



## FORGING EXPANDERS

### 24-HE-600-12

A 600 ton pull type hydraulic Expander. This Expander is used for sizing aerospace rings up to 1200 mm in diameter. The jaws are equipped with a water cooling system to rapidly cool down the expander segments after sizing of a hot seamless rolled ring.



### 44-HE-2400-12

A 2400 ton pull type hydraulic Expander. This Expander sizes seamless rolled rings, up to 7200 mm in diameter for industries such as power generation, aerospace, and construction. Extra features include indexing rollers to rotate the ring between expansion steps, plus equipment for quick tool change.



### 48-HE-3300-12

A 3300 ton pull type hydraulic Expander. This Expander sizes seamless rolled rings, up to 7200 mm in diameter for industries such as power generation, aerospace, and construction. Extra features include indexing rollers to rotate the ring between expansion steps, plus equipment for quick tool change.





# EXPANDING

## SEAMLESS ROLLED RINGS

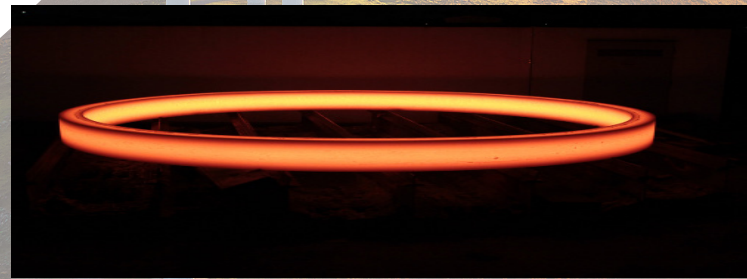
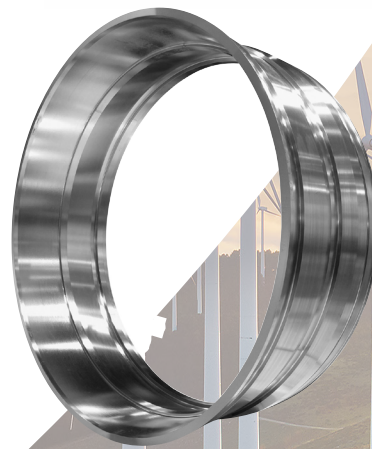
With an increased demand for large diameter seamless rings, rolled ring manufacturers face considerable challenges. To produce high quality rings for competitive prices and short delivery times, Grotnes' Expanders help ring manufacturers improve the quality of their products, while lowering the production costs and shortening the lead time.



## APPLICATIONS

Grotnes Expanders are used for sizing seamless rolled rings for slewing bearings, flanges, and gear rings. A wide variety of applications includes wind turbines, offshore technology, construction machinery and automotive parts.

Forged rings for the aerospace industry are calibrated on Grotnes Expanders. Seamless rings are widely used in this industry to fabricate jet engine parts made of exotic alloys with tight tolerances.



## BENEFITS

- Less machining allowance is needed, as an Expander brings the inner diameter of the ring much closer to its final dimension. A nearly perfect circle is achievable with tolerances to 0,5 mm ID and 0,2mm in roundness.
- Local stresses that may build up in the ring during the ring rolling 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 the machining time is dramatically reduced.

