

Three Position Swing Clamp
WTR-24 / WTRS-24

L1496

Rev. B

02/2018

IMPORTANT RECEIVING INSTRUCTIONS

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

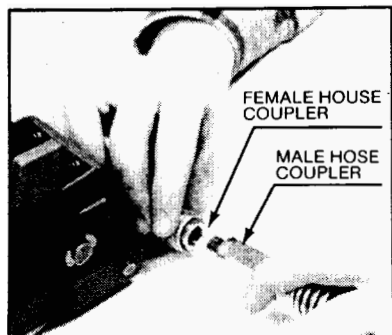
SAFETY FIRST

Carefully plan your system by selecting components designed to perform the intended operation and which will adequately perform with existing equipment. Always check the product limitations regarding pressure ranges, load capacities and set-up requirements. The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Read all **CAUTIONS**, **WARNINGS**, and **INSTRUCTIONS** included with, or attached to, each product. 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 SYSTEM APPLICATION. Contact ENERPAC ENGINEERING when in doubt as to safety precautions, design criteria or product usage.

CHECK ALL COUPLER CONNECTIONS

Make sure all coupler connections are complete. Loose or incomplete coupler connections will cause complete or partial blockage of oil flow.



KEEP HYDRAULIC OIL CLEAN and free from chips and other contamination. Use ENERPAC hydraulic oil.

IMPORTANT

If swing cylinder is used at full capacity, replace arm bolts after 100,000 cycles.

The swing clamp swings 90° either left or right hand into the work area. Do not clamp or restrict the arm swing.

Failure to clamp in recommended or required area will cause extensive internal damage to the swing cylinder, which is NOT COVERED UNDER NORMAL WARRANTY.

CHECK FOR SAFE SYSTEM SETUPS

Make sure that the cylinder connecting hoses, etc. are protected from any external source of damage, such as excessive heat, flame, moving machine parts, sharp edges, falling objects, corrosive chemicals, dropping, etc.

CHECK HOSE CONNECTIONS

Make sure all hose connections are properly mated and secured.

KEEP HYDRAULIC SYSTEM FILLED AND FREE FROM AIR

Air in a system will cause erratic system response.

DO NOT OPERATE OVER MAXIMUM RATED PRESSURE



It is recommended that pressure gauges be used on all hydraulic systems. DO NOT EXCEED the maximum HYDRAULIC OPERATING PRESSURE of the lowest rated component in your system.

SNUBBER VALVE

To protect your gauge, always use a snubber valve between the gauge and the pressure line. The snubber valve protects the gauge in the case of sudden surges in pressure and can be used to shut off the pressure gauge. Gauges are not designed to be cycled continuously and should only be used periodically to check the hydraulic system operating pressure.

TO PROTECT YOUR WARRANTY, USE ONLY ENERPAC HYDRAULIC OIL.

INSTALLATION

1. To ensure maximum cylinder performance, be sure all hydraulic connections, hoses, fittings and couplers are properly sealed and fully tightened. If fittings and hoses were not purchased from ENERPAC, be sure all items are rated to withstand system pressures. Single-acting swing cylinders have #4 SAE .437-20 UNF ports.

WARNING: Teflon tape is an excellent thread sealer, however, if the tape is not properly applied pieces could enter the hydraulic system and cause damage. Use 1½ wraps of tape on all threads. Be sure there are no loose ends or excess tape which could break off during assembly.

2. **DO NOT OVERTIGHTEN HYDRAULIC CONNECTIONS.** Each connection should only be tight enough to be leak free. Excess torque causes strain on threads and could cause component failure at pressures below system maximum operating pressure.
3. Couplers should be hand tightened until snug. Loose couplers will act like a partial or complete line blockage because fluid cannot flow at full force. Oil flow is diminished and hydraulic components will be damaged.
4. Mount swing cylinders in positions which permit free swing arm motion. Also keep the cylinder arms away from the cutting tool. Do not attempt to clamp during swing portion of cycle.
5. The swing cylinders can be used with hand pumps, air operated hydraulic pumps, electric powered pumps and hydraulic boosters. Always check the pump specifications to ensure adequate oil flow rates and pressure ratings.

Model	Flow Rate	Max-Cycles
WTR/WTRS-24	0.5 gpm	4 cycles/min.

For applications requiring different flow rates or cycle times. contact your ENERPAC sales representative.

6. After the swing cylinder is mounted, all connections are made and the cylinder is properly vented, bleed the system of air. The most reliable method is to place the hydraulic pump at the highest position possible. Start the pump and run through 4 or 5 complete cycles. As the pump moves fluid through the system, any trapped air will vent from the pump reservoir.

OPERATION

Swing cylinder motion is controlled by pressurizing specific ports to advance the plunger, rotate the swing arm and produce the clamping force by retracting the plunger.

Port "A" - advance plunger

Port "C" - rotate arm 90°

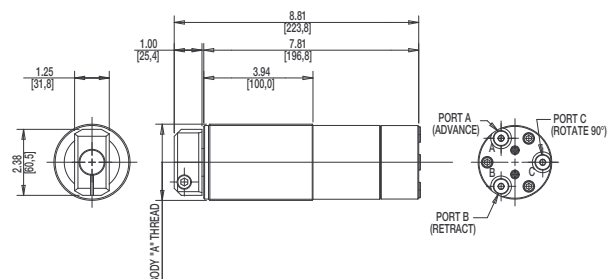
Port "B" - retract (clamp) action.

1. The swing arms move 90° right. Clamping motion begins after the arm completes the swing travel.
2. Maximum operating pressure for WTR-24 and WTRS-24 is 5,000 psi. The maximum clamping force depends on arm size.
3. The WTR-24 swing cylinders will accept the CA-28 swing arm.

CAUTION: CA-28 arms are usable on systems generating a maximum of 2,000 psi. If the application requires arms made to unique specifications, be sure to check figure 2 for load vs. arm length information. If additional guidance is needed, please contact the Enerpac Technical Service Department.

4. **DONOT** exceed the load to length pressure ratios. As arm length (and subsequent weight) increase, the clamping force and maximum operating pressure is reduced.

WTR-24 - SHOWN WITH CA-28



WTRS-24

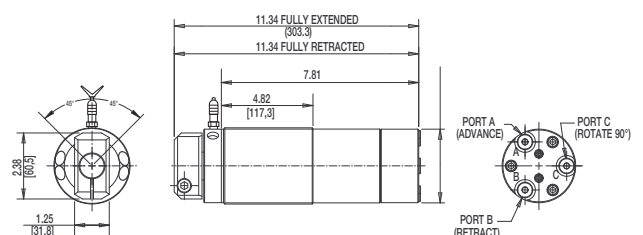


Figure 1

CLAMPING ARM - CA-28
For use on 2000 psi or less systems.

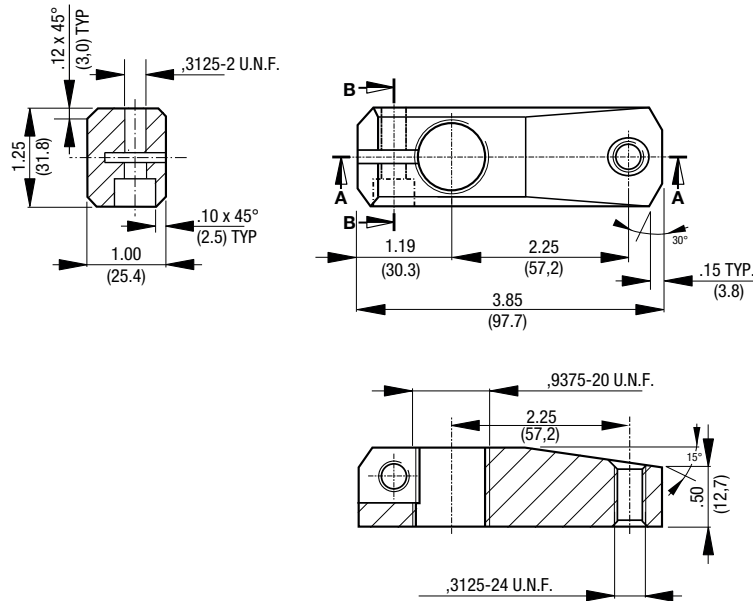


Figure 1

SPECIFICATIONS

	WTR-24	WTRS-24
Effective Area	0.98 sq. in. [6,3 sq. cm.]	0.98 sq. in. [6,3 sq. cm.]
Clamping Capacity	4900 lb. [21.8 kN]	4900 lb. [21.8 kN]
Piston Travel	2.50 in. [6.35 cm.]	2.50 in. [6.35 cm.]
Retracted Height	8.81 in. [22.38 cm.]	9.44 in. [24 cm.]
Port Size	#4 SAE 0.437-20 UNF	#4 SAE 0.437-20 UNF
Body Threads	2.750-16	2.750-16
Operating Pressure	2000 psi - 5000 psi [138 bar - 345 bar]	2000 psi - 5000 psi [138 bar - 345 bar]
Maximum Flow	0.5 gpm max.	0.5 gpm max.
Maximum Cycles	4 per min.	4 per min.
Swing Arc	90° ± 3°	90° ± 3°
Seal Material	GT-Ring / Wiper Ring Buna-N Poly-pak - Molythane	GT-Ring / Wiper Ring Buna-N Poly-pak - Molythane

SPECIFICATIONS

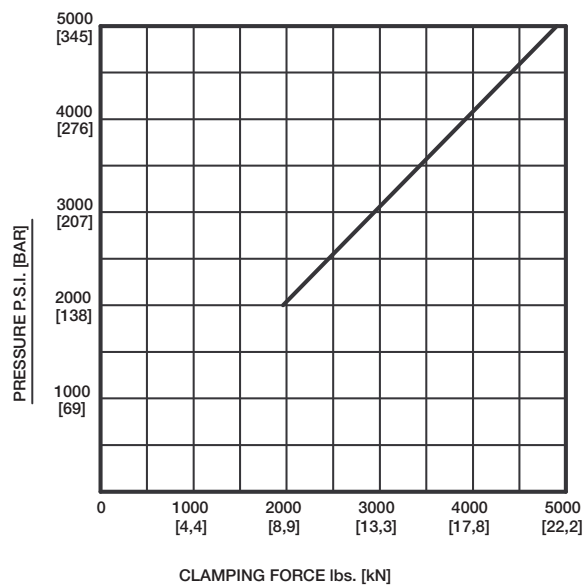
PROXIMITY SENSOR SPECIFICATION (WTRS-24 and 24V only)
Supply Voltage: 12 to 30 VDC, Ripple (P-P): 10% Max. Current Consumption: 12 mA Max. Control Output: Open Collector 200 mA Max. (40V Max.) Residual Voltage: 1V Max. Output Mode: Normally Open Operating Temperature: -25° to 80° C (-13° to 176° F) Degree of Protection: IEC IP-67 NEMA TYPE 6 (waterproof)

CLAMPING FORCE

Clamping forces are determined by internal hydraulic pressure. The chart, in Figure 2, shows specific force vs. pressure. If your application is not within the range indicated, contact ENERPAC WORKHOLDING DEPT. FOR GUIDANCE.

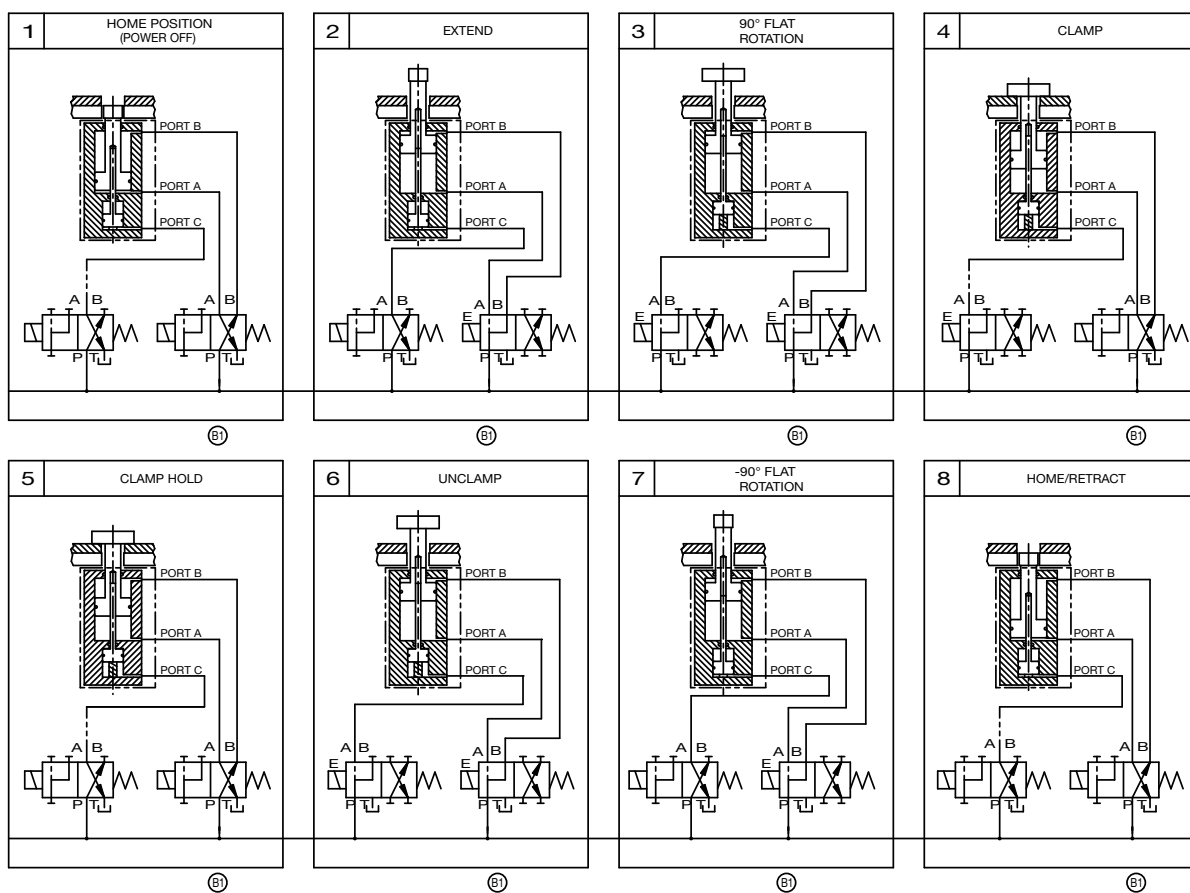
DO NOT EXCEED the maximum pressure indicated in the chart.

Figure 2



CONSULT ENERPAC WORKHOLDING DEPT. FOR SPECIAL ARM APPLICATION

OPERATIONAL SEQUENCE FOR WTR-24



E = VALVE ENERGIZED

⊗ USING VST1410D OR VST2210D
SOLENOID VALVE

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