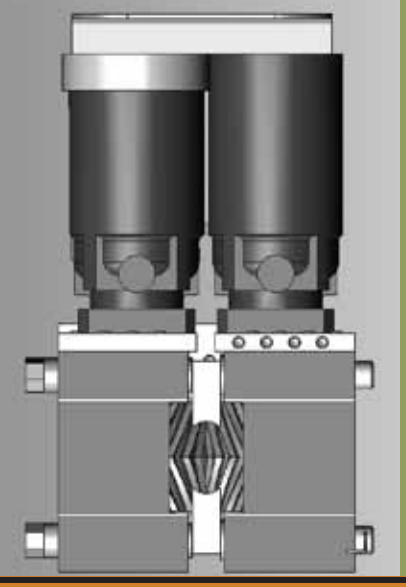
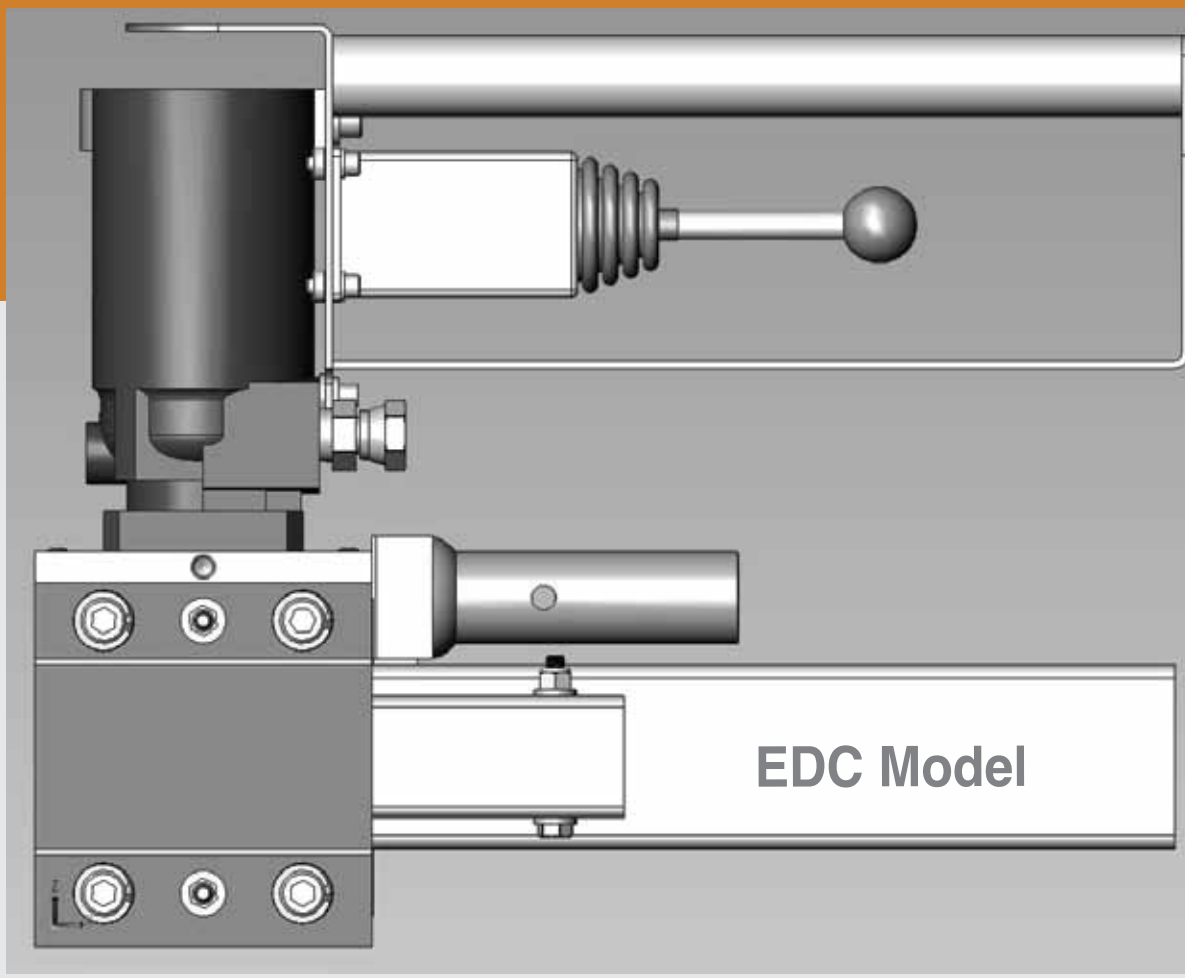


Condenser Tube Removal System
XHD Heavy Duty Series Benefits:

- Maximum Pulling Force & Production
- Low Consumable Cost & Wear Rates
- Improved Safety & Low Maintenance Design
- Dependable, Parts & Technical Support

2014
Tool Line



PSR™

Manufacturers & Suppliers of Quality Tube Removal Tools & Support Equipment

Phone (805) 565- 9025

www.powersystemsrecovery.com

Internal Tube Cutters

The first step in extracting tubes is to cut the tube at one end of the condenser. PSR offers (2) models of pneumatic cutters with adapter parts to cut 3/4”, 7/8” and 1” OD tubes from 16-22 gauge. G-711 water based-soap and other environmentally safe lubricants are available to extend the life of the cobalt alloy cutting bits.

1,000 RPM Cutter

Cobalt Cutting Bit

■ LTC3 300 RPM Model

Used for stainless steel and titanium tubes.

Production..... 2-6 cuts/minute-
varies with alloy and gauge.
Air Requirement.....30 CFM/ 90 PSI
Air Motor.....1- HP/ D- Handle
Weight .....11 lbs.

■ LTC1 1,000 RPM Model

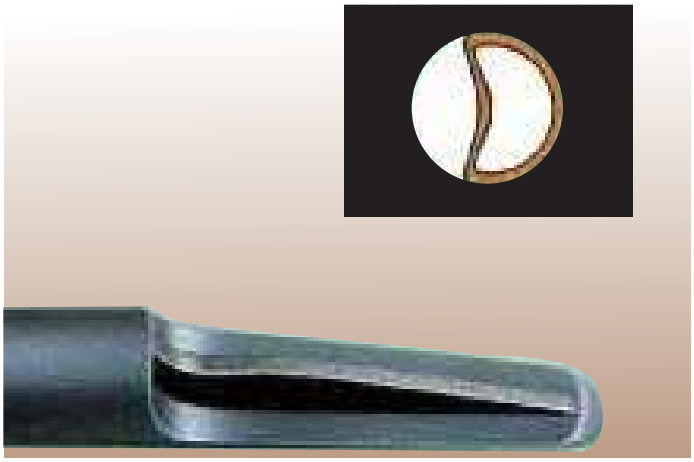
Used for brass, copper alloy and other non-ferrous tubes.

Production..... 12-18 cuts/ minute,
varies with alloy and gauge.
Air Requirement ....30 CFM/90 PSI
Air Motor.....1- HP/ D-Handle
Weight.....10.5 lbs

Collapsing Tool & Chipping Hammer

The Pneumatic Collapsing tool is an efficient alternative to cutting stainless steel and titanium tubes in condenser and large heat exchanger salvage applications. In one pass the hardened collapsing chisel wedges in between the tube and tube sheet collapsing the tube inward thus releasing the tube from its expanded bond to the tube sheet. The collapsing tool is not recommended for retubing work as it may potentially damage the tube sheet.

Collapsing Tool & Oiler



Collapsing Chisel

■ CP Model

Used for 3/4", 7/8" and 1" OD tubes- from 16-22 gauge

Production..... 6-8 tubes per minute
varies with alloy and gauge.

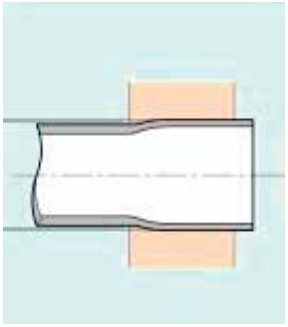
Air Requirement ....20 CFM/90 PSI

Weight.....13 lbs

Collet Tube Puller & Pump

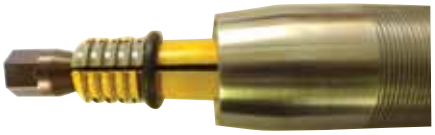
The second step is to break the tube free of the expanded tube roll. The puller pulls the tube out of the tube sheet approximately 6” so the tube can be pulled continuously using the PSR extractor. It also pulls stubs from the opposite tube sheet. Jaw sets and size adapter parts are available for 3/4”, 7/8” and 1” OD tubes and ranging from 18 to 22 gauge.

P0600 Tube Puller



Expanded Tube

10,000 PSI Pump



Draw Bolt / Jaw Set

■ P0600 Collet Puller Production Model

PSR’s hydraulic collet style puller privides the best weight to pulling force ratio and production efficiency in the industry.

Cylinder Type.....Single acting/ air-return (90-120 PSI/ 3 CFM air)

Stroke.....6 inches

Cycles..... 8 minute

Pulling Force.....10 Tons

Operating Pressures..1,800-10,000 PSI

Weight..... 11.5 lbs.

■ SPX Hydraulic Pump

PSR’s puller are powered by specifically configured two speed, 1- 1/8 HP hydraulic electric pump. All pumps start at reduce voltage and are equipped with 20 feet of 3/8 ID shielded rubber hydraulic hose, air hose and remote DC low voltage control cord.

Operating Pressures..... Adjustable up to 10,000 PSI

Power Requirements..... 115 V, 25 amps at full load

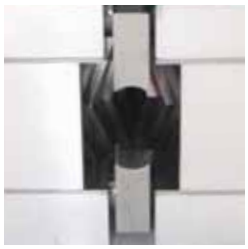
Oil Requirement .....2.5 gallons of ISO 46

Tube Extractor & Pump

The third step is the complete removal of the tubes. The PSR 40 HP Extractor flattens the tube as it is pulled from the condenser. Using a bi-directional variable speed control handle mounted on the unit the operator controls the direction of travel (forward,neutral,reverse and speed)

Extractor/ MVC Model

Extractor Rolls



Balancer

Hydraulic Power Unit

■ XHD Tube Extractor

To withstand the forces of pulling up to 8 tubes per minute (30 ft long) the machines body of the MVC and EDC models are constructed of aircraft grade aluminum for strength and the wear parts of finest tools steels which are hardened to extend life. PSR's unique Chevron Extractor Rolls V-pattern design provides for a better surface contact "bite" and travel alignment "tracking" a requirement preventing tube slippage. The MVC model shown in the above photo utilizes a single-spool valve with full feathering mounted on the Extractor's handle to control the speed and direction of the hydraulic motors. The EDC model shown on the cover utilizes an electrical control handle mounted on the handle to remotely control the volume and direction of oil flow from the pump. An adjustable tool balancer is provided with either model.

Production..... 0-250 feet/minute (operator controls speed)

Pulling Force..... 10 tons

Weight EDC Model..... 98 lbs

Weight MVC Model..... 110 lbs

Pressure..... 1,800-2,500 PSI

■ XHD 40 HP Hydraulic Power Unit (HPU)

The Extractor HPU incorporates a 40 HP motor, variable displacement (flow) 3,000 PSI pressure compensated controlled pump, air/oil cooling loop with auxiliary dyraulic pump and fan, 5 and 10 micron filtration system, electrical controls and 30 ft of 4/c wire power cord with pig tail, 80 gallon oil reservoir, built into a metal frame with castors and lifting lugs. Two 50 ft length of 3/4 in. hydraulic hose with quick couplers are provided.
This "smart pump" destrokes as the control valve closes reducing flow over the relief valve by up to 96% making it more energy efficient, and requiring less heat exchanger capacity than typical fixed displacement piston pumps.

Displacement..... 48 cm 3/ rev.

Power Requirement.... 460/ V- 3 phase- 50 amps

Oil **Requirement**..... ...80 gallons of ISO 46 or ISO 32 grade oil

■ Gin Pole

This 10 foot long heavy walled steel pipe with sliding counter weight and lifting eye is used to extend and balance extractor off the trolley beam when working within the water box.

Tube Chopper

The final step in the extraction process is to chop the flattened tubes into 3.5” pieces. This step simplifies the handling and increases value of the scrap tubes.

Tube Chopper with auto-feed

3.5“ chopped tubes

■ XHD Tube Chopper

This 5 HP unit chops 1 diameter flattened brass, copper alloy and stainless steel tubes 2-3 at a time.

Infeed Speed.....90 fpm

Power Requirements ...3-phase 460 V/10 amps

Air Requirements..... 3 cfm/ 90 PSI

■ Chopper Stand

This metal stand accommodates an ISO 48” x 40” pallet with a 42” high box and is available with steel casters or base plates w/anchor bolt holes.

■ Self Dumping Hopper

Use of self dumping hoppers allow for the efficient transfer of scrap from the chopper to bulk roll-off containers and trailers.

Universal Beam & Trolley

Rigging up a beam in trolley system to support and balance the extractor is essential to maximize the tube removal production rate. PSR's universal B&T Systems ® rapidly bolts-up to the water box flanges of various size and shape condensers, and works well in situations with tight overhead clearances.

Beam / Top Mount

Beam / Bottom Mount

Pipe Trolley

NTH Trolley

■ Beam and Mounting Brackets

Thick plate 30" x 12" L-brackets mount to the condensers flange and connect to a W8X13/lb. beam utilizing custom structural steel connectors and location plates in a bottom or top mounted position. This 1-ton rated design allows for adjustment of the beam along its vertical and horizontal axis. Beams are funished, bare, primed or painted safety yellow and available in 10,12,15,20,25ft lengths with 2 bolt trolley stops on both ends.

■ Standard Trollies

The NTH series 1-ton combined trolley/CF hand chain hoist is used for operating the gin pole with the exractor attached and rigging applications with the water box left on the tube pulling side.

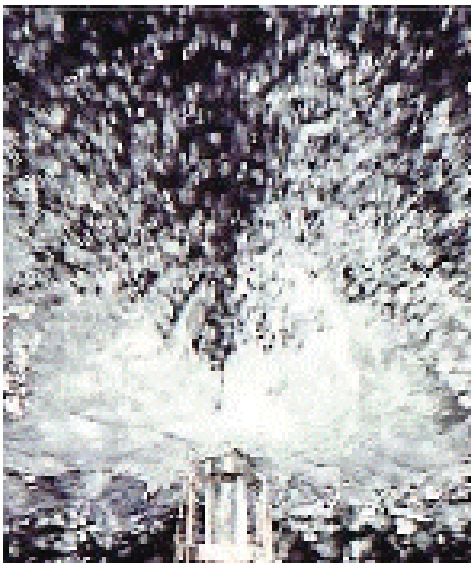
The STD series is a simple low profile 1- ton trolley that is used to support the Extractor's tool balancer.

■ Pipe Trolley

Pipe Trolleys with special mounting bracket can be used within larger condenser water boxes to suspend the extractor using a balancer. Our pipe trolleys are fitted on either 2" schedule 40 or schedule 80 pipe for a longer spans.

Water Spray Equipment

Whether retubing or salvaging a condenser it is standard practice to saturate the tube bank with water while using the Tube Collet Puller and Extractor to remove the tubes. The water acts as a lubricant and also controls dust. This is particulary important for condensers deactivated for an extended period and to salvage projects where the tubes become tightly bonded to the steel support sheets due to oxidation.



■ Water Spray Systems

Two types of systems are available to generate a fine mist with even distribution within or directly above the tube bank.

TW- Model: preferated metal tubes with nose guides.

RW-Model: rotary sprinkler system.

The complete package typically includes the spray devices, valves and hoses.

Thank you for considering Power Systems Recovery for your tooling needs. If you have a question, need technical assistance or request equipment pricing please contact at us:

(805) 565-9025

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