

EPH Series Hydraulic Puller Systems

INSTRUCTION & REPAIR PARTS SHEET

IMPORTANT RECEIVING INSTRUCTIONS:

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

READ CAREFULLY! SAVE THESE INSTRUCTIONS FOR FUTURE USE.

SAFETY 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 this force and always observe safety precautions. Failure to comply with the following cautions and warnings could cause equipment damage or personal injury.

 **WARNING:** DO NOT touch or handle hydraulic hoses or fittings with pressure in the system. Escaping oil under pressure may cause serious injury. If oil is injected under the skin see a doctor immediately.

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 overload the equipment. Use the right size puller.

DO NOT stand on, under or near the puller while in use. Keep hands, feet and clothing away from moving parts.

To avoid personal injury and equipment damage, make sure all hydraulic components withstand the maximum hydraulic pressure of 10,000 psi [700 bar].

Make sure all system components are protected from external sources of damage, such as excessive heat, flame, moving machine parts, sharp edges and corrosive chemicals.

Always check to ensure that all cylinders and components are securely fastened.



IMPORTANT: Inspect puller for dents, cracks, or excessive wear before each use. Immediately replace worn or damaged parts.

Cover application with a protective blanket before applying force. Since high force is applied on the part being pulled, breakage may occur and user may be exposed to flying debris.

Use hydraulic gauges in each hydraulic system to indicate safe operating loads.

Apply force gradually. Be sure the puller is square with the component to be pulled.

Wear safety glasses or other approved eye protection.

Keep hands away from possible pinching points.

Always make sure the puller is aligned with the shaft.

Select the appropriate pushing adaptor for each application (refer to page 4).

Always place the puller in the lowest position and remove pushing adaptors while transporting.

Keep slide rollers and mast clean and lubricated.

Always keep puller hoist vertical and the control valve closed when not adjusting vertical position.

A small amount of oil seepage is normal from breather vent on hoist cylinder.

Use only genuine Enerpac parts and endorsed hydraulic components.



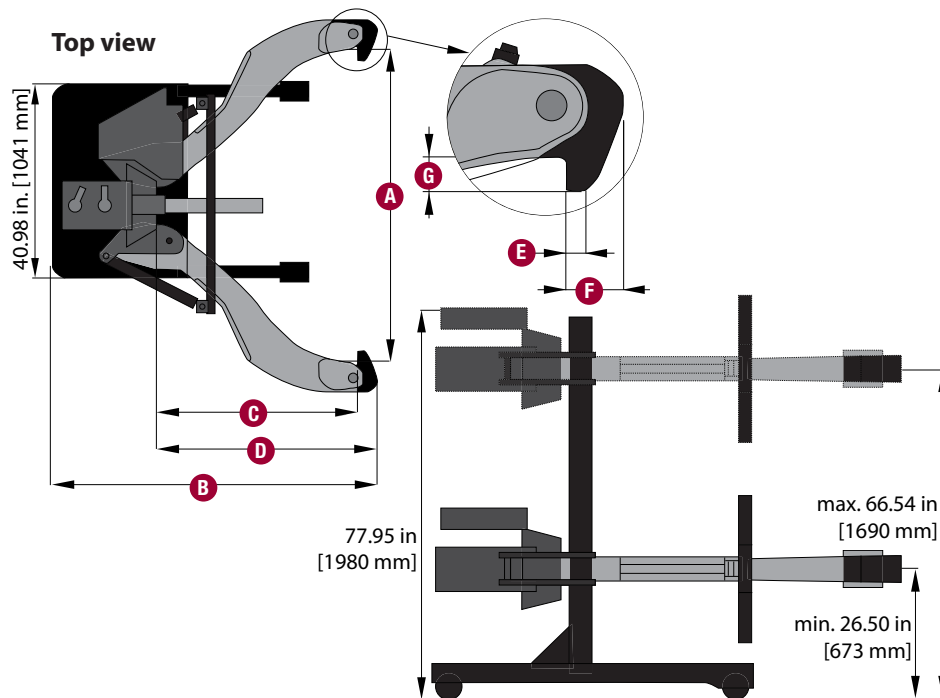
CAUTION: Make sure that all items being pulled are supported by a means other than the puller. When using a puller in excess of 50 pounds [19 kg], support puller by other means than a single person. Do not use the puller for lifting or supporting objects.

Avoid sharp bends and kinks in hoses as they may lead to premature hose failure. Inspect hoses and fittings for leaks or damaged areas. Immediately discard and replace damaged components.

ENERPAC® EPH Series Hydraulic Puller Systems

Instructions applicable to model numbers described below:

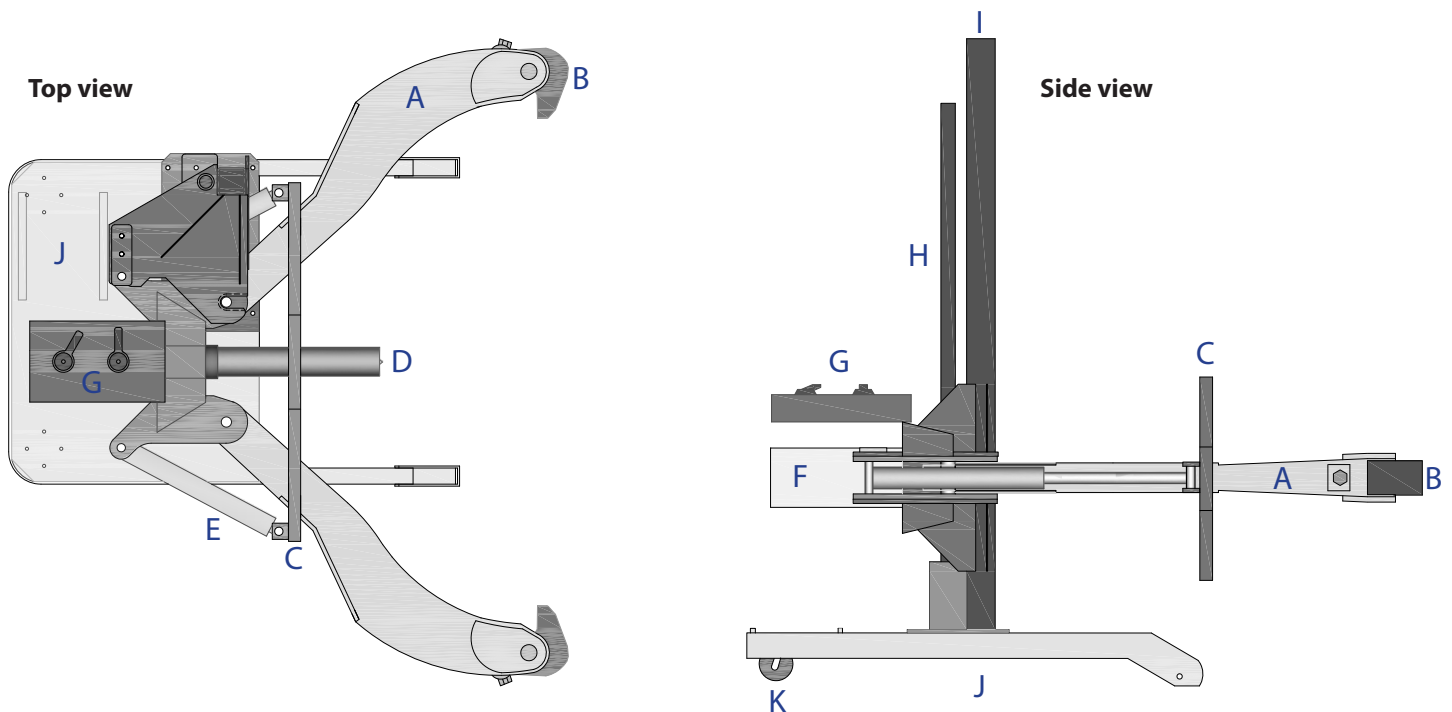
Product Data										
Model Number	Capacity	Number of Jaws	Dimensions							Weight
			Spread A	Overall Length B	Reach C	Jaw Length D	Jaw Tip Width E	Tip Clearance F	Tip Depth G	
EPH-1002E	100 tons [890 kN]	2	7.5 to 70 inch [191 to 1778 mm]	77 inch [1956 mm]	50 inch [1270 mm]	53 inch [1346 mm]	1.25 inch [32 mm]	3.5 inch [89 mm]	3.5 inch [89 mm]	1700 lbs [771 kg]
EPH-1003E	100 tons [890 kN]	3	7.5 to 70 inch [191 to 1778 mm]	77 inch [1956 mm]	50 inch [1270 mm]	53 inch [1346 mm]	1.25 inch [32 mm]	3.5 inch [89 mm]	3.5 inch [89 mm]	1950 lbs [885 kg]



External Dimensions - EPH Series

(EPH-1002E shown. EPH-1003E is similar but has three jaws.)

ENERPAC® EPH Series Hydraulic Puller Systems Overview



Major Components - EPH Series (EPH-1002E shown. EPH-1003E is similar but has three jaws.)

- A.** Jaw
- B.** Jaw Tip
- C.** Cage
- D.** Pushing Adaptor
- E.** Cage Cylinder
- F.** Pushing Cylinder
- G.** Control Valves
- H.** Hoist Cylinder
- I.** Mast
- J.** Base
- K.** Casters

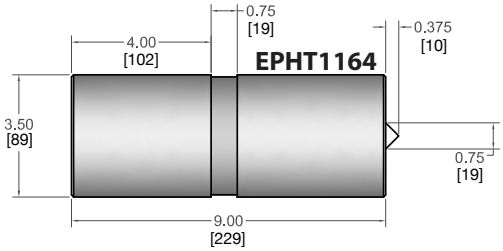
ENERPAC® EPH Series

Hydraulic Puller Systems

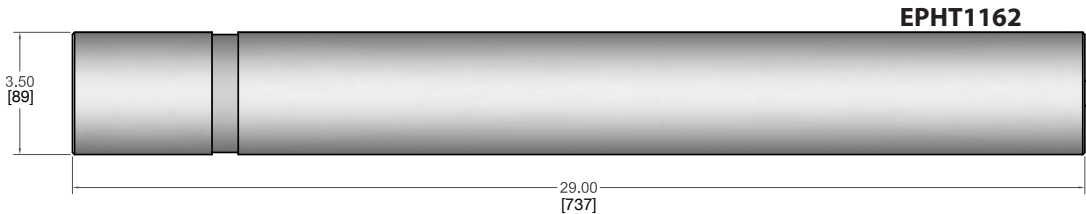
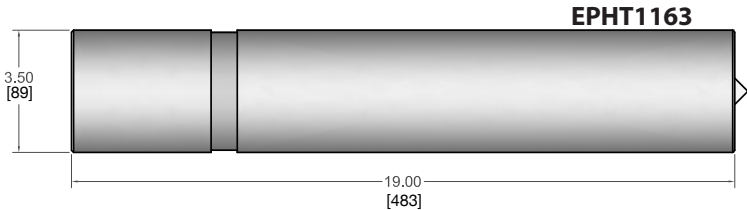
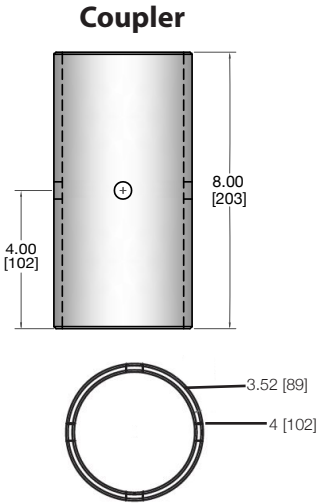
Pushing Adaptors | Jaw Tips

Pushing Adaptors:

Included with the EPH Series pullers are 3 pushing adapters and a coupler. Connect two pushing adaptors together to increase the reach of the ram. Using a variety of combinations may be necessary to complete the pull of a deeply set gear or bearing.

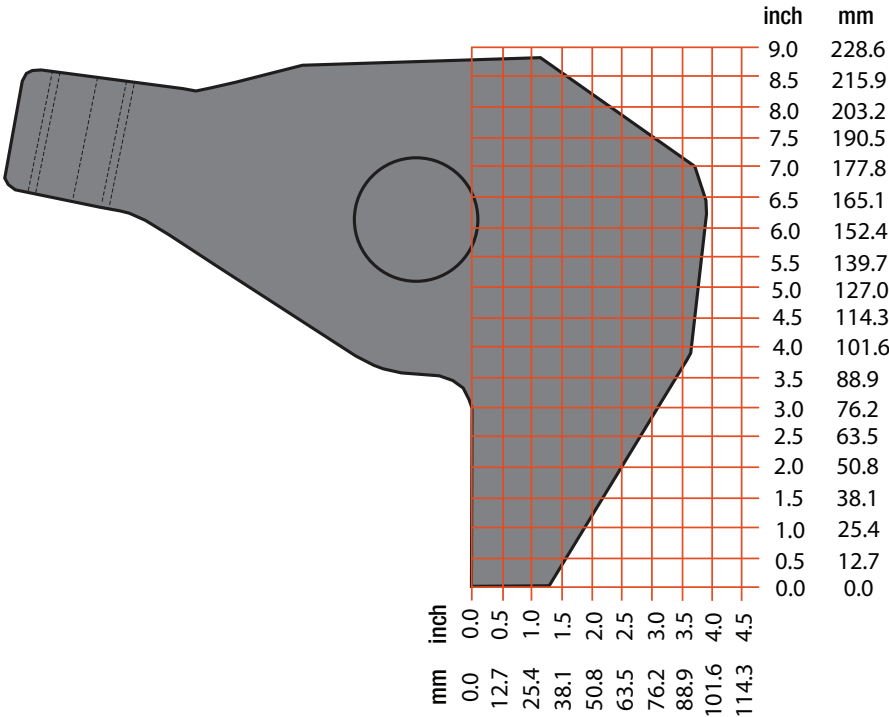


Note: Dimensions in inches [mm]



JAW TIPS:

Both 2 and 3 jaw pullers have the following jaw tip dimensions:



ENERPAC® EPH Series Hydraulic Puller Systems Assembly | Adjustments

ASSEMBLY:

1. Ensure that shipping crate firmly rests on level ground in upright position.
2. Open small side panel and confirm that puller is resting firmly in upright position in the crate.
3. Remove remainder of plywood.
4. Inspect puller for any damage that may have been caused by shipping.
5. **Save bolts** that were used to brace the cart. These will be used for securing the included cart wheels to the cart.
6. Inspect hoses for proper ratings. Connect the 10,000 psi [700 bar] hose to the port marked "**10,000 psi only**" on the puller and the pressurized port on the pump. Connect hose with the lower pressure rating to the return port on puller and pump.
7. Check oil level in pump reservoir. Add oil if oil level is low. Use only Enerpac oil. See pump manual for instructions.

ADJUSTMENTS:

RAISING THE PULLER:

1. Place cylinder control valve lever in "Hoist Oil Supply" position.
2. Raise puller by placing remote jog switch in "On" position and opening the puller hoist vertical control valve.
3. Release remote jog switch. Close vertical control valve after reaching desired height.

LOWERING THE PULLER:

1. Place cylinder control valve lever in "Hoist Lower" position.
2. Lower puller by turning puller hoist vertical control valve counterclockwise.
3. Close vertical control valve after reaching desired height.

NOTE:

HOIST TRAVEL SPEED:

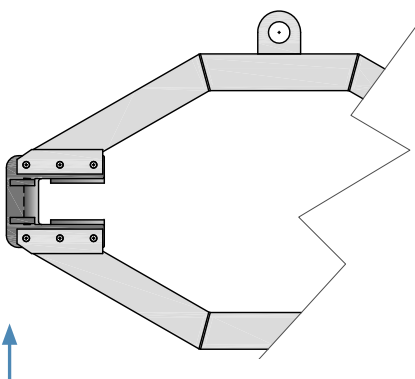
The restrictor valve, located at the top of the hoist cylinder, is used to control the rate of puller descent. This valve should be set at the desired rate and locked in place using the nut on the valve shaft.

An appropriate starting point is one full turn from the closed position. This valve is a one-way restrictor only and does not affect the rate at which the puller is raised.

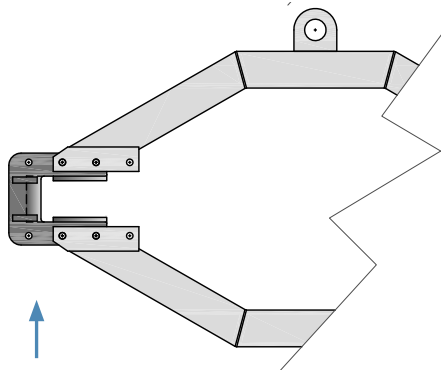
CHANGING THE JAW SPREAD:

If opening/closing the jaws using the standard cage setting does not provide enough spread or does not provide enough closure, use the following adjustments to achieve the maximum and minimum spreads.

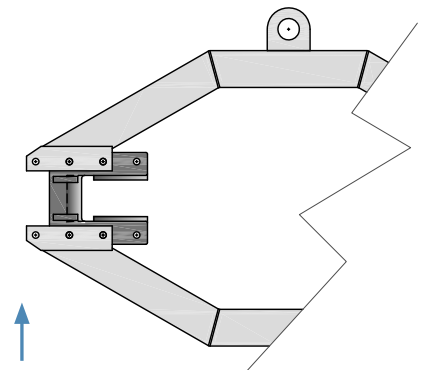
1. Support the jaws.
2. Remove 6 cap screws, lock washers and nuts on 1 jaw guide at a time.
3. Slide jaw guide inward/outward on cage 1 bolt hole.
4. Replace 4 cap screws, lock washer, and nuts and tighten appropriately.
5. Reverse this process to return to standard jaw spread.



Default jaw guide position when puller is shipped.



Jaw guide moved 1 bolt hole **OUT** to increase spread.



Jaw guide moved 1 bolt hole **IN** to decrease spread.

ENERPAC® EPH Series Hydraulic Puller Systems

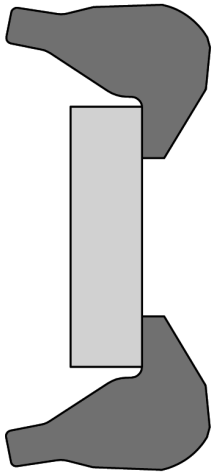
Adjustments (continued) | Removing puller from cart

ADJUSTING JAW TIPS:

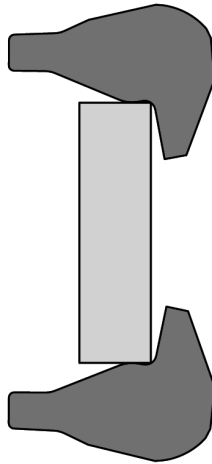
Adjust jaw tips by turning 1 ¼" cap screw.

NOTE: Always use maximum pulling surface of jaw. To angle tip inward, turn cap screw clockwise. To angle tip outward, turn cap screw counterclockwise. Before pulling, always make certain machined caps are properly fitted to curved surface.

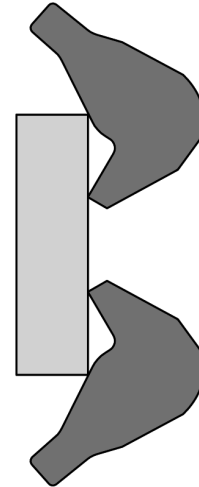
Correct Alignment



Incorrect



Incorrect



ADJUSTING SLIDE ROLLERS:

1. Lower slide and puller assembly until it rests solidly on base.
2. Loosen 5/8" hex bolt.
3. Move roller using eye bolts on each side of roller.
4. Adjust roller until equal spacing is obtained between mast and slide tube on both roller side and opposite side.
5. Tighten locking nut on eye bolt.
6. Tighten 5/8" hex bolt.

REMOVING PULLER FROM THE CART:

1. Support puller weight using lifting brackets provided.
2. Close puller hoist vertical control valve.
3. Disconnect puller hoist hose coupler at control panel.
4. Remove 2 of the ½" bolts which fasten locking plate to the puller lift bracket.
5. Remove puller from cart by rotating cart while keeping puller stationary.

ENERPAC® EPH Series Hydraulic Puller Systems

Set-up | Pulling an object



OPERATION IMPORTANT: Hydraulic power is one of the safest methods for applying force when used correctly. Be sure to 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 use of product, lack of maintenance or incorrect product and/or system operation.

It is important that the operator has a full understanding of all the instructions, warnings, cautions and safety regulations before starting to operate equipment. When in doubt contact Enerpac. Refer to contact information at www.enerpac.com.



MAINTENANCE: Always clean the puller after use and store in a clean, dry place.

SET-UP:

1. Transport the puller by use of the puller cart or forklift.
2. Line the puller up to the workpiece.
3. Open the jaws.



OPENING THE JAWS:

- I. Place cylinder control valve lever in "Oil Supply" position.
- II. Place cage control lever in "Jaw Open" position and activate pump by pushing remote switch to the "On" position to open jaws to the desired spread.

4. Position the workpiece to be removed in between the jaws.
5. Continue to adjust the height until the workpiece and extending cylinder are aligned. See RAISING THE PULLER on page 5.
6. Close the jaws.



CLOSING THE JAWS:

- I. Place cylinder control valve lever in "Oil Supply" position.
- II. Place cage control lever in "Jaw Closed" position and activate pump by pushing remote switch to the "On" position to close jaws to the desired spread or for clamping.

7. Adjust the jaw tips appropriately. See ADJUSTING JAW TIPS on page 6.

PULLING AN OBJECT:

1. Extend the cylinder ram towards the workpiece until there is contact.



EXTENDING CYLINDER:

- I. Place cylinder control valve in "Extend" position.
- II. Activate pump with jog switch.

2. Continue to extend the ram. The workpiece will begin to move gradually off the shaft.
3. Retract the cylinder.
4. Completely remove the workpiece.



RETRACTING CYLINDER:

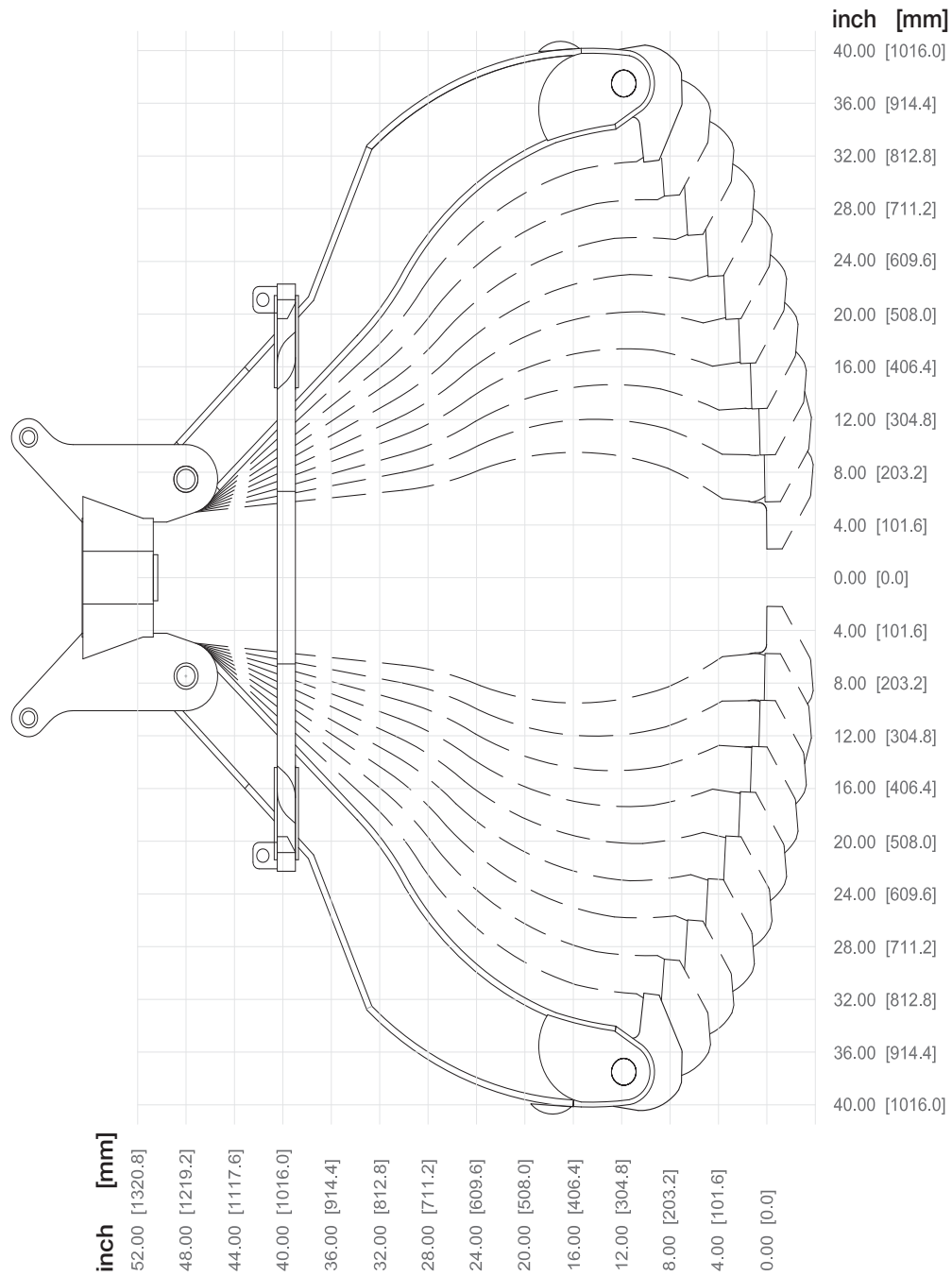
- I. Place cylinder control valve in the "Retract" position.
- II. On a single acting cylinder the cylinder ram will retract without activating the pump.

ENERPAC® EPH Series Hydraulic Puller Systems Spread Range

SPREAD RANGE DIAGRAM:

Use the diagram below to determine the limits of the jaw-opening. Spread ranges apply to all Enerpac EPH Series hydraulic puller systems. Gears, pulleys, wheels, sleeves, and other press fit parts must fit within these limits.

100 Ton Spread Range Diagram



ENERPAC® EPH Series

Hydraulic Puller Systems

Hydraulic Fittings | EPH-1003E

Hydraulic Fittings for 3 Jaw EPH Series Pullers				
ITEM	SYMBOL	DESCRIPTION	QTY	PART NO.
	A	3/8 Male NPTF x 3/8 Male 37°	5	EPHT1123
	B	3/8 Male NPTF x 3/8 Female NPTF	1	FZ-1616
	C	3/8 Male NPTF x 3/8 Male NPTF	3	FZ-1619
	D	3/8 Female NPTF Tee	1	FZ-1612
	E	3/8 Male NPTF x 1/4 Male 37°	7	EPHT1134
	G	3/8 Male NPTF x 3/8 Female 37°	1	EPHT1128
	H	3/8 Male 37° Cross	1	EPHT1129
	I	3/8 Male NPTF x 3/8 Female NPTF 2000 PSI Relief	1	EPHT1113
	J	3/8 Male NPTF x 3/8 Female NPTF x 3/8 Female NPTF	2	BFZ-16312
	K	3/8 Male NPTF x 3/8 37°	2	EPHT1131
	N	3/8 Male NPTF x 3/8 Female NPTF x 3/8 Female NPTF	1	FZ-1619 & FZ-1612
	O	3/8 Male NPTF x 3/8 Male NPTF	1	FZ-1619 & FZ-1616
	P	3/8 Male NPTF x 3/8 37°	4	EPHT1003
	Q	3/8 Male NPTF x 3/8 Female NPTF	1	N/A
	R	3/8 Female NPTF x 3/8 Female NPTF	1	FZ-1614
	S	3/8 Male NPTF x 3/8 Male Barbed	2	N/A
	U	3/8 Male NPFT Vent	1	EPHT1154
	V	3/8 Female NPTF x 3/4 BOSS	1	N/A
	W	3/8 Male 37° x 3/8 Female 37°	3	EPHT1013
	X	3/8 Male NPTF x 3/8 Female NPTF	2	N/A
	Y	3/8 Male NPTF x 1/4 Male 37°	2	N/A
	Z	3/8 Male NPTF x 1/4 Male 37°	1	N/A

NOTES:

N/A = Part not available from Enerpac. Obtain from local sources.

Components and design details are subject to change without notice.

Always state product serial number or date code when ordering parts.

ENERPAC® EPH Series Hydraulic Puller Systems

Hydraulic Hoses and Components | EPH-1003E

Hydraulic Hoses and Components for 3 Jaw EPH Series Pullers			
SYMBOL	DESCRIPTION	QTY	PART NO.
AA	100-Ton Cylinder	1	RC10010
BB	3-Ton Cylinder	3	**EPHT1103
CC	4-Way Valve	1	VC4
DD	3 Section Flow Divider	1	EPHT1114
EE	Male Coupler	3	CH604
FF	4-Way Closed Center Valve	1	VC20
GG	Needle Valve	1	V82
HH	1-Way Valve	1	EPHT1121
II	Hoist Cylinder	1	***EPHT1117
KK	Gauge Adaptor	1	GA3
LL	10,000 PSI Gauge	1	G2535L
MM	Pump	1	****PE99422120-Z
NN	16" 10,000 PSI Hose	1	EPHT1135
QQ	33" Hose	2	EPHT1139
RR	Female Coupler	3	CR400
SS	44" Hose	1	EPHT1140
TT	21" Hose	1	EPHT1141
UU	15" Hose	2	EPHT1142
WW	30" Hose	1	EPHT1005
AA1	10' 10,000 PSI Hose	1	H-7210
AA2	10' Return Hose	1	N/A
ST-1	Steel Line*	1	N/A
ST-2	Steel Line*	1	N/A
ST-3	Steel Line*	1	N/A
ST-4	Steel Line*	1	N/A

NOTES:

* Material of hydraulic lines will vary depending on region that product is shipped.

** Order Part number EPHT1103S for cylinder seal kit.

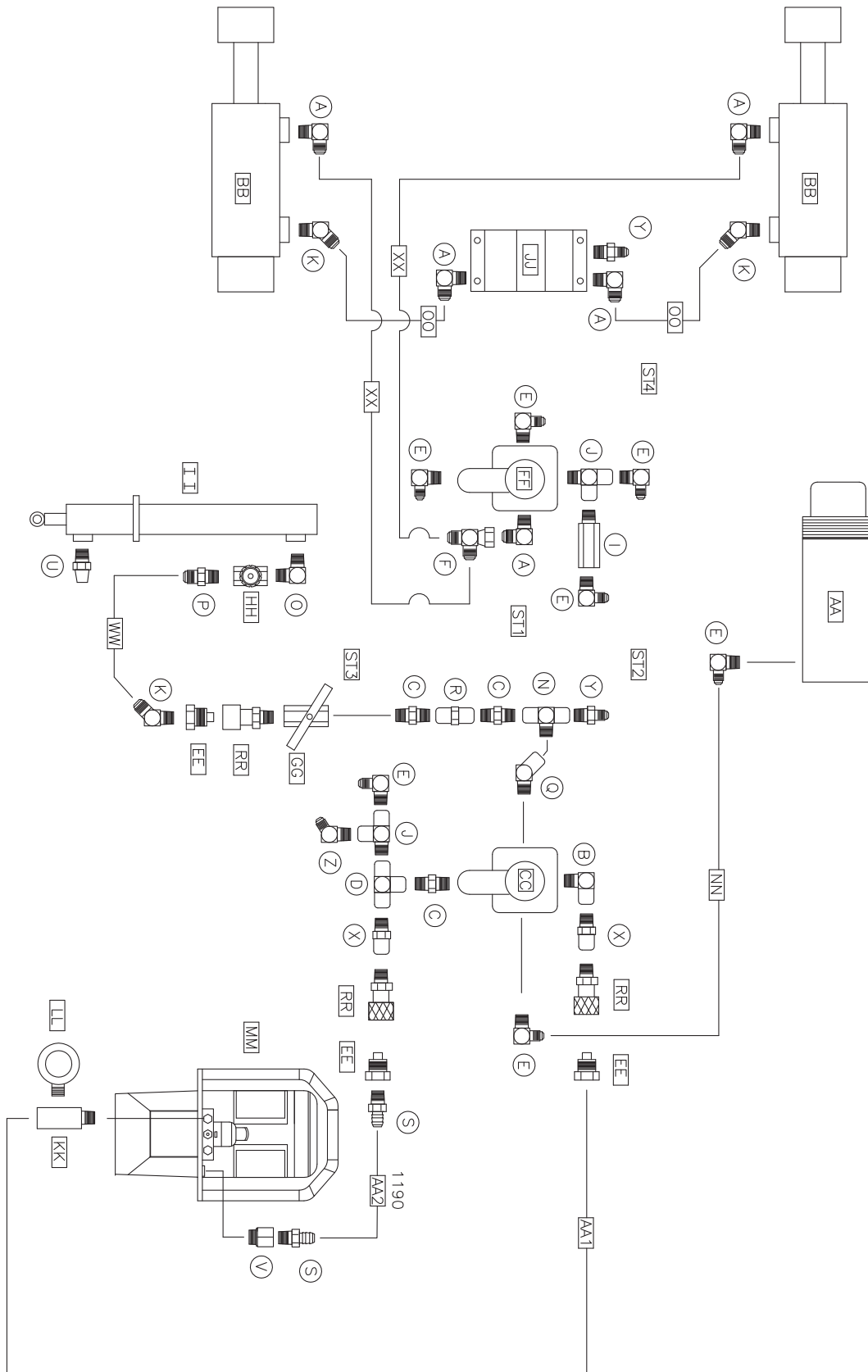
*** Order Part number EPHT1117S for cylinder seal kit.

**** 115V 1 ph 50-60 Hz (For 208-240V 1 ph 50-60 Hz pump, order part number ZE3308ME).

N/A = Part not available from Enerpac. Obtain from local sources.

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ENERPAC® EPH Series Hydraulic Puller Systems Schematic | EPH-1002E



ENERPAC® EPH Series Hydraulic Puller Systems

Hydraulic Fittings, Hoses and Components | EPH-1002E

Hydraulic Fittings for 2 Jaw Pullers

ITEM	SYMBOL	DESCRIPTION	QTY	PART NO.
	A	3/8 Male NPTF x 3/8 Male 37°	5	EPHT1123
	B	3/8 Male NPTF x 3/8 Female NPTF	1	FZ-1616
	C	3/8 Male NPTF x 3/8 Male NPTF	3	FZ-1619
	D	3/8 Female NPTF Tee	1	FZ-1612
	E	3/8 Male NPTF x 1/4 Male 37°	7	EPHT1134
	F	3/8 Male 37° x 3/8 Female 37° x 3/8 Male 37°	1	EPHT1128
	I	3/8 Male NPTF x 3/8 Female NPTF 2000 PSI Relief	1	EPHT1113
	J	3/8 Male NPTF x 3/8 Female NPTF x 3/8 Female NPTF	2	BFZ-16312
	K	3/8 Male NPTF x 3/8 37°	3	EPHT1131
	N	3/8 Male NPTF x 3/8 Female NPTF x 3/8 Female NPTF	1	FZ-1619 & FZ-1612
	O	3/8 Male NPTF x 3/8 Male NPTF	1	FZ-1619 & FZ-1616
	P	3/8 Male NPTF x 3/8 37°	1	EPHT1003
	Q	3/8 Male NPTF x 3/8 Female NPTF	1	N/A
	R	3/8 Female NPTF x 3/8 Female NPTF	1	FZ-1614
	S	3/8 Male NPTF x 3/8 Male Barbed	2	N/A
	U	3/8 Male NPFT Vent	1	EPHT1154
	V	3/8 Female NPTF x 3/4 BOSS	1	N/A
	X	3/8 Male NPTF x 3/8 Female NPTF	2	N/A
	Y	3/8 Male NPTF x 1/4 Male 37°	2	EPHT1013
	Z	3/8 Male NPTF x 1/4 Male 37°	1	N/A

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ENERPAC® EPH Series Hydraulic Puller Systems

Hydraulic Fittings, Hoses and Components | EPH-1002E

Hydraulic Hoses and Components for 2 Jaw EPH Series Pullers			
SYMBOL	DESCRIPTION	QTY	PART NO.
AA	100-Ton Cylinder	1	RC10010
BB	3-Ton Cylinder	2	**EPHT1103
CC	4-Way Valve	1	VC4
EE	Male Coupler	3	CH604
FF	4-Way Closed Center Valve	1	VC20
GG	Needle Valve	1	V82
HH	1-Way Valve	1	EPHT1121
II	Hoist Cylinder	1	***EPHT1117
JJ	2 Section Flow Divider	1	EPHT1114A
KK	Gauge Adaptor	1	GA3
LL	10,000 PSI Gauge	1	G2535L
MM	Pump	1	****PE99422120-Z
NN	16" 10,000 PSI Hose	1	EPHT1135
OO	12 1/4" Hose	2	EPHT1136
RR	Female Coupler	3	CR400
WW	30" Hose	1	EPHT1105
XX	33" Hose	2	EPHT1139
AA1	10' 10,000 PSI Hose	1	H-7210
AA2	10' Return Hose	1	N/A
ST-1	Steel Line*	1	N/A
ST-2	Steel Line*	1	N/A
ST-3	Steel Line*	1	N/A
ST-4	Steel Line*	1	N/A

NOTES:

* Material of hydraulic lines will vary depending on region that product is shipped.

** Order part number EPHT1103S for cylinder seal kit.

*** Order part number EPHT1117S for cylinder seal kit.

**** 115V 1 ph 50-60 Hz (For 208-240V 1 ph 50-60 Hz pump, order part number ZE3308ME).

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NOTES:

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