

Piloted Proportional Directional Control With Manual Operator

Background

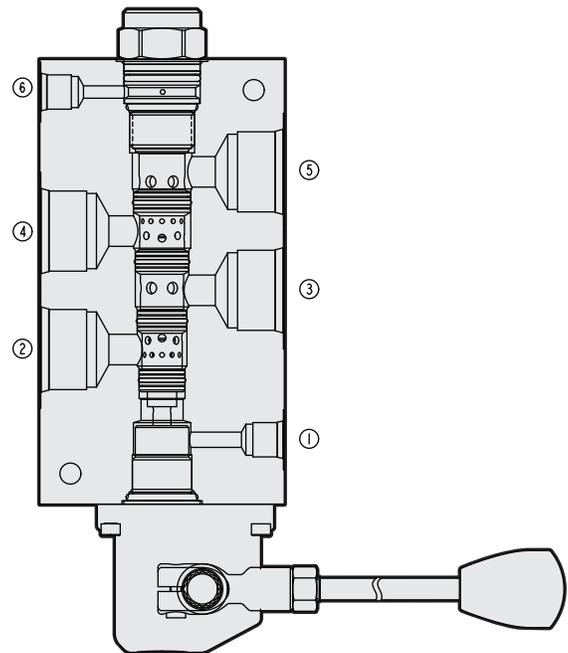
Some applications have function controls that are primarily pilot operated or electrohydraulic, but require occasional operation from a manual control position. Examples are: refuse trucks, truck-mounted cranes, concrete pumps, trenchers, and winches. Many of these machines are built today using expensive stack valves or hydraulic joysticks. Stack valves are a one-size-fits-all solution that must be sized for the largest flow demand in the system. Taking the truck-mounted crane example, you may require 10 gpm for the swing function, 20 gpm for boom elevation and extension, and a 30 gpm to operate the winch. With cartridge valves you have the flexibility to build a control that is optimized for the requirements of each function individually.

Hydraforce patented **PE (Piloted Externally)** proportional control valves offer excellent metering with good linearity. These 3-position 4-way valves have spool options for open-center, closed-center, tandem, and motor-center configurations. They are available in 12, 16, and 42 sizes to span the gamut of possible flow requirements up to 45 gpm. Paired with HydraForce **EHPR98-G35** proportional pressure reducing/relieving valves, you have excellent control of all functions from the cab or on the ground.

The New PE Manual Operator

New for 2021, HydraForce has developed a manual operator for patented PE valves. This solution allows pilot control of the valve spool while disconnected from the external handle. Back-driving the manual operator would have mechanical disadvantages that the HydraForce solution overcomes. When the valve is being piloted, manual operation is locked out.

This manual operator has been designed to work with the PE and HPE line of externally piloted proportional valves. Currently it is production released for **PE12-S67C** and **PE12-S67D** products. 16 and 42 size PE/HPE products have been prototyped and can be released quickly as the market demands.



For detailed information and specifications, visit www.hydraforce.com or contact your local HydraForce representative at www.hydraforce.com/distributors/world.htm

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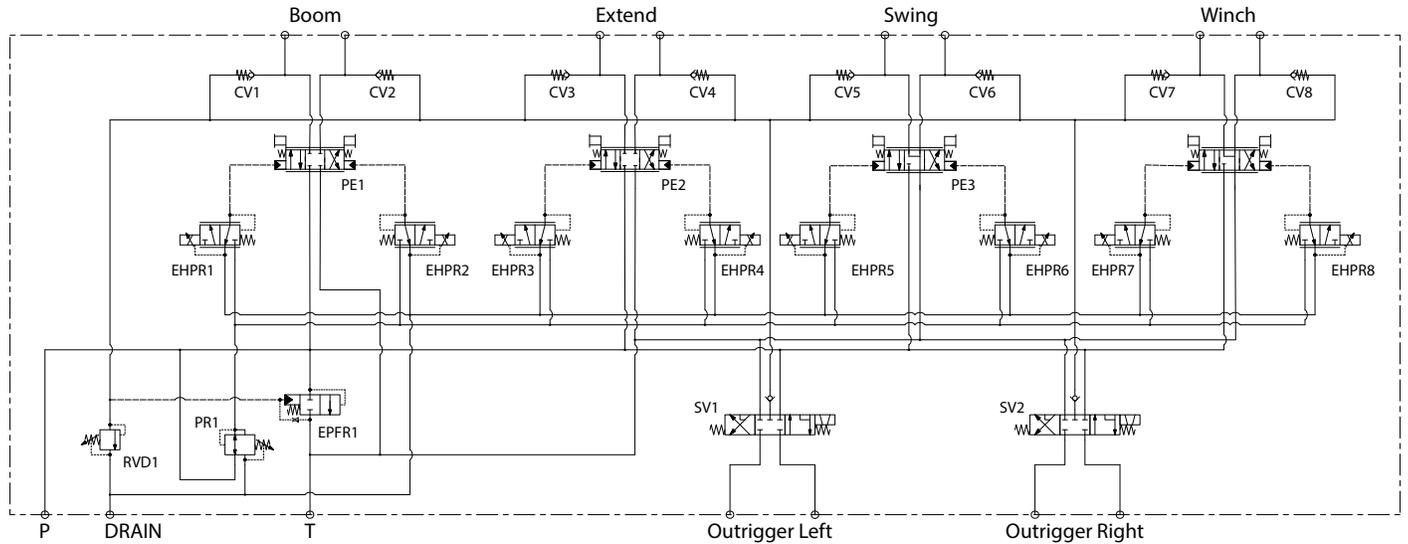
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ISO 9001 & ISO 14001

ISO 9001

Pilot-operated control circuit



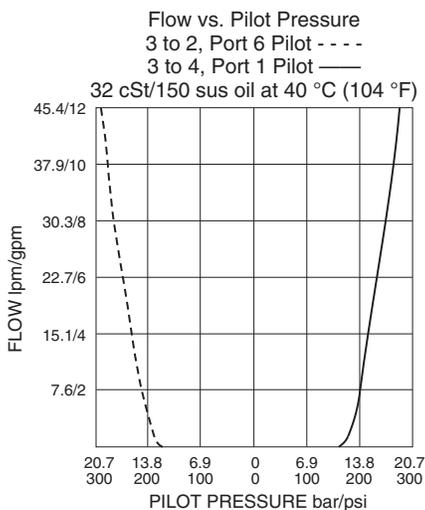
When paired with our G3 pilot valves, you get very precise electrohydraulic control. In this example circuit for a truck-mounted crane, PE12-S67DM, and PE16-S67DM proportional pilot-operated directional valves control boom, swing, winch, and telescope functions. EHPR98-G35 pressure reducing/relieving valves provide the electrical pilot stage for each function. EPFR10-S35 provides bypass-type pressure compensation for the pump galley. PR58-38 regulates pilot pressure supply, and SV10-57C valves provide extend/retract function for two outriggers.

Specifications

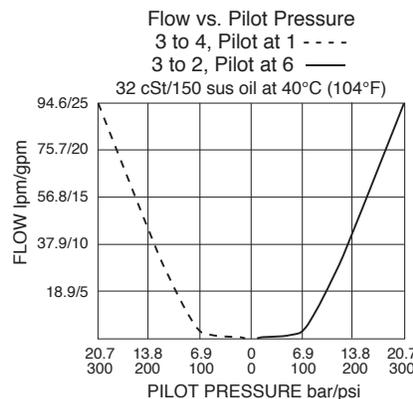
Size	12	16	42
Valve	PE12-S67xM	PE16-S67xM	PE42-S67xM
Flow rating	45 lpm (12 gpm)	95 lpm (25 gpm)	170 lpm (45 gpm)
Max operating pressure ports 2, 4 (work ports)	241 bar (3500 psi)	241 bar (3500 psi)	241 bar (3500 psi)
Port 3 (inlet)	345 bar (5000 psi)	345 bar (5000 psi)	345 bar (5000 psi)
port 5 (tank)	69 bar (1000 psi)	69 bar (1000 psi)	69 bar (1000 psi)
ports 1, 6 (pilot)	35 bar (500 psi)	35 bar (500 psi)	35 bar (500 psi)

Performance

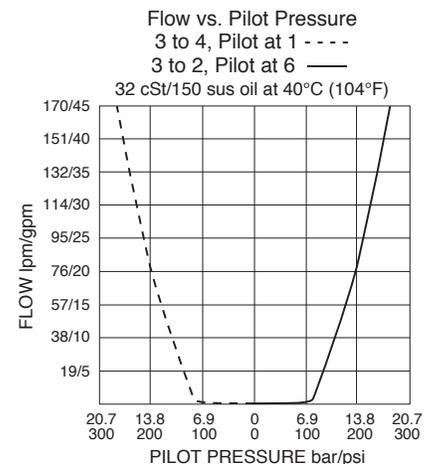
PE12-S67xM



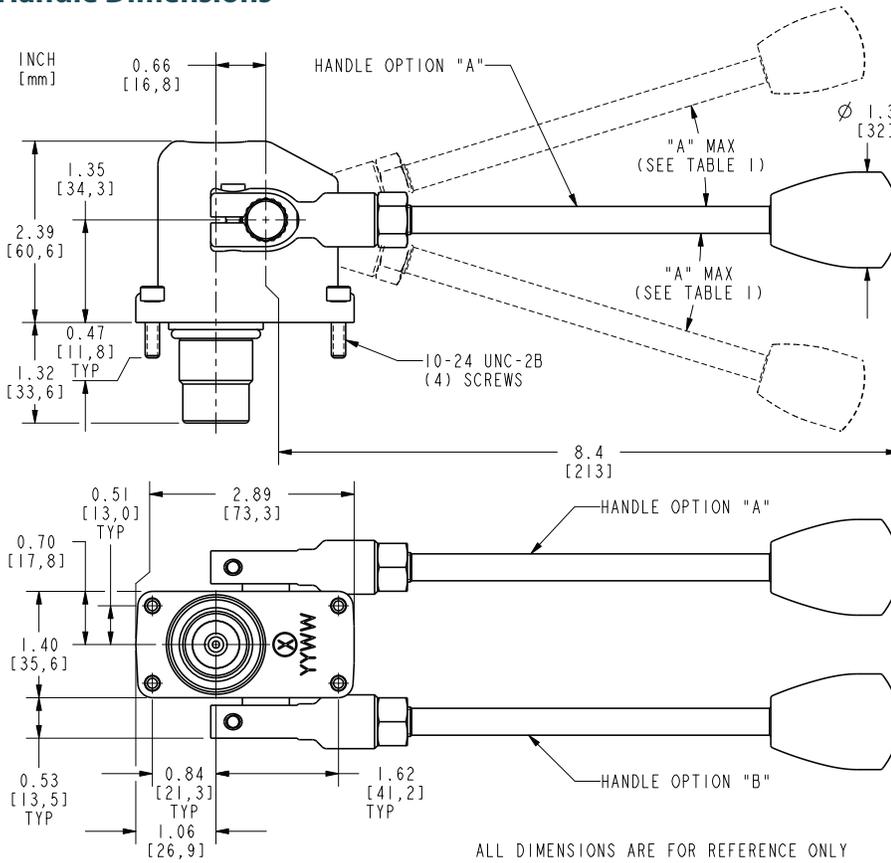
PE16-S67xM



PE42-S67xM



Handle Dimensions



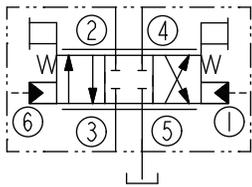
Dimensions in mm (in)

PE valve	Angle 'A' (max)	Operating torque
PE12-S67xM	17°	8.8 N-m (6.5 ft-lb)
PE16-S67xM	20°	12.2 N-m (9.0 ft-lb)
PE42-S67xM	31°	23.7 N-m (16.0 ft-lb)

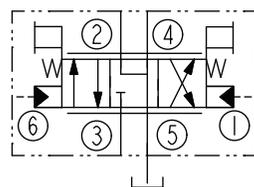
Note: Handle may be installed in any orientation. Ensure clearance for full range of travel.

Spool Options

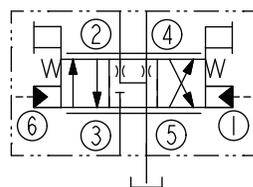
PExx-S67CM



PExx-S67DM



PExx-S67HM



PExx-S67KM

