

L1682 Rev. O 02/03

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.



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.



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.

3.0 PRODUCT DESCRIPTION

The SC-3 swing cylinders rotate 90° at the first portion of the stroke, continuing without rotation for the final clamping stroke.

Cylinders can be changed from right swing to left swing or straight pull by loosening the side plug and then rotating the plunger to the desired position. The SC-3 comes with a retract spring for single-acting operation. The cylinder is shipped with a clamp arm.

4.0 INSTALLATION INSTRUCTIONS

Secure swing clamps to the fixture by any of the following methods:

1. Screw housing into tapped hole: 1"-12 UN
2. Bolt the unit down using the four mounting holes in the flange: .201" diameter.
3. Use the optional base: BKTH-6
4. Mount in a through hole and secure with a locknut: JN-4

5.0 OPERATION

5.1 Single-acting

Connect pressure line to port in flange: 1/8"-27 NPT

5.2 Double-acting

Connect advance line to port in flange and retract line (hydraulic or pneumatic) to bottom port. Use a wrench to hold hex of bottom fitting when attaching retract line. The vent plug and filter must be removed prior to attaching hydraulic lines to the retract port. Plunger return springs may be removed when used as double-acting.

5.3 Bleeding

Apply low pressure (approx. 10-20 psi) hydraulic pressure to the system. Loosen the plug opposite the advance port slightly to allow trapped air to escape, until hydraulic fluid appears. Then tighten the plug to prevent further leakage.

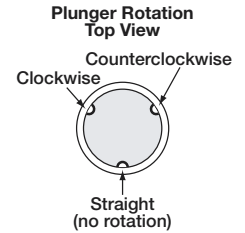
5.4 Stroke Length

The initial stroke is used for rotation and the remainder is the clamping stroke.

Stroke:	Initial	Clamping	Total
	.50"	.25"	.75"

5.5 Plunger Rotation

Rotation is clockwise, but can be changed to counter-clockwise or straight action by removing the plug (located opposite the advance port) and ball, turning plunger so corresponding groove is visible, and re-assembling ball and plug. Make sure ball is seated in groove.



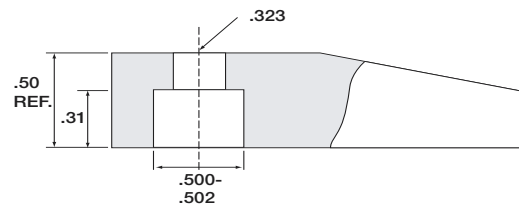
5.6 Clamp Arms

Clamp arms supplied with cylinders can be used to full operating pressure of cylinders and will produce maximum clamping force. Longer or modified clamp arms will require lowering the maximum operating pressure and will produce less clamping force. To help prevent possible internal damage to the cylinder while tightening the clamp arm to the plunger, we recommend that the bearing plug located on the side of the cylinder be backed out while tightening the clamp arm.

Arm Length (in)	Max. Pressure (psi)	Cylinder Capacity (lbs) @ max. psi
None	3000	700
*1	3000	500
2	2000	250

* Standard clamping arms supplied. Longer arms indicated in chart can be fabricated by the user.

Note: Maximum recommended flow rate with standard arm is 25 in³/min. When using longer clamp arms, the flow rate should be reduced, and an NV-150 flow control valve should be used.



Dimensional information for custom clamp arms.

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