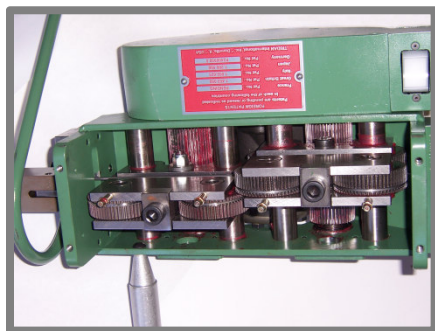
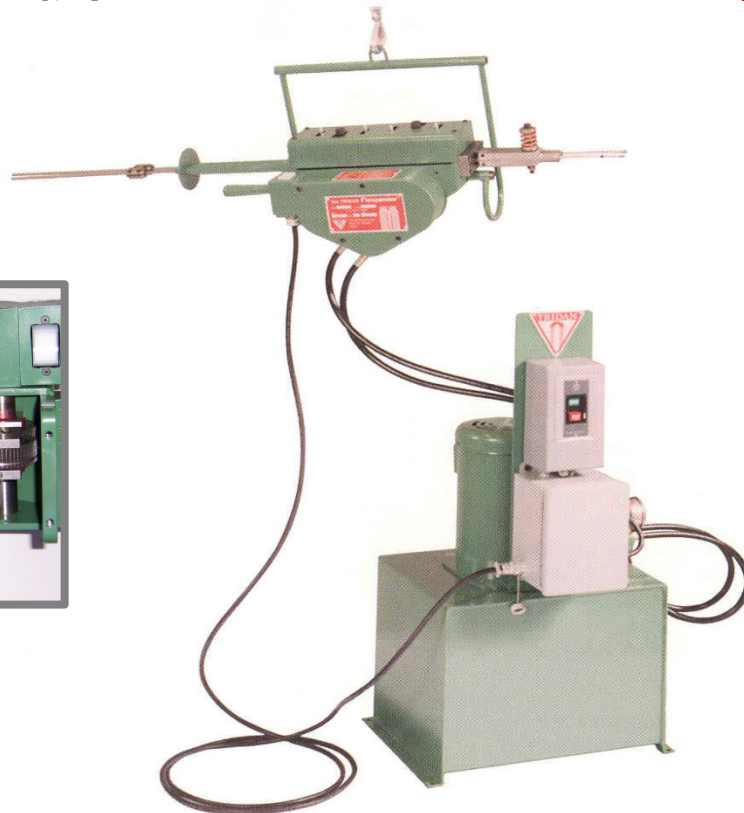


MODEL FE-6

Flexpander

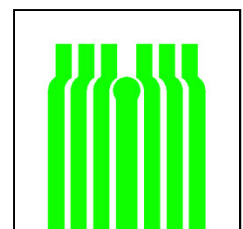


EXPANDER ROD
DRIVING MECHANISM



The TRIDAN Model FE-6 FLEXPANDER is a hydraulically powered semi-portable mechanical tube expander designed for the expansion of heat transfer coils, which use conventional hairpin-or-straight tube and return bend construction. It is designed to expand two(2) tubes per cycle, both hairpins legs or two straight tubes, made of copper or aluminum, and other thin wall materials having an outside diameter of .196”(5.0mm). The maximum finned length expandable is currently limited to 7 feet based on availability of rod material. Longer length may be available in the future, but you must contact the manufacturer for a determination.

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Tube Expansion

Customer Driven Designs

TRIDAN MODEL FE-6

The Model FE-6 Power Head is a rigidly constructed box-frame-weldment, which contains the twin Rod Drive Gear Cartridges, the Drive Mechanism for these cartridges, the hydraulic Drive Motor, and the operational switch handle. All tooling components used with the FLEXPANDER are mounted to this Power Head.

The twin Rod Drive Gear Cartridges each contain four(4) specially designed combination gear-drive rollers, with each cartridge designed to power one expander rod. The gear-drive rollers are in pairs, one directly above the other, and run on heavy-duty precision roller bearings. Each cartridge is designed so that the amount of drive pressure, the center-to-center spacing, and lubrication of the bearings is performed externally.

The Drive Mechanism is a direct gear-type with each rod drive gear cartridge being powered through individually adjustable friction clutches. This drive mechanism provides independence between the two expander rods. The power for drive mechanism is provided by a Gerotor type hydraulic motor, which generates 60 Ft-Pounds(81Nm) of Torque at 140 RPM and 900 Psi(63 Kg/Cm2).

Adjacent to the rear operator grip on the Power Head is the operation control switch. It is a three(3) position rocker-type switch with a spring-centered "off" position. This switch controls the forward (power) and the reverse (retraction) stroke of the expander rods, when activated.

The FLEXPANDER is equipped with a cleverly designed suspension system for production use and control of the expander. This suspension system allows ease of axial rotation of the expander so that tube extension pair with either vertical or diagonal orientation may be accommodated as easily as a horizontally located tube pairs. Due to the weight of the FLEXPANDER and its tooling components, the use of a tool balancing device is necessary for neutralization of this weight. The FLEXPANDER is designed to accommodate a broad range of changeable expander tooling. The tooling components for the FLEXPANDER consist of the Clamp Jaw Assembly, the Rear Rod Guide and Stop, the Expander Rods, the Expander Tips or bullets, and the Expander Rod Stops.

The Clamp Jaw Assembly is of a special design developed by TRIDAN. Each Jaw Assembly is precision machined for a specific tube outside diameter and center-to-center dimension from A-2 Tool Steel and heat treated to 54/56Rc. The clamping force is adjustable with the clamping pressure provided by a heavy duty die spring. This force is overcome by the expander tips when they return to their retracted position and jaws are open to allow gripping of the tube extension. No pre-belling of the tube ends is required by the Clamp Jaws to grip the tube ends.

The Rear Rod Guide and Stop is designed for a specific tube center-to-center dimension, and in conjunction with the Clamp Jaw Assembly determine the center-to-center dimension for the Rod Drive Gear Cartridges.

The Expander Rods used by the FLEXPANDER are special. The rods are .125" (3.175mm) diameter and made from Spring-type Steel. Each rod end is machined to accommodate the mounting of expander tips (bullet).

The Expander Tip (bullet) is made from a high wear resistant heat treated tool steel and is machined to a diameter tolerance of +/- .0001" (0.0025mm). Each ball is machined as a one piece unit that incorporates a base holder, which is screwed onto the expander rod. Each expander tip is vented to allow escape during expansion.

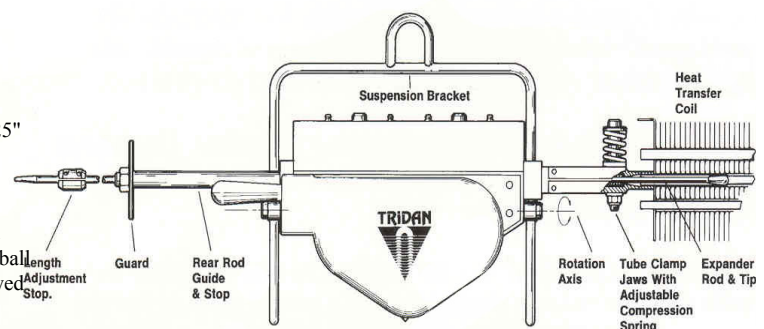
The Expander Rod Stops are used to limit the forward travel of the expander rods during the expansion cycle by bearing against the Rear Rod Guide and Stop Assembly, which in turn causes the friction clutch to slip and halts the rods forward progress. The stops are designed to bolt directly on to the expander rods.

Several types of Tooling Sets are available for the FLEXPANDER:

Complete Tooling Sets are designed for a specific tube outside diameter, wall thickness, and center-to-center dimension and consists of a Clamp Jaw Assembly, Rear Rod Guide and Stop, two(2) Expander Rods, two(2) Expander Tips, and two(2) Rod Stops.

TECHNICAL SPECIFICATIONS

Tube Diameters	.197" through (5.0mm)	
Tube Materials	Copper, Aluminum, other thin-wall materials	
Maximum Tubing Wall Thicknesses (These values are conservative—contact TRIDAN for specific requirements)	.020" (0.51mm) – Copper, ¼ to ½ Hard .020" (0.51mm) – Aluminum, ¼ to ½ Hard	
Tube Center-to-Center Dimensions	5/8" through 3" (15.88 / 76.2mm)	
Maximum Finned Length Expandable	Will advise—contact TRIDAN with your Special Requirements	
Tubes Per Cycle	Two (2)	
Minimum Tube Extension Outside End Sheet Required For Clamping	½" (12.7mm) for All Diameters, except	
Maximum Width of Adjacent End Sheet Flange Required For Clamping	1.375" (34.9mm)	
Expansion Speed		
- 60 Hz Power Supply	70 to 75 Ft / Min (21.3 / 22.9 Mtr / Min)	
- 50 Hz Power Supply	60 to 65 Ft / Min (18.3 / 19.8 Mtr / Min)	
Setup and Changeover Times	Complete change	-15 Minutes
	Center-to-Center Change	-15 Minutes
	Outside Diameter Change	- 8 Minutes
	Wall Thickness Change	- 3 Minutes



PHYSICAL REQUIREMENTS

Hydraulic	10 Gal. (38L) of ISO 46 Hydraulic Oil. Tridan does not furnish this oil as a part of the basic machine, since the oil cannot be shipped in the machine. See Spare Parts for Hydraulic Oil.
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