

Electro-hydraulic Proportional Relief Valves

H8819 SERIES
50 GPM at 15,000 PSI (190 l/min. at 1040 bar)
75 GPM at 9,000 PSI (284 l/min. at 620 bar)

Regulate pressure and protect your circuits with these high pressure relief valves rated to 50 GPM at 15,000 PSI (190 l/min. at 1040 bar), or 75 GPM at 9,000 PSI (284 l/min. at 620 bar).

Select from models with manual, electric vent or electro-hydraulic control.

ELECTRO-HYDRAULIC CONTROL

Electro-hydraulic models let you remotely control the relief pressure setting, proportional to a variable electrical input signal (0 to 12 VDC).

Patented mechanical position feedback provides closed control-loop accuracy without additional electronic feedback.

SIMPLIFIED CIRCUIT DESIGNS

An electric vent control allows for automatic control of pressure, with an integrally mounted solenoid valve.

See “How the Valve Works” on page 2.

SPECIAL FLUIDS

These valves are compatible with conventional fluids or with low-viscosity and other special fluids, including military fluids, Skydrol and other phosphate ester fluids.

This makes them ideal for use on development or production test-stands, aerospace ground support equipment and other applications requiring special fluids.



VALVE SELECTION

The “*Selection Table*”, below, shows specifications for line connected and manifold mounted models. For complete model number, refer to “*Typical Model Code*”, page 4.

Relief valves with manual control allow you to simply regulate maximum pressure.

Models with electric vent control are available in either “normally-open” or “normally-closed” configurations.

Electro-hydraulic models provide remote control for infinitely variable pressure settings up to the maximum pressure.

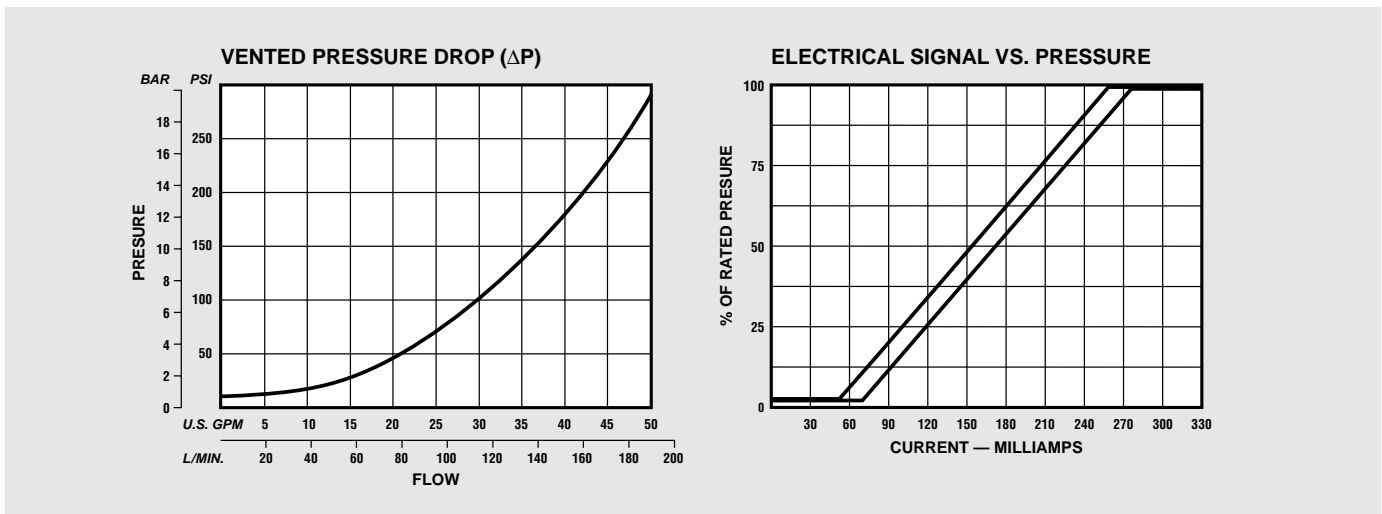
SELECTION TABLE

Model	Rated Pressure		Rated Flow		Mounting	Port Sizes			
	PSI	bar	GPM	l/min.		Pressure	Tank	Drain	Remote
H8819-7509	9,000	620	75	284	Line Connected	SAE No. 16	SAE No. 24	SAE No. 6	SAE No. 6
H8819-5015	15,000	1040	50	190	Line Connected	1.38-12 UNF-2B Thd. ^①	SAE No. 24	SAE No. 6	.56-18 UNF-2B Thd. ^②
MH8819-7509	9,000	620	75	284	Manifold Mounted	Manifold	SAE No. 24	SAE No. 6	None
MH8819-5015	15,000	1040	50	190					

① Pressure port fits Autoclave Medium Pressure, Butech M/P, or equivalent fitting.

② Drain and remote control port fits Autoclave High Pressure, Butech H/P, or equivalent fitting.

TYPICAL VALVE PERFORMANCE



How the Valve Works

All models are pilot-operated and work on a differential pressure principle.

When system pressure reaches the desired value, a pilot cone acting against a spring lifts slightly off its seat. The resulting pilot flow passes through a small control orifice in the main poppet, causing a pressure differential which lifts the main poppet off its seat.

When the main poppet is unseated, flow is bypassed to tank and the desired system pressure is maintained.

In manual models, pressure is set by the maximum pressure adjustment. Turning it clockwise, for example, increases the spring force holding the pilot cone on its seat and the relief pressure increases.

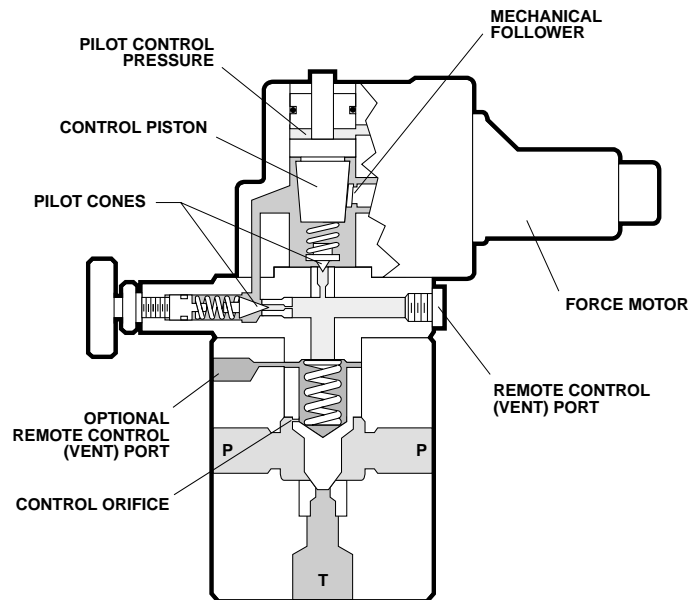


Figure 1: Electro-hydraulic Control with Mechanical Feedback

ELECTRO-HYDRAULIC CONTROL

In electro-hydraulic models, the spring force holding the pilot cone seated is varied by the position of a control piston in the pilot stage. The relief setting is proportional to the electrical signal supplied to the pilot stage force motor. The force motor controls the movement of a pilot spool, which ports control pressure to the control piston.

The position of the piston changes the spring loading on the pilot cone. As the signal is increased, for example, pressure in the control piston chamber increases causing it to advance to a new "null" position. This increases the spring loading and the resultant pressure setting.

In these models, the manual pressure adjustment is set slightly higher than maximum system pressure and acts as a system relief pressure backup.

MECHANICAL FEEDBACK

The position of the control piston is accurately monitored by mechanical position feedback. A mechanical follower, on the inclined feedback surface of the piston, nulls the pilot stage when the piston is in its correct position.

The pilot supply corrects errors and shifts the control piston as commanded by the electrical signal. The result is precise electrical control of system pressure.

ELECTRIC VENT CONTROL

These valves can provide an unloading function, diverting pump output directly to tank in response to an external electrical signal. Venting is controlled by a solenoid valve integrally mounted on the relief valve.

This electric vent control is available in either normally-closed (EVC) or normally-open (EVO) configurations.

Typically, unloading valves control two pressure levels in a system. When the solenoid valve is open, pressure drops to its lowest level. When the solenoid valve is closed, pressure rises to the higher level determined by the control knob setting on the relief valve.

Installation and Performance Data

Typical performance curves, on page 2, are based on the use of 100 SUS (20 cSt) petroleum-based fluid at 120° F. (50° C.). Installation drawing dimensions are shown in inches (millimeters in parentheses) and are nominal.

Orientation

Unrestricted for all models.

Remote Control Port

Permits additional parallel maximum pressure signal or venting capability.

OPERATING RECOMMENDATIONS

Please consult the Dynex sales department for any application which requires operating above rated pressures and flows.

Electro-hydraulic Specifications

Pilot Supply:

Nominal 350 PSI at 1 GPM (24 bar at 4 l/min.);

Input Voltage: 0-12 VDC nominal;

Rated Input Current: 327 ma;

Full Flow Current: 287 ma;

Coil Resistance:

36.6 Ohms at 70° F. (20° C.)

Electric Vent Specifications

Pilot Supply:

Nominal 350 PSI at 1 GPM (24 bar at 4 l/min.);

Fluids

Conventional high-grade premium petroleum-based oil;

Various MIL-SPEC fluids, such as MIL-H-5606 and MIL-H-83282; Skydrol and other phosphate ester fluids.

Seals

Fluorocarbon (Viton® or Fluorel®) standard; EPR for use with some phosphate ester fluids. Consult seal or fluid suppliers to determine the suitable seals for your specific operating conditions.

Filtration

Manual and Electric Vent Control :

25 micron or better;

Electro-hydraulic Pilot:

10 micron or better.

Mounting

Line connected:

See "Selection Table", page 1, for port sizes;

Manifold:

For direct mounting onto a hydraulic pump or other manifold surface;

Requires use of an o-ring seal adapter, part number 30504 (Contact your Dynex sales representative).

Weight (Mass)

Manual Control:

26 lbs. (12 kg.);

Electric Vent Control,

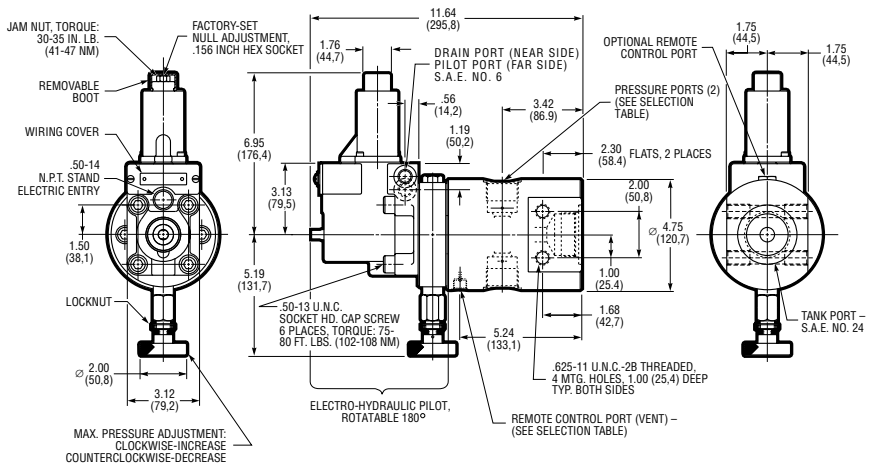
37 lbs. (17 kg.);

Electro-hydraulic Control,

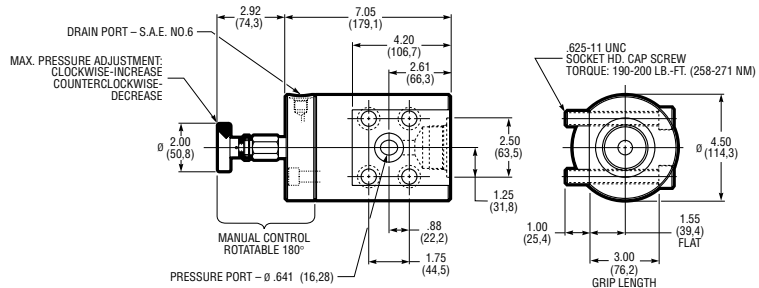
35 lbs. (16 kg.)



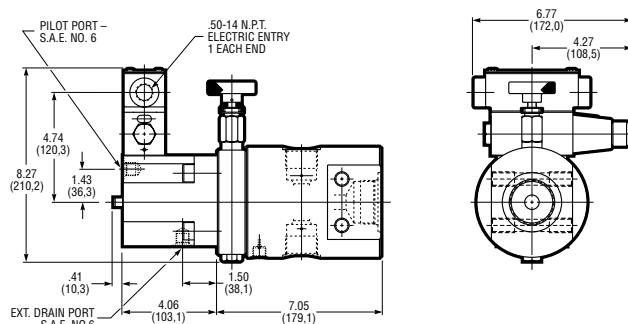
Electro-hydraulic valve manifold-mounted on a checkball pump



Electro-hydraulic Pilot Model (Shown Line Connected)



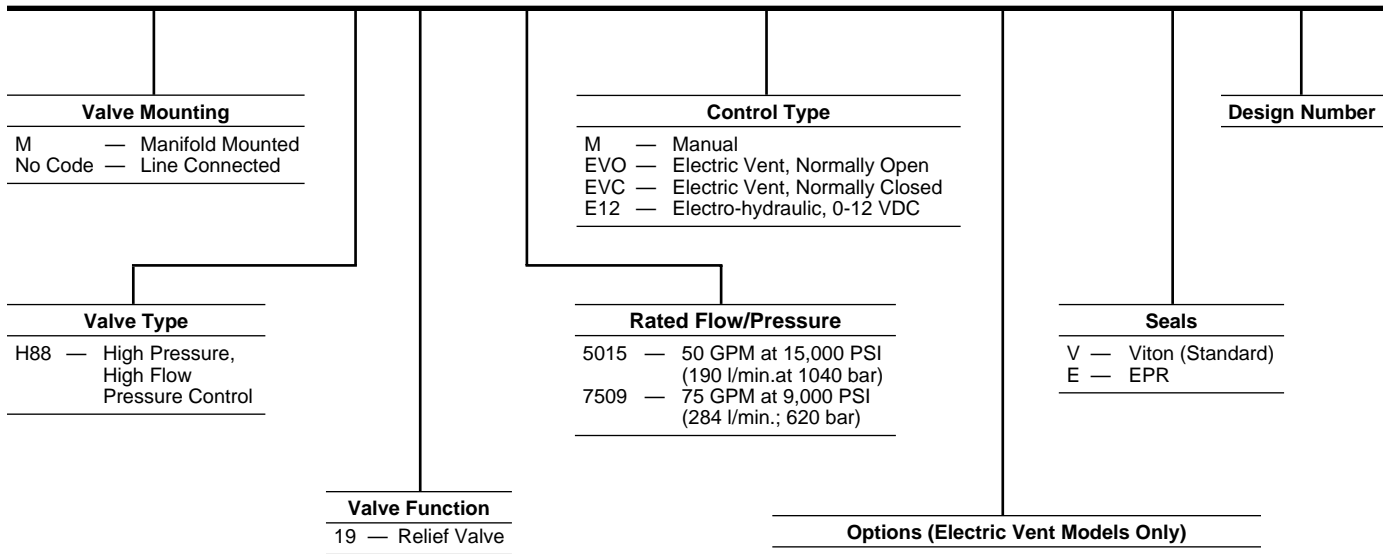
Manual Control (Shown Manifold Mounted)



Electric Vent Control (Shown Line Connected)

Typical Model Code

M H88 19 — 5015 — M — 24/DF — V — 10



Options (Electric Vent Models Only)

- STANDARD SOLENOIDS:^①**
- 24/DF — Dual Frequency, 24/60, 24/50
 - 115/DF — Dual Frequency, 115/60, 110/50
 - 230/DF — Dual Frequency, 230/60, 220/50
 - 460/DF — Dual Frequency, 460/60, 440/50
 - 12VDC — Direct Current, 12 Volts
 - 24VDC — Direct Current, 24 Volts
- PLUG-IN TERMINAL SOLENOIDS:^②**
- 115/HAC — Dual Frequency, 115/60, 110/50
 - 230/HAC — Dual Frequency, 230/60, 220/50
 - 12/HDC — Direct Current, 12 Volts
 - 24/HDC — Direct Current, 24 Volts
- SOLENOID OPTIONS:**
- SL — Solenoid Lights (Available 115/DF AC Only)^③
 - T — Terminal Strip^③
 - CG — Cable Grip, for .38 to .44 inch (9,5 to 11,1 mm) O.D. machine tool cable^③
 - BH3A — 3-pin Connector (NFPA standard T3.539-1980) on port "A" end of valve^③
 - BH3B — 3-pin Connector (NFPA standard T3.539-1980) on port "B" end of valve^③
 - BH5A — 5-pin Connector on port "A" end of valve^③
 - BH5B — 5-pin Connector on port "B" end of valve^③
 - C — CSA and UL Recognized Coils (Etched with Symbol)^④
 - M — Hand Actuated Manual Override
 - HPT — High Pressure Tank Port
2300 PSI (160 bar) maximum AC models
3000 PSI (210 bar) maximum DC models

^① For other voltages, consult the Dynex Sales Department.
^② Fits DIN Connector Standard 43650 (Hirschmann GDM 209).
^③ Not available with Plug-In Terminal Solenoid models.
^④ Available with 115/DF solenoids only. For other voltages, consult the Dynex sales department.

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