



INDUSTRIAL FLUID POWER COMPONENTS
AND SYSTEMS



L SERIES

Cartridge Valves



Overview



Specifications

VALVE	MODEL	TYPE	OPERATING PRESSURE	CAVITY	FLOW PATH	FLOW RATING (GPM) $\Delta P=75\text{psi}$
SOLENOID	LSV2-08-2NCP	Poppet, 2 Way, 2 Position	3625 psi	08-2	2	5
	LSV2-08-2NCS	Spool, 2 Way, 2 Position	3000 psi	08-2	2	4
	LSV2-08-2NOP	Poppet, 2 Way, 2 Position	3625 psi	08-2	2	6
	LSV2-08-3	Spool, 3 Way, 2 Position	3000 psi	08-3	3	3
	LSV2-10-3	Spool, 3 Way, 2 Position	3000 psi	10-3	3	4
CHECK	LCV-08-P	Direct Acting, Poppet	3625 psi	08-2	2	5
	LCV-10-P	Direct Acting, Poppet	3625 psi	10-2	2	11
	LPC-10	Pilot to Open, Poppet	3625 psi	10-3	3	5
	LDPC-08	Dual Pilot-Operated	3000 psi	08-4	4	4
NEEDLE	LNV-08	Adjustable	3625 psi	08-2	2	4
SHUT OFF	LS-08	Adjustable	3625 psi	08-2	2	12
FLOW CONTROL	LFC-08	Adjustable	3625 psi	08-2	2	8
	LPFR-10	Regulator, Pressure-Compensated	3625 psi	10-3	3	
RELIEF	LRV-08	Adjustable, Direct Acting	3915 psi	08-2	2	4
	LBRV2-10	Adj., Direct Bi-Directional-Cross Port	3480 psi	10-2	2	
	LPSRV2-08	Adj., Pilot Op., Sliding Spool	5075 psi	08-2	2	
	LPSRV-10	Adjustable, Pilot Operated	5075 psi	10-2	2	
SHUTTLE	LSLV-08/10	Ball	3480 psi	10-3	3	4
PRESSURE REDUCING/RELIEVING	LDPR-10	Direct Acting	3000 psi	10-3	3	6
COUNTERBALANCE	LCB-CA-H		3100 psi		3	8



L Series

Cartridge Valves

Solenoid Valves

2 Way, 2 Position, Spool/ Poppet Type - 08 Cavity



Specifications

1. **Operating Pressure:** 3000-4000 psi (207-275 Bar)
2. **Temperature:** -30°F - +250°F (-35°C - +120°C)
3. **Coil Rating:** Continuous from 85% to 100% of rated voltage
4. **Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
5. **Recommended Filtration:** ISO 16/12
6. **Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

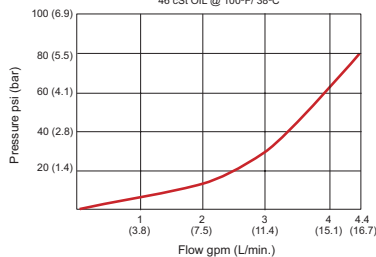
Features

1. Continuous Duty Solenoid
2. Efficient Wet-Armature Construction
3. Optional Coil Voltages and Terminations
4. Industry Common Cavity
5. Compact Size

Pressure Drop Curves

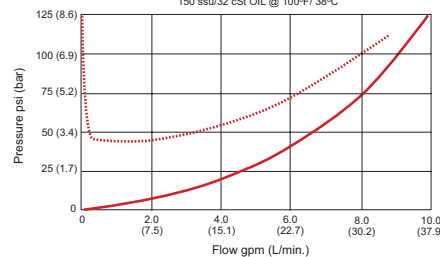
LSV2-08-2NCS Energized

46 cSt OIL @ 100°F/ 38°C



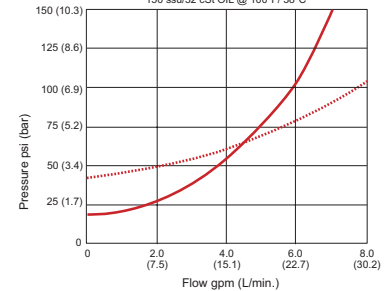
LSV2-08-2NOP 2 To 1

150 ssu/32 cSt OIL @ 100°F/ 38°C



LSV2-08-2NCP 2 To 1

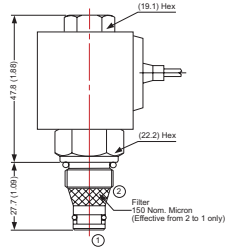
150 ssu/32 cSt OIL @ 100°F/ 38°C



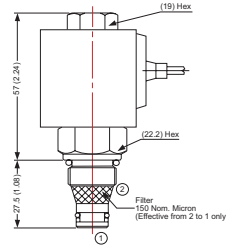
Dimensional Data

Units: mm (inch)

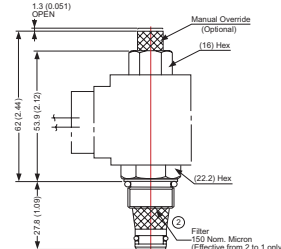
LSV2-08-2NCS



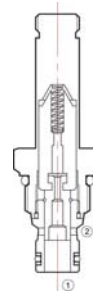
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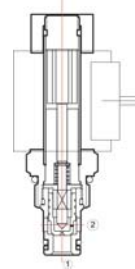
LSV2-08-2NCP



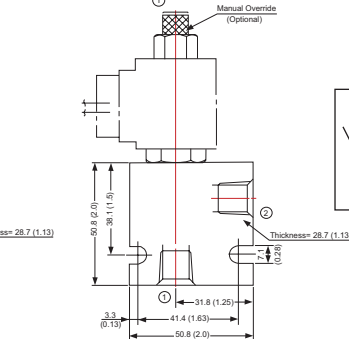
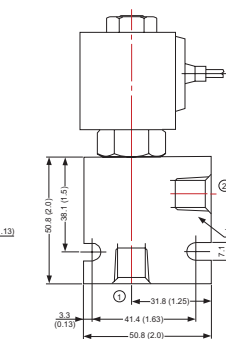
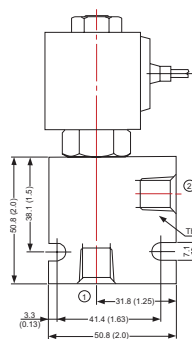
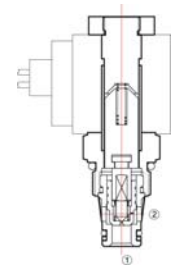
LSV2-08-2NCS



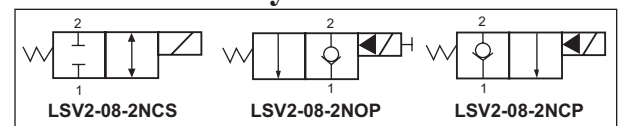
LSV2-08-2NOP



LSV2-08-2NCP



Symbols



Ordering Information

LSV2 - 08 - 2 - NCS - 3 H - 6T

L Series Cartridge Solenoid Valve	Cavity 08	Flow Path	Type NCS = Normally Closed/ Spool Type NOP = Normally Open/ Pilot Type NCP = Normally Closed/ Pilot Type	Voltage omit (none) 1=12VDC 2=24VDC 3=110VAC other voltages available	Coil Connection H = Din Coil-Round ER = Deutsch Connector	Body Porting omit = Cartridge Only 6T = SAE6
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Solenoid Valves

2 Way, 2 Position, Spool/ Poppet Type - 10 Cavity



Specifications

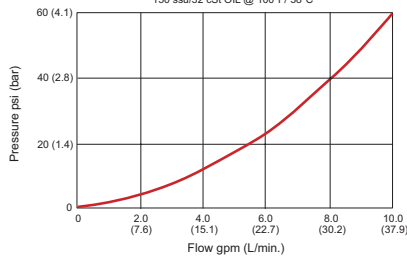
- Max. Operating Pressure:** 4350 psi (300 Bar)
- Temperature:** -30°F - +250°F (-35°C - +120°C)
- Coil Rating:** Continuous from 85% to 100% of rated voltage
- Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
- Recommended Filtration:** ISO 16/12
- Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

Features

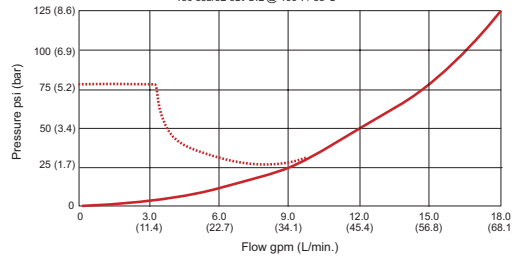
- Continuous Duty Solenoid
- Efficient Wet-Armature Construction
- Optional Coil Voltages and Terminations
- Industry Common Cavity
- Compact Size

Pressure Drop Curves

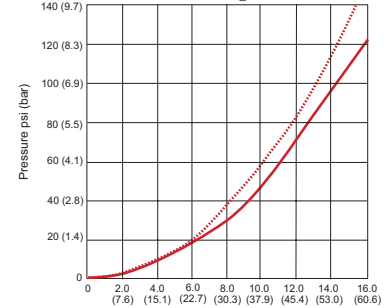
LSV2-10-2NCS 2 To 1 or 1 To 2 (Energized)
150 ssu/32 cSt OIL @ 100°F/ 38°C



LSV2-10-2NOP 2 To 1 — 1 To 2
150 ssu/32 cSt OIL @ 100°F/ 38°C



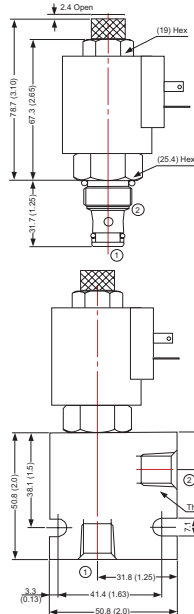
LSV2-10-2NCP 2 To 1 — 1 To 2
150 ssu/32 cSt OIL @ 100°F/ 38°C



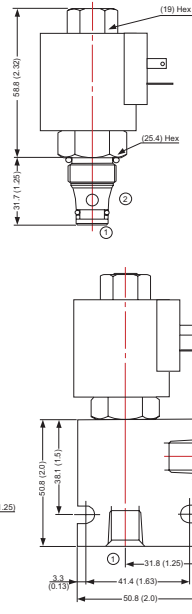
Units: mm (inch)

Dimensional Data

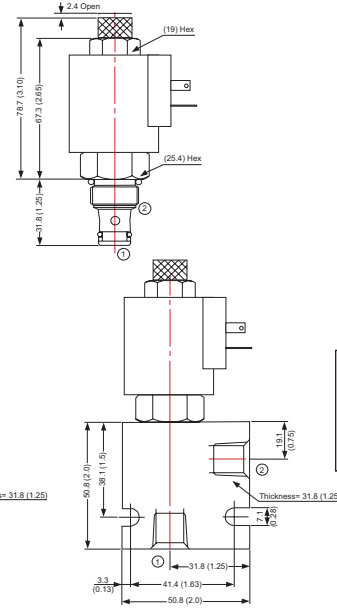
LSV2-10-2NCS



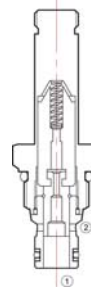
LSV2-10-2NOP



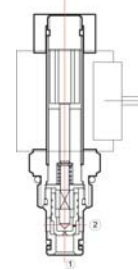
LSV2-10-2NCP



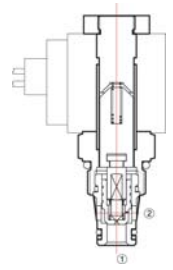
LSV2-10-2NCS



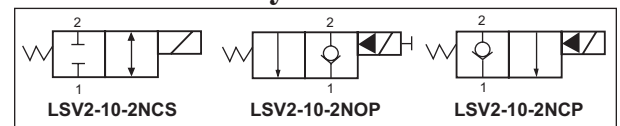
LSV2-10-2NOP



LSV2-10-2NCP



Symbols



Ordering Information

LSV2 - 10 - 2 - NCS - 3 H - 6T

L Series Cartridge Solenoid Valve	Cavity 10	Flow Path	Type NCS = Normally Closed/ Spool Type NOP = Normally Open/ Pilot Type NCP = Normally Closed/ Pilot Type	Voltage omit (none) 1=12VDC 2=24VDC 3=110VAC other voltages available	Coil Connection H = Din Coil-Round ER = Deutsch Connector	Body Porting omit = Cartridge Only 6T = SAE6 8T = SAE8

Solenoid Valves

3 Way, 2 Position, Spool Type - 08 or 10 Cavity

Specifications

- Operating Pressure:** 3000 psi (207 Bar)
- Temperature:** -30°F - +250°F (-35°C - +120°C)
- Coil Rating:** Continuous from 85% to 100% of rated voltage
- Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
- Recommended Filtration:** ISO 16/12
- Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

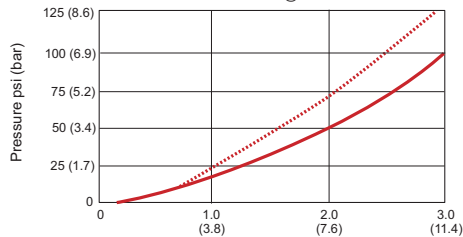
Features

- Continuous Duty Solenoid
- Efficient Wet-Armature Construction
- Optional Coil Voltages and Terminations
- Manual Override Option
- Industry Common Cavity
- Compact Size

Pressure Drop Curves

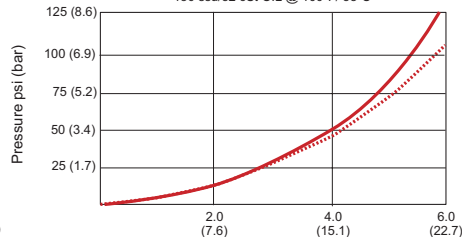
LSV2-08-3

3 To 1 (Energized)
2 To 1 (De-Energized) ———
150 ssu/32 cSt OIL @ 100°F/ 38°C



LSV2-10-3

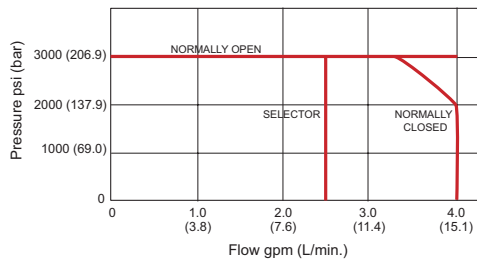
3 To 1 (Energized) ———
2 To 1 (De-Energized)
150 ssu/32 cSt OIL @ 100°F/ 38°C



Performance Characteristics

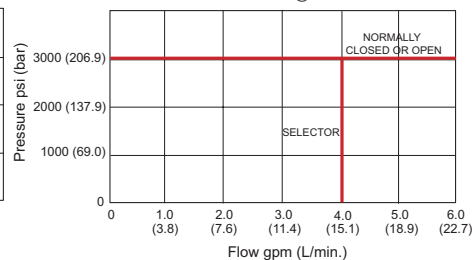
LSV2-08-3

150 ssu/32 cSt OIL @ 100°F/ 38°C

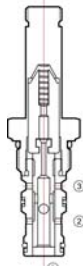


LSV2-10-3

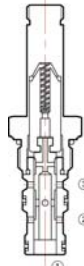
150 ssu/32 cSt OIL @ 100°F/ 38°C



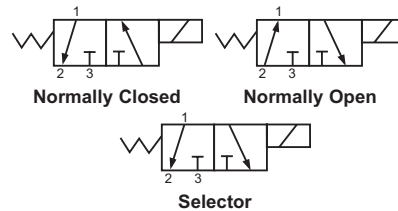
LSV2-08-3



LSV2-10-3



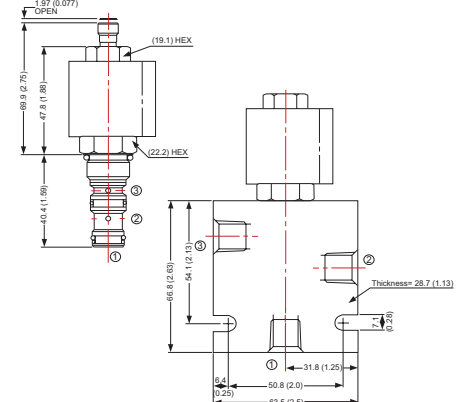
Symbols



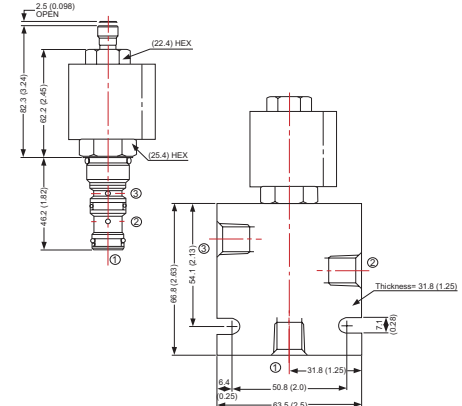
Dimensional Data

Units: mm (inch)

LSV2-08-3

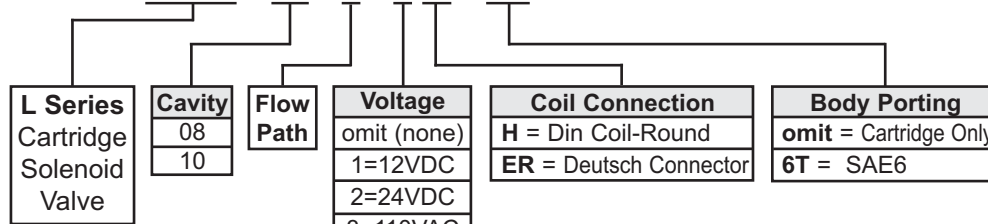


LSV2-10-3



Ordering Information

LSV2 - 10 - 3 - 3 H - 6T



other voltages available

Check Valves

SAE6 & SAE8



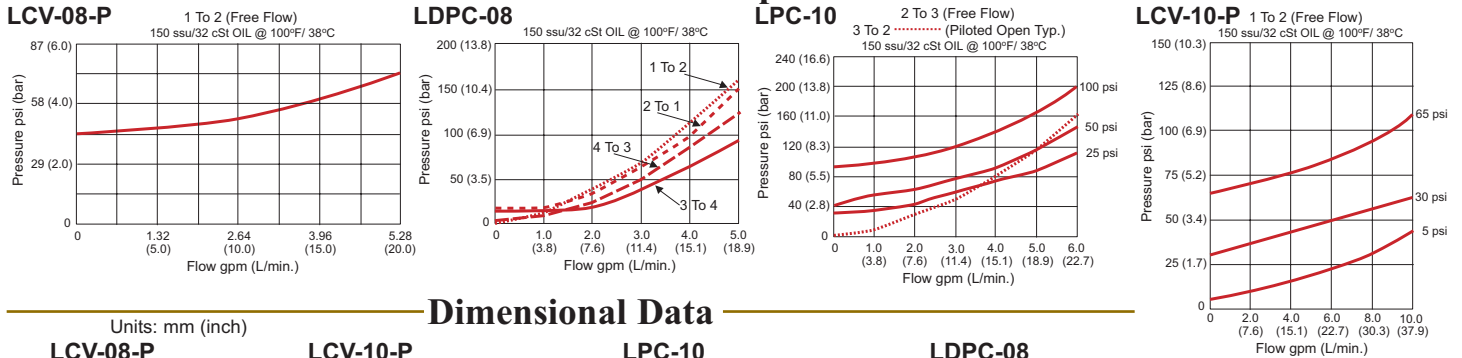
Specifications

- Operating Pressure:** 3000-3625 psi (207-250 Bar)
- Temperature:** -30°F - +250°F (-35°C - +120°C)
- Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
- Recommended Critical Application:** ISO 16/12
Filtration: Non-Critical Application: ISO 19/15
- Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

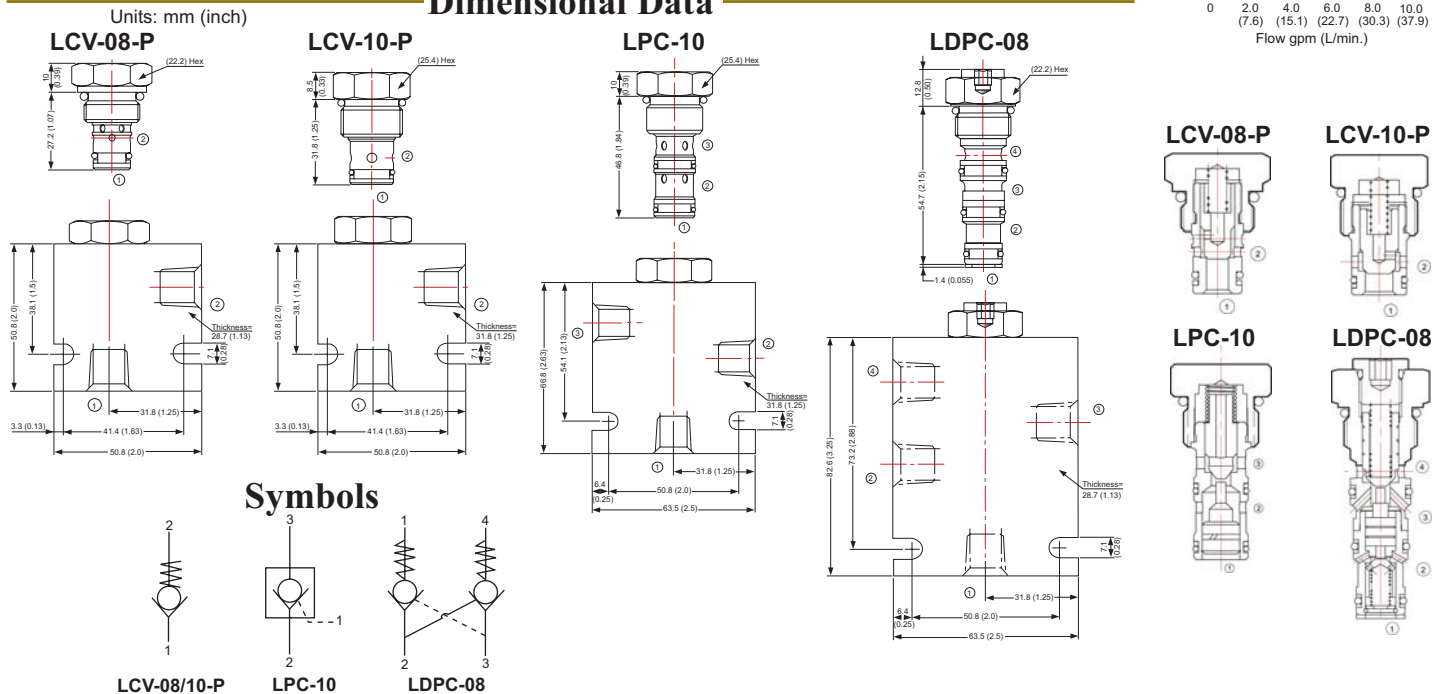
Features

- Hardened Poppet and Seat for Long Life
- Low Leakage
- Industry Common Cavity
- Compact Size

Pressure Drop Curves



Dimensional Data



Ordering Information

LCV - 08 - P - 10 - 6T

Type	Cavity	Poppet Type	Function	Body Porting
LCV = Direct-Acting/ Poppet Type	08		4 = 4 psi cracking	omit = Cartridge Only
LPC = Pilot to Open/ Poppet Type	10		10 = 10 psi cracking	6T = SAE6
LDPC = Dual Pilot Operated			50 = 50 psi cracking	8T = SAE8

Flow Control Valves

SAE6 & SAE8



Specifications

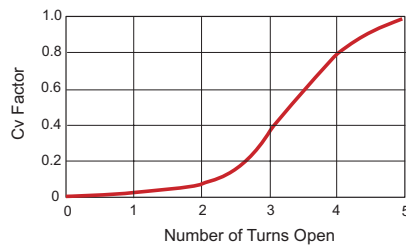
1. **Operating Pressure:** 3625 psi (250 Bar)
2. **Temperature:** -22°F - +250°F (-30°C - +120°C)
3. **Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
4. **Recommended Critical Application:** ISO 16/12
Filtration: Non-Critical Application: ISO 19/15
5. **Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

Features

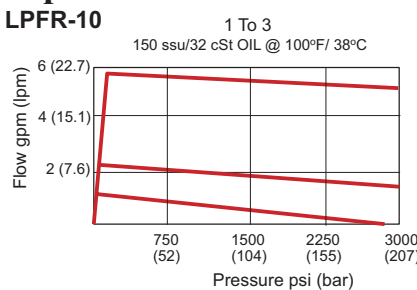
1. Hardened Seat for Long Life
2. Industry Common Cavity
3. Compact Size

Pressure Drop Curves

LFC-08

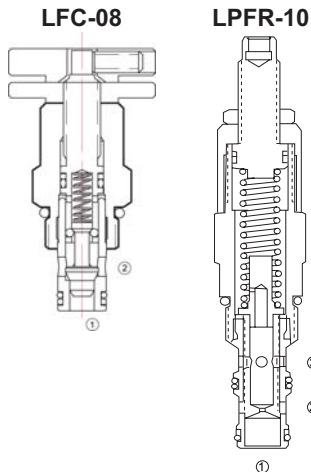
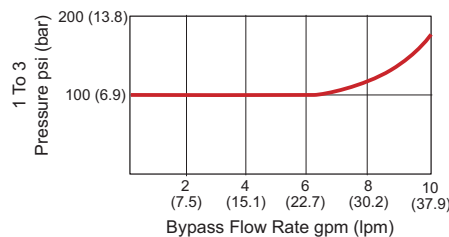


LPFR-10

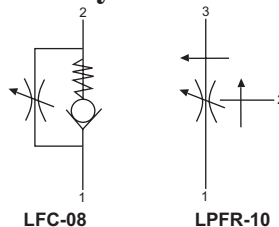


$$\text{FLOW IN GPM} = \frac{C_v \sqrt{P_1 - P_2}}{G_f}$$

Cv=Flow Coefficient
P1=Inlet Pressure (psi)
P2=Outlet Pressure (psi)
Gf=specific gravity of medium at operating temperature in F.



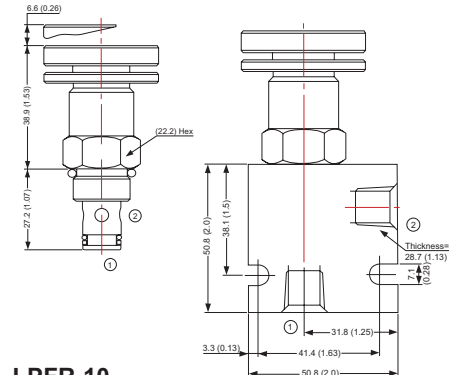
Symbols



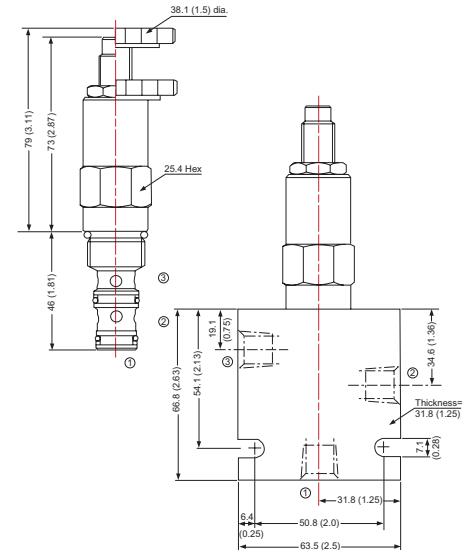
Dimensional Data

Units: mm (inch)

LFC-08



LPFR-10



Ordering Information

LFC - 08 - K - 6T

Type	Cavity	1-1/2" Dia. Knob	Body Porting
LFC = Adjustable, Flow Control Valve	08		omit = Cartridge Only
LPFR = Regulator, Pressure Compensated Flow Control Valve	10		6T = SAE6
			8T = SAE8

Needle, Shut Off, Shuttle Valves

SAE6 & SAE8



Specifications

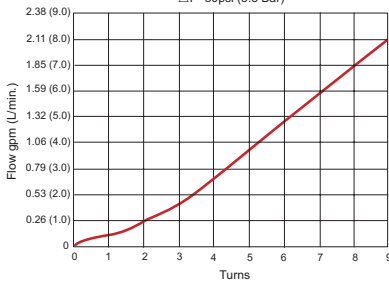
- Operating Pressure:** 3000 psi (207 Bar)
- Temperature:** -15°F - +250°F (-26°C - +120°C)
- Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
- Recommended Filtration:** Critical Application: ISO 16/12
Non-Critical Application: ISO 19/15
- Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

Features

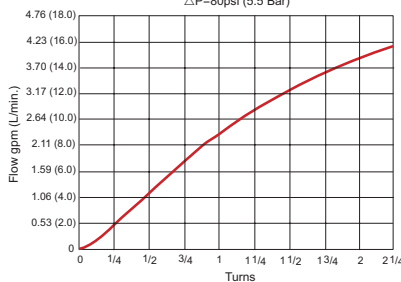
- Hardened Seat for Long Life
- Low Leakage
- Industry Common Cavity
- Compact Size

Pressure Drop Curves/ Flow Characteristics

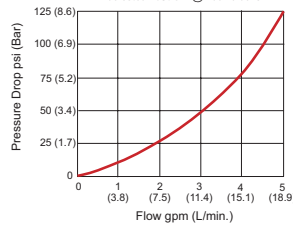
LNV-08 150 ssu/32 cSt OIL @ 100°F/ 38°C
ΔP=80psi (5.5 Bar)



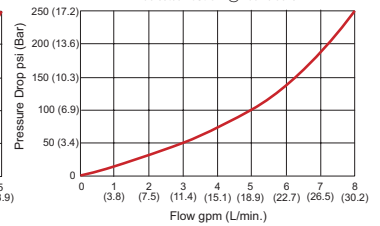
LS-08 150 ssu/32 cSt OIL @ 100°F/ 38°C
ΔP=80psi (5.5 Bar)



LSLV-08 1 or 3 to 3
150 ssu/32 cSt OIL @ 100°F/ 38°C

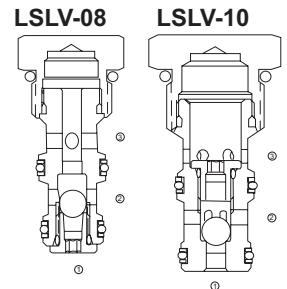
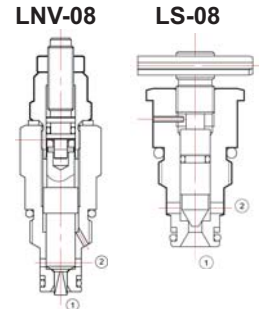
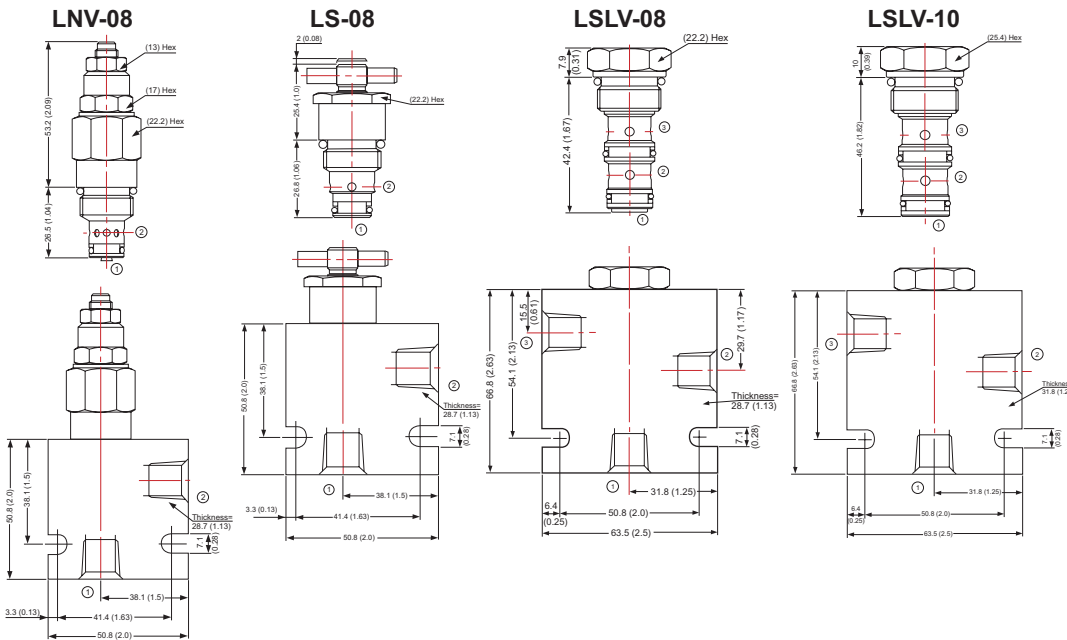


LSLV-10 1 or 3 to 2
150 ssu/32 cSt OIL @ 100°F/ 38°C

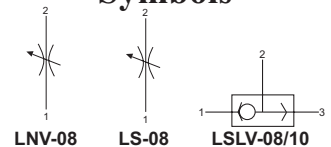


Units: mm (inch)

Dimensional Data



Symbols



Ordering Information

LNV - 08 - 6T

Type	Cavity	Body Porting
LNV = Adjustable, Needle Valve	08	omit = Cartridge Only
LS = Adjustable, Shut Off Valve	10	6T = SAE6
LSLV = Ball Type, Shuttle Valve		8T = SAE8

Relief Valves



SAE6 & SAE8

Specifications

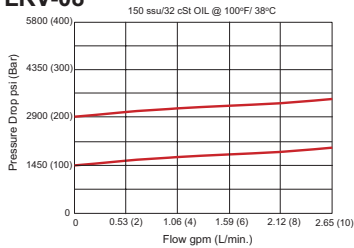
- Operating Pressure:** 3000 psi (207 Bar)
- Temperature:** -30°F - +250°F (-35°C - +120°C)
- Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
- Recommended Filtration:** ISO 19/15
- Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

Features

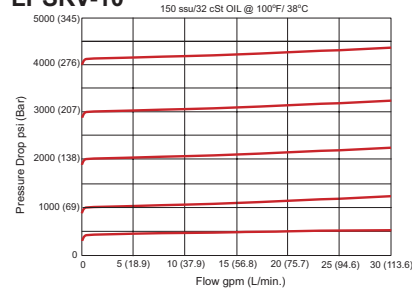
- Rapid Response to Pressure Surges
- Hardened Parts for Long Life
- Adjustment May be Locked in Place
- Industry Common Cavity
- Compact Size

Pressure Drop Curves

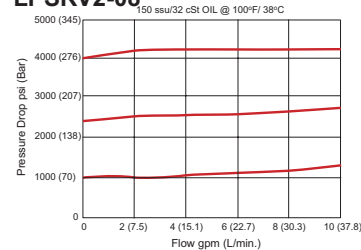
LRV-08



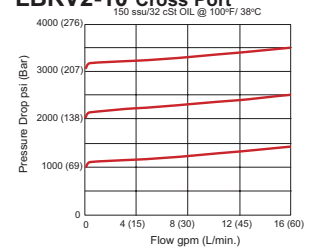
LPSRV-10



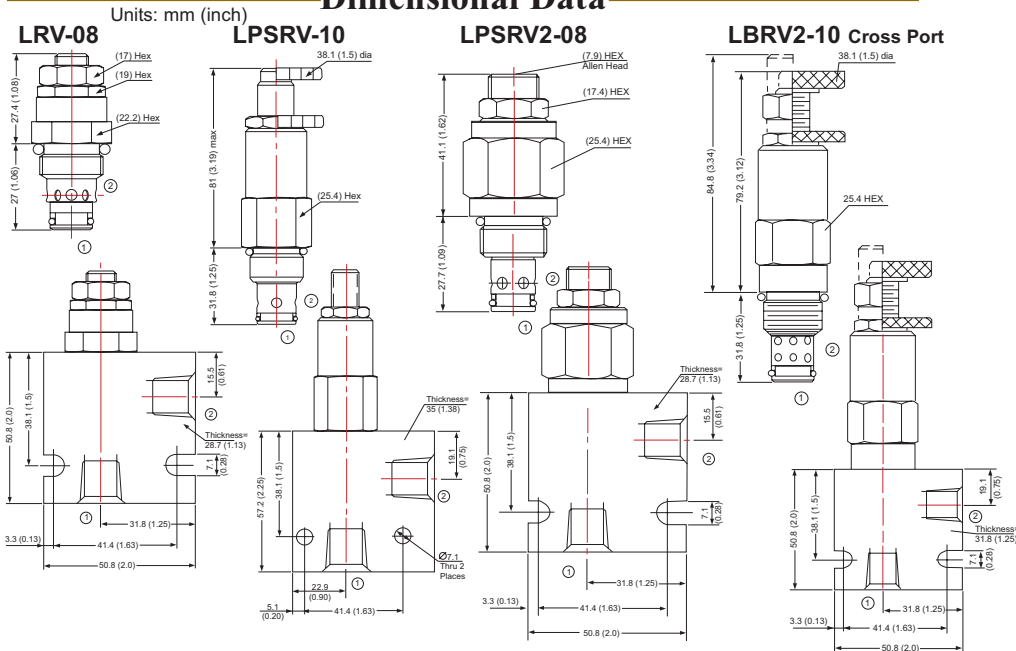
LPSRV2-08



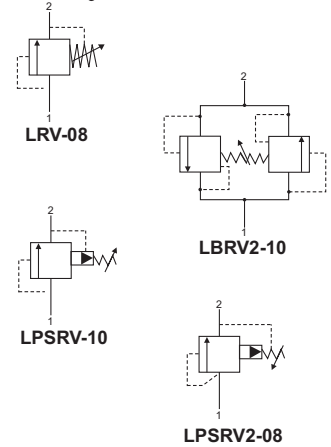
LBRV2-10 Cross Port



Dimensional Data



Symbols



Ordering Information

LPSRV - 10 - 50 - 8T

Type	Cavity	PSI Range	Body Porting
LRV = Adjustable, Direct-Acting	08	20 = Adj. 300 - 2000	omit = Cartridge Only
LBRV2 = Adjustable, Direct Bi-Directional-Cross Port	10	24 = Adj. 200 - 2400	6T = SAE6
LPSRV2 = Adj., Pilot Op. Sliding Spool		30 = Adj. 400 - 3000	8T = SAE8
LPSRV = Adjustable, Pilot Operated		36 = Adj. 1150 - 3600	
		50 = Adj. 600 - 5000	

Pressure Reducing/ Relieving Valves

SAE8



Specifications

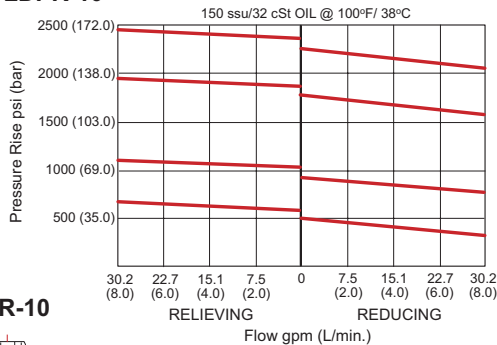
- Operating Pressure:** 3000 psi (207 Bar)
- Temperature:** -30°F - +250°F (-35°C - +120°C)
- Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
- Recommended Filtration:** Critical Application: ISO 16/12
Non-Critical Application: ISO 19/15
- Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

Features

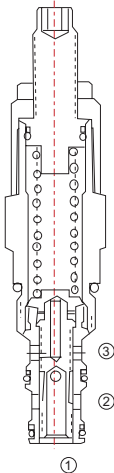
- Adjustments Cannot be Backed Out of the Valve
- Adjustments Prohibit Springs from Going Solid
- Optional Spring Ranges to 2250 psi (155 Bar)
- Industry Common Cavity

Pressure Drop Curves

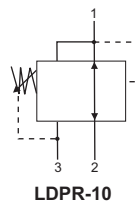
LDPR-10



LDPR-10



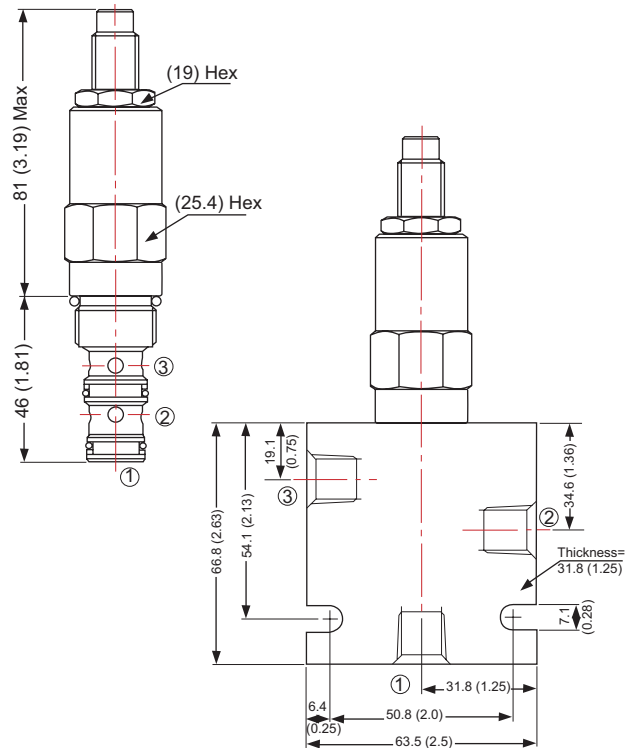
Symbols



Dimensional Data

Units: mm (inch)

LDPR-10



Ordering Information

LDPR - 10 - 21 - 8T

Type	Cavity	PSI Range	Body Porting
LDPR = Direct-Acting, Pressure Reducing/ Relieving Valve	10	4 = 80 - 400psi	omit = Cartridge Only
		8 = 200 - 800psi	8T = SAE8
		15 = 300 - 1500psi	
		21 = 400 - 2100psi	
		30 = 1000 - 3000psi	

Counterbalance Valves

SAE6 & SAE8



Specifications

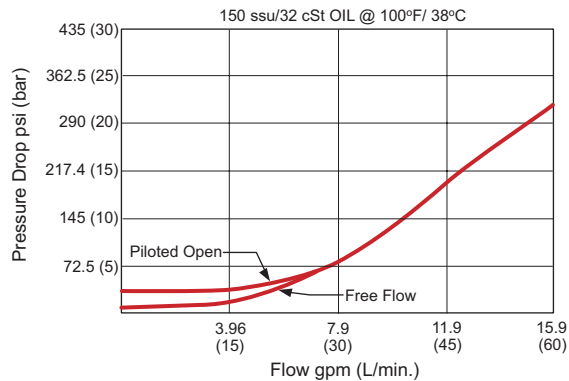
1. **Load Holding Pressure:** 3100 psi (215 Bar)
2. **Temperature:** -30°F - +250°F (-35°C - +120°C)
3. **Fluids:** Mineral based fluids. For other fluid compatibility consult factory.
4. **Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar)

Features

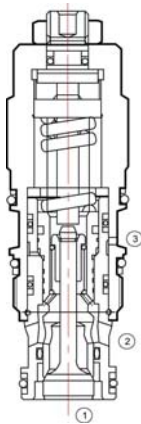
1. Counterbalance Valves Should be Set at Least 1.3x the Maximum Load Induced Pressure
2. Turn Adjustment Clockwise to Decrease Setting and Release Load
3. Backpressure at Port 2 Adds to the Effective Relief Setting at a Ratio of: 1 + the Pilot x the Backpressure

Pressure Drop Curves

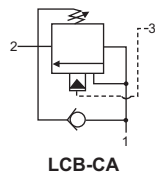
LCB-CA



LCB-CA



Symbols

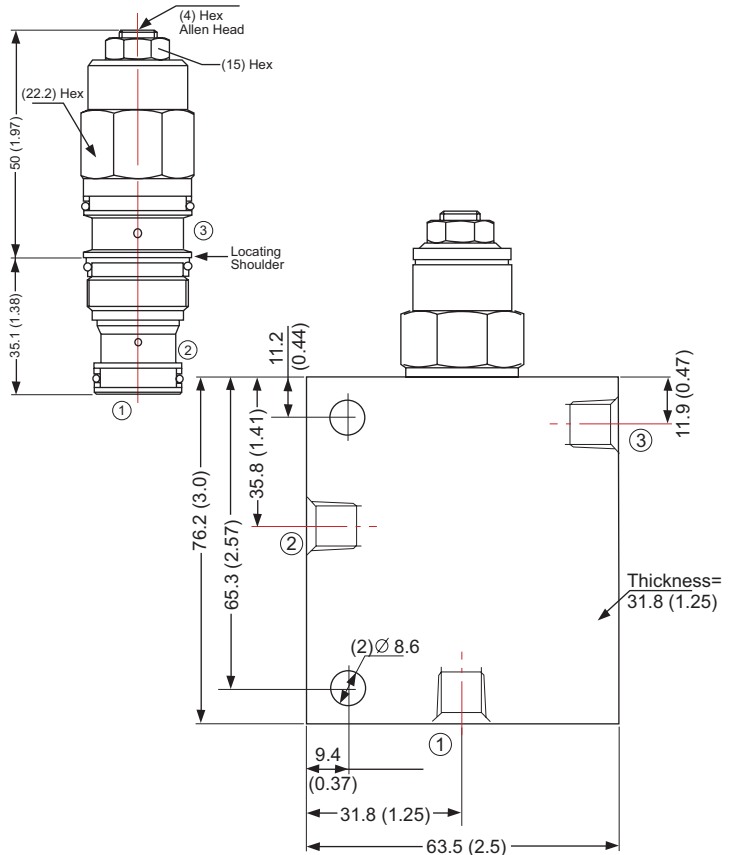


Dimensional Data

Units: mm (inch)

LCB-CA

Turn adjustment clockwise to decrease setting and release load



Ordering Information

LCB - C - A - H - 6T

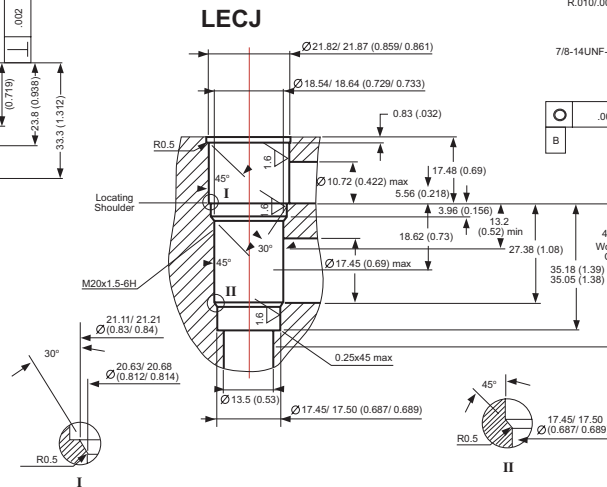
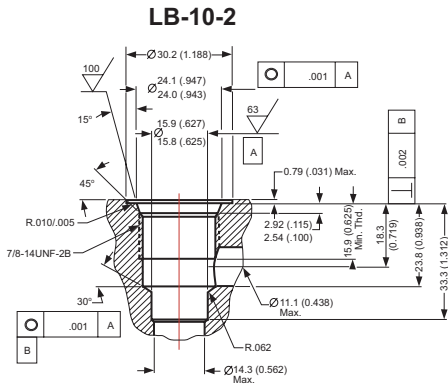
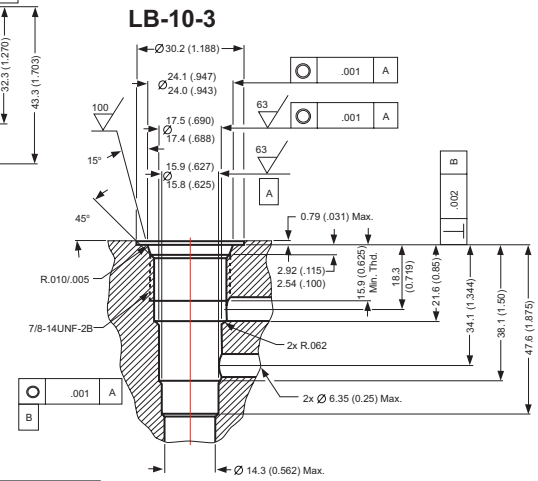
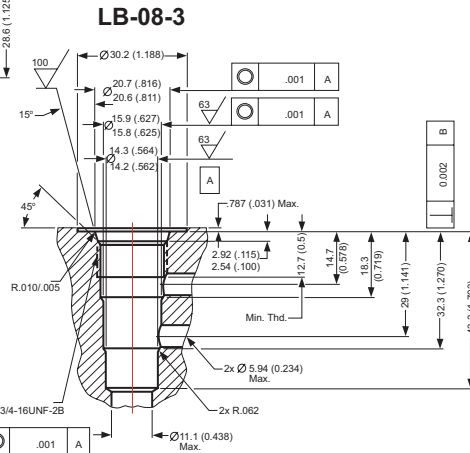
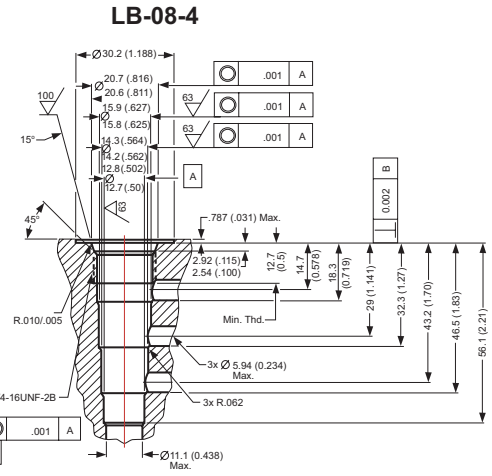
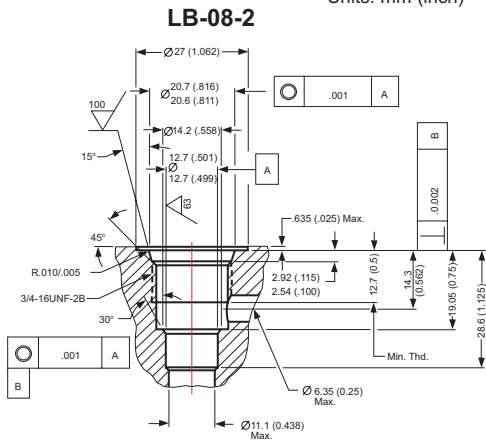
Type	Flow	Pilot ratio	Spring Range	Body Porting
LCB = Counterbalance Cartridge Valve	15.8gpm	3:1	H = 1000-4000psi	omit = Cartridge Only
				6T = SAE6
				8T = SAE8

Line Bodies

SIZE 08 & 10

Dimensional Data

Units: mm (inch)



Ordering Information

LB - 08 - 2 - 6T

Type	Cavity	Flow Path	Body Porting
LB = Line Body	08	2	6T = SAE6
	10	3	8T = SAE8
		4	

LECJ
SAE8 Line Body
for LCBCA

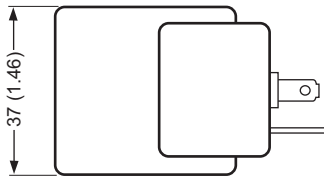
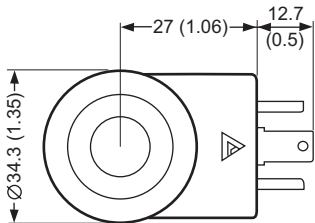
Solenoid Coils

SIZE 08 & 10

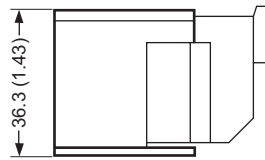
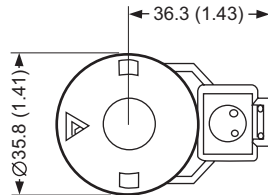
Dimensional Data

Units: mm (inch)

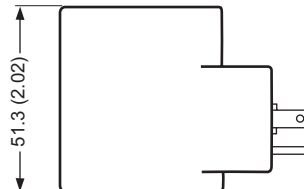
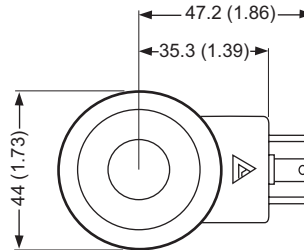
LC2-08-C-*H



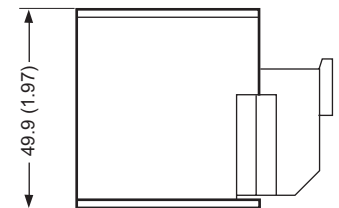
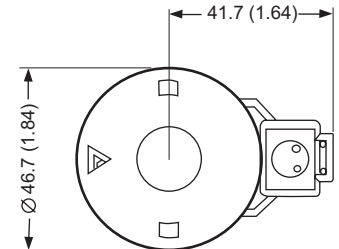
LC2-08-C-*ER



LC2-10-C-*H

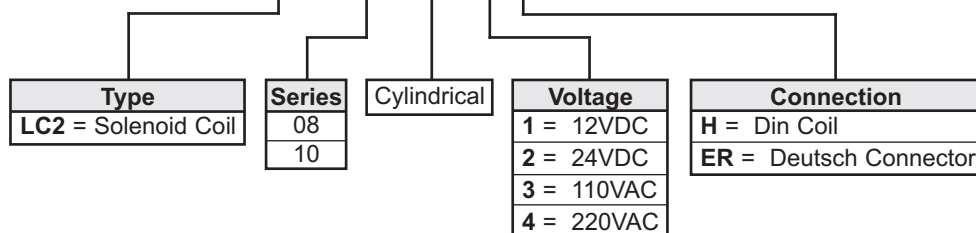


LC2-10-C-*ER



Ordering Information

LC2 - 08 - C - 2 H



LC2-08-C-3H