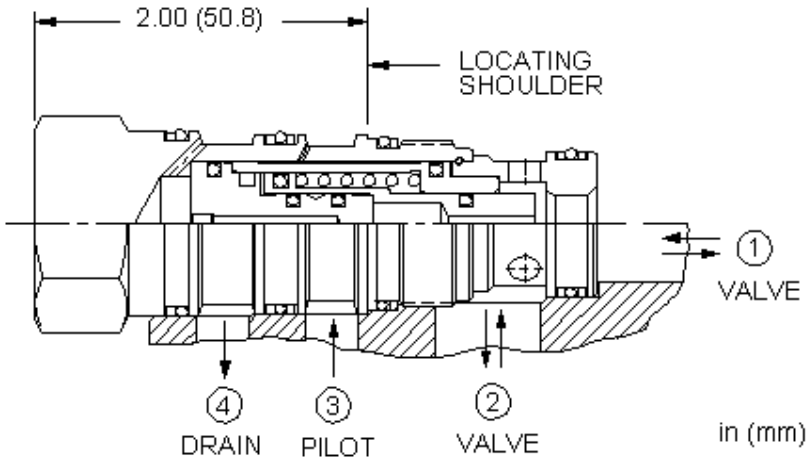
- DOFR8 Normally open, balanced poppet, logic element with integral T-8A control cavity - vent-to-close

MODEL
DOFS

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-22A

sunhydraulics.com/model/DOFS





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-22A
Series	2
Capacity	30 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.02 in^3
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	EPDM: 990022014
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006
Model Weight	0.63 lb.

CONFIGURATION OPTIONS

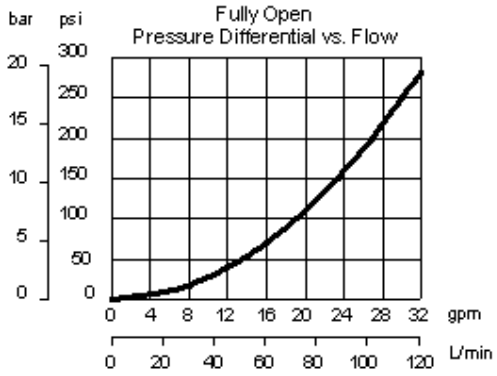
Model Code Example: DOFSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- All ports will accept 5000 psi (350 bar).
- 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.

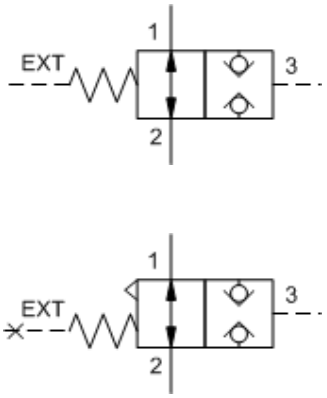
PERFORMANCE CURVES

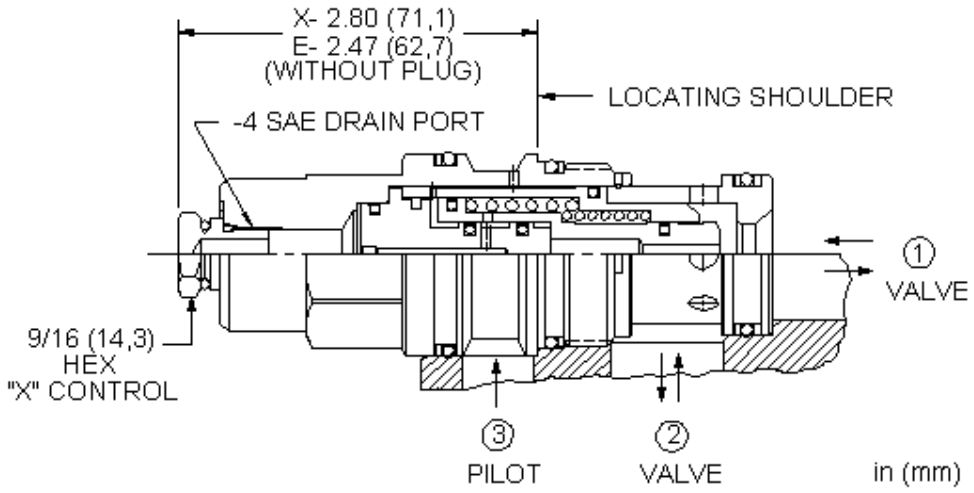


MODEL
DOHC

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-17A

sunhydraulics.com/model/DOHC





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.05 in³
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.33 lb.

CONFIGURATION OPTIONS

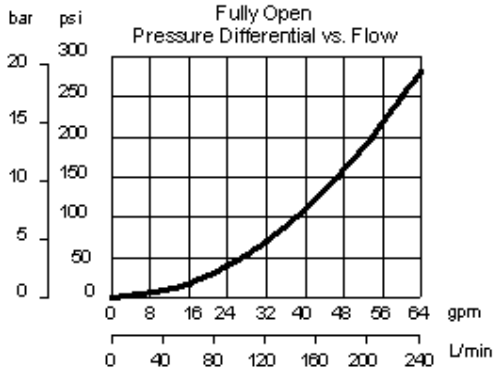
Model Code Example: DOHCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
X Standard Pilot, Atmospheric Vent		**E** EPDM	**/LH** Mild Steel, Zinc-Nickel
		V Viton	

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

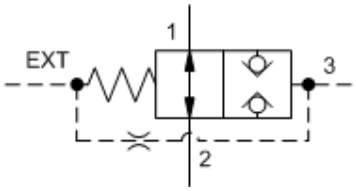
PERFORMANCE CURVES

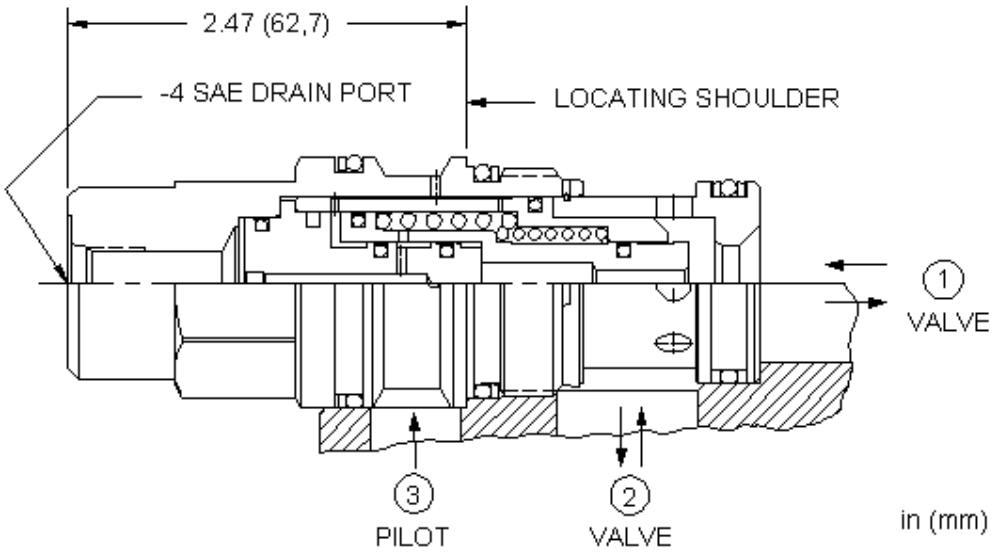


MODEL
DOHD

Normally open, balanced poppet, logic element - vent-to-close
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-17A

sunhydraulics.com/model/DOHD





This is a normally open, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the open position. Venting the external port shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.05 in^3
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.33 lb.

CONFIGURATION OPTIONS

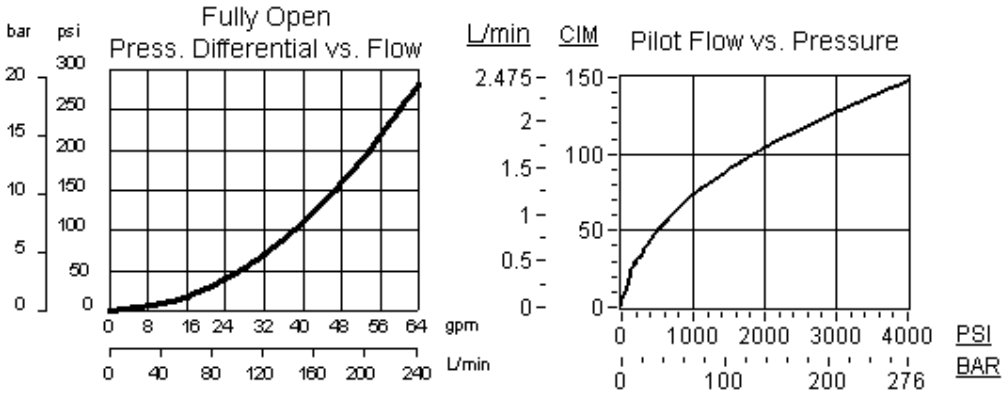
Model Code Example: DOHDEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at port 1 and port 2, with the external drain port open and a minimum pilot pressure of 300 psi (20 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

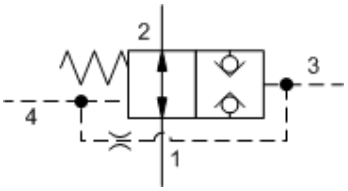
PERFORMANCE CURVES

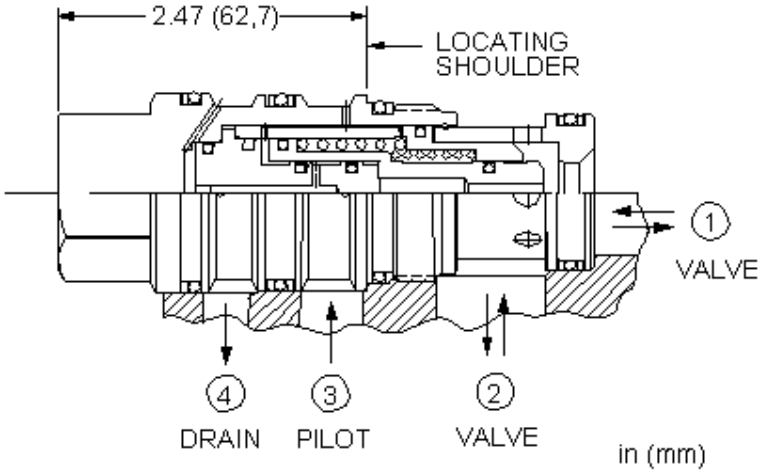


MODEL
DOHR

Normally open, balanced poppet, logic element - vent-to-close
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-23A

sunhydraulics.com/model/DOHR





This is a normally open, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the open position. Venting port 4 shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-23A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006
Model Weight	1.47 lb.

CONFIGURATION OPTIONS

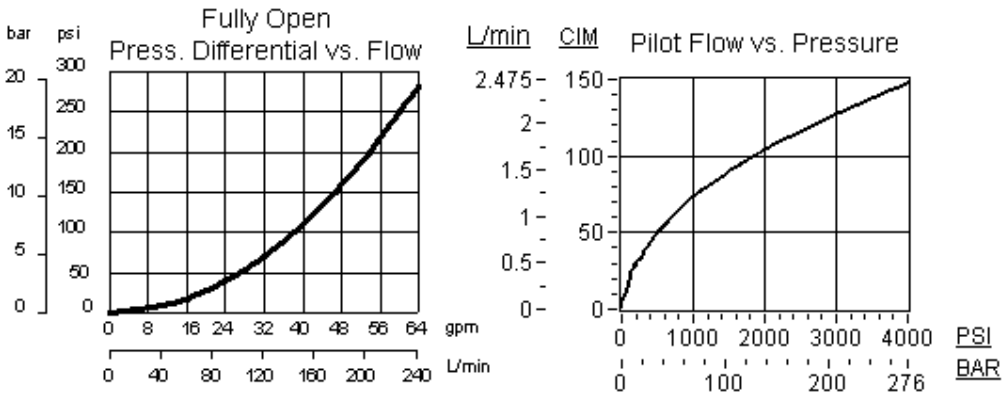
Model Code Example: DOHRXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
X Vent to Operate	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



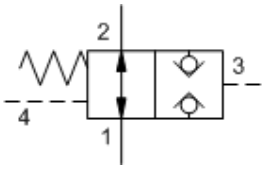
RELATED MODELS

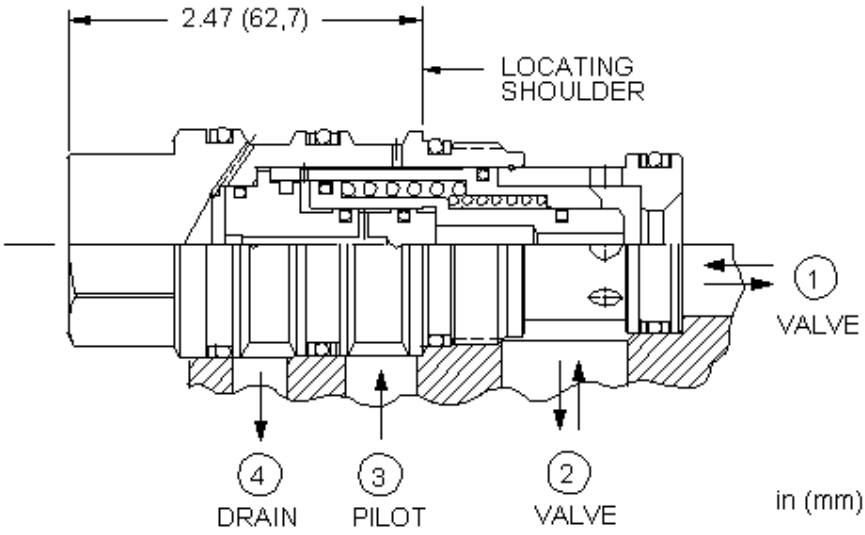
- DOHR8 Normally open, balanced poppet, logic element with integral T-8A control cavity - vent-to-close

MODEL
DOHS

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-23A

snhy.com/DOHS





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-23A
Series	3
Capacity	60 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.05 in^3
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	EPDM: 990023014
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006
Model Weight	1.47 lb.

CONFIGURATION OPTIONS

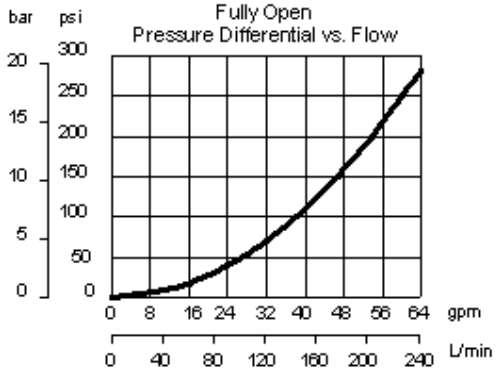
Model Code Example: DOHSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will reseat when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- All ports will accept 5000 psi (350 bar).
- 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.

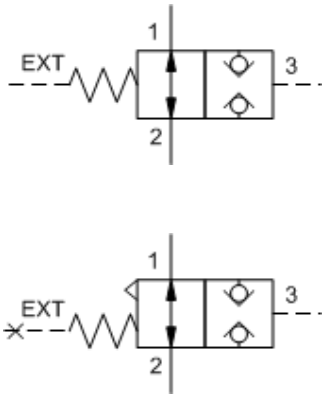
PERFORMANCE CURVES

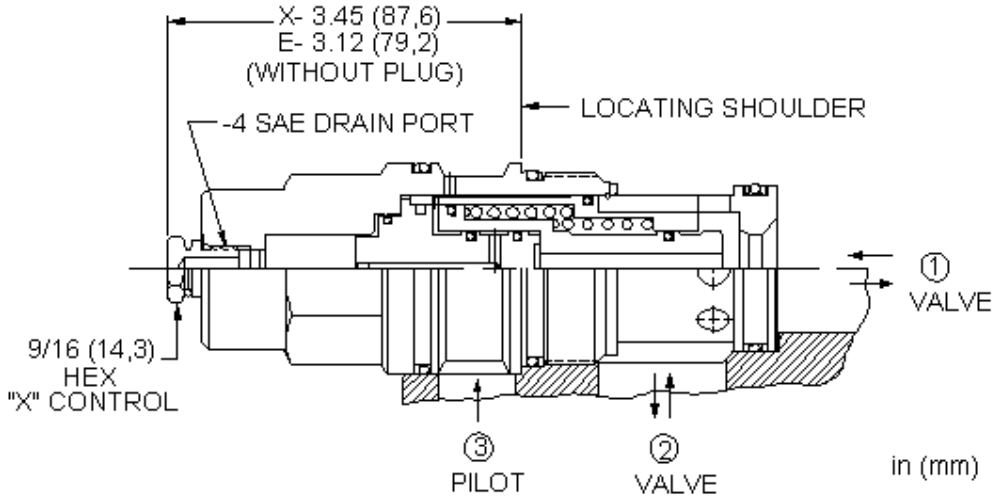


MODEL
DOJC

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-19A

sunhydraulics.com/model/DOJC





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.17 in³
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	3.04 lb.

CONFIGURATION OPTIONS

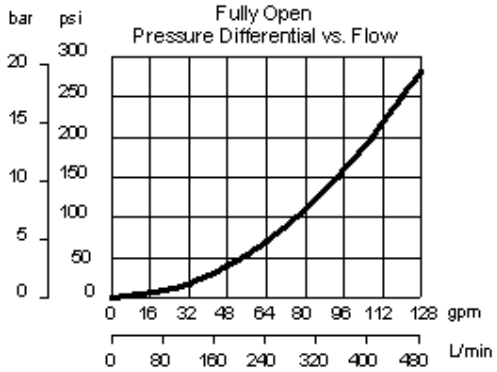
Model Code Example: DOJCEHN

CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
X Standard Pilot, Atmospheric Vent		**V** Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- These 3-port balanced logic valves use the same cavity as unbalanced logic valves of the same frame size and can be considered functional replacements.
- Available in external atmospheric vent (X control) or static external drain (E control) configurations.
- Three-port vented logic elements with the X control are atmospherically referenced and considered problem solvers for existing circuits using non-vented valves. Over time, these valves will eventually leak externally and/or allow moisture into the spring chamber. Four-port valves are recommended for new applications. Alternately, the external vent port can be connected to drain if the static drain port option (control option E) is selected. Removing the vent plug will convert an X control to an E control.
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

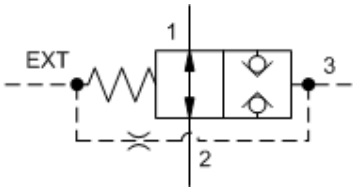
PERFORMANCE CURVES

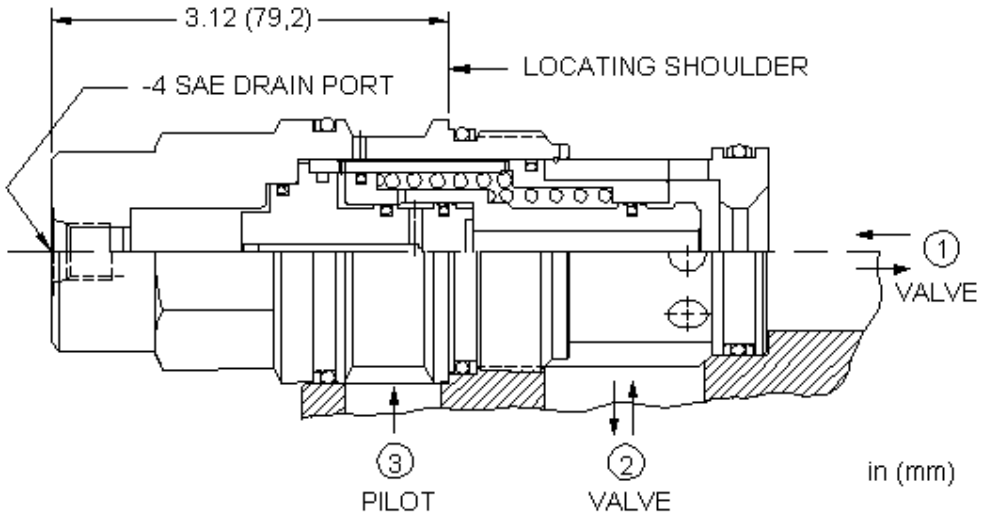


MODEL
DOJD

Normally open, balanced poppet, logic element - vent-to-close
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-19A

sunhydraulics.com/model/DOJD





This is a normally open, balanced poppet, switching element. When the external vent port is blocked, the poppet remains in the open position. Venting the external port shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.17 in^3
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	3.04 lb.

CONFIGURATION OPTIONS

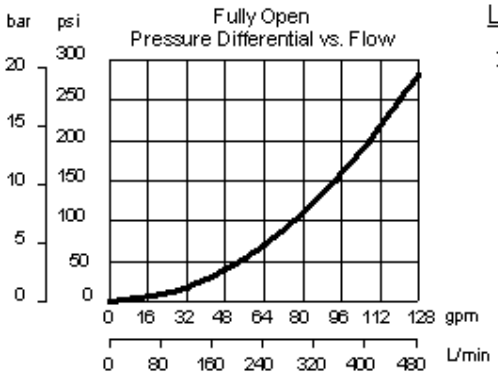
Model Code Example: DOJDEHN

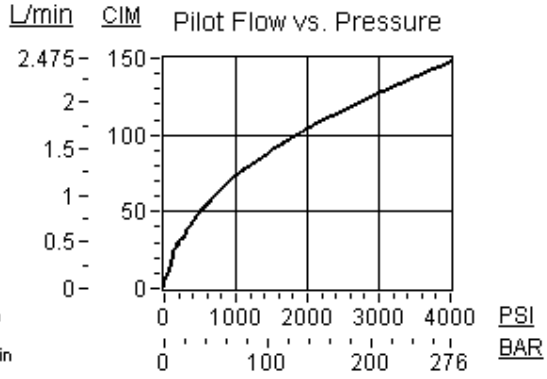
CONTROL (E)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
E External 4-SAE Drain Port	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at port 1 and port 2, with the external drain port open and a minimum pilot pressure of 300 psi (20 bar).
- The external -4 SAE vent port may be directly connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min (0,7 cc/min). and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- These valves are hydraulically balanced between port 1 and port 2.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- Port 1 and port 2 are fully sealed from port 3.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

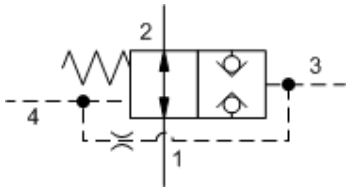


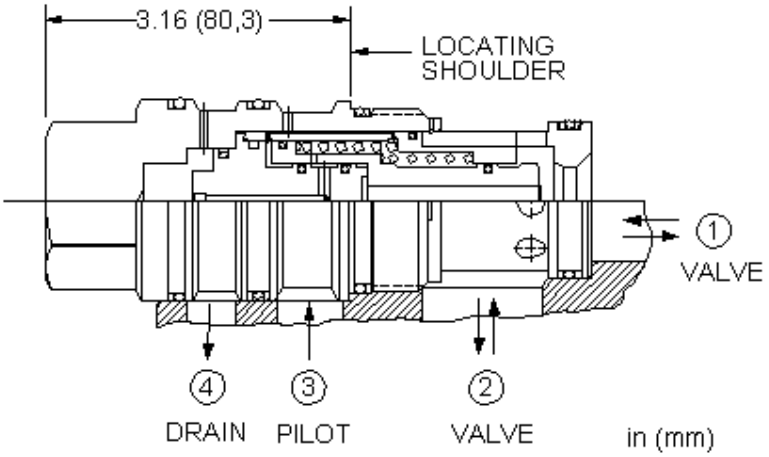


MODEL
DOJR

Normally open, balanced poppet, logic element - vent-to-close
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-24A

sunhydraulics.com/model/DOJR





This is a normally open, balanced poppet, switching element. When the vent port (port 4) is blocked, the poppet remains in the open position. Venting port 4 shifts it to the closed position, provided there is sufficient pressure at port 3.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-24A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Control Pilot Flow	See Performance Data
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006
Model Weight	3.35 lb.

CONFIGURATION OPTIONS

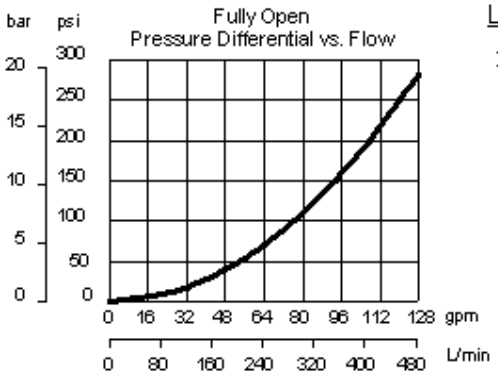
Model Code Example: DOJRXHN

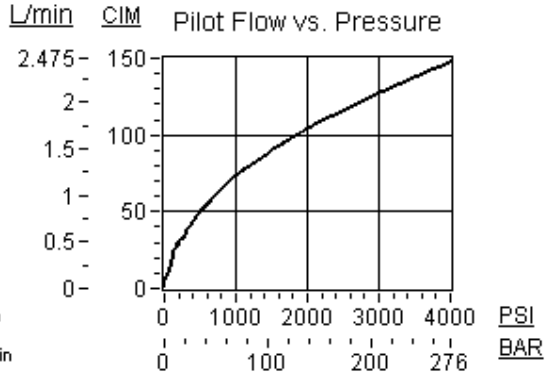
CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)
X Vent to Operate	**H** 300 psi (20 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the vent (port 4) open and a minimum pilot pressure of 400 psi (30 bar) at port 3.
- These valves are hydraulically balanced between port 1 and port 2.
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Port 4 may be externally connected to a pilot switching valve. The pilot valve should have a leakage rate of less than 10 drops/min. and be able to satisfy the pilot flow requirements. Sun model DAA*-*** solenoid pilot valve is ideal for this application.
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES





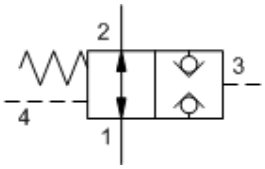
RELATED MODELS

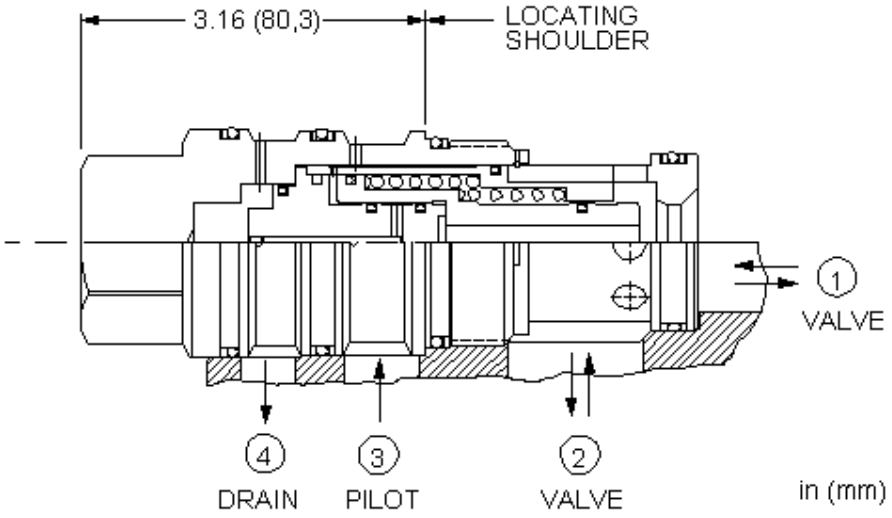
- DOJR8 Normally open, balanced poppet, logic element with integral T-8A control cavity - vent-to-close

MODEL
DOJS

Normally open, balanced poppet, logic element - pilot-to-close
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-24A

snhy.com/DOJS





This is a normally open, balanced poppet, switching element. Pilot pressure at port 3 shifts the valve to the closed position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-24A
Series	4
Capacity	120 gpm
Minimum Pilot Pressure Required to Shift Valve	300 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@5000 psi
Pilot Volume Displacement	.17 in^3
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006
Model Weight	3.35 lb.

CONFIGURATION OPTIONS

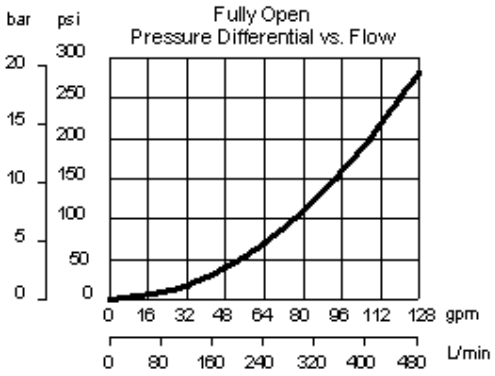
Model Code Example: DOJSXHN

CONTROL (X)	MINIMUM PILOT PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**H** 300 psi (20 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Unique balanced construction provides predictable switching with 5000 psi (350 bar) at both ports 1 and 2, with the external drain open and a minimum pilot pressure of 300 psi (20 bar).
- Port 1 and port 2 are fully sealed from port 3 and port 4. Ports 3 and 4 are positively sealed.
- Any backpressure at the drain port is directly additive to the required pilot pressure for reliable operation.
- Leakage rate between port 1 and port 2 is very low, typically less than 10 drops/min. at 5000 psi (0,7 cc/min at 350 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Valve will open when the pilot pressure falls below 145 psi (10 bar).
- These valves are hydraulically balanced between port 1 and port 2.
- All ports will accept 5000 psi (350 bar).
- 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.

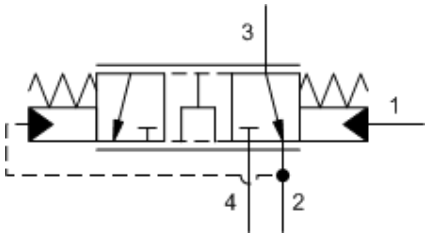
PERFORMANCE CURVES

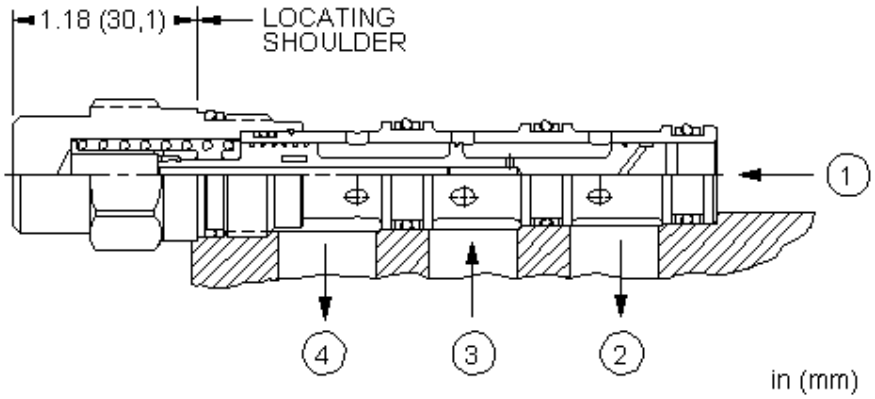


MODEL
LHDA

Bypass/restrictive, priority modulating element
SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-31A

sunhydraulics.com/model/LHDA





Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-31A
Series	1
Capacity	60 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006
Model Weight	0.17 kg.

CONFIGURATION OPTIONS

Model Code Example: LHDAXFN

CONTROL (X)	DIFFERENTIAL PRESSURE (F)	SEAL MATERIAL (N)
X Not Adjustable	**F** 100 psi (7 bar)	**N** Buna-N
	E 75 psi (5 bar)	**E** EPDM
		V Viton

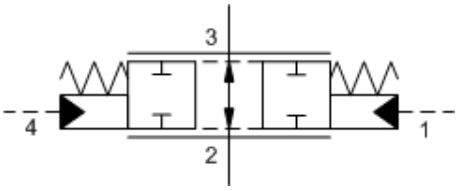
TECHNICAL FEATURES

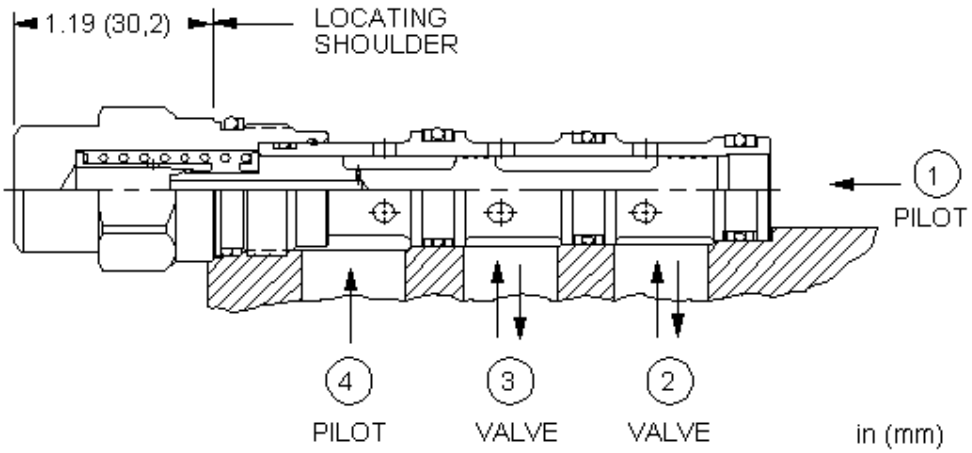
- Bypass flow is not available until priority flow requirements are satisfied.
- Priority flow can be turned on or off with a pilot-sized, three-way solenoid valve on port 1.
- Bypass pressure at port 4 can be higher than pressure at control port 2.
- Cartridges with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- 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.

MODEL
LHDT

Normally open, bi-directional, modulating element
SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-31A

sunhydraulics.com/model/LHDT





These bi-directional, normally open, modulating elements used with an external orifice, create a bi-directional, pressure compensated flow control.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-31A
Series	1
Capacity	60 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	EPDM: 990031014
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006
Model Weight	0.17 kg.

CONFIGURATION OPTIONS

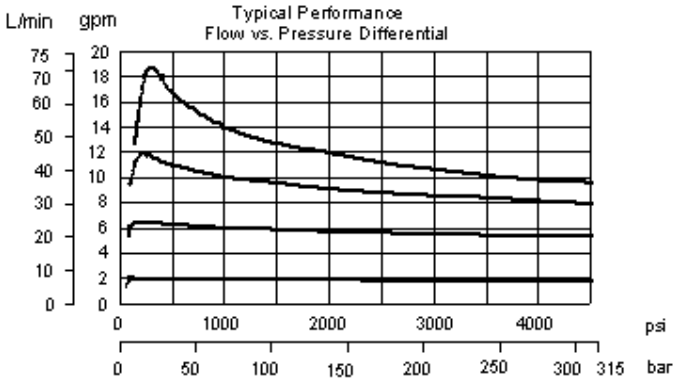
Model Code Example: LHDTXFN

CONTROL (X)	NOMINAL CONTROL PRESSURE (F)	SEAL MATERIAL (N)
X Not Adjustable	**F** 100 psi (7 bar)	**N** Buna-N
	D 50 psi (3,5 bar)	**E** EPDM
	E 75 psi (5 bar)	**V** Viton

TECHNICAL FEATURES

- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- All ports will accept 5000 psi (350 bar).
- 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.

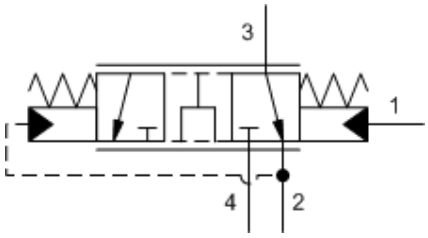
PERFORMANCE CURVES

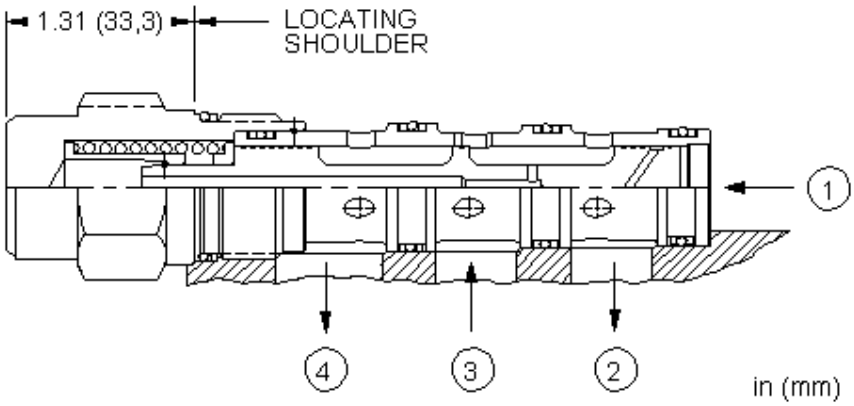


MODEL
LHFA

Bypass/restrictive, priority modulating element
SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-32A

sunhydraulics.com/model/LHFA





Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-32A
Series	2
Capacity	120 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	EPDM: 990032014
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006
Model Weight	0.31 kg.

CONFIGURATION OPTIONS

Model Code Example: LHFAXFN

CONTROL (X)	DIFFERENTIAL PRESSURE (F)	SEAL MATERIAL (N)
X Not Adjustable	**F** 100 psi (7 bar)	**N** Buna-N
	E 75 psi (5 bar)	**E** EPDM
		V Viton

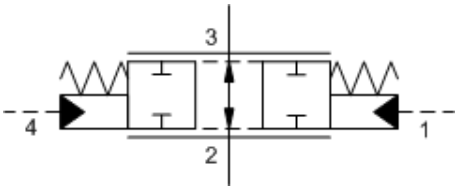
TECHNICAL FEATURES

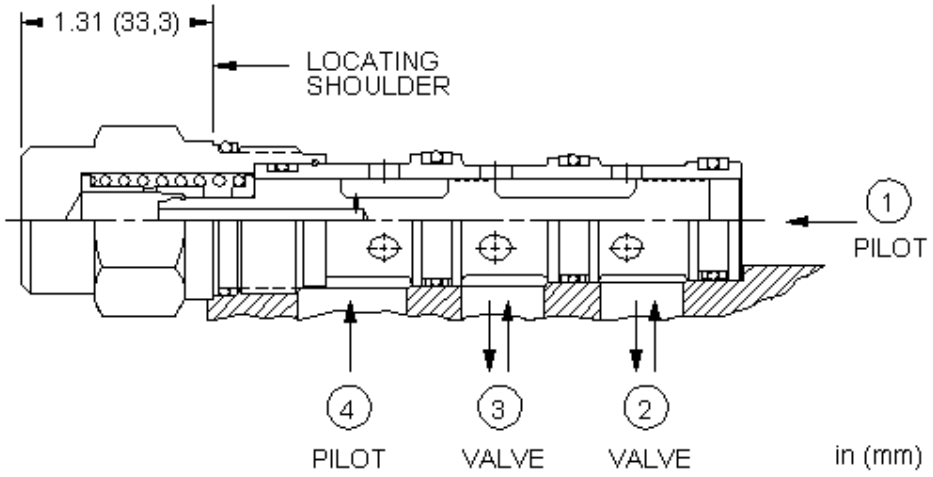
- Bypass flow is not available until priority flow requirements are satisfied.
- Priority flow can be turned on or off with a pilot-sized, three-way solenoid valve on port 1.
- Bypass pressure at port 4 can be higher than pressure at control port 2.
- Cartridges with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- 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.

MODEL
LHFT

Normally open, bi-directional, modulating element
SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-32A

sunhydraulics.com/model/LHFT





These bi-directional, normally open, modulating elements used with an external orifice, create a bi-directional, pressure compensated flow control.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-32A
Series	2
Capacity	120 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	EPDM: 990032014
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006
Model Weight	0.32 kg.

CONFIGURATION OPTIONS

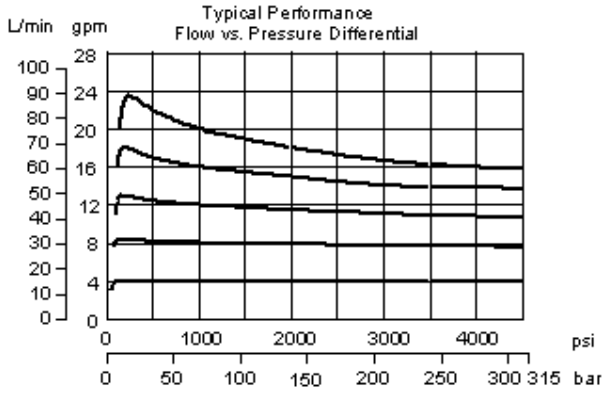
Model Code Example: LHFTXFN

CONTROL (X)	NOMINAL CONTROL PRESSURE (F)	SEAL MATERIAL (N)
X Not Adjustable	**F** 100 psi (7 bar)	**N** Buna-N
	D 50 psi (3,5 bar)	**E** EPDM
	E 75 psi (5 bar)	**V** Viton

TECHNICAL FEATURES

- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- All ports will accept 5000 psi (350 bar).
- 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.

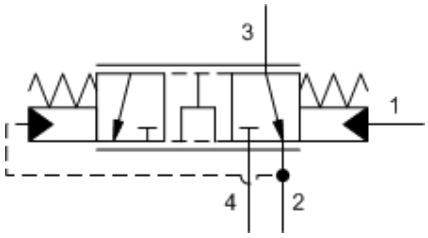
PERFORMANCE CURVES

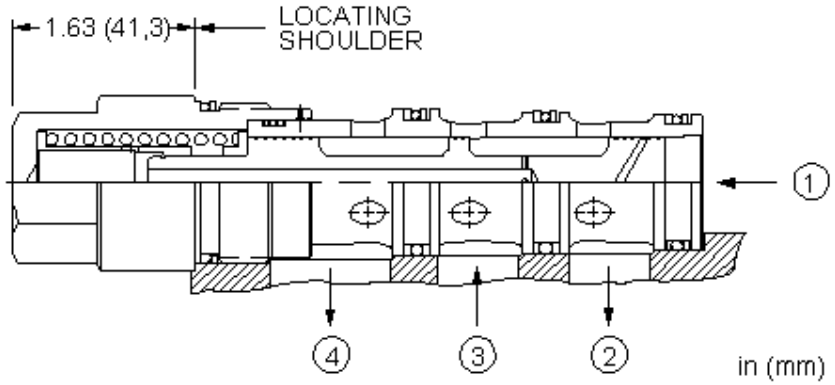


MODEL
LHHA

Bypass/restrictive, priority modulating element
SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-33A

sunhydraulics.com/model/LHHA





Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-33A
Series	3
Capacity	240 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	EPDM: 990033014
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006
Model Weight	0.72 kg.

CONFIGURATION OPTIONS

Model Code Example: LHHAXFN

CONTROL (X)	DIFFERENTIAL PRESSURE (F)	SEAL MATERIAL (N)
X Not Adjustable	**F** 100 psi (7 bar)	**N** Buna-N
	E 75 psi (5 bar)	**E** EPDM
		V Viton

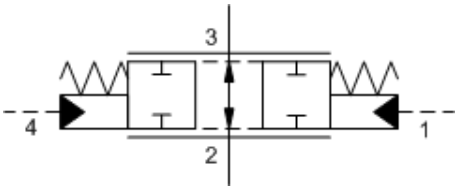
TECHNICAL FEATURES

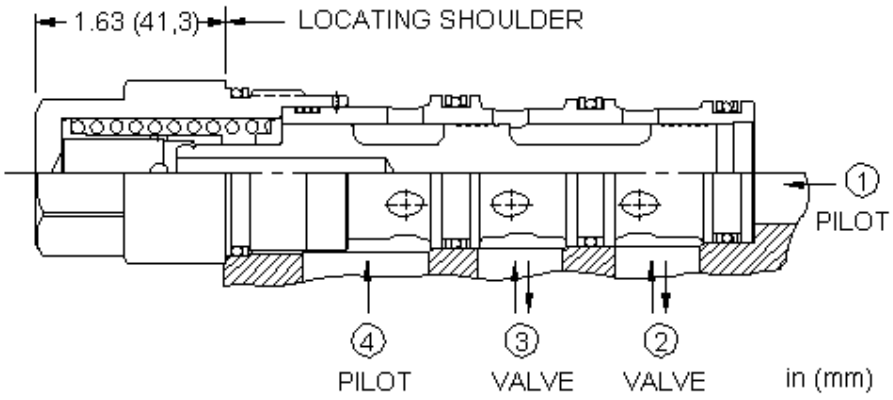
- Bypass flow is not available until priority flow requirements are satisfied.
- Priority flow can be turned on or off with a pilot-sized, three-way solenoid valve on port 1.
- Bypass pressure at port 4 can be higher than pressure at control port 2.
- Cartridges with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- 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.

MODEL
LHHT

Normally open, bi-directional, modulating element
SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-33A

sunhydraulics.com/model/LHHT





These bi-directional, normally open, modulating elements used with an external orifice, create a bi-directional, pressure compensated flow control.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-33A
Series	3
Capacity	240 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	EPDM: 990033014
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006
Model Weight	0.78 kg.

CONFIGURATION OPTIONS

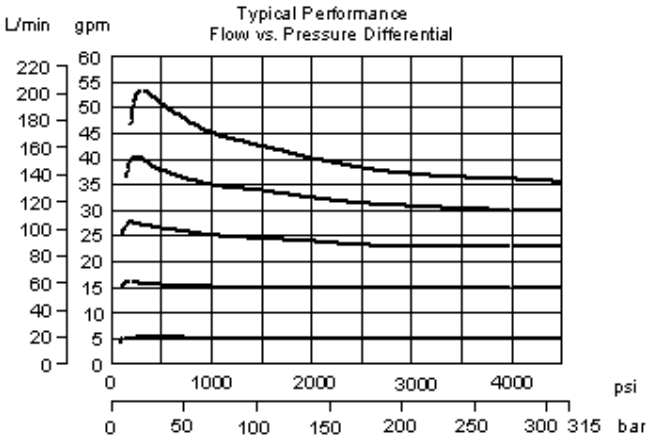
Model Code Example: LHHTXFN

CONTROL (X)	DIFFERENTIAL PRESSURE (F)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**F** 100 psi (7 bar)	**N** Buna-N	Standard Material/Coating
	D 50 psi (3,5 bar)	**E** EPDM	**/AP** Stainless Steel, Passivated
	E 75 psi (5 bar)	**V** Viton	

TECHNICAL FEATURES

- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- All ports will accept 5000 psi (350 bar).
- 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.

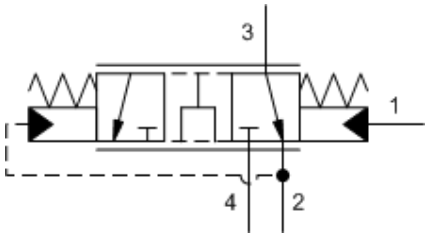
PERFORMANCE CURVES

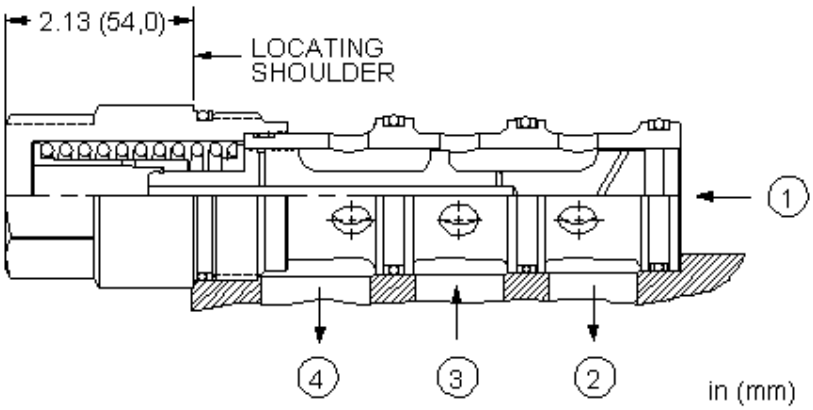


MODEL
LHJA

Bypass/restrictive, priority modulating element
SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-34A

sunhydraulics.com/model/LHJA





Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-34A
Series	4
Capacity	480 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	EPDM: 990034014
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006
Model Weight	1.57 kg.

CONFIGURATION OPTIONS

Model Code Example: LHJAXFN

CONTROL (X)	DIFFERENTIAL PRESSURE (F)	SEAL MATERIAL (N)
X Not Adjustable	**F** 100 psi (7 bar)	**N** Buna-N
	E 75 psi (5 bar)	**E** EPDM
		V Viton

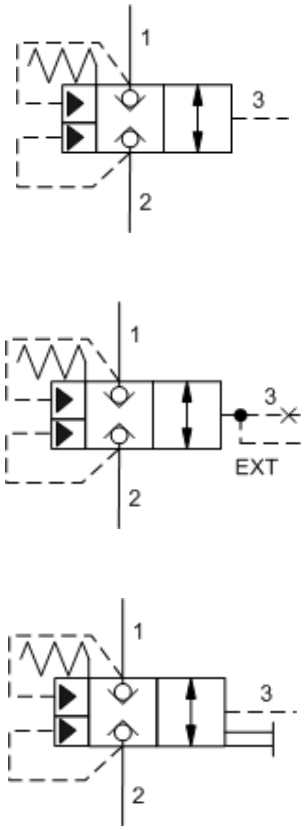
TECHNICAL FEATURES

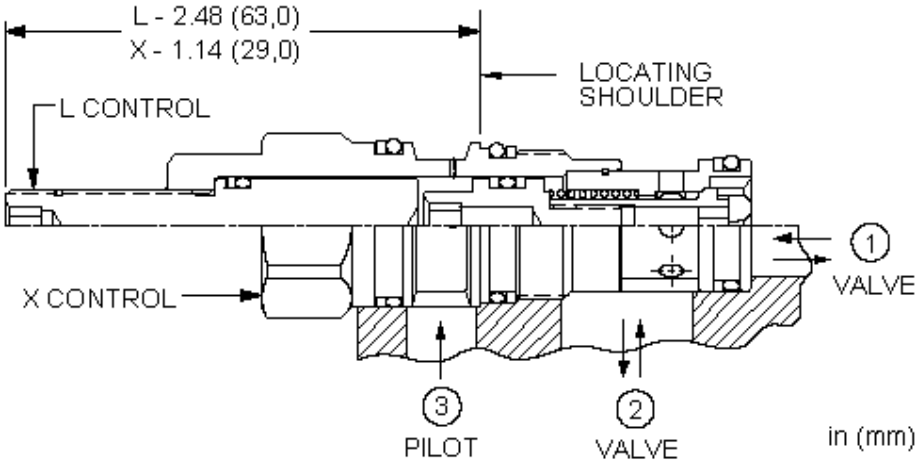
- Bypass flow is not available until priority flow requirements are satisfied.
- Priority flow can be turned on or off with a pilot-sized, three-way solenoid valve on port 1.
- Bypass pressure at port 4 can be higher than pressure at control port 2.
- Cartridges with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- 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.

MODEL
LKDC

Pilot-to-open, spring-biased closed, unbalanced poppet logic element
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-11A

sunhydraulics.com/model/LKDC





These unbalanced poppet, logic valves are 2-way switching elements that are spring-biased closed. Pressure at either work port 1 or 2 will further bias the valve to the closed position while pressure at port 3 will tend to open it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to open. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	15 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@1000 psi
Pilot Volume Displacement	.02 in³
Pilot Passage into Valve	.031 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.28 lb.

CONFIGURATION OPTIONS

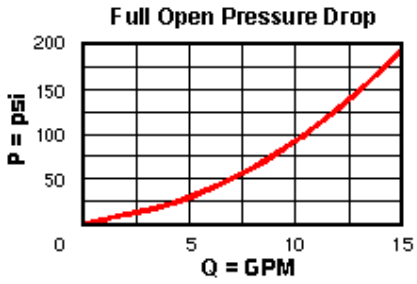
Model Code Example: LKDCXDN

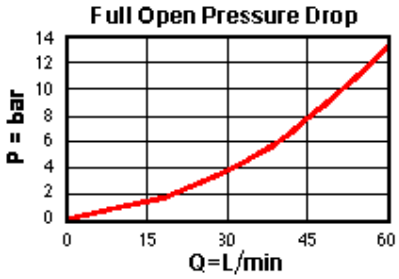
CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated
			/LH Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES

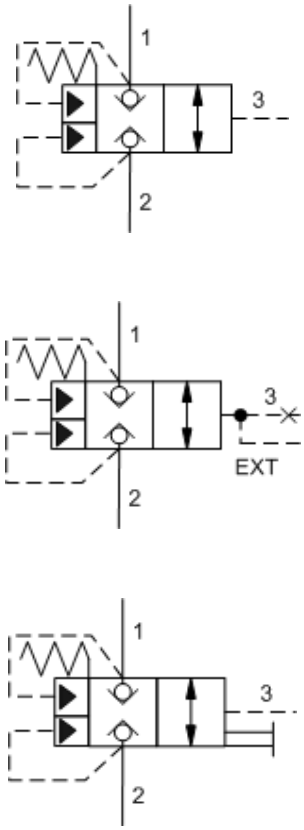


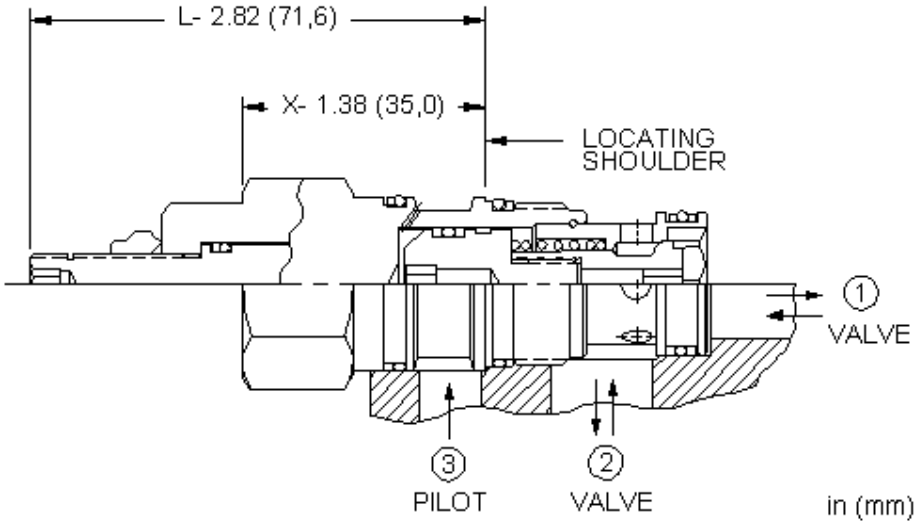


MODEL
LKFC

Pilot-to-open, spring-biased closed, unbalanced poppet logic element
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-2A

snhy.com/LKFC





These unbalanced poppet, logic valves are 2-way switching elements that are spring-biased closed. Pressure at either work port 1 or 2 will further bias the valve to the closed position while pressure at port 3 will tend to open it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to open. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	30 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@1000 psi
Pilot Volume Displacement	.06 in³
Pilot Passage into Valve	.035 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.51 lb.

CONFIGURATION OPTIONS

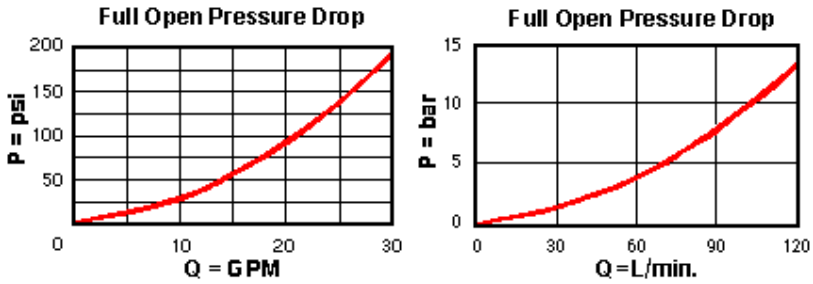
Model Code Example: LKFCXDN

CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

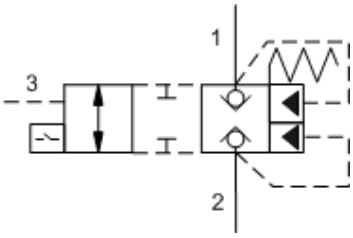
- LKFCZ Pilot-to-open, spring-biased closed, unbalanced poppet logic element with position switch

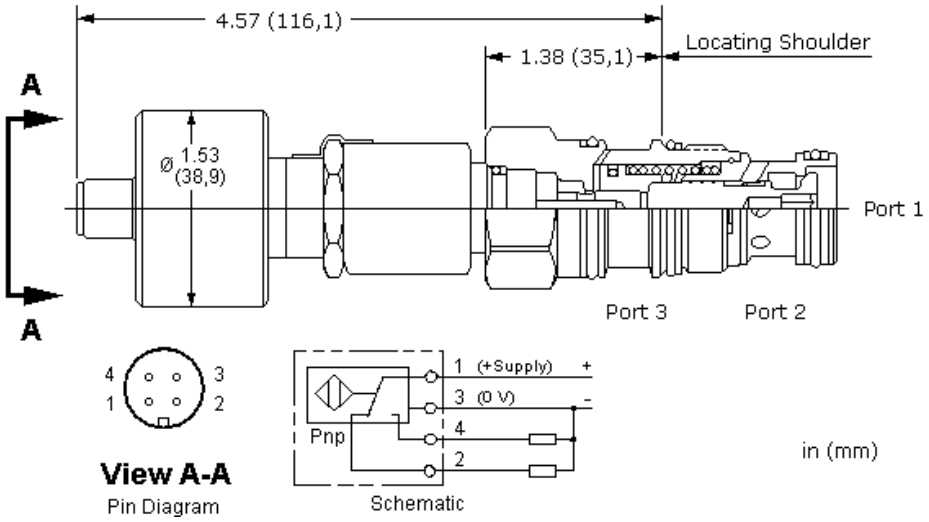
MODEL
LKFCZ

Pilot-to-open, spring-biased closed, unbalanced poppet logic element with position switch

SERIES 2 / CAPACITY: 20 gpm / CAVITY: T-2A

sunhydraulics.com/model/LKFCZ





These unbalanced poppet, logic valves are 2-way switching elements that are spring-biased closed. Pressure at either work port 1 or 2 will further bias the valve to the closed position while pressure at port 3 will tend to open it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to open. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

This valve incorporates a position switch to provide confirmation that the valve is closed.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	20 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	1 drops/min.
Pilot Volume Displacement	.06 in³
Pilot Passage into Valve	.035 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Transition leakage at 110 SUS (24 cSt)	2 in³/min.@1000 psi
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	1.34 lb.

SWITCH SPECIFICATIONS

Supply Voltage	20-30 VDC
Operating Temperature Range	-25 to 80 °C
Vibration	≥ 50g, 0-500 impulses/sec
Shock	>50 g, 1ms
Reverse Polarity Protection	Yes
Maximum Output Load	≤ 400 mA, Duty Ratio 100%
Short Circuit Protection	Yes, Load Short Unlimited
Turn On Time	≤ 25 ms
Hysteresis	≤ .002 in.
Thermal Shift - 0 to 80 °C ≤ ±	.004 in.
EMC	DIN EN 61000-6-1/2/3/4
Connector	M12 X 1 (4) Pin
Connector Environment Rating	IP65

CONFIGURATION OPTIONS

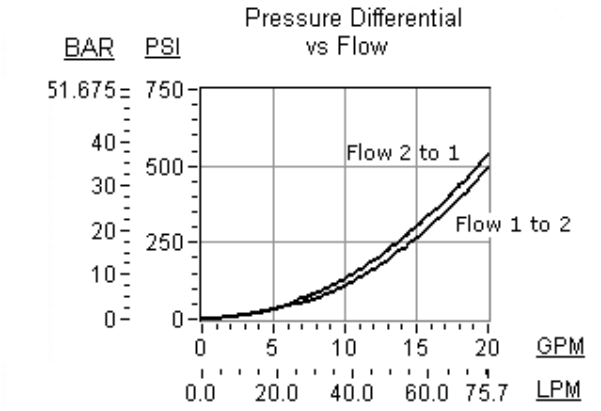
Model Code Example: LKFCZDN

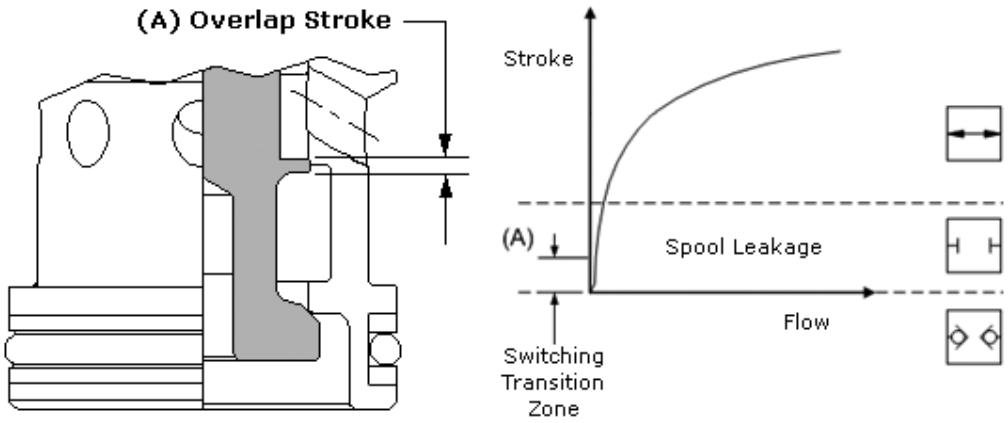
MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)
D 50 psi (3,5 bar)	**N** Buna-N
	E EPDM
	V Viton

TECHNICAL FEATURES

- The position switch in this valve provides confirmation that the valve is closed.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves have positive seals between port 2 and the pilot area.
- This cartridge is supplied as a sealed, factory set unit and is not field serviceable. Any tampering will violate the product warranty.
- When torquing this cartridge into its cavity, a crow's foot wrench or similar will be required since the position switch precludes the use of a deep socket wrench.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Position switch is CE approved.
- 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.

PERFORMANCE CURVES





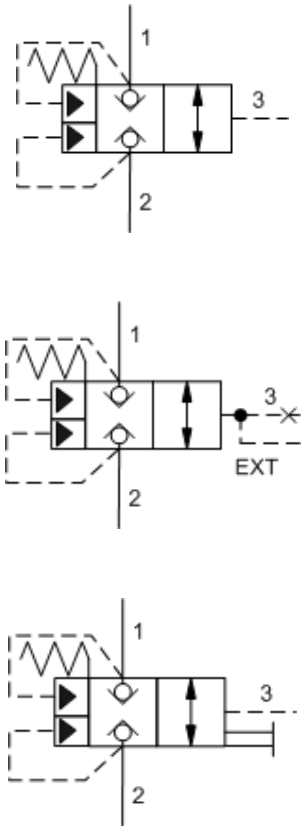
RELATED MODELS

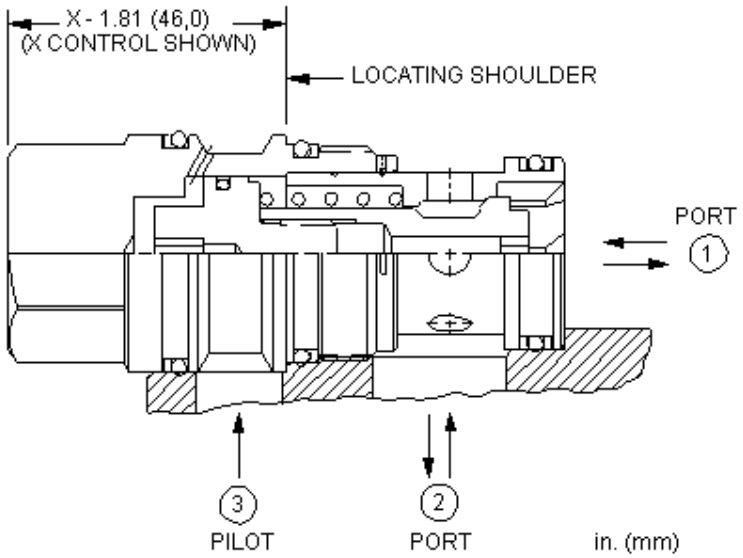
- LKFC Pilot-to-open, spring-biased closed, unbalanced poppet logic element

MODEL
LKHC

Pilot-to-open, spring-biased closed, unbalanced poppet logic element
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-17A

snhy.com/LKHC





These unbalanced poppet, logic valves are 2-way switching elements that are spring-biased closed. Pressure at either work port 1 or 2 will further bias the valve to the closed position while pressure at port 3 will tend to open it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to open. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	60 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@1000 psi
Pilot Volume Displacement	.15 in³
Pilot Passage into Valve	.06 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.14 lb.

CONFIGURATION OPTIONS

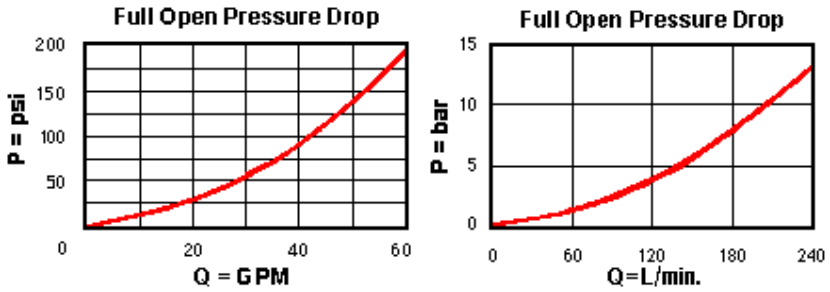
Model Code Example: LKHCXDN

CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	

TECHNICAL FEATURES

- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



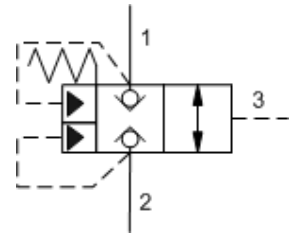
RELATED MODELS

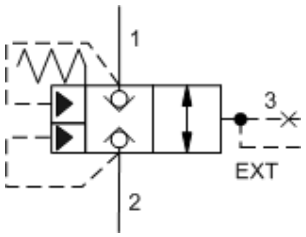
- LKHCZ Pilot-to-open, spring-biased closed, unbalanced poppet logic element with position switch

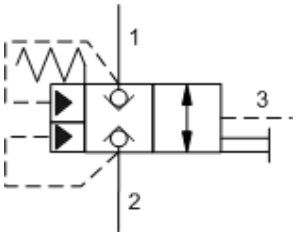
MODEL
LKJC

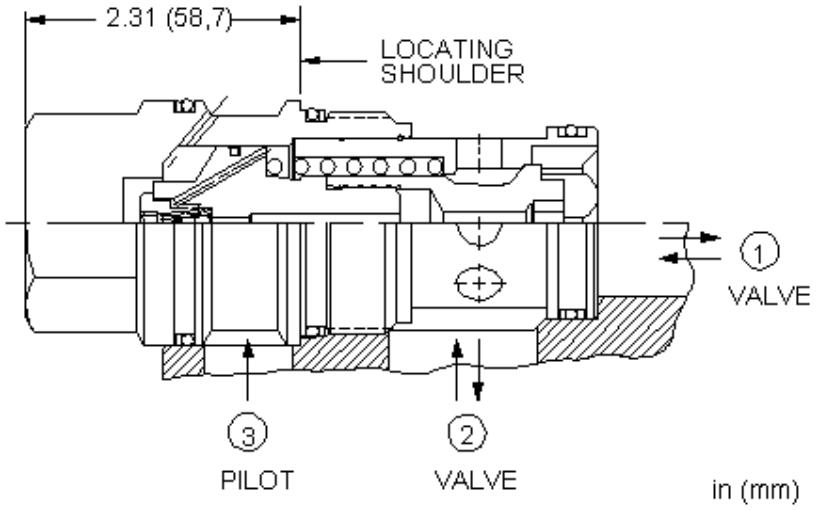
Pilot-to-open, spring-biased closed, unbalanced poppet logic element
SERIES 4 / CAPACITY: 120 gpm / CAVITY: T-19A

snhy.com/LKJC









These unbalanced poppet, logic valves are 2-way switching elements that are spring-biased closed. Pressure at either work port 1 or 2 will further bias the valve to the closed position while pressure at port 3 will tend to open it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to open. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	120 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.@1000 psi
Pilot Volume Displacement	.30 in³
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.64 lb.

CONFIGURATION OPTIONS

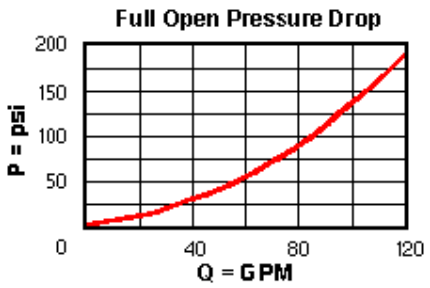
Model Code Example: LKJCXDN

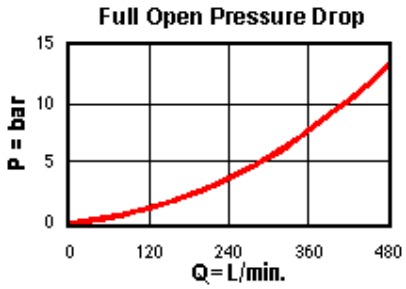
CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES





RELATED MODELS

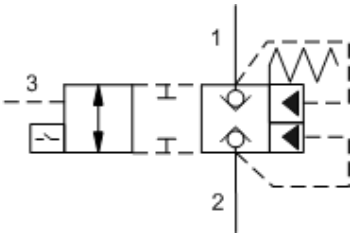
- LKJCZ Pilot-to-open, spring-biased closed, unbalanced poppet logic element with position switch

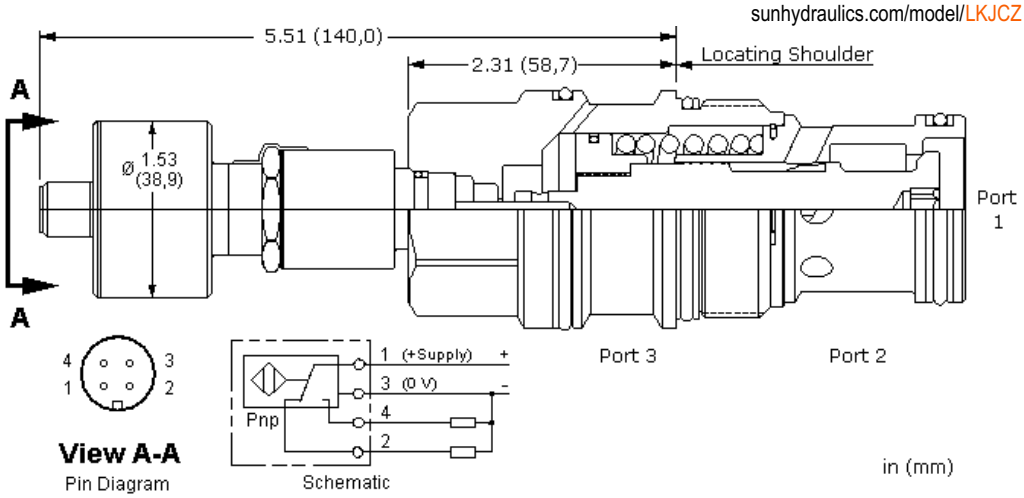
MODEL
LKJCZ

Pilot-to-open, spring-biased closed, unbalanced poppet logic element with position switch

SERIES 4 / CAPACITY: 80 gpm / CAVITY: T-19A

sunhydraulics.com/model/LKJCZ





These unbalanced poppet, logic valves are 2-way switching elements that are spring-biased closed. Pressure at either work port 1 or 2 will further bias the valve to the closed position while pressure at port 3 will tend to open it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to open. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

This valve incorporates a position switch to provide confirmation that the valve is closed.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	80 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	1 drops/min.
Pilot Volume Displacement	.30 in³
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Transition leakage at 110 SUS (24 cSt)	2 in³/min.@1000 psi
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	3.40 lb.

SWITCH SPECIFICATIONS

Supply Voltage	20-30 VDC
Operating Temperature Range	-25 to 80 °C
Vibration	≥ 50g, 0-500 impulses/sec
Shock	>50 g, 1ms
Reverse Polarity Protection	Yes
Maximum Output Load	≤ 400 mA, Duty Ratio 100%
Short Circuit Protection	Yes, Load Short Unlimited
Turn On Time	≤ 25 ms
Hysteresis	≤ .002 in.
Thermal Shift - 0 to 80 °C ≤ ±	.004 in.
EMC	DIN EN 61000-6-1/2/3/4
Connector	M12 X 1 (4) Pin
Connector Environment Rating	IP65

CONFIGURATION OPTIONS

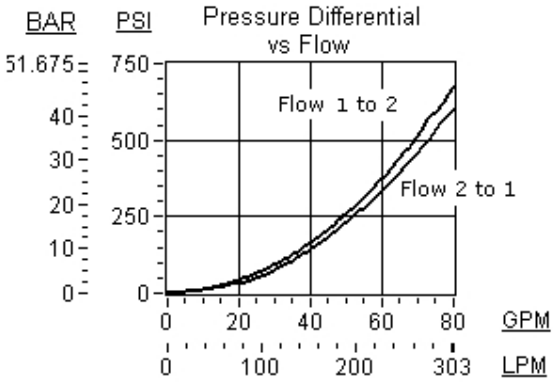
Model Code Example: LKJCZDN

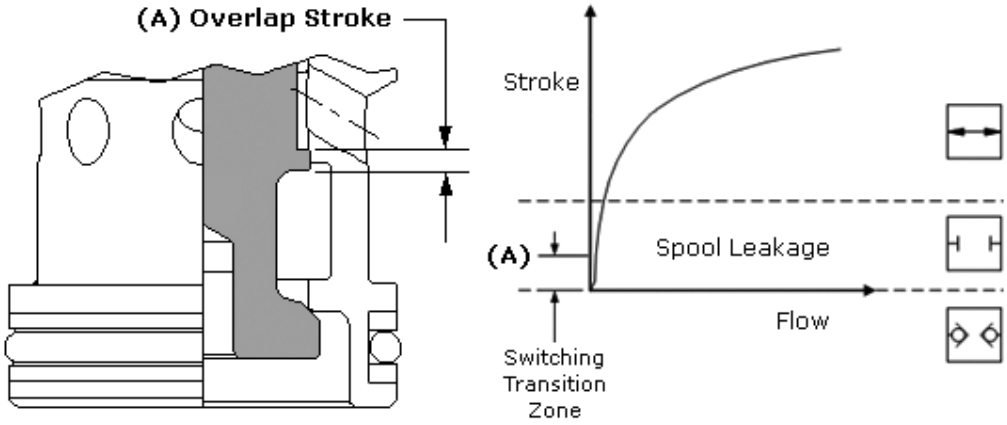
MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)
D 50 psi (3,5 bar)	**N** Buna-N
	V Viton

TECHNICAL FEATURES

- The position switch in this valve provides confirmation that the valve is closed.
- These valves have positive seals between port 2 and the pilot area.
- This cartridge is supplied as a sealed, factory set unit and is not field serviceable. Any tampering will violate the product warranty.
- When torquing this cartridge into its cavity, a crow's foot wrench or similar will be required since the position switch precludes the use of a deep socket wrench.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Position switch is CE approved.
- 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.

PERFORMANCE CURVES





RELATED MODELS

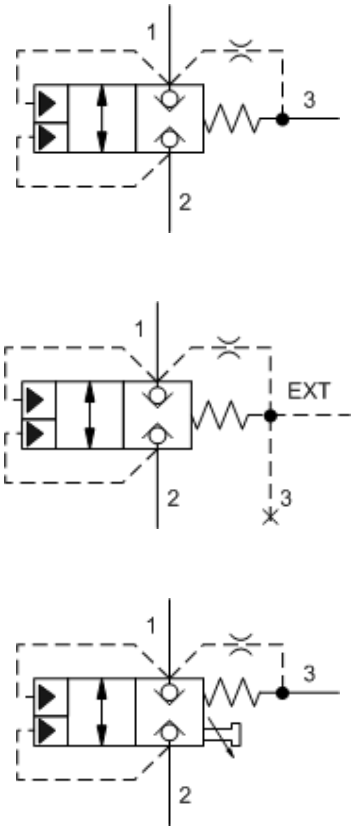
- LKJC Pilot-to-open, spring-biased closed, unbalanced poppet logic element

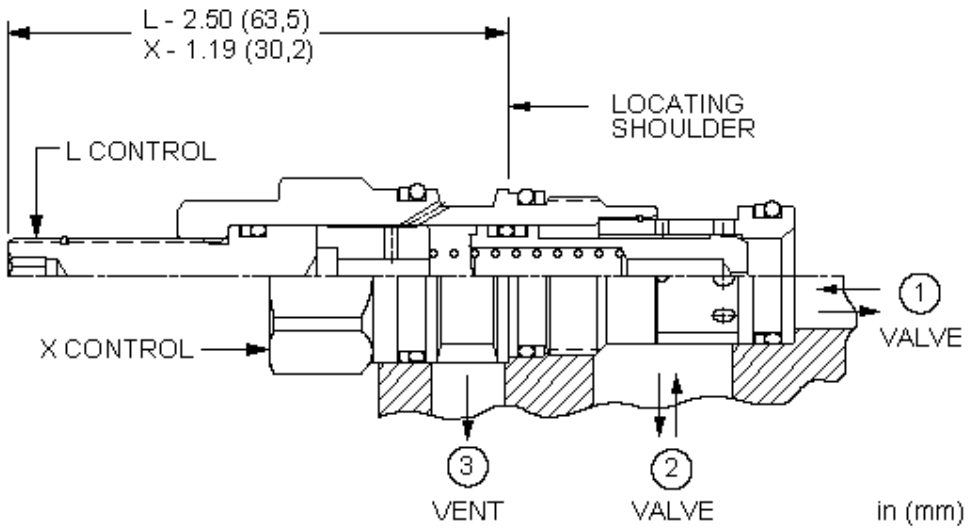
MODEL
LODA

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

SERIES 1 / CAPACITY: 25 gpm / CAVITY: T-11A

sunhydraulics.com/model/LODA





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 1 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 1 to 2 direction and will function as a check valve from 2 to 1. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	25 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.04 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.021 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.27 lb.

CONFIGURATION OPTIONS

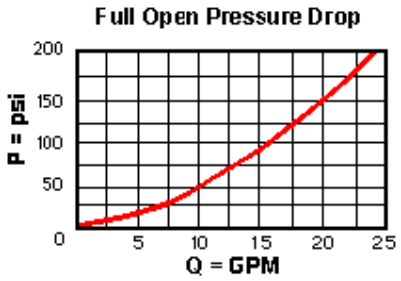
Model Code Example: LODAXDN

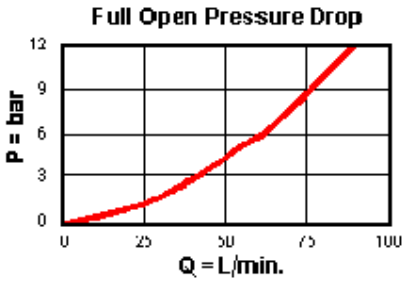
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES





RELATED MODELS

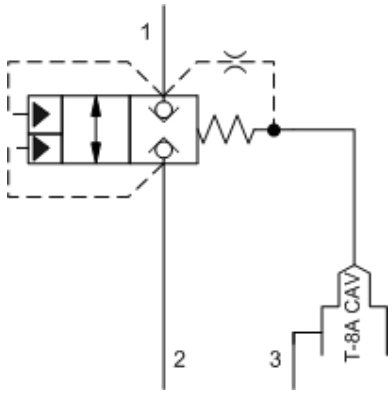
- LODA8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

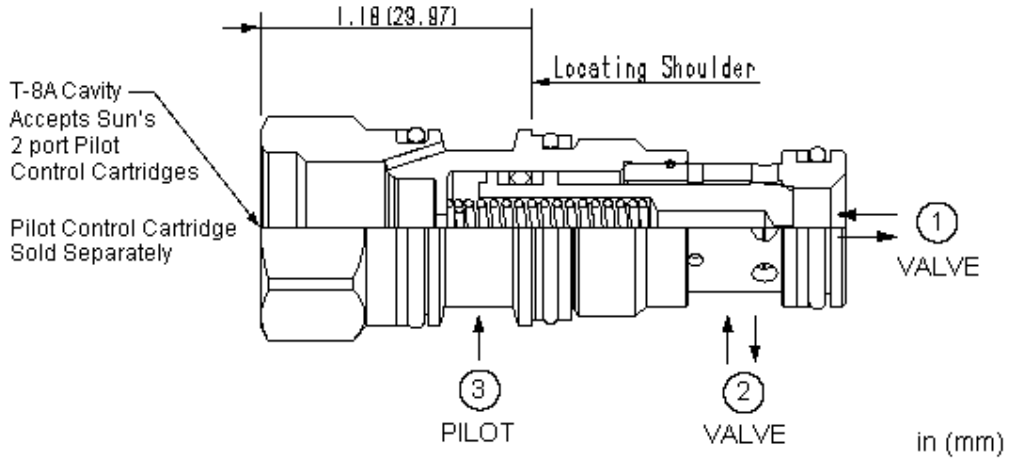
MODEL
LODA8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

SERIES 1 / CAPACITY: 25 gpm / CAVITY: T-11A

sunhydraulics.com/model/LODA8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 1 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	25 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.04 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.021 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.22 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

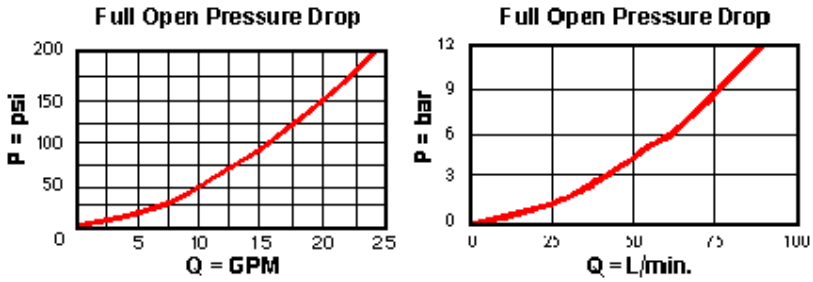
Model Code Example: LODA8DN

CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
D 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
	V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



RELATED MODELS

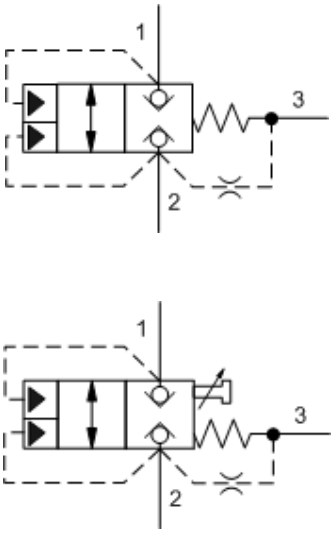
- LODA Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

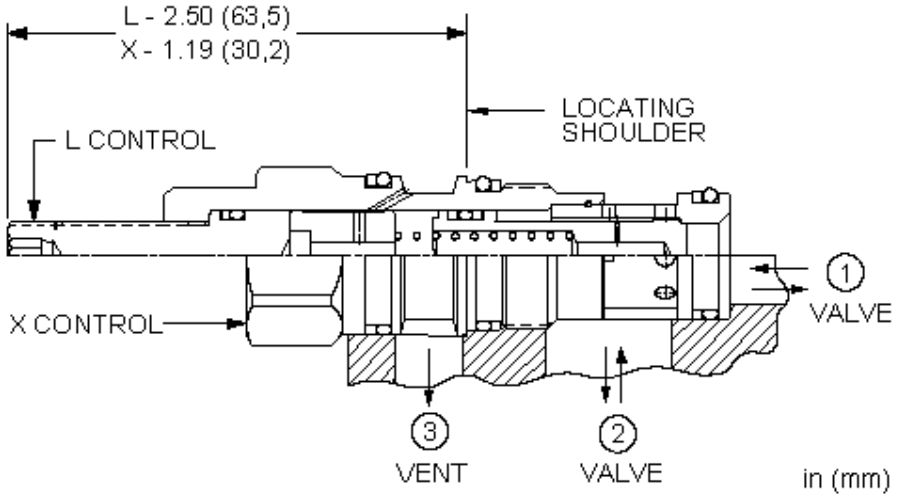
MODEL
LODB

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

SERIES 1 / CAPACITY: 25 gpm / CAVITY: T-11A

sunhydraulics.com/model/LODB





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 2 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 2 to 1 direction and will function as a check valve from 1 to 2. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	25 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.04 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.021 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.27 lb.

CONFIGURATION OPTIONS

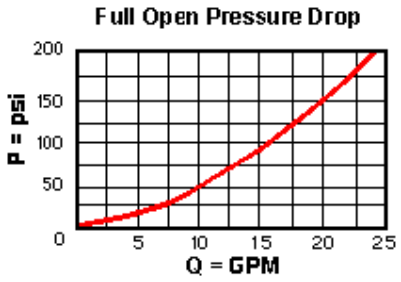
Model Code Example: LODBXDN

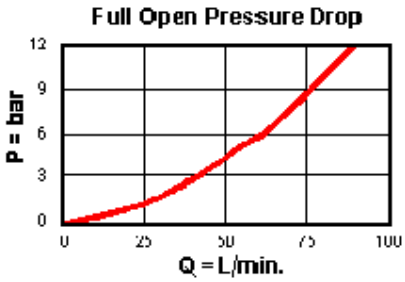
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES





RELATED MODELS

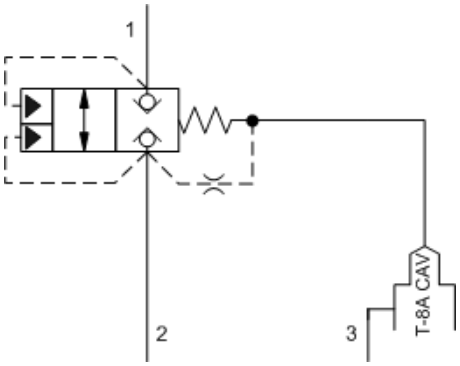
- LODB8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

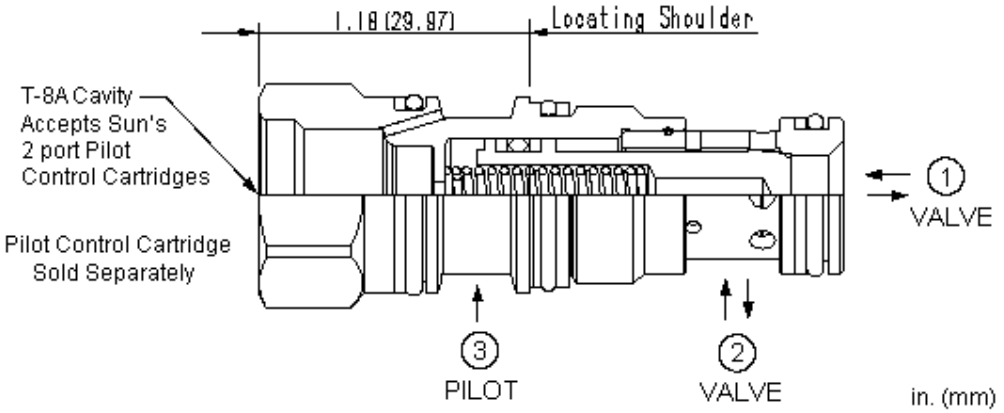
MODEL
LODB8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

SERIES 1 / CAPACITY: 25 gpm / CAVITY: T-11A

snhy.com/LODB8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 2 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	25 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.04 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.021 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.22 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LODB8DN

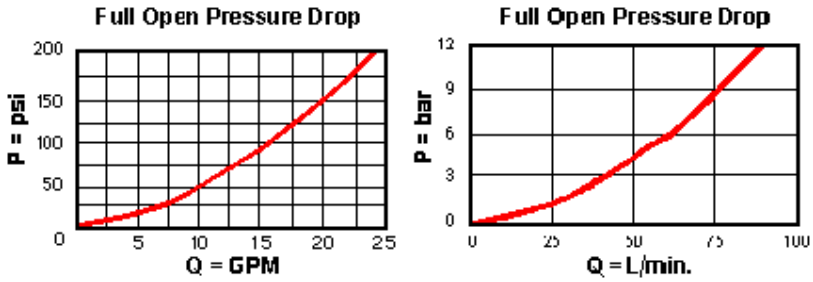
BIAS PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



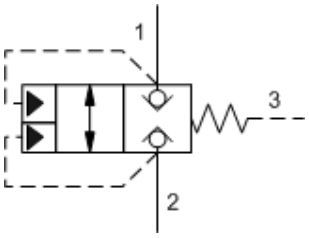
RELATED MODELS

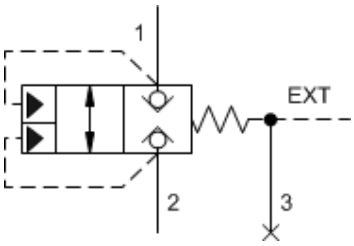
- LODB Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

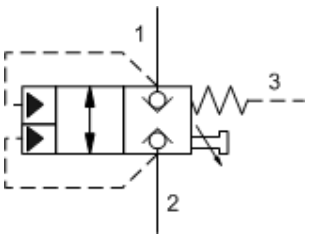
MODEL
LODC

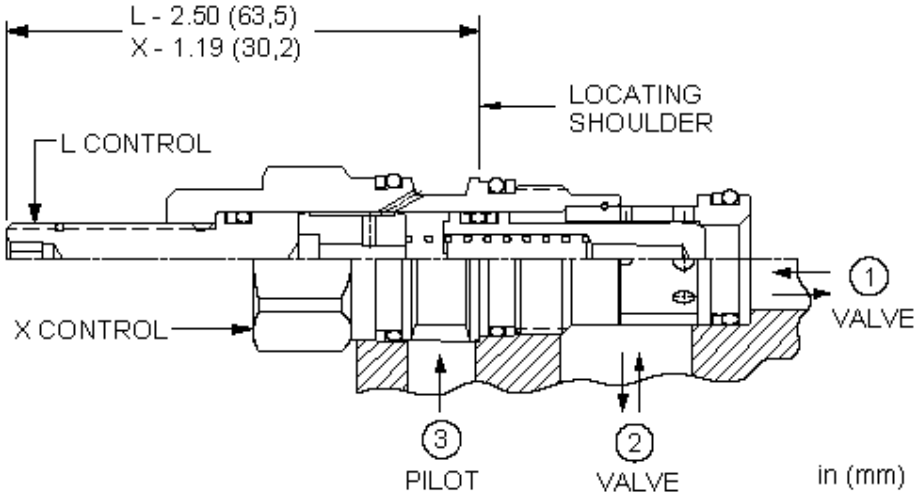
Pilot-to-close, spring-biased closed, unbalanced poppet logic element
SERIES 1 / CAPACITY: 25 gpm / CAVITY: T-11A

sunhydraulics.com/model/LODC









These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	25 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.04 in³
Pilot Passage into Valve	.031 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.27 lb.

CONFIGURATION OPTIONS

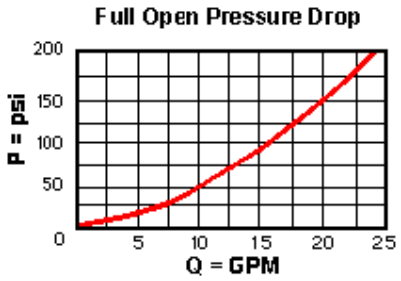
Model Code Example: LODCXDN

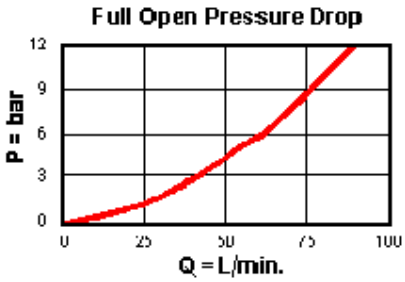
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated
			/LH Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
-
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES

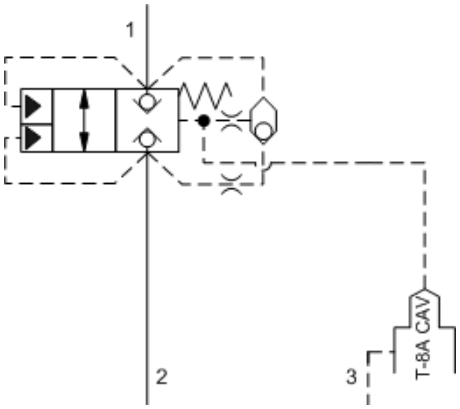


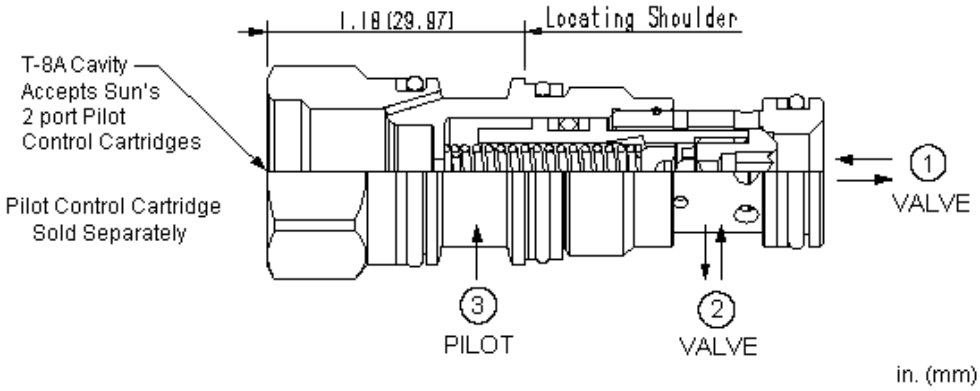


MODEL
LODD8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2 and integral T-8A control cavity
SERIES 1 / CAPACITY: 25 gpm / CAVITY: T-11A

sunhydraulics.com/model/LODD8





in. (mm)

This valve is an unbalanced, vent-to-open 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and incorporates an integral shuttle so that the higher of pressures at either port 1 or port 2 can be used as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	25 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.04 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.021 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.22 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LODD8DN

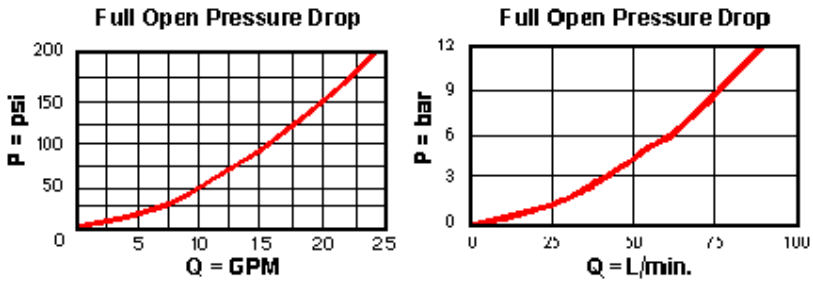
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
E EPDM	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



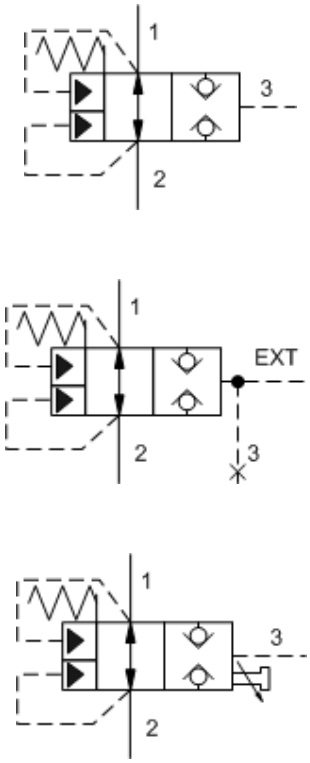
RELATED MODELS

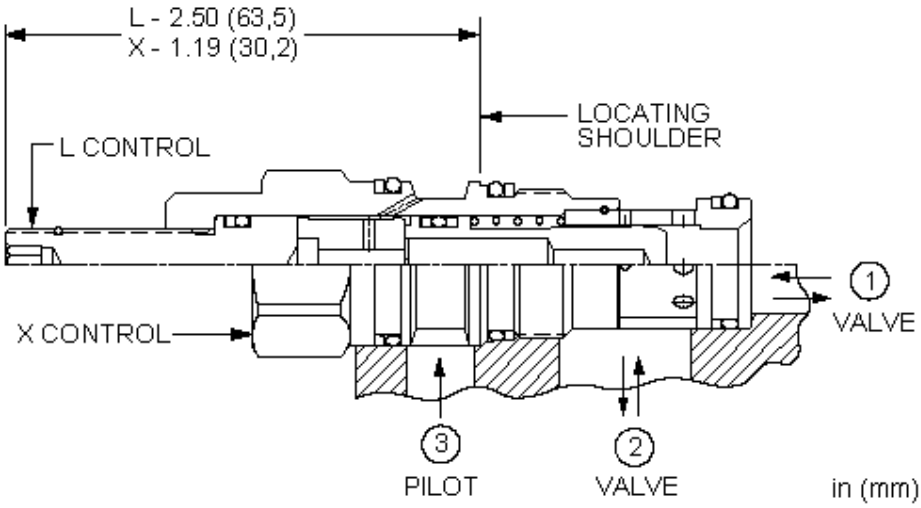
- LODD Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2

MODEL
LODO

Pilot-to-close, spring-biased open, unbalanced poppet logic element
SERIES 1 / CAPACITY: 25 gpm / CAVITY: T-11A

snhy.com/LODO





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	25 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.04 in³
Pilot Passage into Valve	.031 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.27 lb.

CONFIGURATION OPTIONS

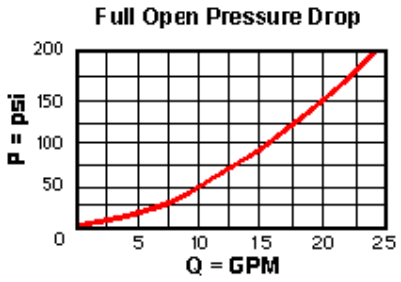
Model Code Example: LODOXDN

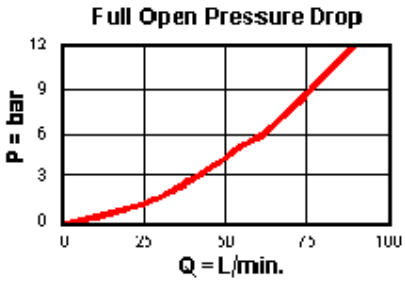
CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



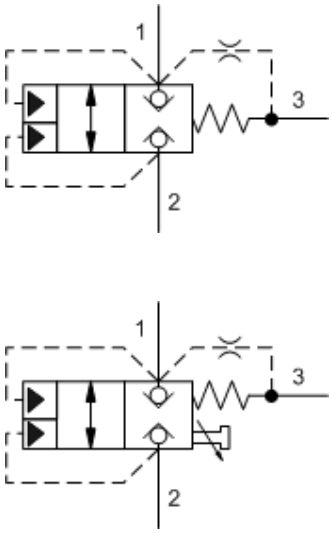


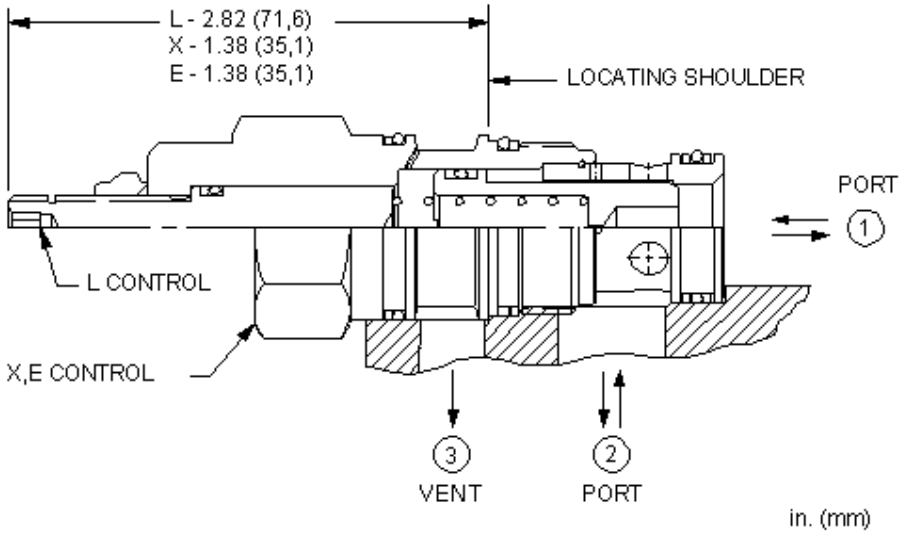
MODEL
LOFA

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

snhy.com/LOFA





in. (mm)

These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 1 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 1 to 2 direction and will function as a check valve from 2 to 1. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.07 in^3
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.021 in.
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.49 lb.

CONFIGURATION OPTIONS

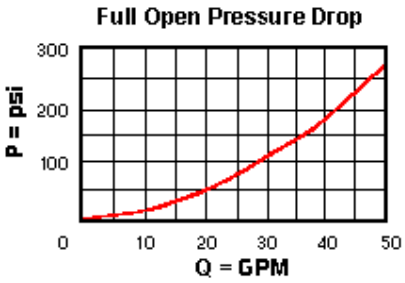
Model Code Example: LOFAXDN

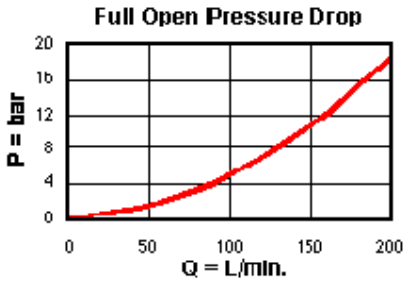
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES





RELATED MODELS

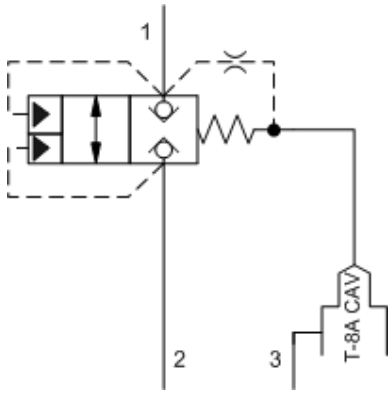
- LOFA8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

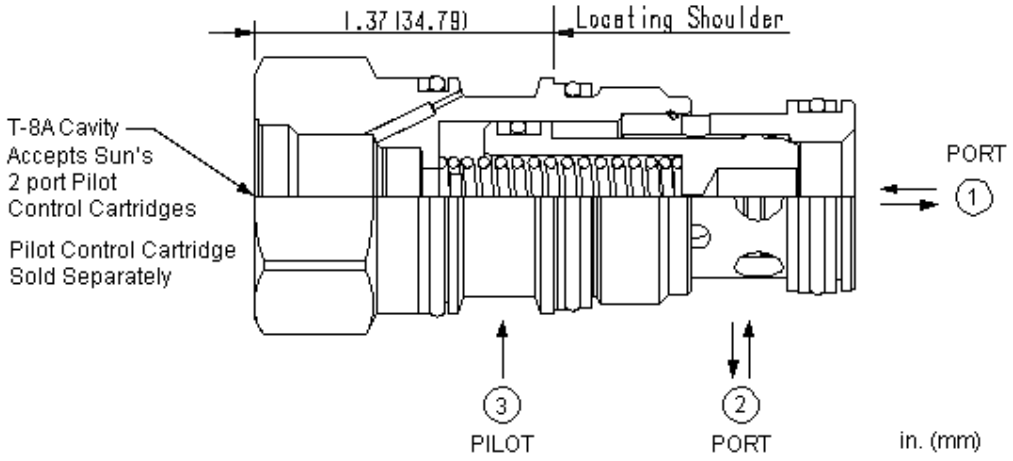
MODEL
LOFA8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

sunhydraulics.com/model/LOFA8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 1 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.07 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.021 in.
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.43 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOFA8DN

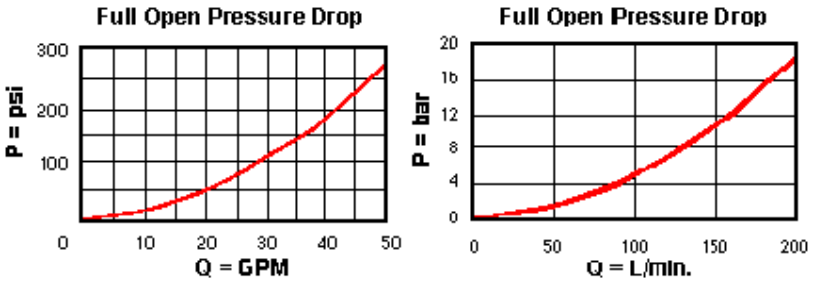
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



RELATED MODELS

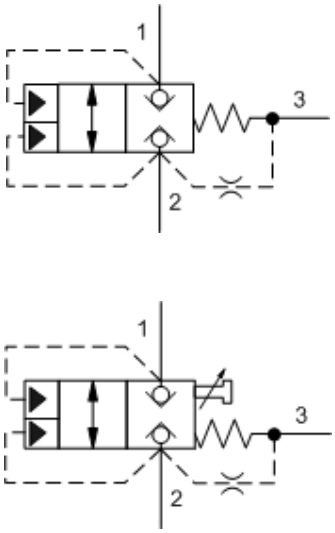
- LOFA Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

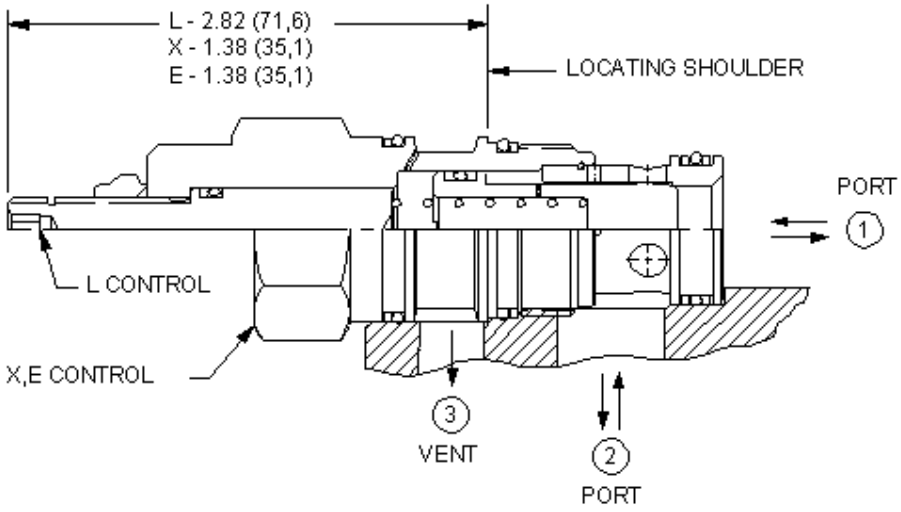
MODEL
LOFB

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

sunhydraulics.com/model/LOFB





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 2 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 2 to 1 direction and will function as a check valve from 1 to 2. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.07 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.021 in.
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.49 lb.

CONFIGURATION OPTIONS

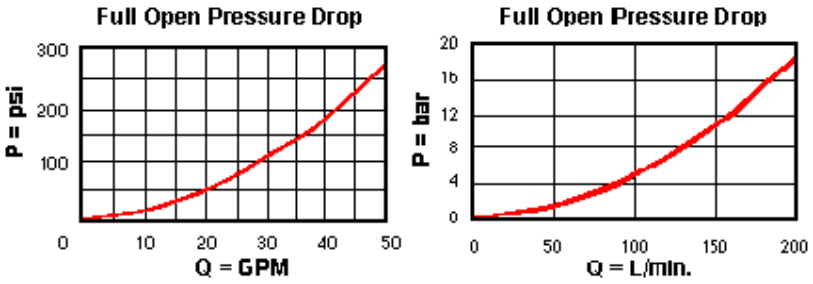
Model Code Example: LOFBXDN

CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

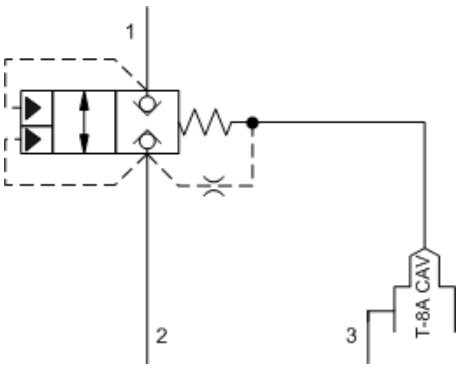
- LOFB8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

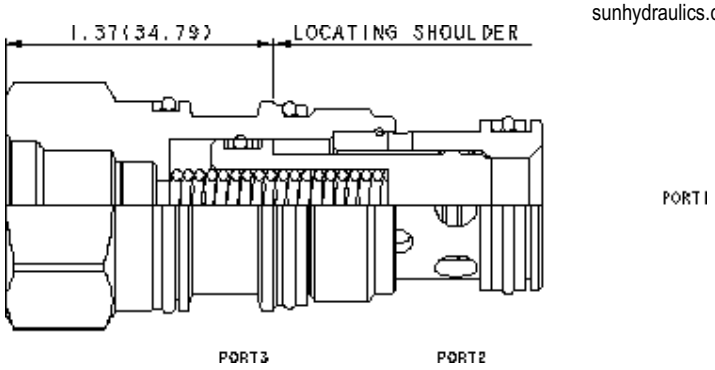
MODEL
LOFB8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

sunhydraulics.com/model/LOFB8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 2 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.07 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.021 in.
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.44 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOFB8DN

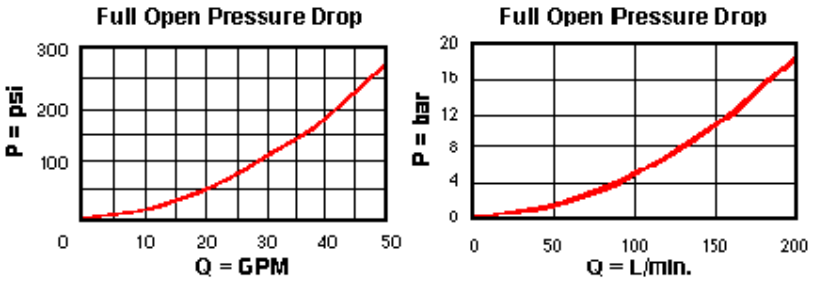
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



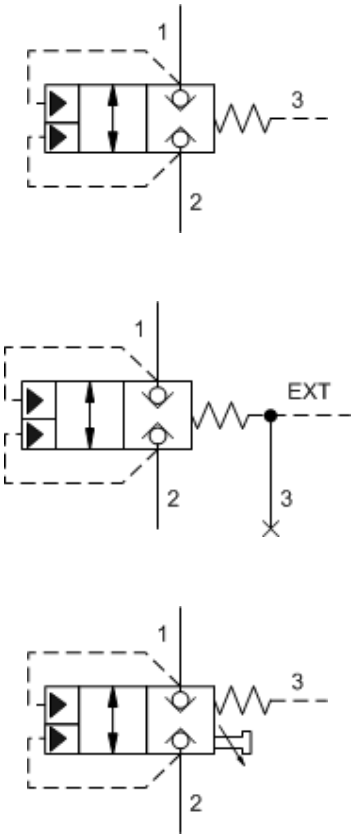
RELATED MODELS

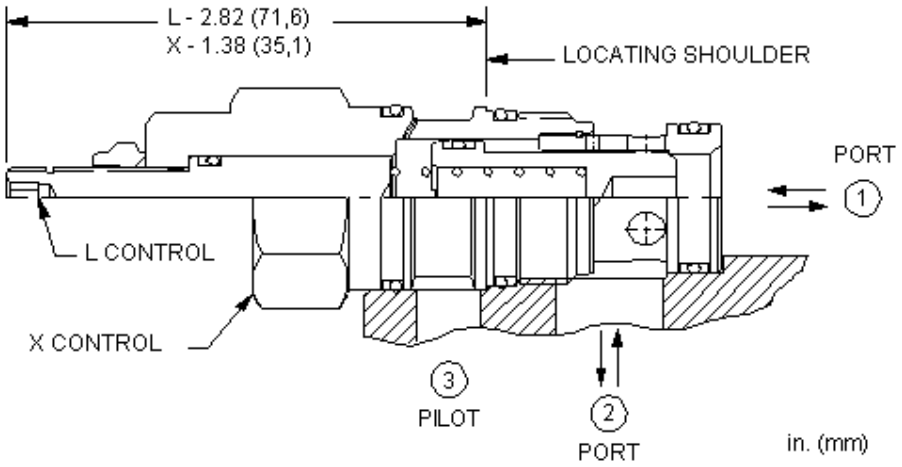
- LOFB Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

MODEL
LOFC

Pilot-to-close, spring-biased closed, unbalanced poppet logic element
SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

sunhydraulics.com/model/LOFC





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.07 in^3
Pilot Passage into Valve	.035 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.49 lb.

CONFIGURATION OPTIONS

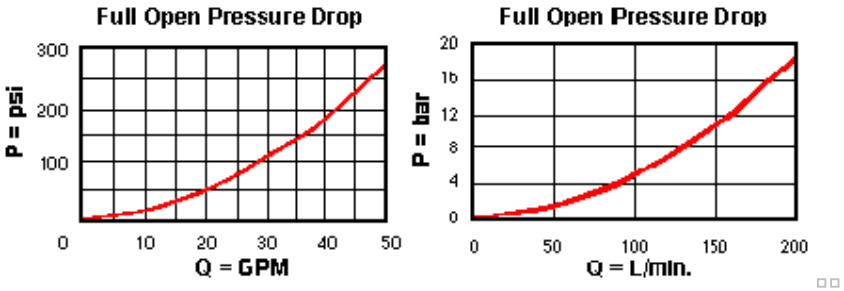
Model Code Example: LOFCXDN

CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Standard Pilot	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
-
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

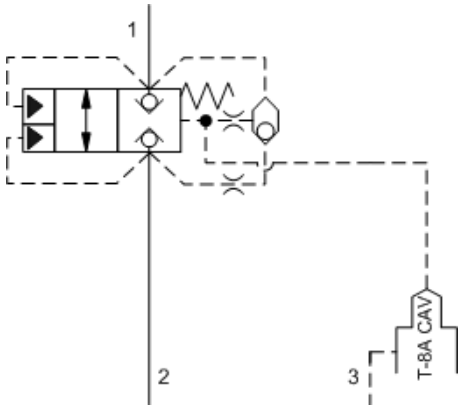
- LOFCZ Pilot-to-close, spring-biased closed, unbalanced poppet logic element with position switch

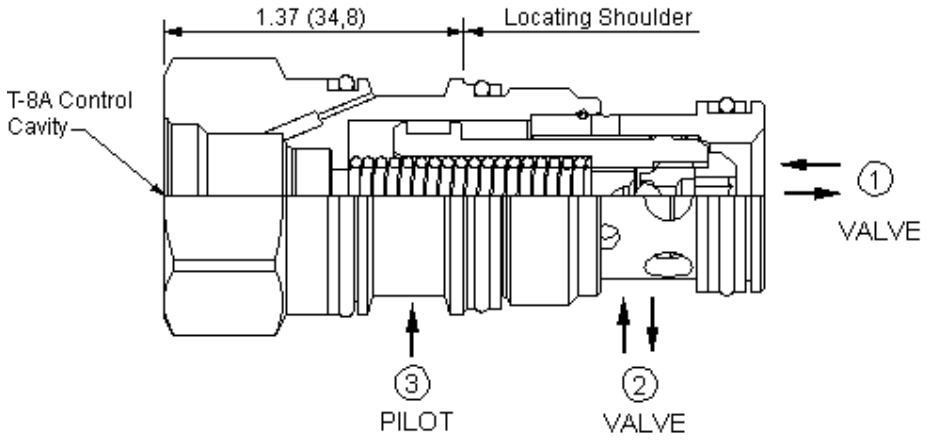
MODEL
LOFD8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2 and integral T-8A control cavity

SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

sunhydraulics.com/model/LOFD8





This valve is an unbalanced, vent-to-open 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and incorporates an integral shuttle so that the higher of pressures at either port 1 or port 2 can be used as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.07 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.021 in.
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.44 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOFD8DN

CRACKING PRESSURE (D)

D 50 psi (3,5 bar)

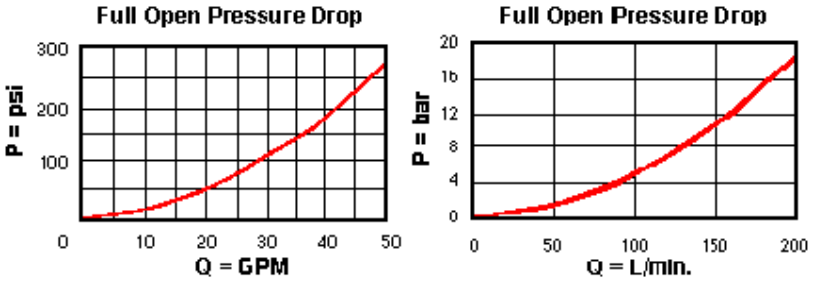
SEAL MATERIAL (N)

N Buna-N
E EPDM
V Viton

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



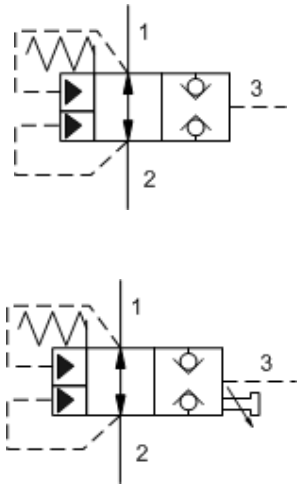
RELATED MODELS

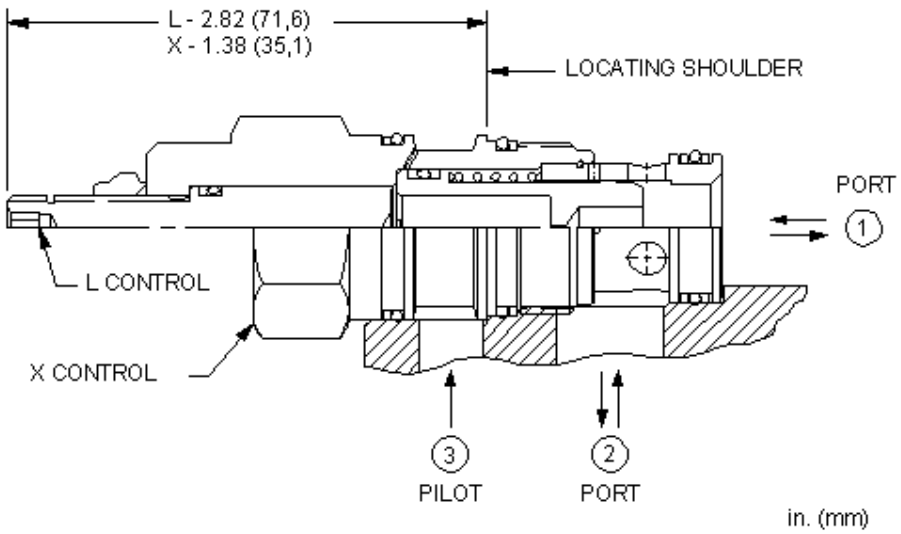
- LOFD Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2

MODEL
LOFO

Pilot-to-close, spring-biased open, unbalanced poppet logic element
SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

sunhydraulics.com/model/LOFO





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.07 in³
Pilot Passage into Valve	.035 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.49 lb.

CONFIGURATION OPTIONS

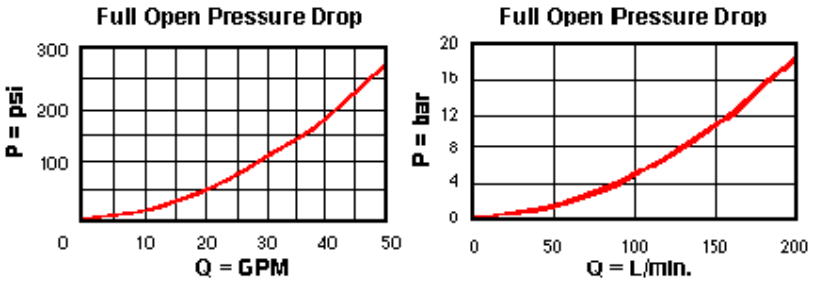
Model Code Example: LOFOXDN

CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

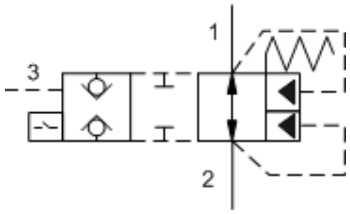
- LOFOZ Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

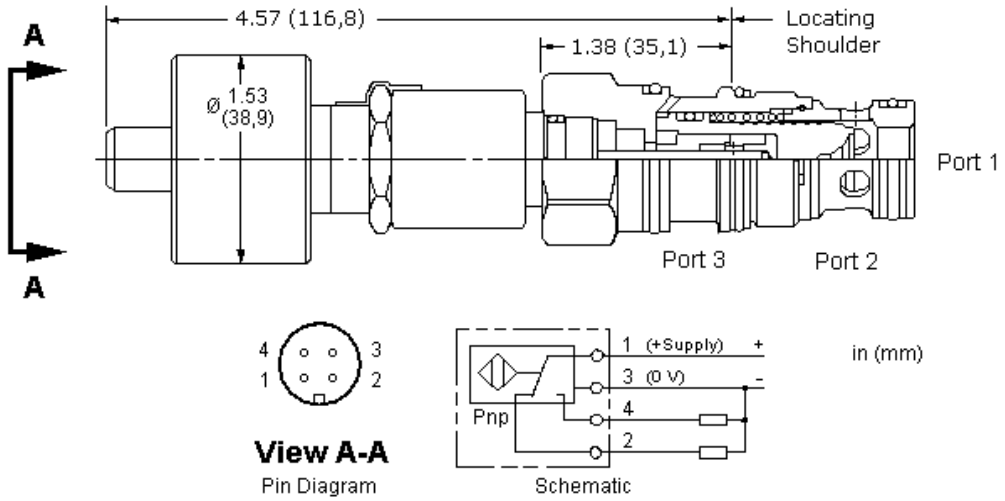
MODEL
LOFOZ

Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

SERIES 2 / CAPACITY: 50 gpm / CAVITY: T-2A

sunhydraulics.com/model/LOFOZ





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

This valve incorporates a position switch to provide confirmation that the valve is spring biased to the fully open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	50 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	1 drops/min.
Pilot Volume Displacement	.07 in³
Pilot Passage into Valve	.035 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	1.34 lb.

SWITCH SPECIFICATIONS

Supply Voltage	20-30 VDC
Operating Temperature Range	-25 to 80 °C
Vibration	≥ 50g, 0-500 impulses/sec
Shock	>50 g, 1ms
Reverse Polarity Protection	Yes
Maximum Output Load	≤ 400 mA, Duty Ratio 100%
Short Circuit Protection	Yes, Load Short Unlimited
Turn On Time	≤ 25 ms
Hysteresis	≤ .002 in.
Thermal Shift - 0 to 80 °C ≤ ±	.004 in.
EMC	DIN EN 61000-6-1/2/3/4
Connector	M12 X 1 (4) Pin
Connector Environment Rating	IP65

CONFIGURATION OPTIONS

Model Code Example: LOFOZDN

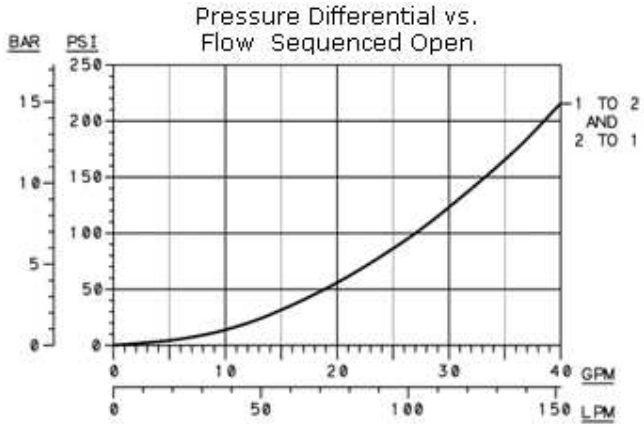
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- This cartridge is supplied as a sealed, factory set unit and is not field serviceable. Any tampering will violate the product warranty.
- When torquing this cartridge into its cavity, a crow's foot wrench or similar will be required since the position switch precludes the use of a deep socket wrench.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Position switch is CE approved.
- 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.

PERFORMANCE CURVES



RELATED MODELS

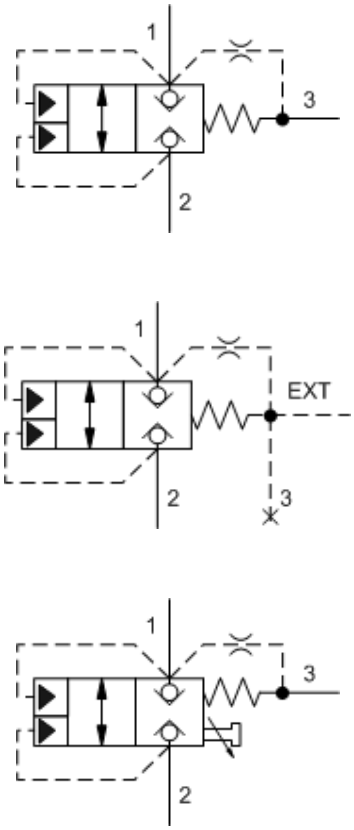
- LOFO Pilot-to-close, spring-biased open, unbalanced poppet logic element

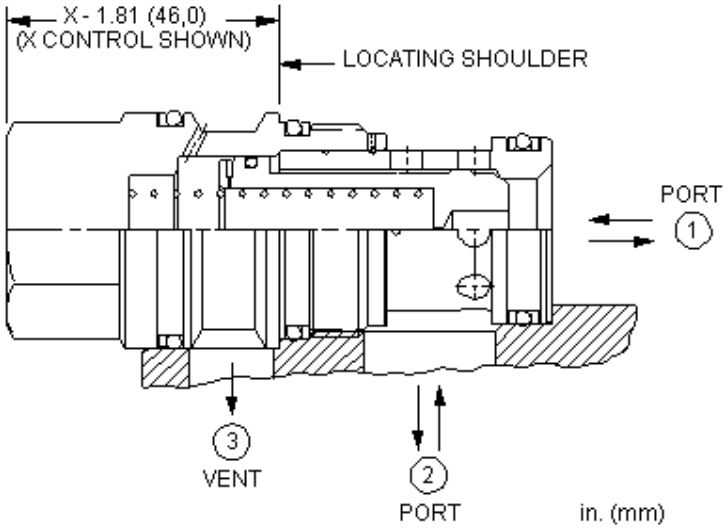
MODEL
LOHA

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHA





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 1 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 1 to 2 direction and will function as a check valve from 2 to 1. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.25 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.031 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.10 lb.

CONFIGURATION OPTIONS

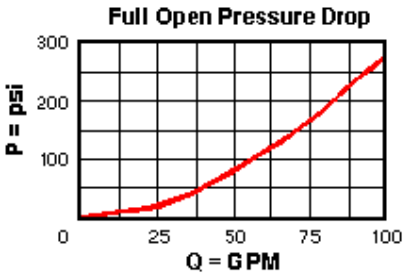
Model Code Example: LOHAXDN

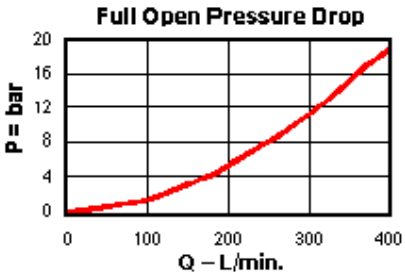
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES





RELATED MODELS

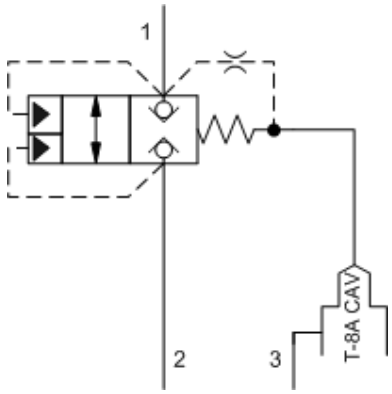
- LOHA8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

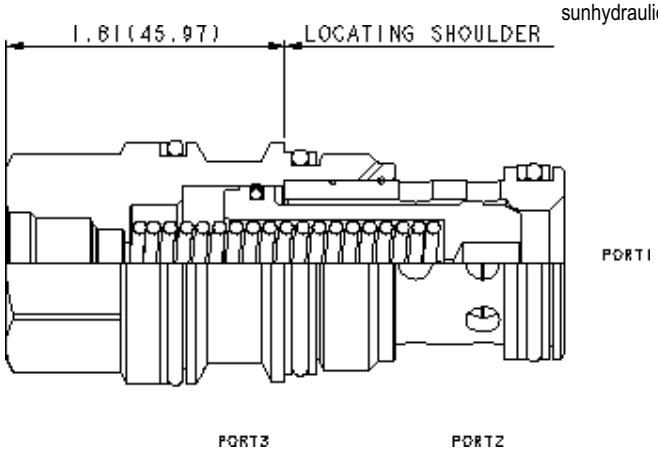
MODEL
LOHA8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHA8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 1 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.25 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.031 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.05 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOHA8DN

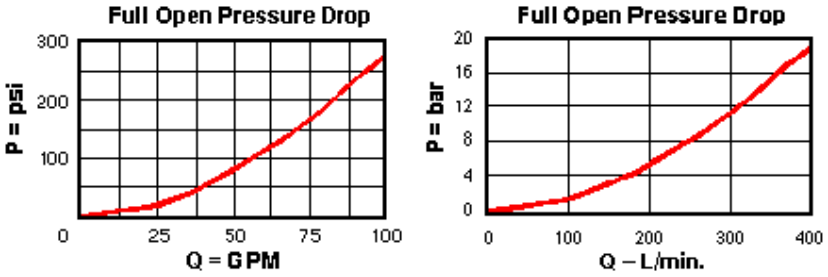
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



RELATED MODELS

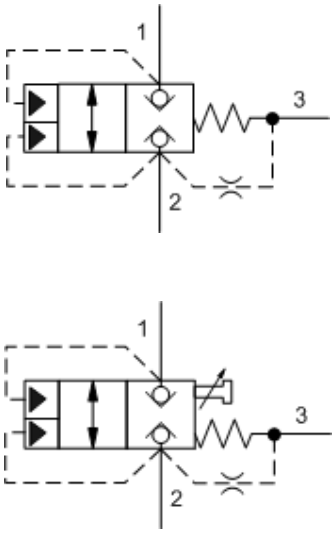
- LOHA Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

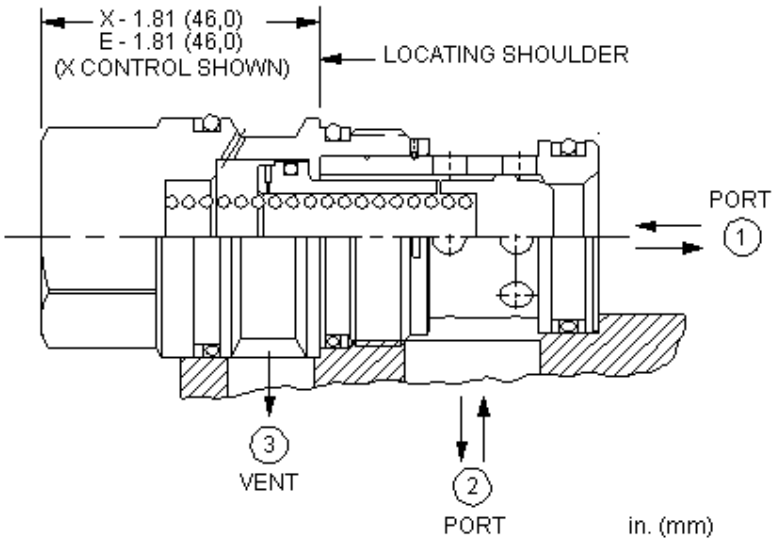
MODEL
LOHB

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHB





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 2 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 2 to 1 direction and will function as a check valve from 1 to 2. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.25 in^3
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.031 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.11 lb.

CONFIGURATION OPTIONS

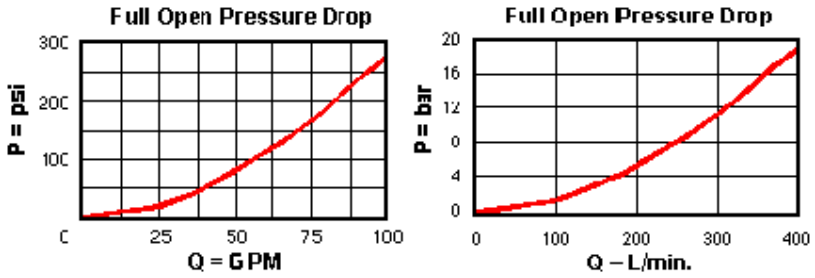
Model Code Example: LOHBXDN

CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	

TECHNICAL FEATURES

- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

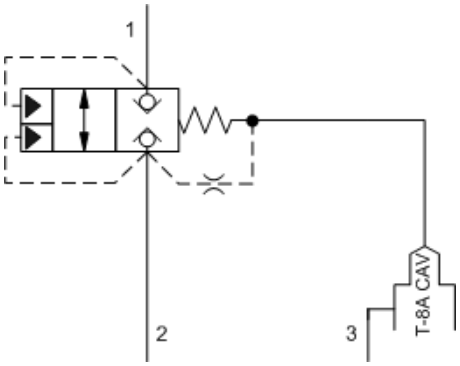
- LOHB8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

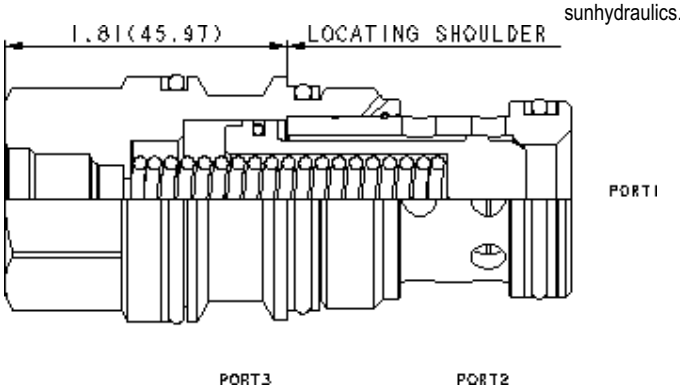
MODEL
LOHB8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHB8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 2 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.25 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.031 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.05 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOHB8DN

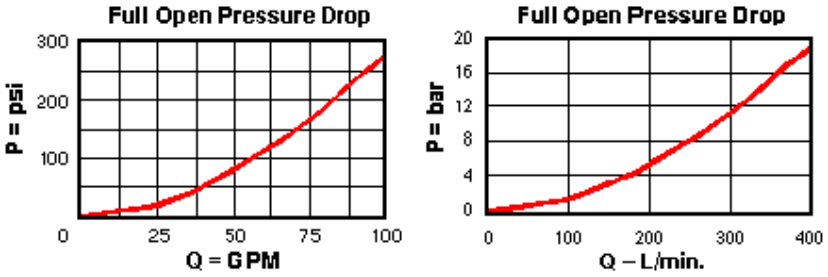
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
E EPDM	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



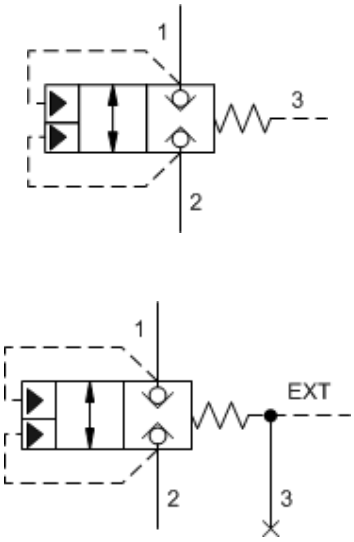
RELATED MODELS

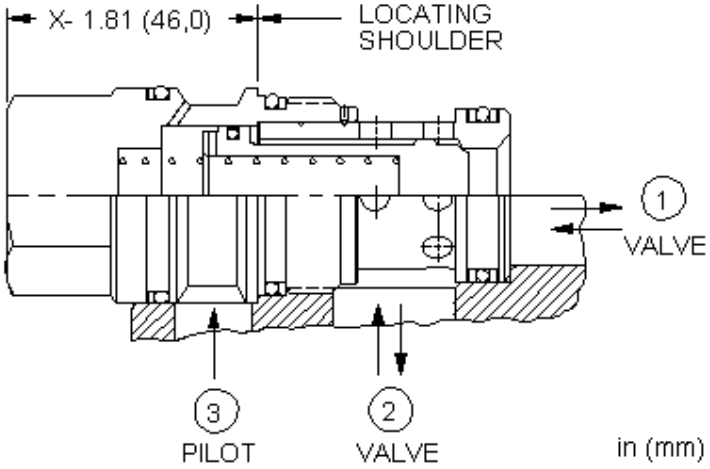
- LOHB Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

MODEL
LOHC

Pilot-to-close, spring-biased closed, unbalanced poppet logic element
SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHC





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.25 in^3
Pilot Passage into Valve	.06 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.11 lb.

CONFIGURATION OPTIONS

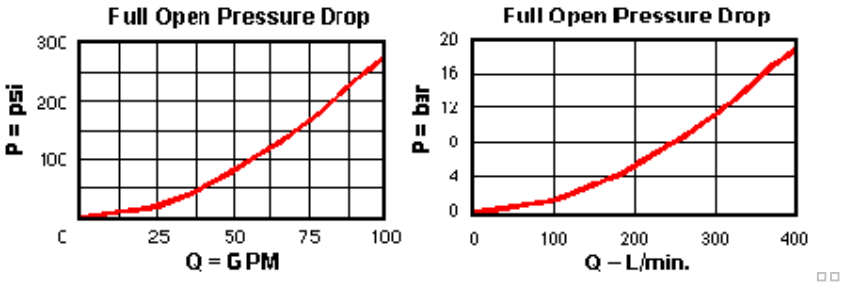
Model Code Example: LOHCXDN

CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
-
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



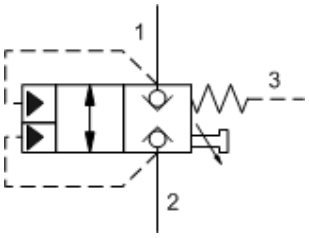
RELATED MODELS

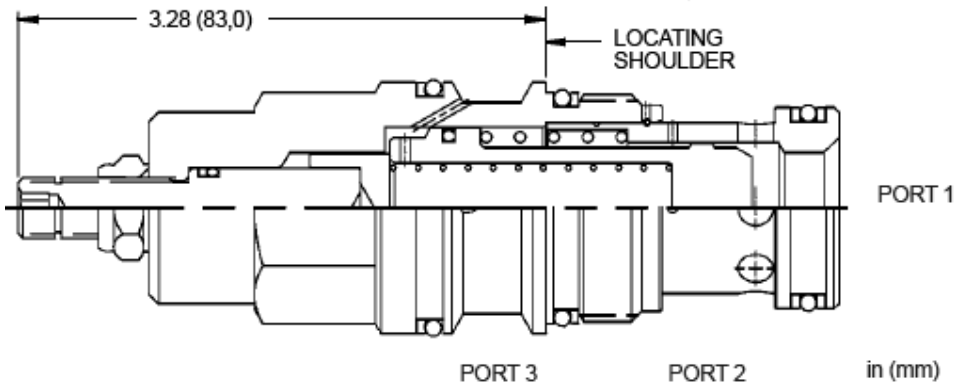
- LOHCK Pilot-to-close, spring-biased closed, unbalanced poppet logic element
- LOHCL Pilot-to-close, spring-biased closed, unbalanced poppet logic element
- LOHCZ Pilot-to-close, spring-biased closed, unbalanced poppet logic element with position switch

MODEL
LOHCL

Pilot-to-close, spring-biased closed, unbalanced poppet logic element
SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHCL





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.25 in^3
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	2.19 lb.

CONFIGURATION OPTIONS

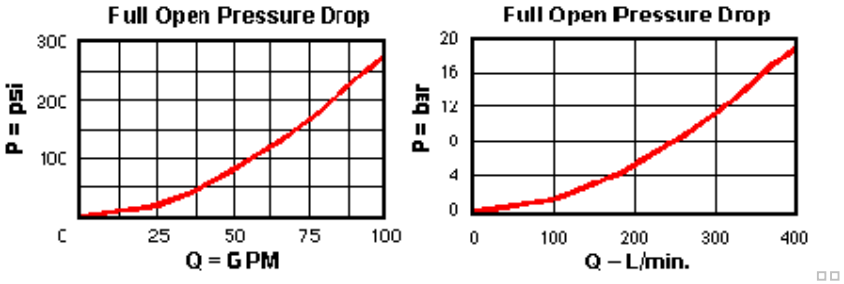
Model Code Example: LOHCLDN

CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
D 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
	E EPDM	**/AP** Stainless Steel, Passivated
	V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



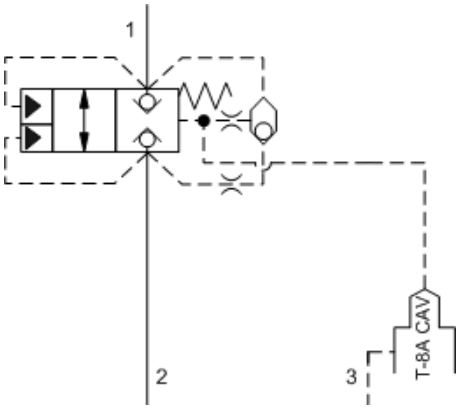
RELATED MODELS

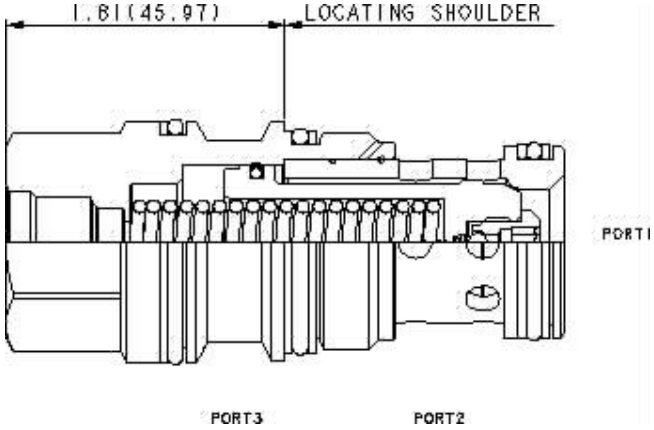
- LOHC Pilot-to-close, spring-biased closed, unbalanced poppet logic element
- LOHCK Pilot-to-close, spring-biased closed, unbalanced poppet logic element
- LOHCZ Pilot-to-close, spring-biased closed, unbalanced poppet logic element with position switch

MODEL
LOHD8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2 and integral T-8A control cavity
SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

snhy.com/LOHD8





This valve is an unbalanced, vent-to-open 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and incorporates an integral shuttle so that the higher of pressures at either port 1 or port 2 can be used as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.25 in^3
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.031 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.05 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOHD8DN

CRACKING PRESSURE (D)

D 50 psi (3,5 bar)

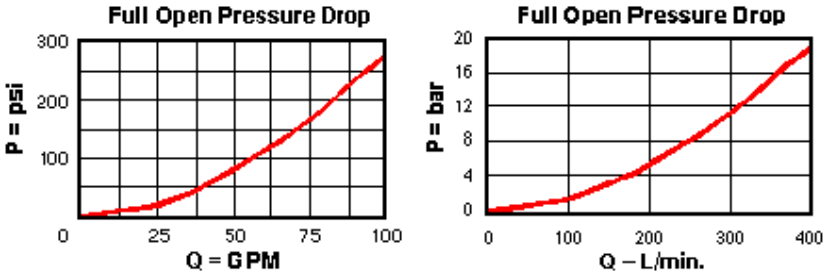
SEAL MATERIAL (N)

N Buna-N
E EPDM
V Viton

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



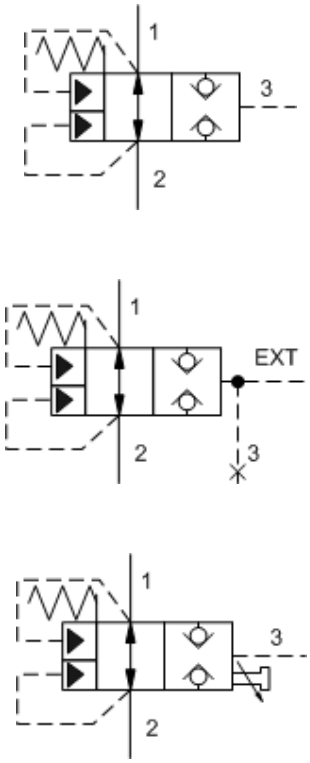
RELATED MODELS

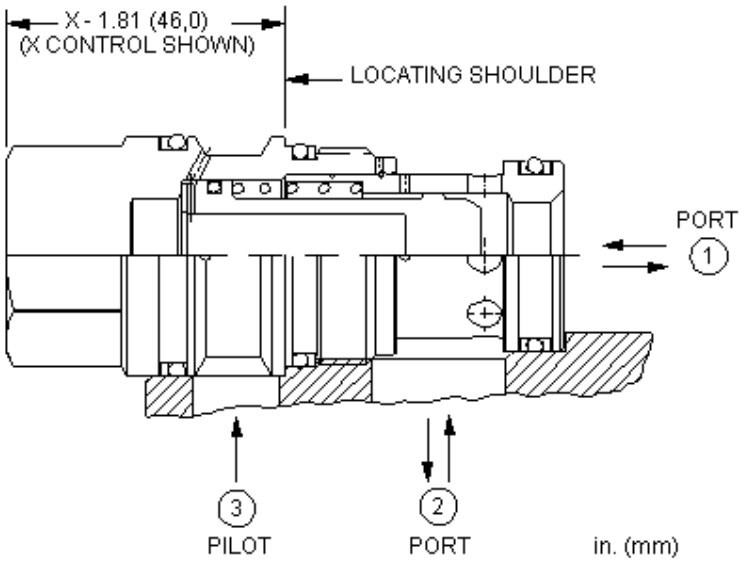
- LOHD Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2
- LOHDL Pilot-to-close, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2

MODEL
LOHO

Pilot-to-close, spring-biased open, unbalanced poppet logic element
SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHO





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.25 in^3
Pilot Passage into Valve	.06 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.06 lb.

CONFIGURATION OPTIONS

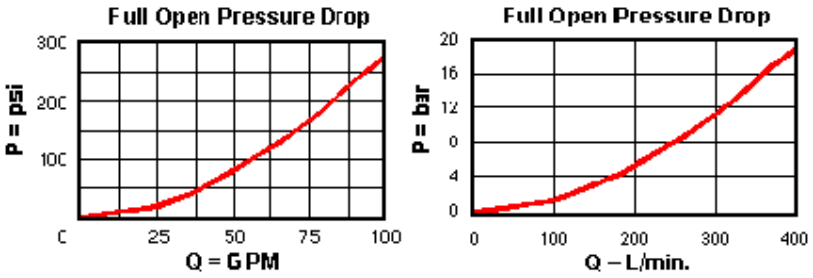
Model Code Example: LOHOXDN

CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

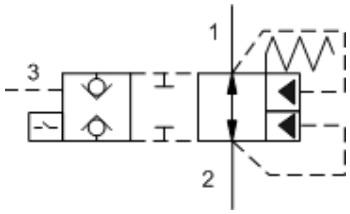
- LOHOZ Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

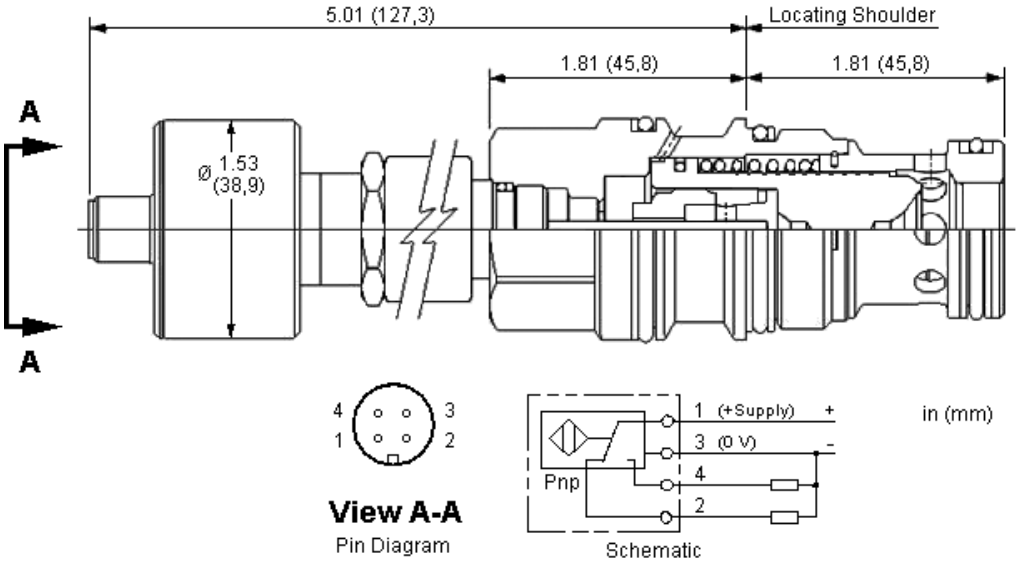
MODEL
LOHOZ

Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

SERIES 3 / CAPACITY: 100 gpm / CAVITY: T-17A

sunhydraulics.com/model/LOHOZ





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

This valve incorporates a position switch to provide confirmation that the valve is spring biased to the fully open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	100 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	1 drops/min.
Pilot Volume Displacement	.25 in³
Pilot Passage into Valve	.06 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990117006
Model Weight	2.00 lb.

SWITCH SPECIFICATIONS

Supply Voltage	20-30 VDC
Operating Temperature Range	-25 to 80 °C
Vibration	≥ 50g, 0-500 impulses/sec
Shock	>50 g, 1ms
Reverse Polarity Protection	Yes
Maximum Output Load	≤ 400 mA, Duty Ratio 100%
Short Circuit Protection	Yes, Load Short Unlimited
Turn On Time	≤ 25 ms
Hysteresis	≤ .002 in.
Thermal Shift - 0 to 80 °C ≤ ±	.004 in.
EMC	DIN EN 61000-6-1/2/3/4
Connector	M12 X 1 (4) Pin
Connector Environment Rating	IP65

CONFIGURATION OPTIONS

Model Code Example: LOHOZDN

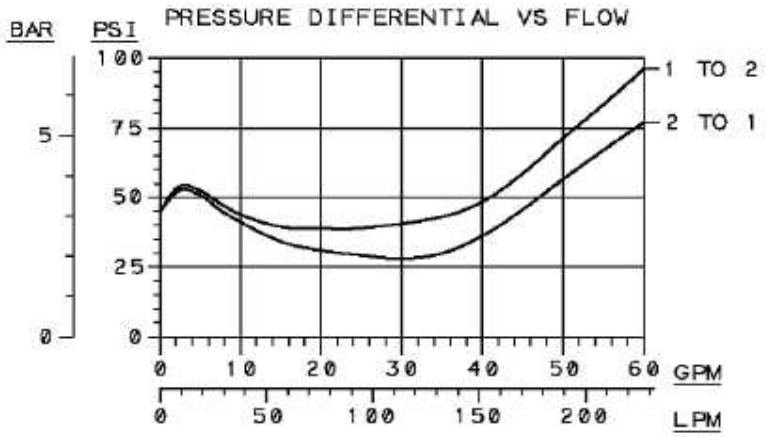
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- This cartridge is supplied as a sealed, factory set unit and is not field serviceable. Any tampering will violate the product warranty.
- When torquing this cartridge into its cavity, a crow's foot wrench or similar will be required since the position switch precludes the use of a deep socket wrench.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Position switch is CE approved.
- An optional protective cover, with mounting hardware included, may be ordered separately. See kit number: 991-043.
- 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.

PERFORMANCE CURVES



RELATED MODELS

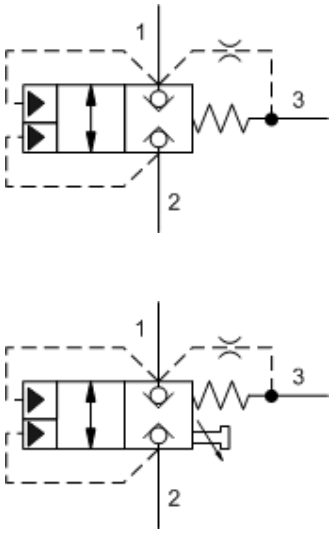
- LOHO Pilot-to-close, spring-biased open, unbalanced poppet logic element

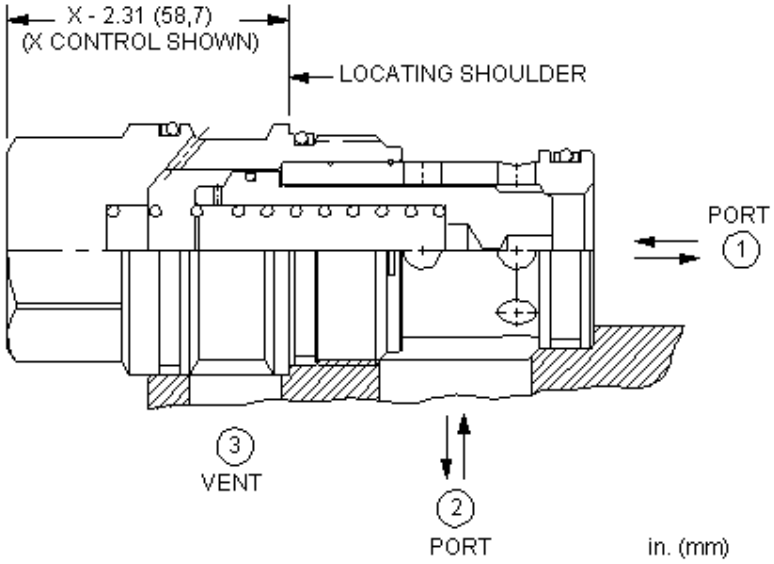
MODEL
LOJA

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

snhy.com/LOJA





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 1 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 1 to 2 direction and will function as a check valve from 2 to 1. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.42 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.62 lb.

CONFIGURATION OPTIONS

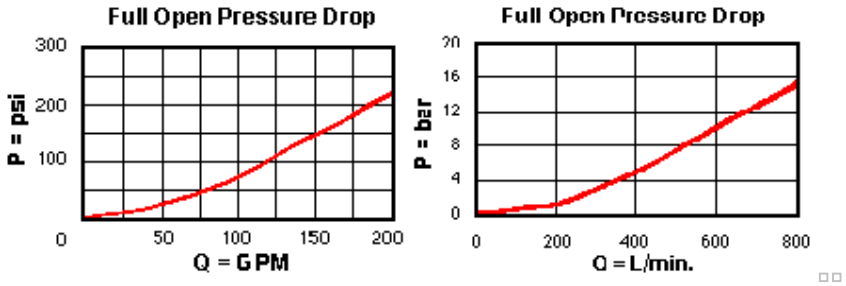
Model Code Example: LOJAXDN

CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
L Stroke Adjustment		**V** Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

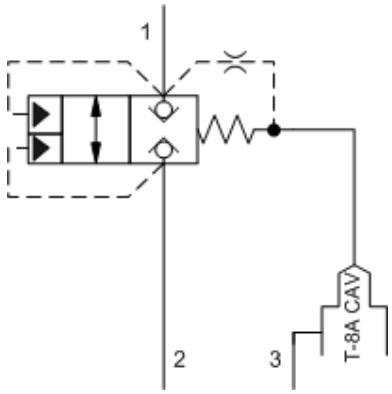
- LOJA8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

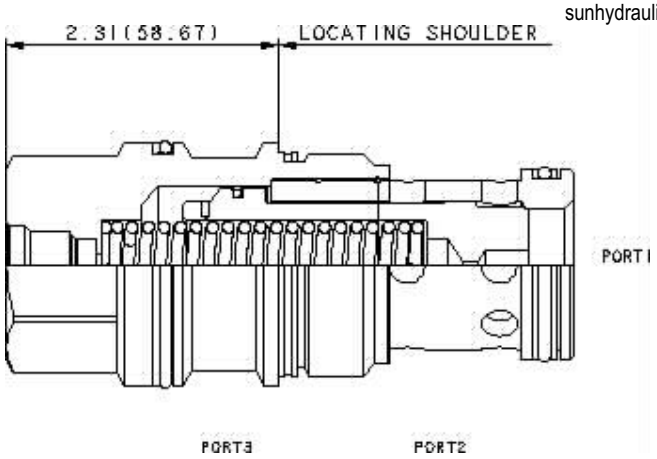
MODEL
LOJA8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

sunhydraulics.com/model/LOJA8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 1 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.42 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.56 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOJA8DN

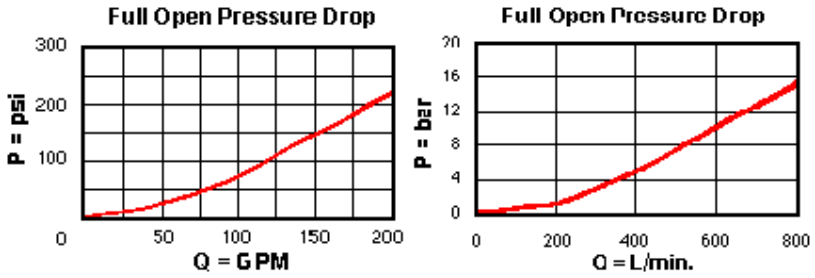
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



RELATED MODELS

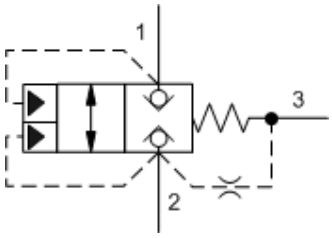
- LOJA Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

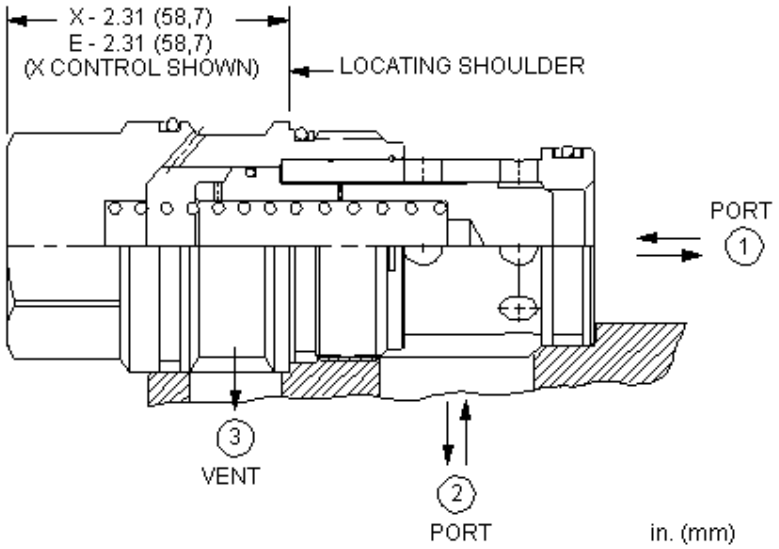
MODEL
LOJB

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

sunhydraulics.com/model/LOJB





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 2 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 2 to 1 direction and will function as a check valve from 1 to 2. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.42 in^3
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.62 lb.

CONFIGURATION OPTIONS

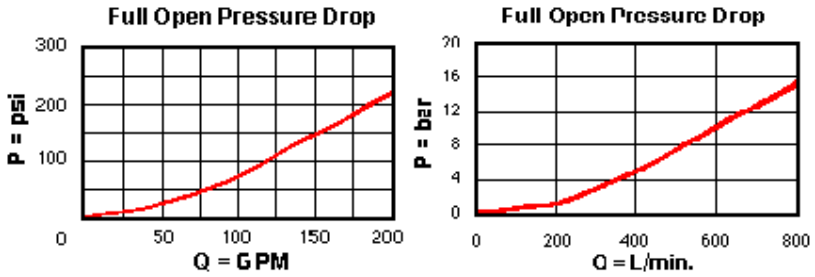
Model Code Example: LOJBXDN

CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

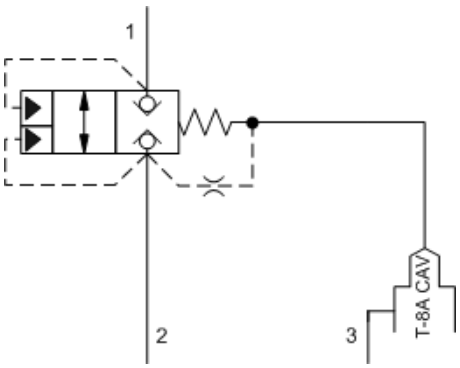
- LOJB8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

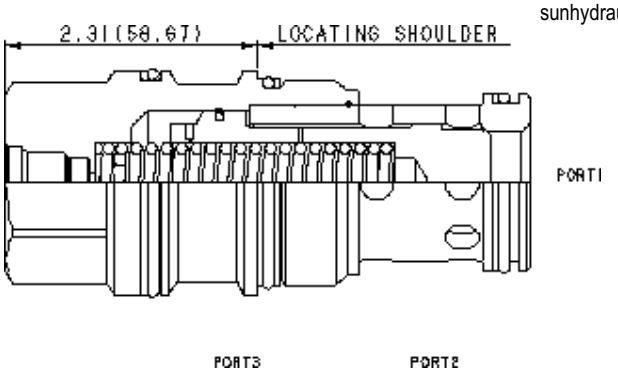
MODEL
LOJB8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

sunhydraulics.com/model/LOJB8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 2 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.42 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.57 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOJB8DN

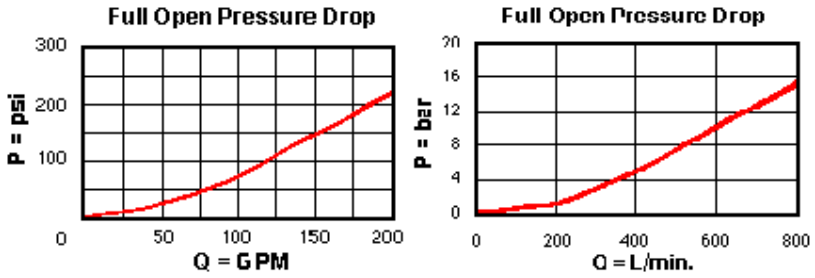
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



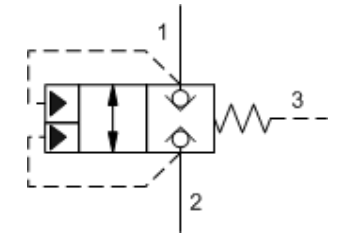
RELATED MODELS

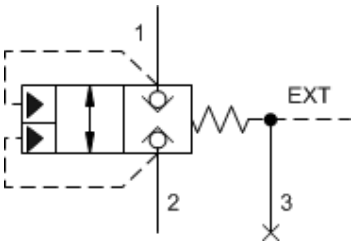
- LOJB Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

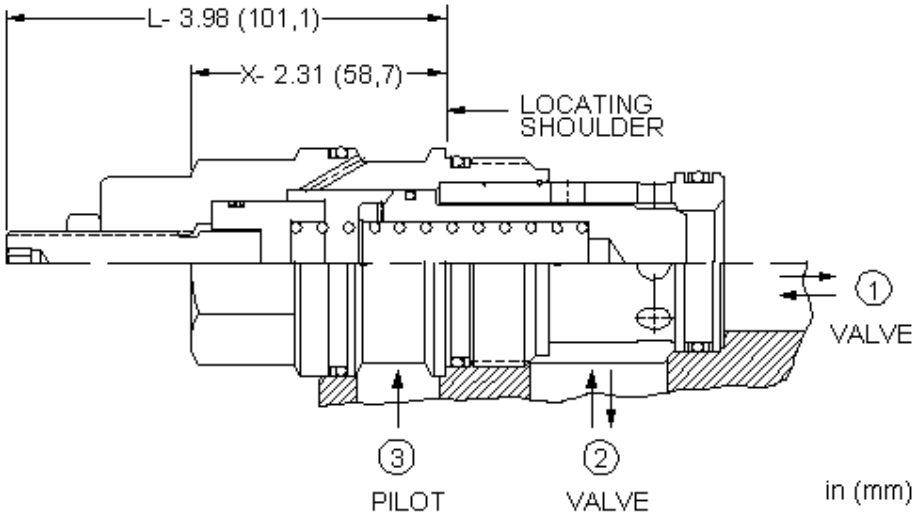
MODEL
LOJC

Pilot-to-close, spring-biased closed, unbalanced poppet logic element
SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

sunhydraulics.com/model/LOJC







These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.42 in³
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.62 lb.

CONFIGURATION OPTIONS

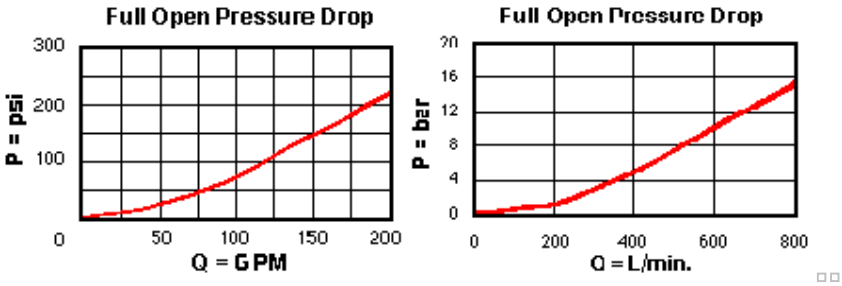
Model Code Example: LOJCXDN

CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- Pilot port 3 requires a controlled pressure. A blocked port 3 may result in pressure intensification due to the floating design of the sleeve.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



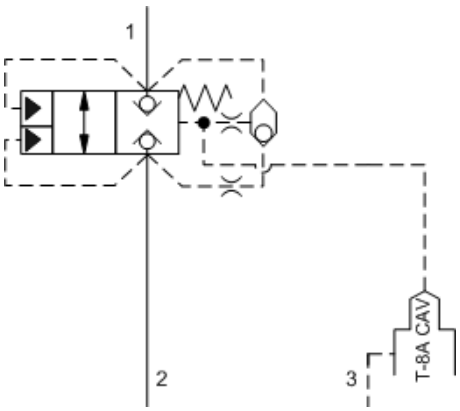
RELATED MODELS

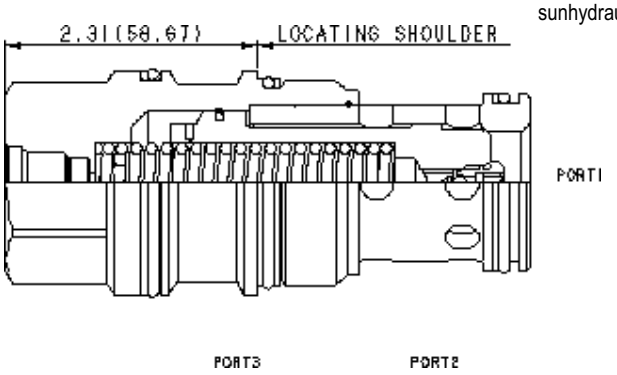
- LOJCL Pilot-to-close, spring-biased closed, unbalanced poppet logic element
- LOJCZ Pilot-to-close, spring-biased closed, unbalanced poppet logic element with position switch

MODEL
LOJD8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2 and integral T-8A control cavity
SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

sunhydraulics.com/model/LOJD8





This valve is an unbalanced, vent-to-open 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and incorporates an integral shuttle so that the higher of pressures at either port 1 or port 2 can be used as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.42 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.57 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOJD8DN

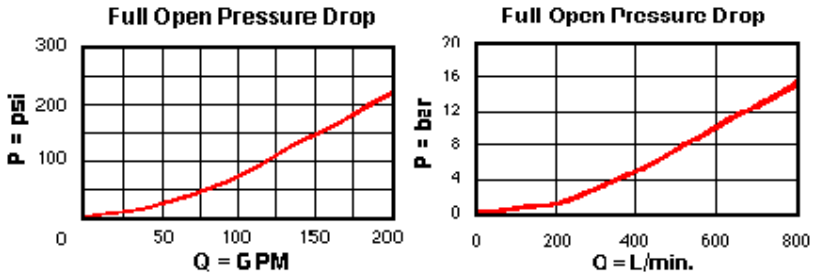
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES



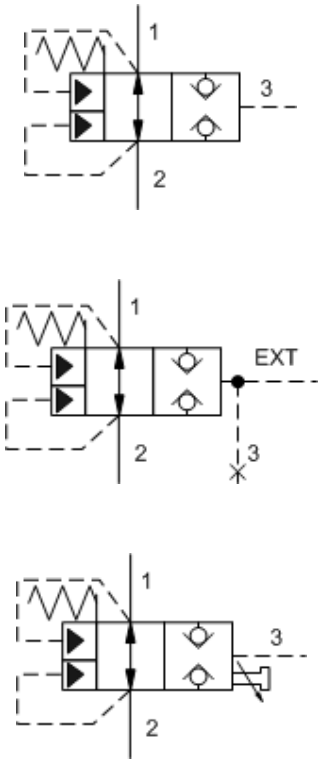
RELATED MODELS

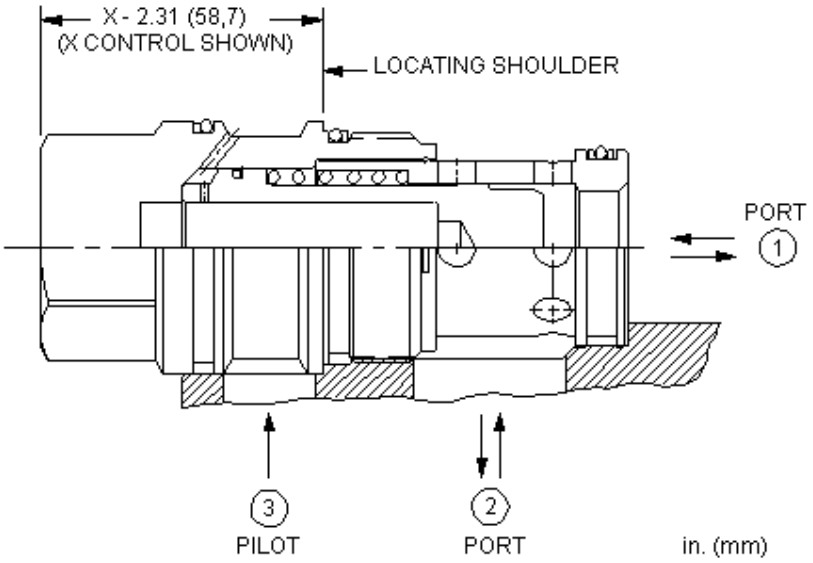
- LOJD Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2

MODEL
LOJO

Pilot-to-close, spring-biased open, unbalanced poppet logic element
SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

sunhydraulics.com/model/LOJO





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.42 in^3
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.50 lb.

CONFIGURATION OPTIONS

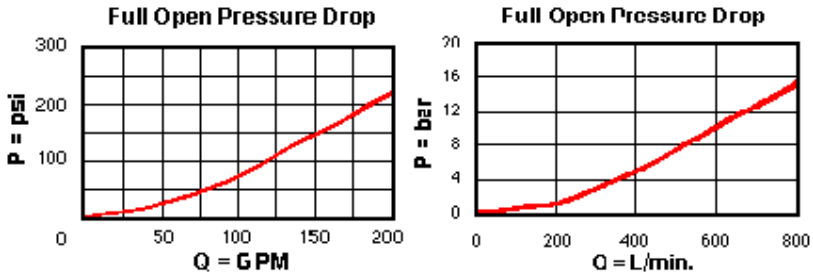
Model Code Example: LOJOXDN

CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES



RELATED MODELS

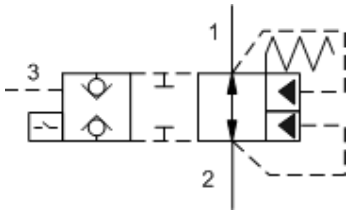
- LOJOZ Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

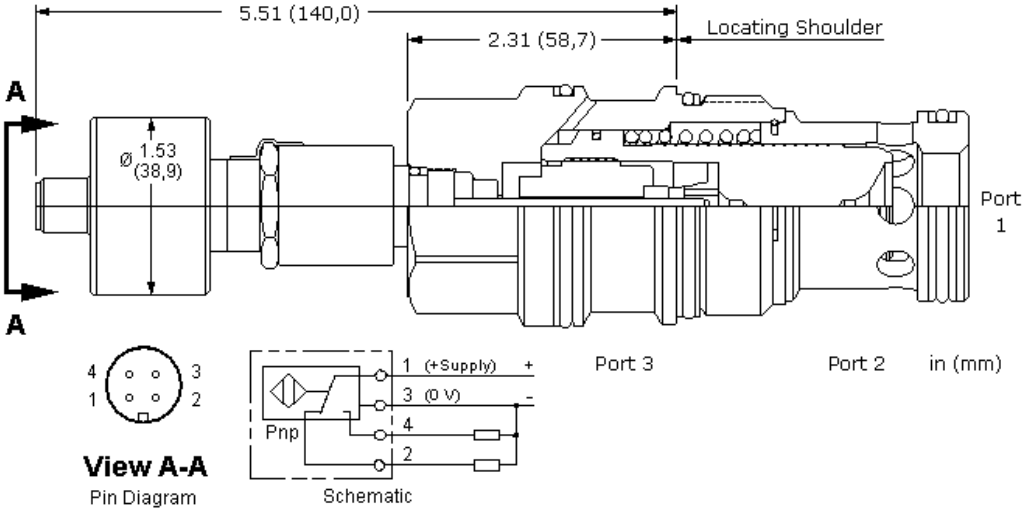
MODEL
LOJOZ

Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

SERIES 4 / CAPACITY: 200 gpm / CAVITY: T-19A

sunhydraulics.com/model/LOJOZ





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

This valve incorporates a position switch to provide confirmation that the valve is spring biased to the fully open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	200 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	1 drops/min.
Pilot Volume Displacement	.42 in³
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	3.55 lb.

SWITCH SPECIFICATIONS

Supply Voltage	20-30 VDC
Operating Temperature Range	-25 to 80 °C
Vibration	≥ 50g, 0-500 impulses/sec
Shock	>50 g, 1ms
Reverse Polarity Protection	Yes
Maximum Output Load	≤ 400 mA, Duty Ratio 100%
Short Circuit Protection	Yes, Load Short Unlimited
Turn On Time	≤ 25 ms
Hysteresis	≤ .002 in.
Thermal Shift - 0 to 80 °C ≤ ±	.004 in.
EMC	DIN EN 61000-6-1/2/3/4
Connector	M12 X 1 (4) Pin
Connector Environment Rating	IP65

CONFIGURATION OPTIONS

Model Code Example: LOJOZDN

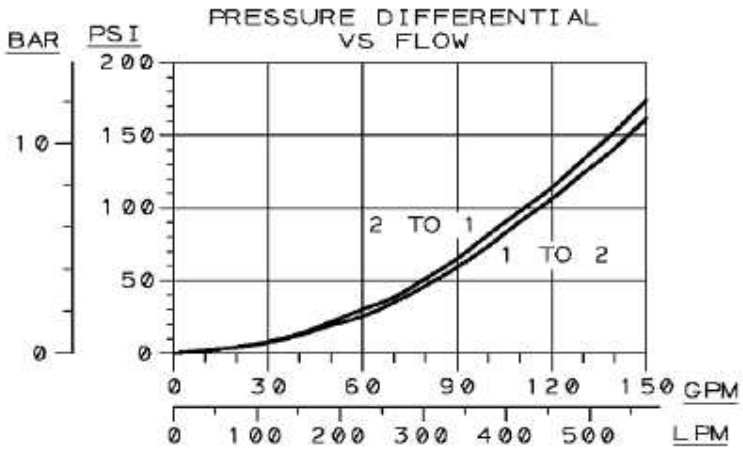
CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- These valves have positive seals between port 2 and the pilot area.
- This cartridge is supplied as a sealed, factory set unit and is not field serviceable. Any tampering will violate the product warranty.
- When torquing this cartridge into its cavity, a crow's foot wrench or similar will be required since the position switch precludes the use of a deep socket wrench.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Position switch is CE approved.
- 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.

PERFORMANCE CURVES



RELATED MODELS

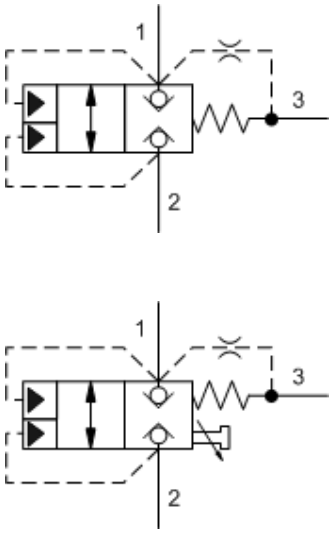
- LOJO Pilot-to-close, spring-biased open, unbalanced poppet logic element

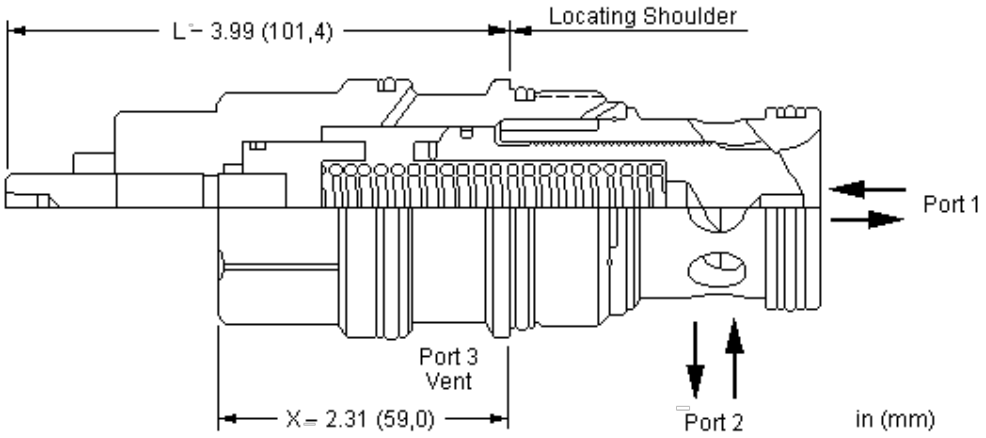
MODEL
LOKA

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

snhy.com/LOKA





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 1 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 1 to 2 direction and will function as a check valve from 2 to 1. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.47 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.55 lb.

CONFIGURATION OPTIONS

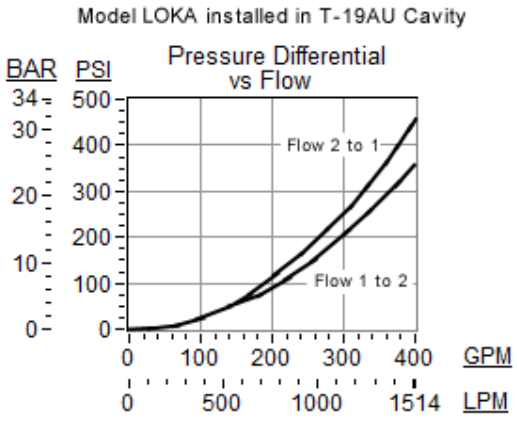
Model Code Example: LOKAXDN

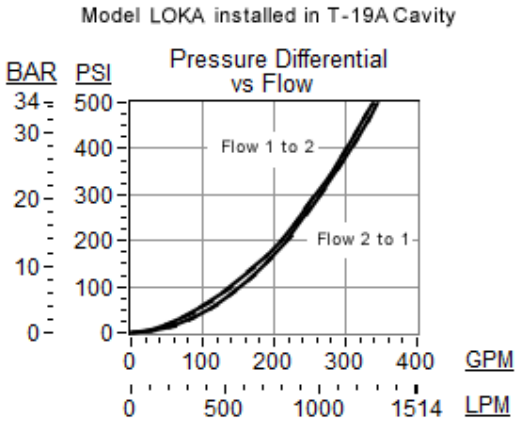
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
L Stroke Adjustment		**V** Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES





RELATED MODELS

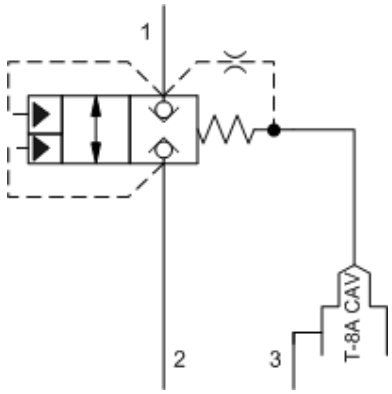
- LOKA8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

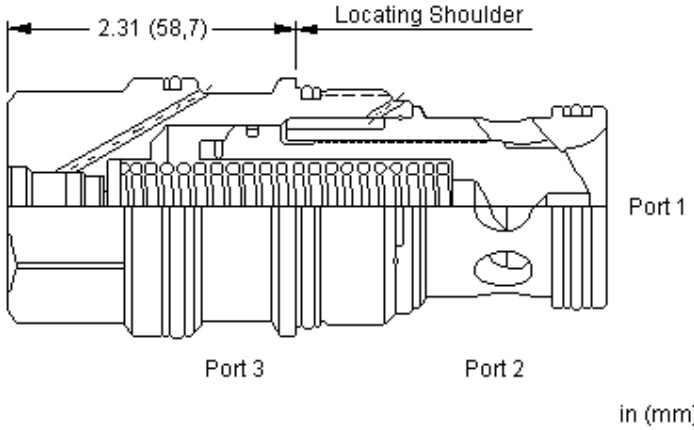
MODEL
LOKA8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 and integral T-8A control cavity

SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

sunhydraulics.com/model/LOKA8





in (mm)

This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 1 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.47 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.50 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOKA8DN

CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

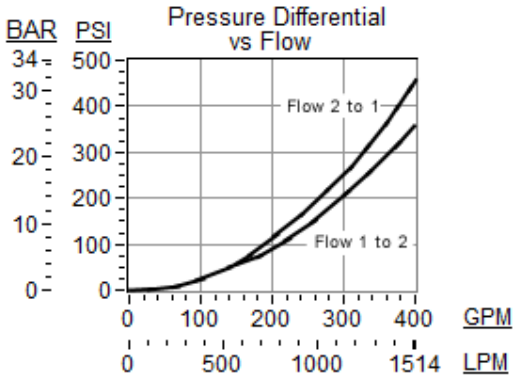
SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

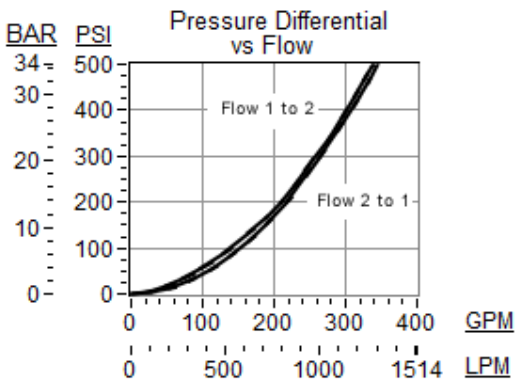
- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

Model LOKA8 installed in T-19AU Cavity



Model LOKA8 installed in T-19A Cavity



RELATED MODELS

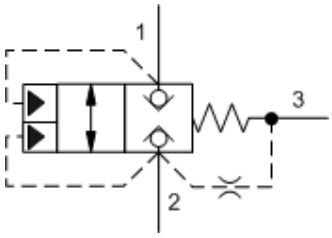
- LOKA Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1

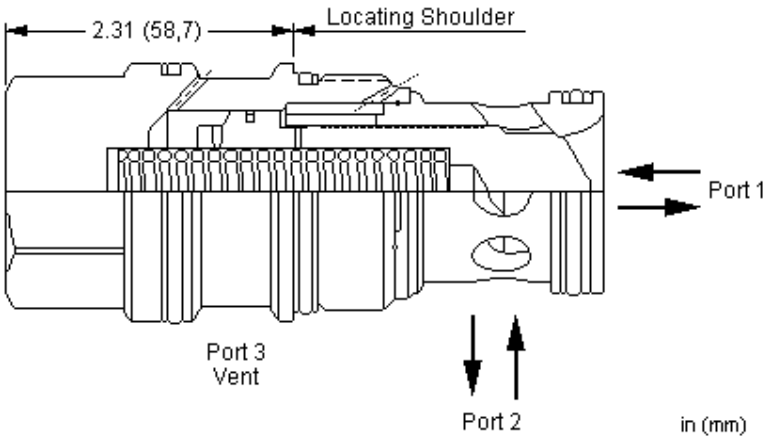
MODEL
LOKB

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

sunhydraulics.com/model/LOKB





These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 2 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 2 to 1 direction and will function as a check valve from 1 to 2. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.47 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.56 lb.

CONFIGURATION OPTIONS

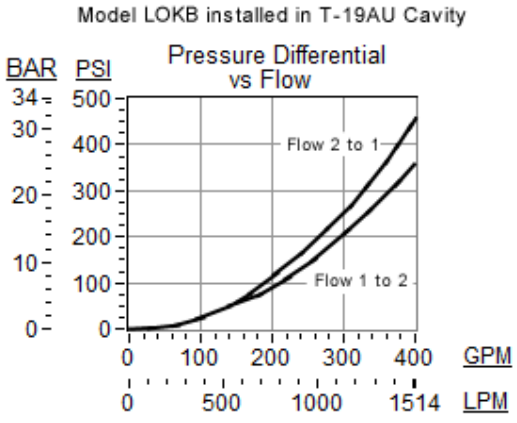
Model Code Example: LOKBXDN

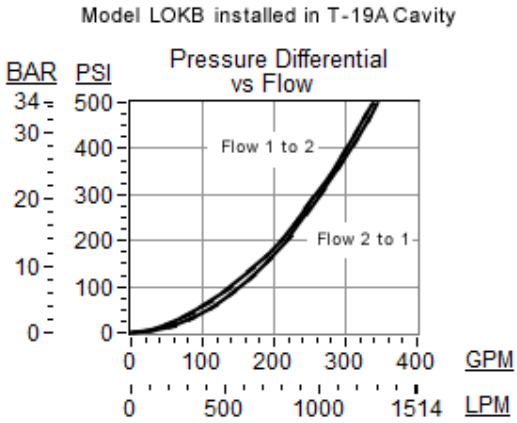
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES





RELATED MODELS

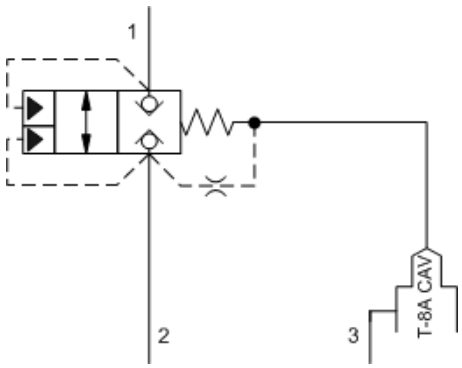
- LOKB8 Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

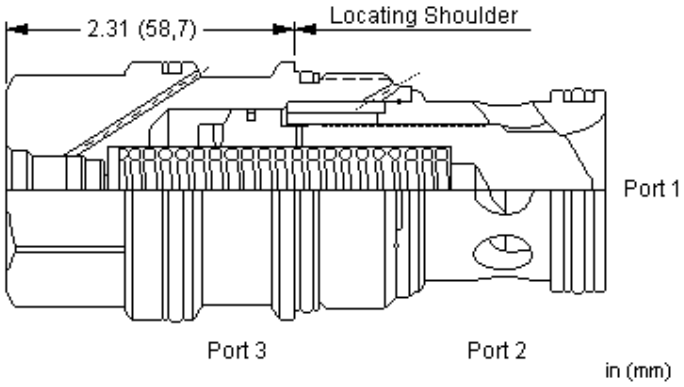
MODEL
LOKB8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2 and integral T-8A control cavity

SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

sunhydraulics.com/model/LOKB8





This valve is an unbalanced, vent-to-open, 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and uses port 2 as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.47 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.50 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOKB8DN

CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

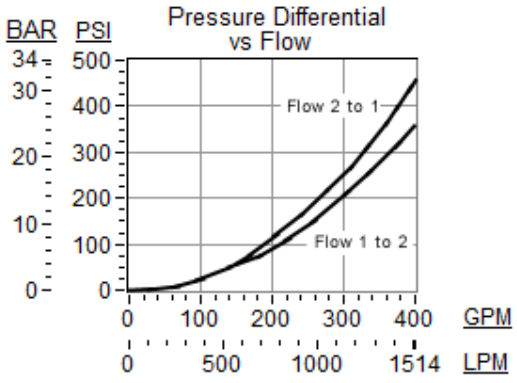
SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

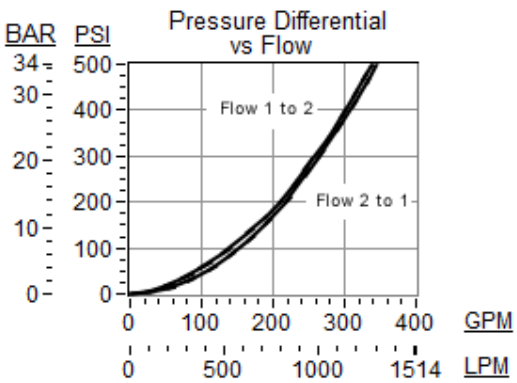
- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

Model LOKB8 installed in T-19AU Cavity



Model LOKB8 installed in T-19A Cavity



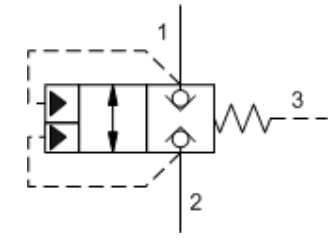
RELATED MODELS

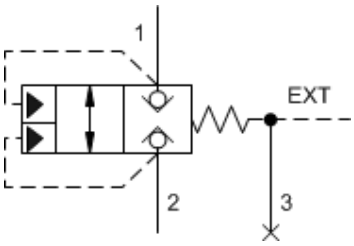
- LOKB Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 2

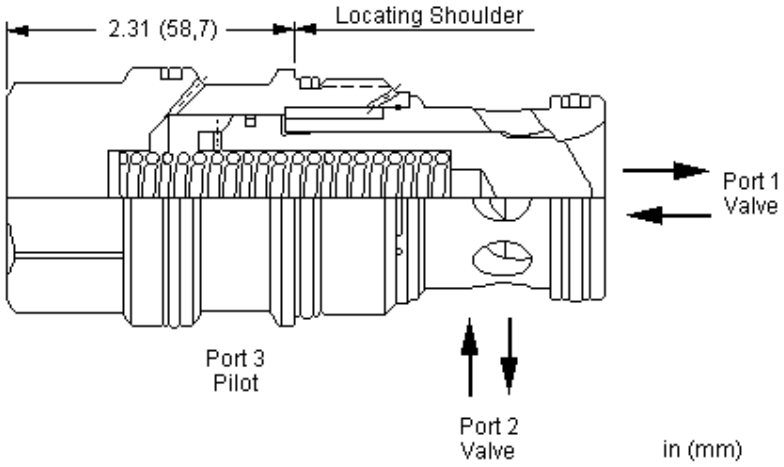
MODEL
LOKC

Pilot-to-close, spring-biased closed, unbalanced poppet logic element
SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

sunhydraulics.com/model/LOKC







These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.47 in³
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.56 lb.

CONFIGURATION OPTIONS

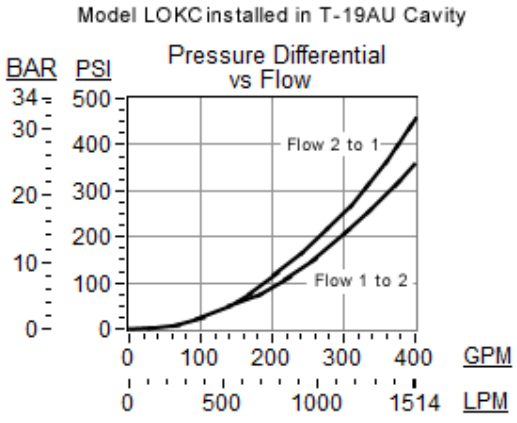
Model Code Example: LOKCXDN

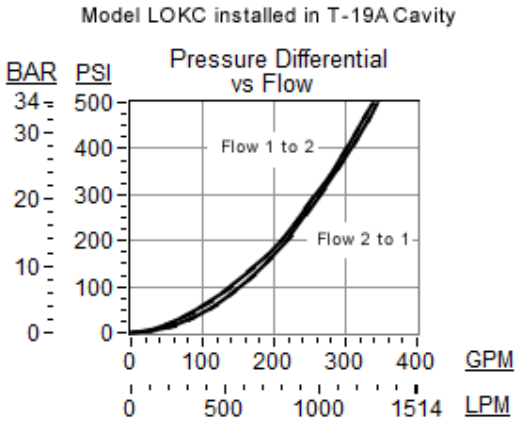
CONTROL (X)	CRACKING PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		E EPDM	**/AP** Stainless Steel, Passivated
		V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
-
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES





RELATED MODELS

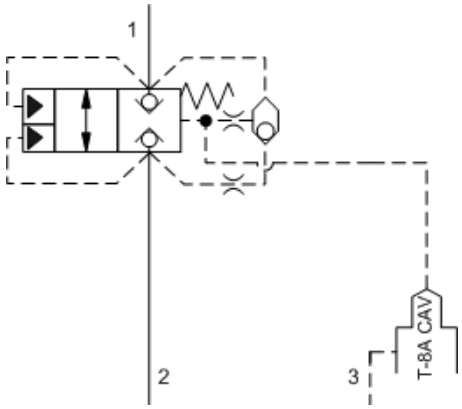
- LOKCZ Pilot-to-close, spring-biased closed, unbalanced poppet logic element with position switch

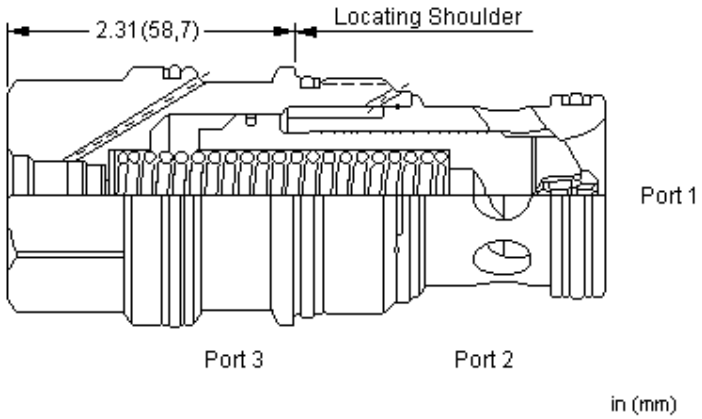
MODEL
LOKD8

Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2 and integral T-8A control cavity

SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

sunhydraulics.com/model/LOKD8





in (mm)

This valve is an unbalanced, vent-to-open 2-way logic switching element with an integral pilot control cavity. It is spring biased closed and incorporates an integral shuttle so that the higher of pressures at either port 1 or port 2 can be used as a pilot source. With a pilot 2-way valve in the closed position installed in the T-8A cavity, the logic element will remain in the closed position. With the pilot valve open, the logic element will open providing there is a sufficient combination of pressures to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Pilot Volume Displacement	.47 in³
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Pilot Control Cavity	T-8A
Control Orifice Diameter	.035 in.
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.50 lb.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LOKD8DN

CRACKING PRESSURE	(D)
D 50 psi (3,5 bar)	

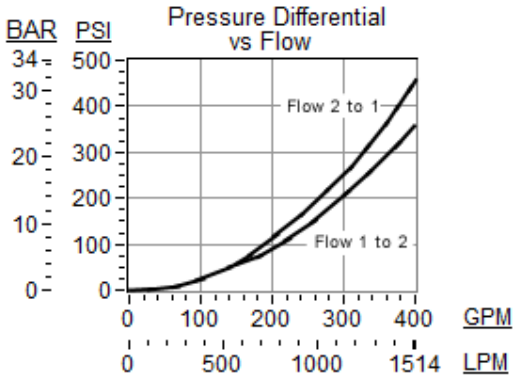
SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

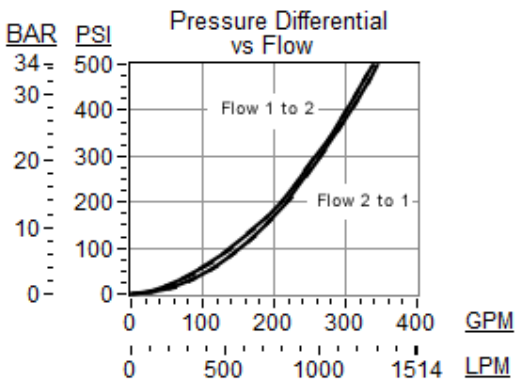
- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- These valves open quickly when vented. Time to close is difficult to predict as it is dependent on the rate of flow and the pressure drop created as it closes.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

Model LOKD8 installed in T-19AU Cavity



Model LOKD8 installed in T-19A Cavity



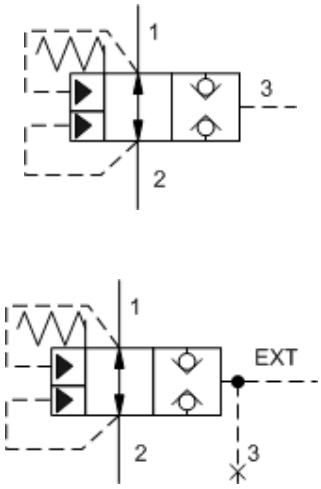
RELATED MODELS

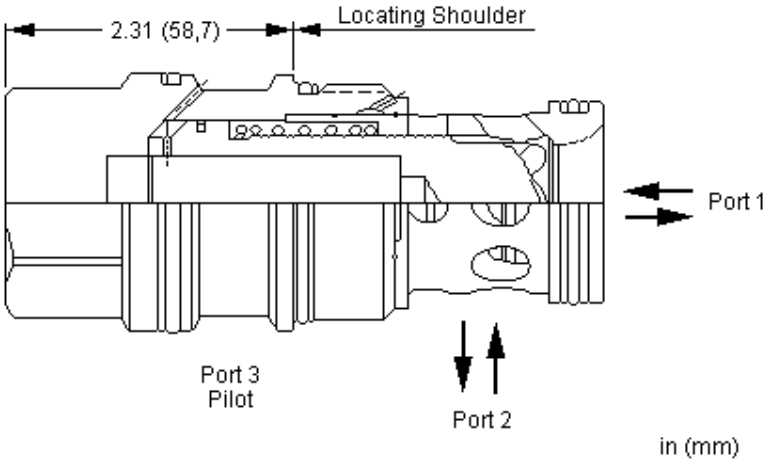
- LOKD Vent-to-open, spring-biased closed, unbalanced poppet logic element with pilot source from port 1 or 2

MODEL
LOKO

Pilot-to-close, spring-biased open, unbalanced poppet logic element
SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

snhy.com/LOKO





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Pilot Volume Displacement	.47 in³
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	2.49 lb.

CONFIGURATION OPTIONS

Model Code Example: LOKOXDN

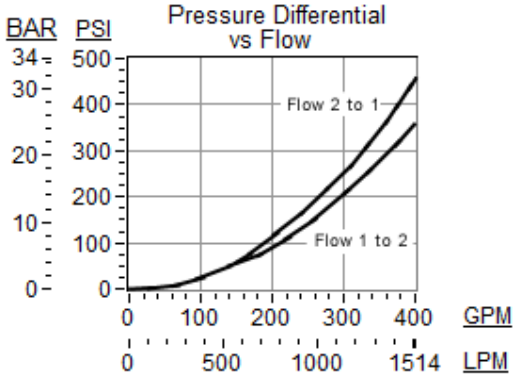
CONTROL (X)	MINIMUM PILOT PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
		V Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

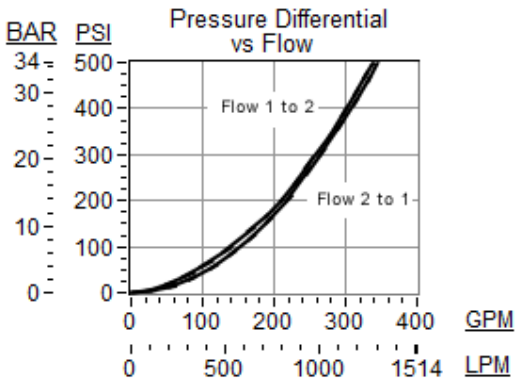
- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

PERFORMANCE CURVES

Model LOKO installed in T-19AU Cavity



Model LOKO installed in T-19A Cavity



RELATED MODELS

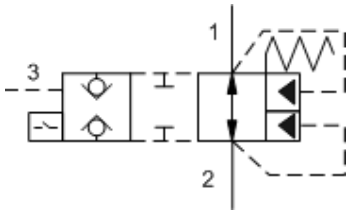
- LOKOZ Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

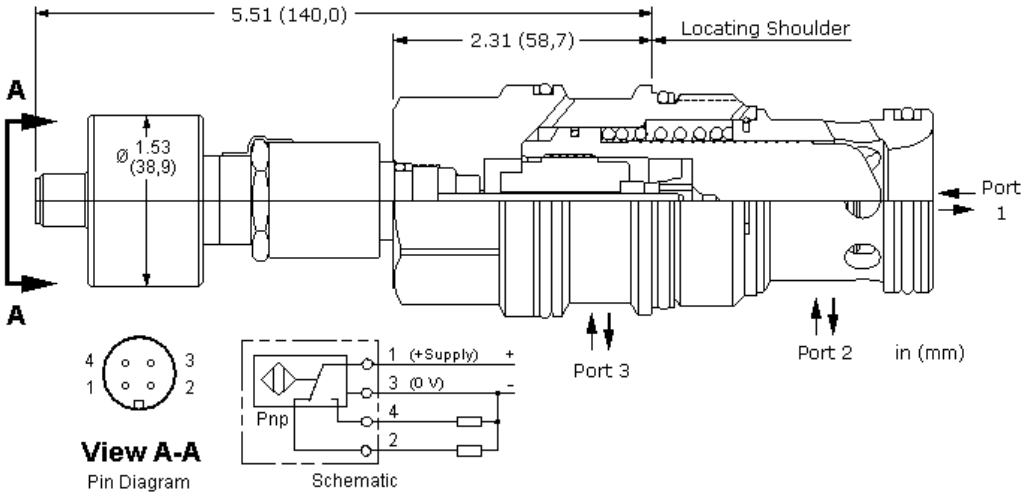
MODEL
LOKOZ

Pilot-to-close, spring-biased open, unbalanced poppet logic element with position switch

SERIES 4 / CAPACITY: 300 gpm / CAVITY: T-19AU

sunhydraulics.com/model/LOKOZ





These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased open. Pressure at either work port 1 or 2 will tend to keep the valve open while pressure at port 3 will tend to close it. The force generated at port 3 must be greater than the sum of the forces acting at port 1 and port 2 plus the spring force for the valve to close. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

This valve incorporates a position switch to provide confirmation that the valve is spring biased to the fully open position.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19AU
Series	4
Capacity	300 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	1 drops/min.
Pilot Volume Displacement	.47 in³
Pilot Passage into Valve	.09 in.
Area Ratio, A3 to A1	1.8:1
Area Ratio, A3 to A2	2.25:1
Valve Hex Size	1 5/8 in.
Valve Installation Torque	350 - 375 lbf ft
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	3.55 lb.

SWITCH SPECIFICATIONS

Supply Voltage	20-30 VDC
Operating Temperature Range	-25 to 80 °C
Vibration	≥ 50g, 0-500 impulses/sec
Shock	>50 g, 1ms
Reverse Polarity Protection	Yes
Maximum Output Load	≤ 400 mA, Duty Ratio 100%
Short Circuit Protection	Yes, Load Short Unlimited
Turn On Time	≤ 25 ms
Hysteresis	≤ .002 in.
Thermal Shift - 0 to 80 °C ≤ ±	.004 in.
EMC	DIN EN 61000-6-1/2/3/4
Connector	M12 X 1 (4) Pin
Connector Environment Rating	IP65

CONFIGURATION OPTIONS

Model Code Example: LOKOZDN

CRACKING PRESSURE (D)

D 50 psi (3,5 bar)

SEAL MATERIAL (N)

N Buna-N

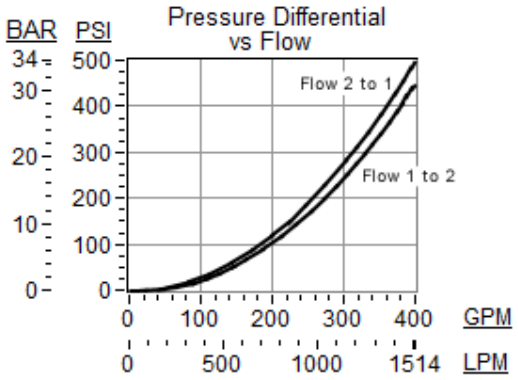
V Viton

TECHNICAL FEATURES

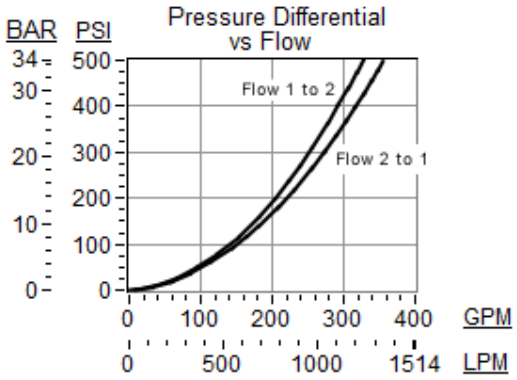
- These valves will work in Sun's standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area.
- This cartridge is supplied as a sealed, factory set unit and is not field serviceable. Any tampering will violate the product warranty.
- When torquing this cartridge into its cavity, a crow's foot wrench or similar will be required since the position switch precludes the use of a deep socket wrench.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- Position switch is CE approved.
- 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.

PERFORMANCE CURVES

Model LOKOZ installed in T-19AU Cavity



Model LOKOZ installed in T-19A Cavity



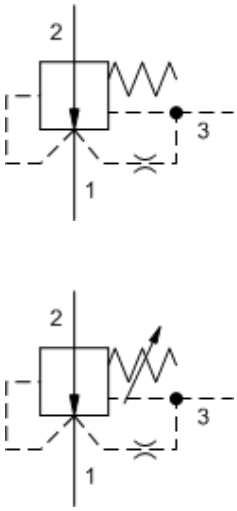
RELATED MODELS

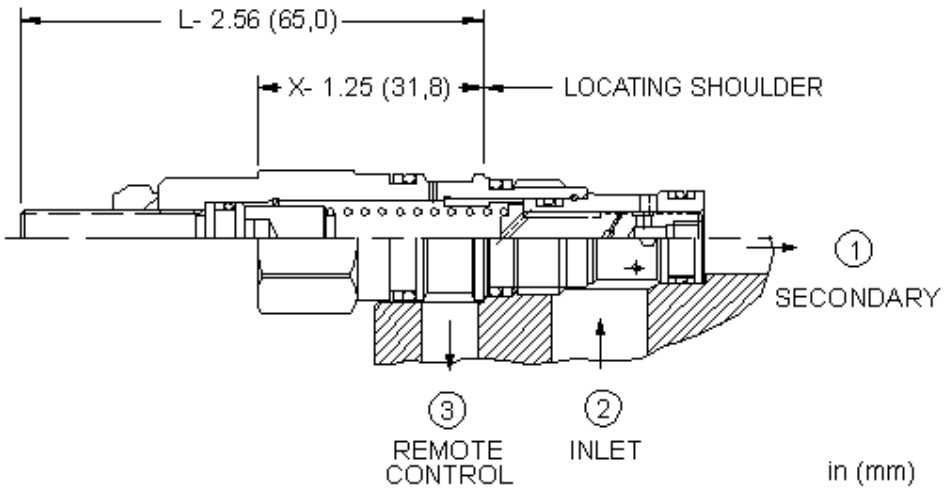
- LOKO Pilot-to-close, spring-biased open, unbalanced poppet logic element

MODEL
LPBA

Normally open, modulating element with pilot source from port 1
CAPACITY: 7.5 gpm / CAVITY: T-163A

sunhydraulics.com/model/LPBA





These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-163A
Series	0
Capacity	7.5 gpm
Maximum Operating Pressure	5000 psi
Control Orifice Diameter	.016 in.
Valve Hex Size	3/4 in.
Valve Installation Torque	20 - 25 lbf ft
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006
Model Weight	0.20 lb.

CONFIGURATION OPTIONS

Model Code Example: LPBAXHN

CONTROL (X)	BIAS PRESSURE (H)	SEAL MATERIAL (N)
X Not Adjustable	**H** 200 psi (14 bar)	**N** Buna-N
L Tuning Adjustment	**D** 50 psi (3,5 bar)	**V** Viton
	F 100 psi (7 bar)	

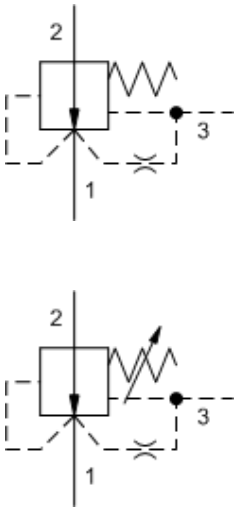
TECHNICAL FEATURES

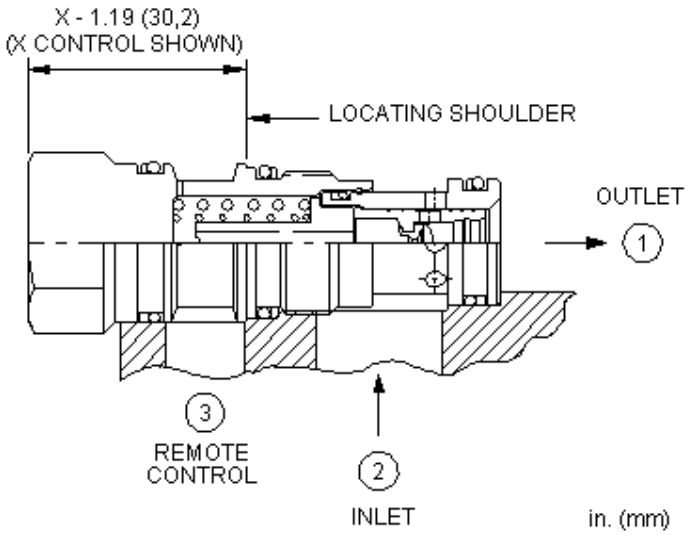
- Sun offers a variety of pressure and solenoid pilot control valves than can be used as remote control operators. See Pilot Control Cartridges.
- A tuning adjustment (models configured with an L control) is available to vary the pressure drop across the compensator to increase/decrease flow within +/-25% of setting.
- All ports will accept 5000 psi (350 bar).
- 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.

MODEL
LPDA

Normally open, modulating element with pilot source from port 1
SERIES 1 / CAPACITY: 15 gpm / CAVITY: T-11A

sunhydraulics.com/model/LPDA





These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	15 gpm
Maximum Operating Pressure	5000 psi
Control Pilot Flow	10 - 15 in³/min.
Control Orifice Diameter	.016 in.
Valve Hex Size	7/8 in.
Valve Installation Torque	30 - 35 lbf ft
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.28 lb.

CONFIGURATION OPTIONS

Model Code Example: LPDAXHN

CONTROL (X)	BIAS PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**H** 200 psi (14 bar)	**N** Buna-N	Standard Material/Coating
L Tuning Adjustment	**D** 50 psi (3,5 bar)	**V** Viton	**/AP** Stainless Steel, Passivated
	F 100 psi (7 bar)		

TECHNICAL FEATURES

- Sun offers a variety of pressure and solenoid pilot control valves than can be used as remote control operators. See Pilot Control Cartridges.
- A tuning adjustment (models configured with an L control) is available to vary the pressure drop across the compensator to increase/decrease flow within +/-25% of setting.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

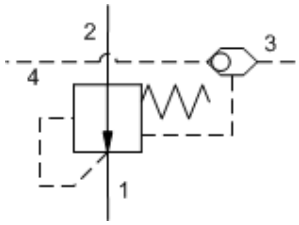
RELATED MODELS

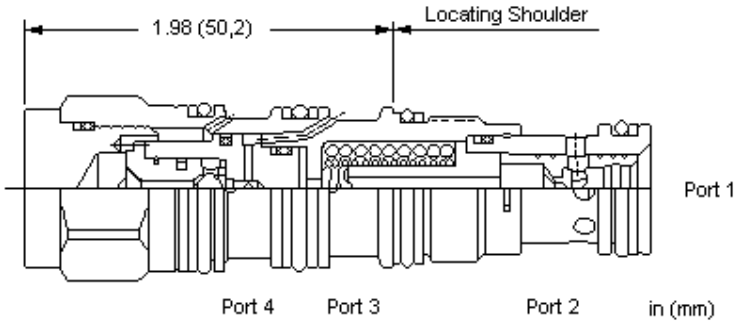
- LPDA8 Normally open, modulating element with integral T-8A control cavity and pilot source from port 1

MODEL
LPDS

Normally open modulating element with shuttle
SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-21A

sunhydraulics.com/model/LPDS





A normally open modulating element, used as a restrictive compensator, ensures a constant pressure drop across an external orifice to create a pressure compensated flow control. The resulting flow remains constant regardless of variations in upstream or downstream pressure.

A ball shuttle connects the after orifice signal from the higher of port 3 or 4 to the pilot area.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	60 L/min.
Nominal Compensating Pressure	14 bar
Maximum Operating Pressure	350 bar
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.17 kg.

CONFIGURATION OPTIONS

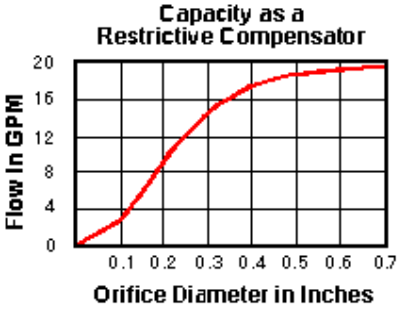
Model Code Example: LPDSXHN

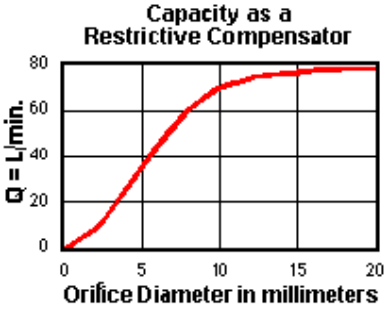
CONTROL (X)	DIFFERENTIAL PRESSURE (H)	SEAL MATERIAL (N)
X Not Adjustable	**H** 200 psi (14 bar)	**N** Buna-N
		V Viton

TECHNICAL FEATURES

- The shuttle features hardened steel balls and seats for excellent wear characteristics and contamination tolerance.
- The single ball shuttle allows for the decay of the pressure signal when both load ports drop to a lower pressure.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES

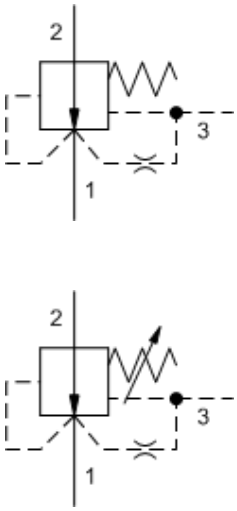


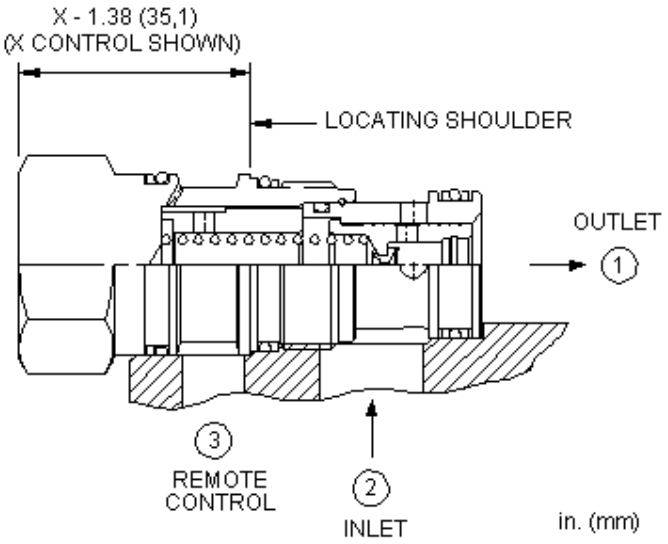


MODEL
LPFA

Normally open, modulating element with pilot source from port 1
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-2A

sunhydraulics.com/model/LPFA





These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	30 gpm
Maximum Operating Pressure	5000 psi
Control Pilot Flow	10 - 15 in³/min.
Control Orifice Diameter	.016 in.
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.50 lb.

CONFIGURATION OPTIONS

Model Code Example: LPFAXHN

CONTROL (X)	BIAS PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**H** 200 psi (14 bar)	**N** Buna-N	Standard Material/Coating
L Tuning Adjustment	**D** 50 psi (3,5 bar)	**V** Viton	**/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- Sun offers a variety of pressure and solenoid pilot control valves than can be used as remote control operators. See Pilot Control Cartridges.
- A tuning adjustment (models configured with an L control) is available to vary the pressure drop across the compensator to increase/decrease flow within +/-25% of setting.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

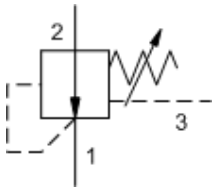
RELATED MODELS

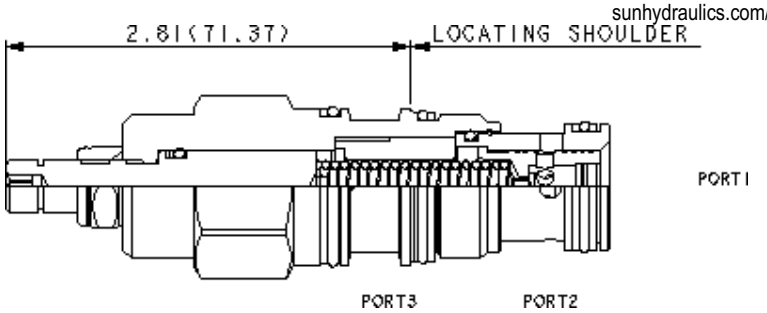
- LPFA8 Normally open, modulating element with integral T-8A control cavity and pilot source from port 1

MODEL
LPFCL

Tuneable, normally open modulating element
SERIES 2 / CAPACITY: 30 gpm / CAVITY: T-2A

sunhydraulics.com/model/LPFCL





Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	30 gpm
Maximum Operating Pressure	5000 psi
Valve Hex Size	1 1/8 in.
Valve Installation Torque	45 - 50 lbf ft
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.68 lb.

CONFIGURATION OPTIONS

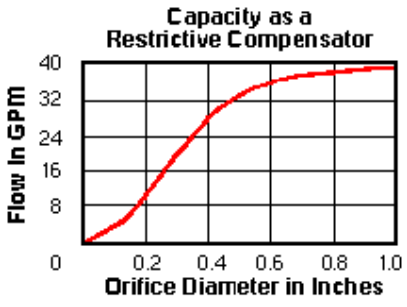
Model Code Example: LPFCLDN

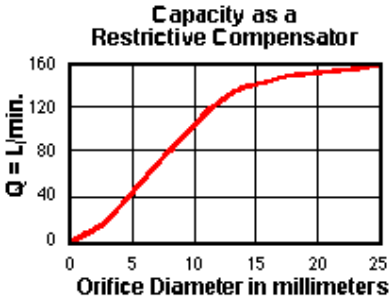
DIFFERENTIAL PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
D 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
	E EPDM	**/LH** Mild Steel, Zinc-Nickel
	V Viton	

TECHNICAL FEATURES

- A tuning adjustment (models configured with an L control) is available to vary the pressure drop across the compensator to increase/decrease flow within +/-25% of setting.
- All ports will accept 5000 psi (350 bar).
- 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.

PERFORMANCE CURVES





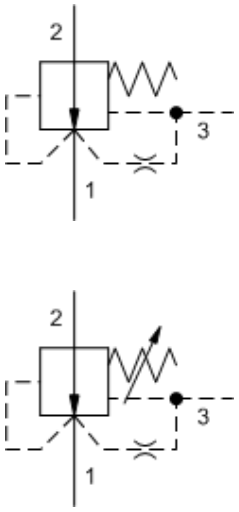
RELATED MODELS

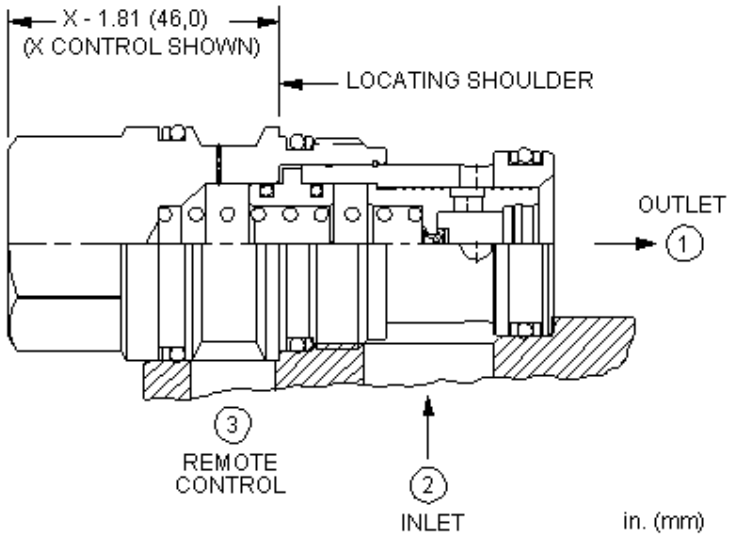
- LPFC Normally open, modulating element

MODEL
LPHA

Normally open, modulating element with pilot source from port 1
SERIES 3 / CAPACITY: 60 gpm / CAVITY: T-17A

sunhydraulics.com/model/LPHA





These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	60 gpm
Maximum Operating Pressure	5000 psi
Control Pilot Flow	15 - 30 in³/min.
Control Orifice Diameter	.021 in.
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	1.16 lb.

CONFIGURATION OPTIONS

Model Code Example: LPHAXDN

CONTROL (X)	BIAS PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**D** 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
L Tuning Adjustment	**F** 100 psi (7 bar)	**E** EPDM	**/AP** Stainless Steel, Passivated
	G 150 psi (10,5 bar)	**V** Viton	
	H 200 psi (14 bar)		

TECHNICAL FEATURES

- Sun offers a variety of pressure and solenoid pilot control valves than can be used as remote control operators. See Pilot Control Cartridges.
- A tuning adjustment (models configured with an L control) is available to vary the pressure drop across the compensator to increase/decrease flow within +/-25% of setting.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

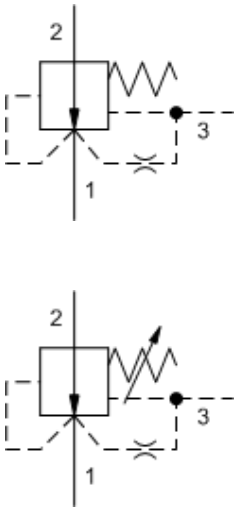
RELATED MODELS

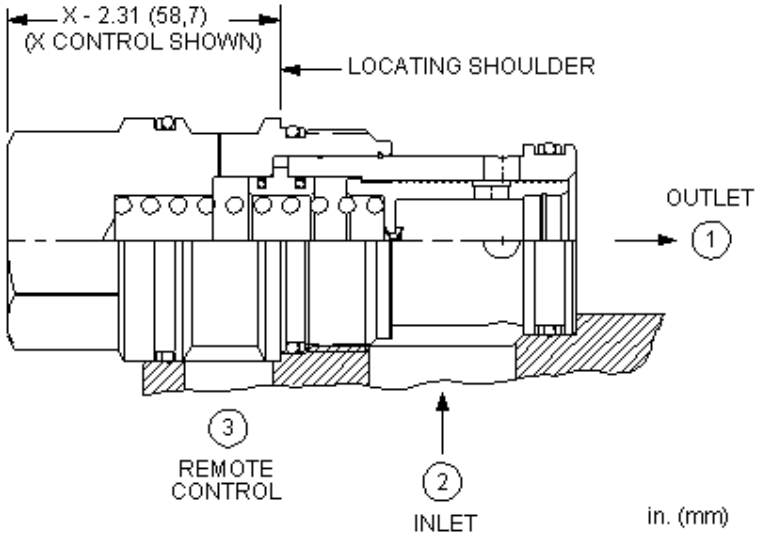
- LPHA8 Normally open, modulating element with integral T-8A control cavity and pilot source from port 1

MODEL
LPJA

Normally open, modulating element with pilot source from port 1
SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-19A

sunhydraulics.com/model/LPJA





These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	480 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,50 L/min.
Control Orifice Diameter	0,53 mm
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	1.17 kg.

CONFIGURATION OPTIONS

Model Code Example: LPJAXHN

CONTROL (X)	BIAS PRESSURE (H)	SEAL MATERIAL (N)	MATERIAL/COATING
X Not Adjustable	**H** 200 psi (14 bar)	**N** Buna-N	Standard Material/Coating
L Tuning Adjustment	**D** 50 psi (3,5 bar)	**E** EPDM	**/AP** Stainless Steel, Passivated
	F 100 psi (7 bar)	**V** Viton	
	G 150 psi (10,5 bar)		

TECHNICAL FEATURES

- A tuning adjustment (models configured with an L control) is available to vary the pressure drop across the compensator to increase/decrease flow within +/-25% of setting.
- All ports will accept 5000 psi (350 bar).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- 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.

RELATED MODELS

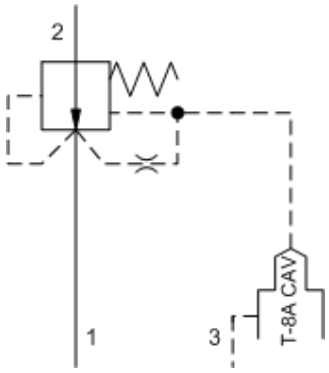
- LPJA8 Normally open, modulating element with integral T-8A control cavity and pilot source from port 1

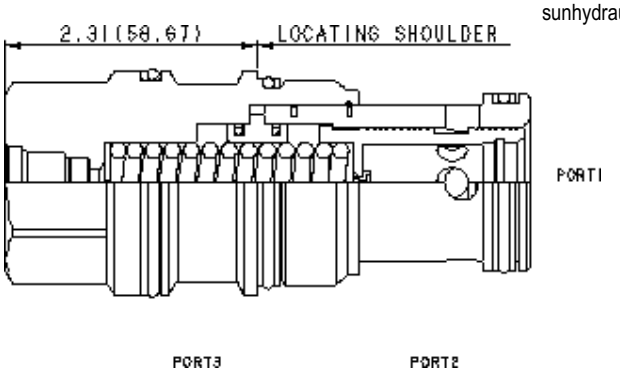
MODEL
LPJA8

Normally open, modulating element with integral T-8A control cavity and pilot source from port 1

SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-19A

sunhydraulics.com/model/LPJA8





These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	480 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,50 L/min.
Pilot Control Cavity	T-8A
Control Orifice Diameter	0,53 mm
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	1.19 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: LPJA8DN

BIAS PRESSURE (D)

- **D** 50 psi (3,5 bar)

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

TECHNICAL FEATURES

- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the logic cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- All ports will accept 5000 psi (350 bar).
- 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.

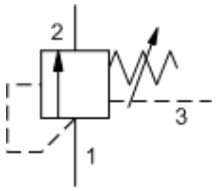
RELATED MODELS

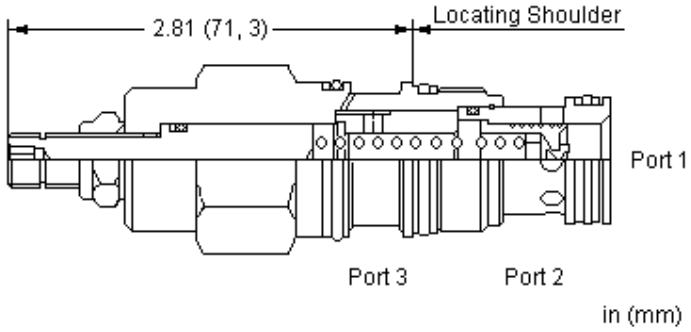
- LPJA Normally open, modulating element with pilot source from port 1

MODEL
LRFCL

Tuneable, normally closed, modulating element
SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A

sunhydraulics.com/model/LRFCL





Normally closed modulating elements without an internal orifice act as a bypass compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	120 L/min.
Maximum Operating Pressure	350 bar
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.31 kg.

CONFIGURATION OPTIONS

Model Code Example: LRFCLDN

DIFFERENTIAL PRESSURE (D)	SEAL MATERIAL (N)	MATERIAL/COATING
D 50 psi (3,5 bar)	**N** Buna-N	Standard Material/Coating
F 100 psi (7 bar)	**E** EPDM	**/AP** Stainless Steel, Passivated
	V Viton	**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- A tuning adjustment (models configured with an L control) is available to vary the pressure drop across the compensator to increase/decrease flow within +/-25% of setting.
- All ports will accept 5000 psi (350 bar).
- 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.

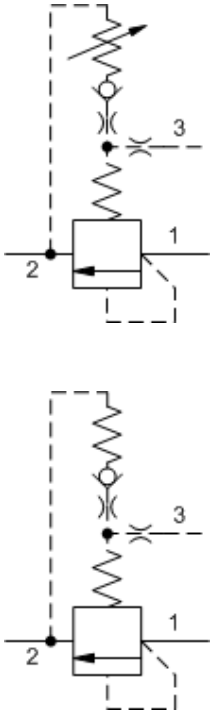
RELATED MODELS

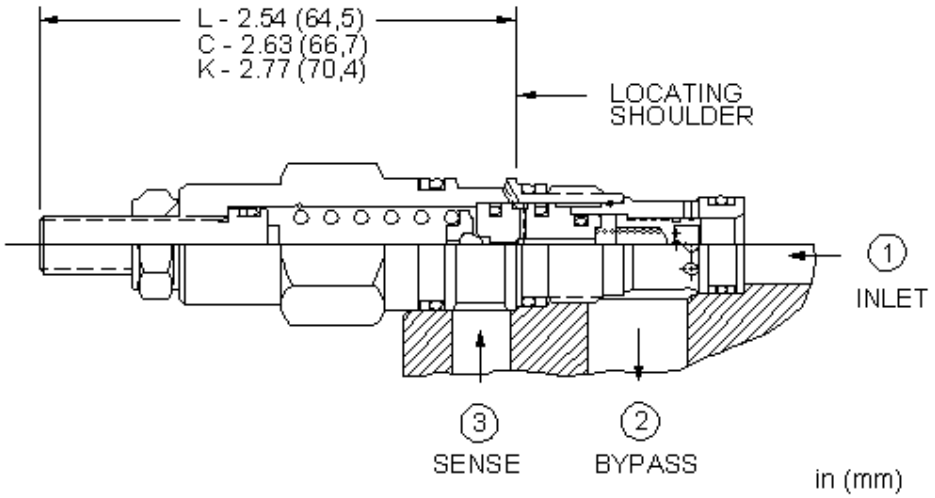
- LRFC Normally closed, modulating element

MODEL
RVBB

Normally closed modulating element valve with relief function
CAPACITY: 20 L/min. / CAVITY: T-163A

sunhydraulics.com/model/RVBB





Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-163A
Series	0
Capacity	20 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	19,1 mm
Valve Installation Torque	27 - 33 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006
Model Weight	0.11 kg.

CONFIGURATION OPTIONS

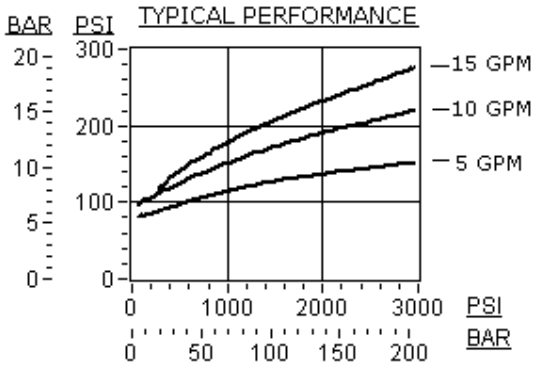
Model Code Example: RVBBLAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)
L Standard Screw Adjustment	**A** 75 - 3000 psi (5 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N
C Tamper Resistant - Factory Set	**B** 75 - 1500 psi (5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton
K Handknob	**C** 75 - 6000 psi (5 - 420 bar), 1000 psi (70 bar) Standard Setting	
	N 75 - 800 psi (5 - 55 bar), 400 psi (28 bar) Standard Setting	
	Q 75 - 400 psi (5 - 28 bar), 200 psi (14 bar) Standard Setting	
	W 75 - 4500 psi (5 - 315 bar), 1000 psi (70 bar) Standard Setting	

TECHNICAL FEATURES

- Compensating pressure for all ranges is 50 psi (3,5 bar).
- Explanation of the performance curve: The X axis is system pressure. The Y axis shows the pressure differential that the valve creates across the control orifice. The curves represent various bypass flows (pump flow minus control flow). The capacity and performance of this valve is determined by the bypass flow, control flow is not a factor.

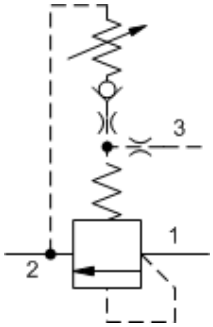
PERFORMANCE CURVES

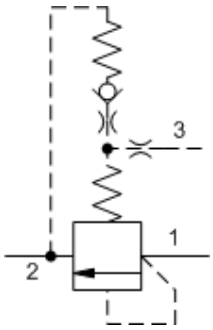


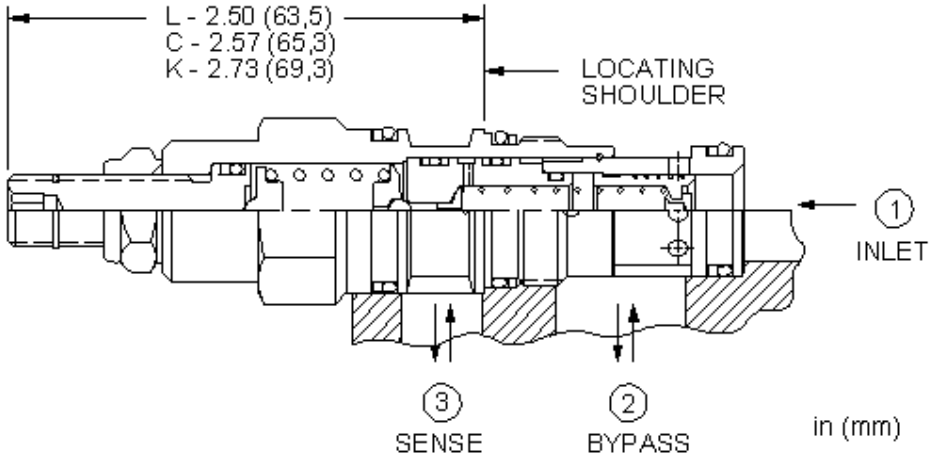
MODEL
RVCB

Normally closed modulating element valve with relief function
SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-11A

sunhydraulics.com/model/RVCB







Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	40 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.16 kg.

CONFIGURATION OPTIONS

Model Code Example: RVCBLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

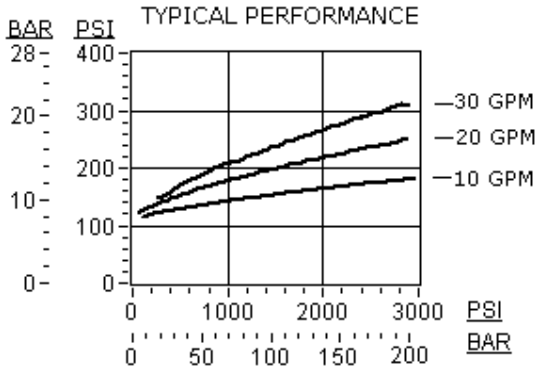
MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Compensating pressure for the A range is 45 psi (3 bar), for the B range 30 psi (2 bar), and for the C range 100 psi (7 bar).
- Explanation of the performance curve: The X axis is system pressure. The Y axis shows the pressure differential that the valve creates across the control orifice. The curves represent various bypass flows (pump flow minus control flow). The capacity and performance of this valve is determined by the bypass flow, control flow is not a factor.

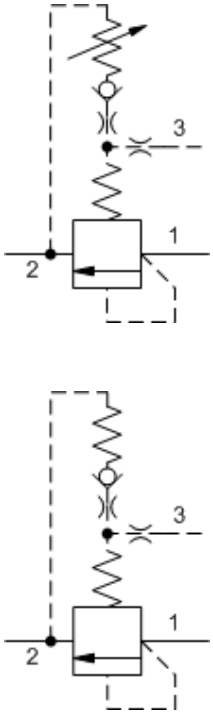
PERFORMANCE CURVES

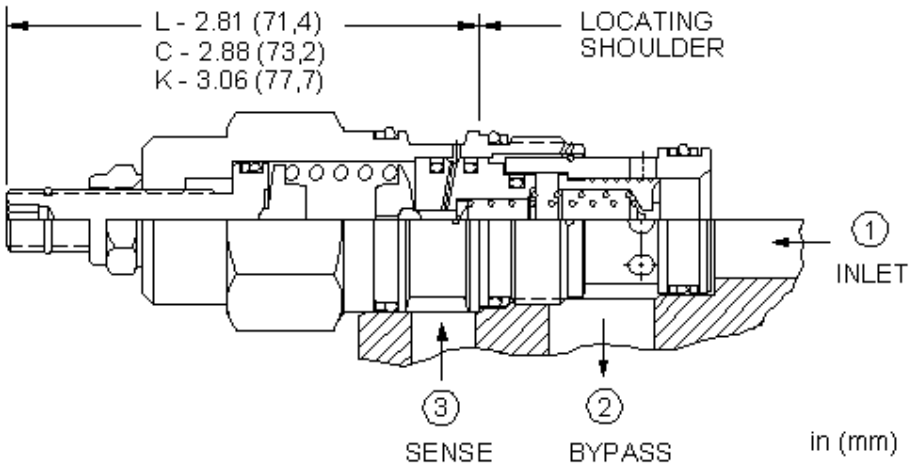


MODEL
RVEB

Normally closed modulating element valve with relief function
SERIES 2 / CAPACITY: 80 L/min. / CAVITY: T-2A

sunhydraulics.com/model/RVEB





Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	80 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.29 kg.

CONFIGURATION OPTIONS

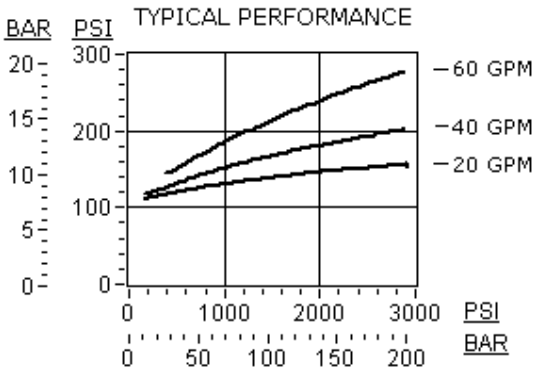
Model Code Example: RVEBLAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/AP** Stainless Steel, Passivated
K Handknob	**C** 100 - 6000 psi (7 - 420 bar), 1000 psi (70 bar) Standard Setting		
W Hex Wrench Adjustment	**W** 100 - 4500 psi (7 - 315 bar), 1000 psi (70 bar) Standard Setting		
Y Tri-Grip Handknob			

TECHNICAL FEATURES

- Compensating pressure for all ranges is 120 psi (8 bar).
- Explanation of the performance curve: The X axis is system pressure. The Y axis shows the pressure differential that the valve creates across the control orifice. The curves represent various bypass flows (pump flow minus control flow). The capacity and performance of this valve is determined by the bypass flow, control flow is not a factor.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.

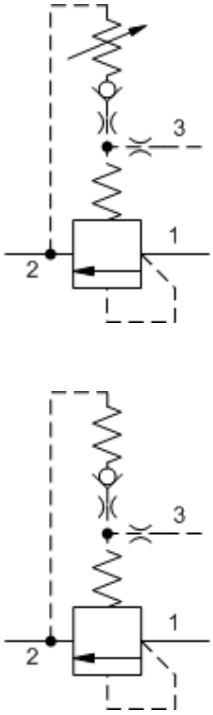
PERFORMANCE CURVES

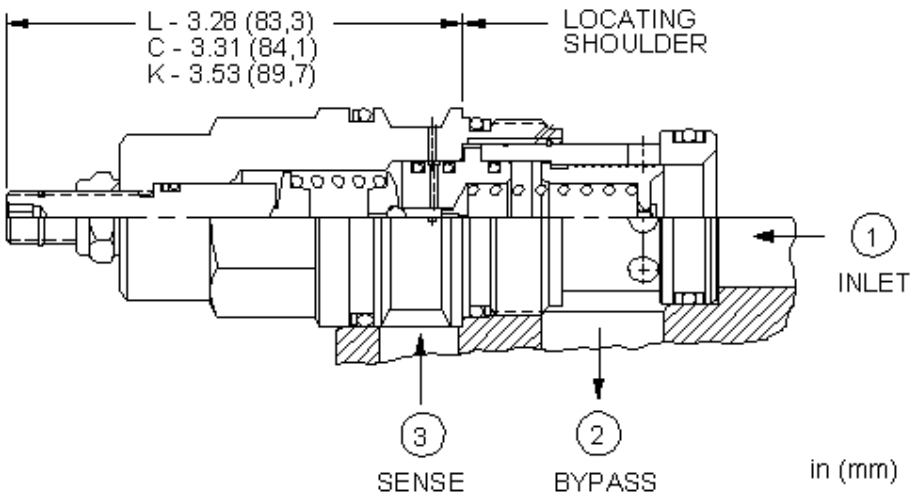


MODEL
RVGB

Normally closed modulating element valve with relief function
SERIES 3 / CAPACITY: 160 L/min. / CAVITY: T-17A

sunhydraulics.com/model/RVGB





Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	160 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	0.62 kg.

CONFIGURATION OPTIONS

Model Code Example: RVGBLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 150 - 1500 psi (10,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 100 - 6000 psi (7 - 420 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

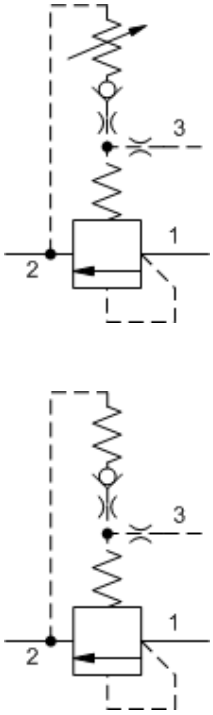
TECHNICAL FEATURES

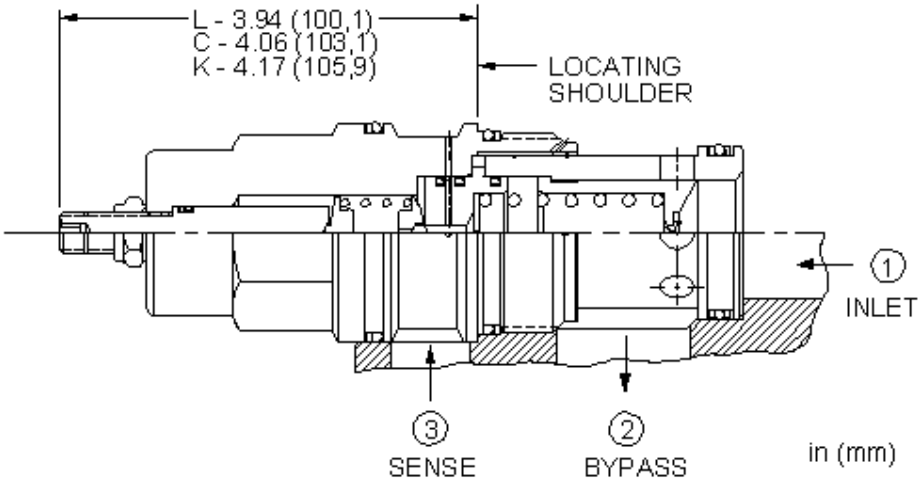
- Compensating pressure for all ranges is 120 psi (8 bar).
- Explanation of the performance curve: The X axis is system pressure. The Y axis shows the pressure differential that the valve creates across the control orifice. The curves represent various bypass flows (pump flow minus control flow). The capacity and performance of this valve is determined by the bypass flow, control flow is not a factor.

MODEL
RVIB

Normally closed modulating element valve with relief function
SERIES 4 / CAPACITY: 320 L/min. / CAVITY: T-19A

sunhydraulics.com/model/RVIB





Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	320 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	1.43 kg.

CONFIGURATION OPTIONS

Model Code Example: RVIBLAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting	**V** Viton

TECHNICAL FEATURES

- Compensating pressure for all ranges is 90 psi (6 bar).
- Explanation of the performance curve: The X axis is system pressure. The Y axis shows the pressure differential that the valve creates across the control orifice. The curves represent various bypass flows (pump flow minus control flow). The capacity and performance of this valve is determined by the bypass flow, control flow is not a factor.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.

PERFORMANCE CURVES