What is a Hydraulic Puller System?

Hydraulic puller systems offer a controlled means of applying pressure for effective removal of press fit parts.

They are designed to help extend bearing and component life in applications through proper removal and service of components. They are ideal for removing gears, bearings, wheels, bushings, couplings, fly-wheels, pulleys, sleeves, sprockets and more.

Utilizing a hydraulic puller system adds efficiency and eliminates unsafe practices such as hammering, heating, or prying components to be removed and limit damage that may otherwise occur by other methods of disassembly.

Selecting a Hydraulic System

When choosing the proper system for a specific application, several points must be considered:

**Puller Reach**
Puller reach is the available distance between the pulling surface of the jaw and the jaw head of the puller. This distance varies and decreases as jaws are opened. When choosing a puller, make certain the reach is sufficient to attach the puller.

**Puller Spread**
Puller spread is twice the distance from the ram to the pulling surface of the jaw. In choosing the proper puller make certain the puller has a large enough spread to attach to the object being removed.

**Tonnage**
Tonnage is the maximum pulling force that can be safely exerted by the puller. Tonnage may be estimated by looking at the torque curves. The maximum force exerted in tons should be seven to ten times the diameter of the shaft in inches. IE: a 1.5 inch diameter shaft would generally require a 15-ton hydraulic puller.

**Pump**
The pump must have the adequate oil output and reservoir capacity to power the cylinder.
Basic Components of a Hydraulic System

A hydraulic puller system needs 3 basic components to function:

1. Puller
2. Hydraulic Cylinder
3. Pump (Air, hand, self-contained or electric)

The basic operation of a hydraulic puller system makes use of a cylinder that is fitted into the body of the puller. The cylinder replaces the center bolt function of a manual puller.

The technician inspects the component to be removed and selects the proper size puller. Safety precautions are taken into consideration as the technician secures the jaws of the puller on the application to keep the system in place.

Instead of using a wrench to move the center bolt forward and backward as one would with a manual puller, a pump is used as a power source. The pump regulates the flow of hydraulic fluid.

As the hydraulic fluid pressure builds up, the pressure moves the cylinder forward pushing the ram of the puller to make contact with the shaft of the component being removed.

3 examples of hydraulic puller systems with different pumps are shown below:

Hand pump  Self-contained pump  Electric pump

*Posi Lock Puller is the only manufacturer that offers the patented Safety Cage® design.
SAFETY PRECAUTIONS

Hydraulic power is one of the safest methods for applying force when used correctly. Below we have provided several precautions which pertain to hydraulic puller systems:

- DO NOT touch or handle hydraulic hoses or fittings with pressure in the system.
- DO NOT make any electrical adjustments with electrical power active in the system.
- DO NOT make or break any hydraulic connections with pressure in the system.
- DO NOT operate hose with sharp bends or kinks. (Discard hose that has been kinked or otherwise damaged).

SAFETY | OPERATOR SAFETY COMES FIRST!

It is impossible to predict the exact force needed for every pulling situation. The amount of press fit and force of removal can vary greatly between jobs. The set-up requirements along with the size, shape and condition of the parts being pulled are all variables which must be considered. Remember that a significant amount of force can be exerted with a puller. Respect these forces and always observe safety precautions:

1. Always select the proper puller for each pulling job. A puller equal to or larger than required.
2. Inspect the puller before each use. Replace any worn or damaged parts with authorized parts.
3. Read all instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation.
4. Always wear safety goggles when using pullers.
5. Take precaution against injury due to flying debris caused by failure of the tool or work-piece.

The benefits of an adequate pulling system can be substantial, but the equipment must be used properly!
Hydraulic puller systems are convenient, versatile and highly durable. They are known to help boost productivity and to save on downtime and costs.

They are used to pull a variety of press fit parts from gears to wheels, pulleys to bearings, with minimum effort and without damaging the components or machinery. They are used for maintenance applications such as:

---

**Target Markets**

Hydraulic pullers are used whenever there are tough maintenance challenges in markets such as:

- Logging
- Railroad
- City/County/State dept.
- Steel mills/plants
- Mines
- Manufacturing
  - Oil fields
  - Wind farms
  - Paper mills
  - Construction sites
- Repair stations
  - Factories
  - Recycling centers
  - Salvage yards
  - Farms and Ranches
- Processing plants
  - Fleet Support
  - Shipyards
  - Power plants
  - Printing presses

---

**Applications**

Hydraulic puller systems are convenient, versatile and highly durable. They are known to help boost productivity and to save on downtime and costs.

They are used to pull a variety of press fit parts from gears to wheels, pulleys to bearings, with minimum effort and without damaging the components or machinery. They are used for maintenance applications such as:

- Boat Motors
- Excavators
- Electric Motors
- Hand Wheels
- Gearboxes
- Railroad Wheels
- Dragline Shafts
- Conveyor Belts
- Tractors
- Balers
- Fertilizer Equipment
- Helicopters
- Air Compressors
  - Cotton Gins
  - Fly Wheels
  - Propellers
  - Bulldozers
  - Pavers
  - Backhoes
  - Agricultural Tractors
  - Military Vehicles
  - Cranes
  - Rollers
- Presses
  - Milling Lathes
  - Drills
  - Rolling Stock
  - Fabrication Equipment
  - Forest Harvesters
  - Loaders
  - Asphalt Pavers
  - Water Wagons
  - Scrapers
  - Trenchers
  - Assembly Equipment
WHY POSI LOCK?

Posi Lock hydraulic puller systems feature the patented steel Safety Cage® and stand out as the safest and most efficient pullers on the market.

- Cage guides jaws for fast setup, solid contact and superior safety
- Slim tapered jaws allow for easier gripping and better access to tight spots
- T-handle locks jaws precisely where you set them
- Leverage up front for vise-like power and no slippage

Posi Lock basic hydraulic puller sets include:

- **Lift Plate**
  For ease of transport and lifting.

- **Ram Points**
  Multiple sizes for a variety of applications.

- **Hydraulic Cylinder**

Posi Lock’s basic hydraulic sets come in 2-jaw or 3-jaw options. They are customizable with Enerpac or Power Team components.
**Posi Lock Assembly**

Posi Lock hydraulic systems are easy to assemble and operate, making tough jobs easier to handle by one technician.

**Assembly Instructions**

1. Attach hydraulic cylinder to puller by threading collar threads clockwise into jaw head assembly. Make sure hydraulic cylinder collar threads are fully engaged in puller. Before each use, make certain hydraulic cylinder is fully tightened clockwise in puller.
2. Attach lift plate to coupler end of cylinder.
3. Remove the saddle (L) from the cylinder and insert the ram point (M) into the plunger. Select ram point that will provide maximum contact with the shaft end.
4. Attach gauge adapter to pump.
5. Attach gauge to gauge adapter.
6. Attach male hydraulic hose ends to gauge and cylinder.

**Operation**

1. To operate puller, grasp the puller with one hand and turn the T-handle (E) counterclockwise with the other hand until the jaw opening is big enough to fit the component to be pulled.
2. Place the puller over the component to be pulled.
3. Turn the T-handle clockwise to tighten the jaws firmly onto the component. Be sure the puller is square with the work.
4. For hydraulic pump operation instructions, refer to the pump manual.
5. Advance ram until ram point (M) contacts shaft to ensure correct alignment.
6. Continue to advance ram slowly to pull component off of the component shaft.

---

**Puller Parts**

- **A** - Lift Plate
- **B** - Female Hydraulic Connector
- **C** - Hydraulic Cylinder
- **D** - Snap Ring
- **E** - T-Handle
- **F** - Tube
- **G** - Jaw Head
- **H** - Pin
- **I** - Safety Cage
- **J** - Ram
- **K** - Jaw
- **L** - Saddle
- **M** - Ram Point

---

**Jaw Head Assembly**