

To Protect Your Warranty, Use Only ENERPAC Hydraulic Oil.

Enerpac recommends that all kit components be installed to insure optimum performance of the repaired product.

Repair Parts Sheets for this product are available from the Enerpac web site at www.enerpac.com, or from your nearest Authorized Enerpac Service Center or Enerpac Sales office.

1.0 IMPORTANT RECEIVING INSTRUCTIONS

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

SAFETY FIRST

2.0 SAFETY ISSUES



Read all instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. Enerpac cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. Contact Enerpac when in doubt as to the safety precautions and operations. If you have never been trained on high-pressure hydraulic safety, consult your distribution or service center for a free Enerpac Hydraulic safety course.

Failure to comply with the following cautions and warnings could cause equipment damage and personal injury.

A **CAUTION** is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A **WARNING** indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A **DANGER** is only used when your action or lack of action may cause serious injury or even death.



WARNING: Wear proper personal protective gear when operating hydraulic equipment.



WARNING: Stay clear of loads supported by hydraulics. A cylinder, when used as a load lifting device, should never be used as a load holding device. After the load has been raised or lowered, it must always be blocked mechanically.



DANGER: To avoid personal injury keep hands and feet away from cylinder and workpiece during operation.



WARNING: Do not exceed equipment ratings. Never attempt to lift a load weighing more than the capacity of the cylinder. Overloading causes equipment failure and possible personal injury. The cylinders are designed for a max. pressure of 350 bar [5,000 psi]. Do not connect a jack or cylinder to a pump with a higher pressure rating.



DANGER: Never set the relief valve to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/or personal injury. Do not remove relief valve.



WARNING: The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure. It is your window to what is happening in the system.



CAUTION: Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.



Do not drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.



IMPORTANT: Do not lift hydraulic equipment by the hoses or swivel couplers. Use the carrying handle or other means of safe transport.



CAUTION: Keep hydraulic equipment away from flames and heat. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65 °C [150 °F] or higher. Protect hoses and cylinders from weld spatter.



DANGER: Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.



WARNING: Only use hydraulic cylinders in a coupled system. Never use a cylinder with unconnected couplers. If the cylinder becomes extremely overloaded, components can fail catastrophically causing severe personal injury.



IMPORTANT: Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Authorized ENERPAC Service Center in your area. To protect your warranty, use only ENERPAC oil.



WARNING: Immediately replace worn or damaged parts by genuine ENERPAC parts. Standard grade parts will break causing personal injury and property damage. ENERPAC parts are designed to fit properly and withstand high loads.

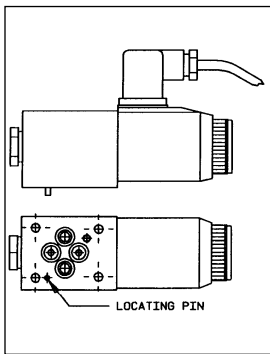
Valve flow path	Solenoid voltage at current at 50/60 Hz	Model number	Hydraulic symbol	Pressure range psi	Pressure drop ¹⁾ psi	Maximum oil flow in ³ /min
▼ Solenoid poppet valves – Normally open						
4-way, 2 position	60-100 psi max.	VAS-0710D		0-5000	180	690
4-way, 2 position	24VDC @ 1.60 A	VSS-1410D		0-5000	180	690
4-way, 2 position	115VAC @ .40 A	VSS-2210D		0-5000	180	690
▼ Solenoid poppet valves – Normally closed						
4-way, 2 position	60-100 psi max.	VAT-0710D		0-5000	180	690
4-way, 2 position	24VDC @ 1.60 A	VST-1410D		0-5000	180	690
4-way, 2 position	115VAC @ .40 A	VST-2210D		0-5000	180	690
▼ Inline check valve						
–	–	VD1P		0-5000	0	690

¹⁾ Pressure drop from P-A or P-B at maximum oil flow of 690 in³/min.

3.0 DIRECTIONAL VALVES

This line of valves is available in two flow configurations. The valves are operated on either 115 VAC, 24 VDC or 60-100 psi air pressure. The electric valves have a manual override located in the end of the solenoid coil.

4.0 INSTALLATION



The valves can be mounted to any standard valve manifold with a D03 or CETOP03 mounting pattern. D03 requires the use of #10-24 bolts. CETOP03 requires the use of M5 x 0,8 mounting bolts. If additional accessories valves are mounted underneath the directional valve, longer bolts will be required. Contact Enerpac for bolt specifications depending on the type and number of accessories installed. Installation torque should be 40-50 in-lbs.

The valves are also supplied with a locator pin. Make sure that the pin is oriented properly in the manifold for proper valve function.

4.1 Electric Solenoid Valves

Electric valves are supplied with either 115 VAC or 24 VDC solenoids. 115 VAC coils draw up to 0.4 A current; 24 VDC coils draw up to 1.6 A current. Electrical connection diagram is shown below. Make sure that wires and connections are rated for both the voltage and current requirements of the valve in use. Refer to L1150 instruction sheet for electrical connections.

4.2 Air Piloted Valves

Air pilot valves are supplied with a swivel fitting to accommodate 5/32 diameter tubing. The fitting can be removed and the 1/8" NPT port can be used directly. Air pressure required is 60-100 psi.

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