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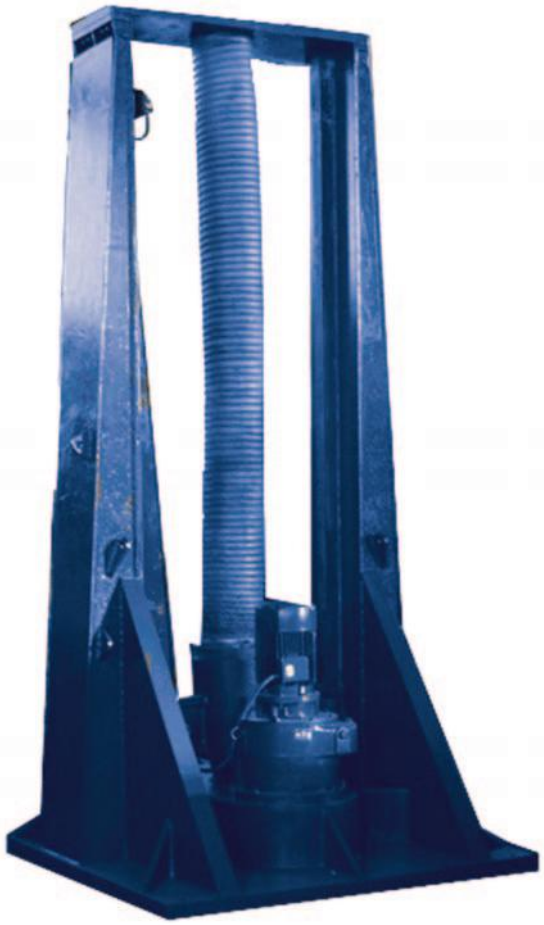


SCREW JACKS SYSTEM

THE WORLD... OUR PASSION
SINCE 1955

TECHNICAL BROCHURE

INTRODUCTION

The heavy duty screw jacks are mechanical linear actuators able to lift up to 800 tons (4 units). They are generally used to move the work piece to a comfortable height for assembly or machine operators, but also for loading and offloading it to and from transportation equipment. The jacking units can be connected by spreader beams or simply to the jacking wings of the vessel to lift or lower.

The screw jacks are able to move heavy loads slowly, accurately and safely. Each unit is made of:

- an electric motor
- a gear speed reducer
- the screw (or worm shaft)
- a worm gear

The screw jacks are powered by alternating current (AC) motors. The motor type determines the travel speed of the actuator. The motors are three-phase with voltage depending upon the size and lifting capacity of the jacking unit. Its power is such to provide the necessary torque to lift the rated load. A limit switch and a brake are used to stop the motor.

SCREW JACKS LIFTING OF A STATOR

The worm-gear speed reducer is an important part of the linear actuator package. The physics of the mechanical system will not allow high travel speeds. The reducer operates with sliding contact between the worm and the gear. This provides for a smooth transmission of power from the motor to the machine screw jack.
Safety factors in a worm-gear set are significantly higher than with other types of power transmission equipment, thereby making the chance of a catastrophic failure remote, even under the most demanding conditions.
The worm-gear set powers a threaded rod or lifting screw, providing lift or force application. Thanks to the small lead of these screws and the inefficiencies of the mechanical system, they are self-locking. This means a load can be lifted and will not back down without power being applied.
The rotating screw is a lifting screw that rotates but does not translate. An external nut or worm gear translates on the screw-extending or retracting depending on the input to the jack. The screw is built in a steel structure on heavy duty conical bearings and is made of carbon steel. The worm gear is made of a brass league, so that its internal threads will wear before the threads of the screw shaft.

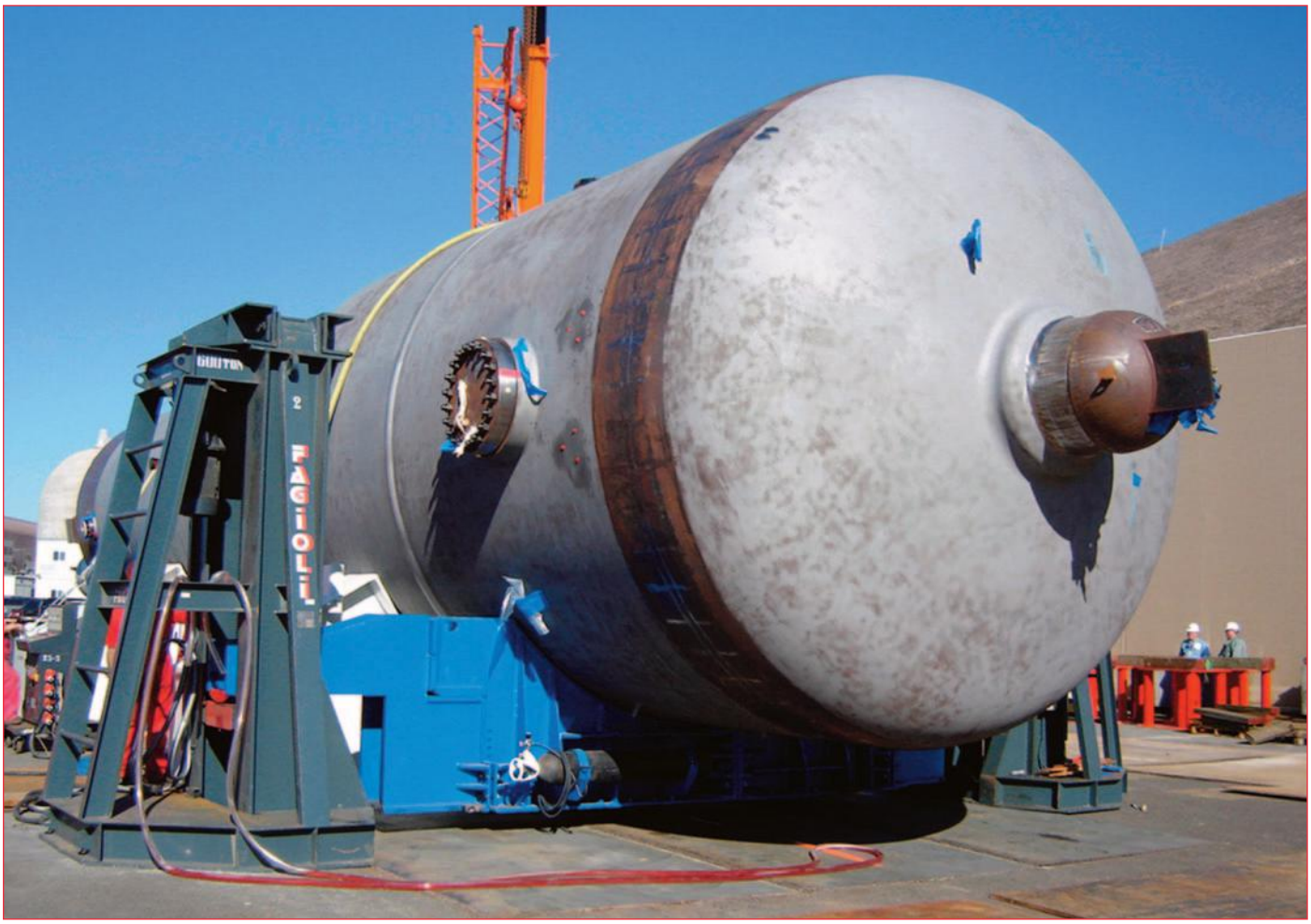
DETAIL OF A S
DURING LIFTING

LIFTING OF A STEAM GENERATOR WEIGHING 350 TON

SCREW JACKS SAFETY

The screws are regularly inspected for wearing, but as additional safety a carbon steel nut is added to the mechanism. This nut is at the bottom of the worm gear and is lifted by this; in normal conditions the safety nut does not support any load.

The failure of the threads of the worm gear will cause the load to be transferred to the safety nut or safety disc preventing the load from falling. The safety disc can replace the worm gear to complete the lift and allow replacement of the worm gear after its completion.



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