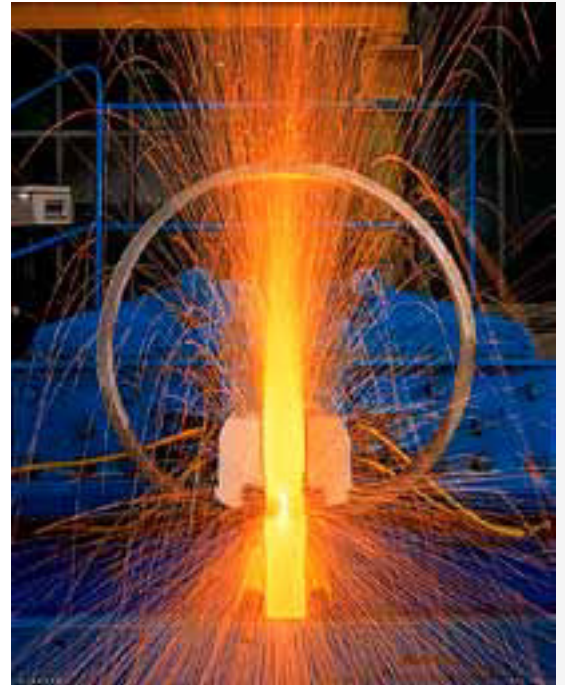


FLASH WELDED RINGS

Flash-welded rings are an alternative to seamless rolled rings and are used for similar applications. A length of (hot) bar material is bent around a mandrel or coiled into a ring, thereafter the two open ends are flash welded together. Grotnes Expanders are used to calibrate the ring and to eliminate local stresses after the welding process.



APPLICATIONS

Grotnes Expanders are used for sizing and forming flash-welded rings, such as, turntables, gear rings, slewing bearings and valves.

Applications include, agricultural machinery, automotive, medical MRI equipment, cranes, tunnel excavators, mining equipment and water transport systems.

Rolled and welded rings for the aerospace industry are calibrated on Grotnes Expanders. Rolled and welded rings are common practice in the aerospace industry to fabricate jet engine parts.

BENEFITS

- Less machining allowance is needed, as an Expander brings the inner diameter of the ring much closer to its final dimension while a perfect circle is achieved.
- Local stresses that build up in the ring during the fabrication process are eliminated. This results in less internal defects and a much more stable ring during post operations such as machining.
- Significant cost savings are realized as less material is needed and machining time is dramatically reduced.





EXPANDING

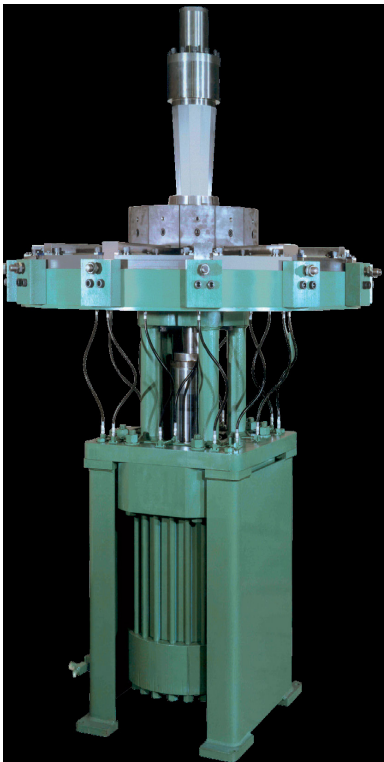
4-HE-16-12

A 16 ton push type hydraulic Expander. This Grotnes Expander is used for sizing metallic seals for butterfly valves. This Expander can size several product diameters with one set of tooling.



20-HE-350-12

A 350 ton pull type hydraulic Expander. This Expander is used for calibrating flash-welded rings. The expanded rings are used for jet engine rings.



26-HE-450-12

A 450 ton hydraulic Expander. This Expander sizes welded aerospace rings with a minimum diameter of 600 mm. The Grotnes Expander can be equipped with jaw extensions to size rings with an unlimited diameter range.

FEATURES

- Wide range of sizes, for rings up to 8000 mm in diameter
- Ring indexing rollers
- Unlimited range because of jaw extensions
- Quick tool change
- Position control system
- Gauge mode
- User friendly touch screen interface
- Automatic lubrication system

