

PROTEM

A CUT ABOVE THE REST



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Shipbuilding Capability

- **PROTEM** equipment are used for the shipbuilding industry for the manufacturing and ship repair.
- Equipment designed and manufactured by **PROTEM** can be used within tight spaces and restrictive environments.



Shipbuilding

Shipbuilding Capability

- **PROTEM** offers a very large range of machines and tools to meet any application requirements for both the military (submarines, aircraft and carriers) and private sectors (cargo ships, ferries, passenger liners, etc) of the industry.
- They cover a tube diameter range from 3 mm (0,07") to 2235 mm (88") as standard. Possibility to go up to 4267 mm (168") on demand.



Shipbuilding Capability

- Our equipment is known for quality, ease of use, lightness, reliability and their varied capabilities.
- They provide great gains in productivity and ensure perfect quality of welded assemblies.



Our core values

- **QUALITY:** We know that the weld preparation quality is essential for a good weld
- **FIABILITY AND ROBUSTNESS :** Our customers work in demanding environment (nuclear industry, offshore ...) where the equipment has to be reliable.
- **CAPACITY:** Our customers need equipment which are able to cover all their range of diameters, wall thicknesses, materials, production rates, ...
- **REACTIVITY:** Because our customers need quick and relevant answers along with a perfect service
- **DEADLINE AND REQUIREMENTS COMPLIANCE:** We are entrusted with the most important and crucial projects of our customers and we are acting accordingly
- **SAFETY:** We are concerned about the safety of the workers and so we design our equipment according to this principle

Our Customers in the shipbuilding industry



ThyssenKrupp

Blohm+Voss

stx

FINCANTIERI

Navantia

DCNS



DAMEN



STOCZNIA
GDAŃSK S.A.

Some applications of Protem equipment in the shipbuilding industry

- Tubes Machining prior to welding small diameter tubes in tight spaces (submarines, machine rooms ...)



Some application of Protem equipment in the shipbuilding industry

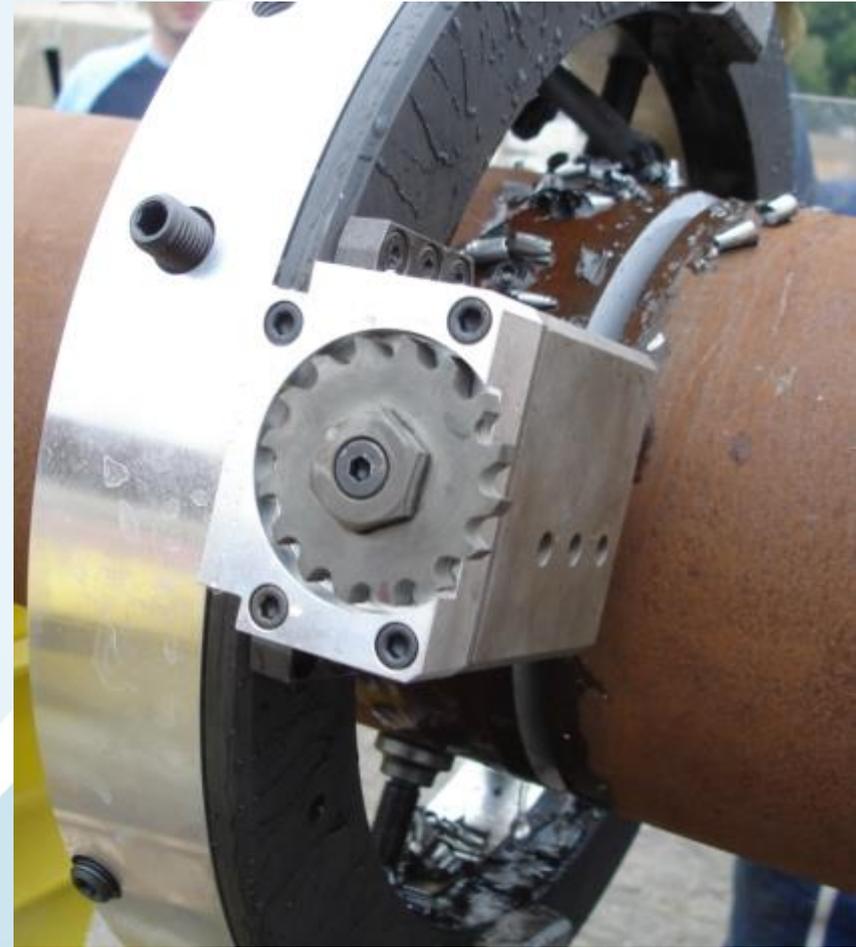
Repair of Seal Surfaces

- There are lot of different flanges on vessels or submarines
- No need to change the complete flange.
- Possibility to use a US25ACC flange facing module.



Some application of Protem equipment in the shipbuilding industry

Cutting pipes damaged by corrosion



Application of Serco equipment in the shipbuilding industry

Diesel motors on-site Repair

- **SERCO TU – TA** machines are used in the repair of diesel motors because of their boring stroke and the quality of the machining finish. It extends the duration of the life of the motor increasing savings and profits.



Application of Serco equipment in the shipbuilding industry

Diesel motors on-site Repair

- **SERCO TU-TA** machines can be used for several brands of motors. Our engineering team is also able to adapt our existing equipment to your specific needs.



Application of Serco equipment in the shipbuilding industry

Repair of Seal Surfaces and grooves

Machining with **SERCO TU 600** and a chain clamping system **SERCO FC 745**

Flatness Tolerances: 0.1 mm/m maximum

Roughness Tolerances : Ra between 6.3 and 12.5

Result : The operation reached the requested dimensions tolerances and roughness



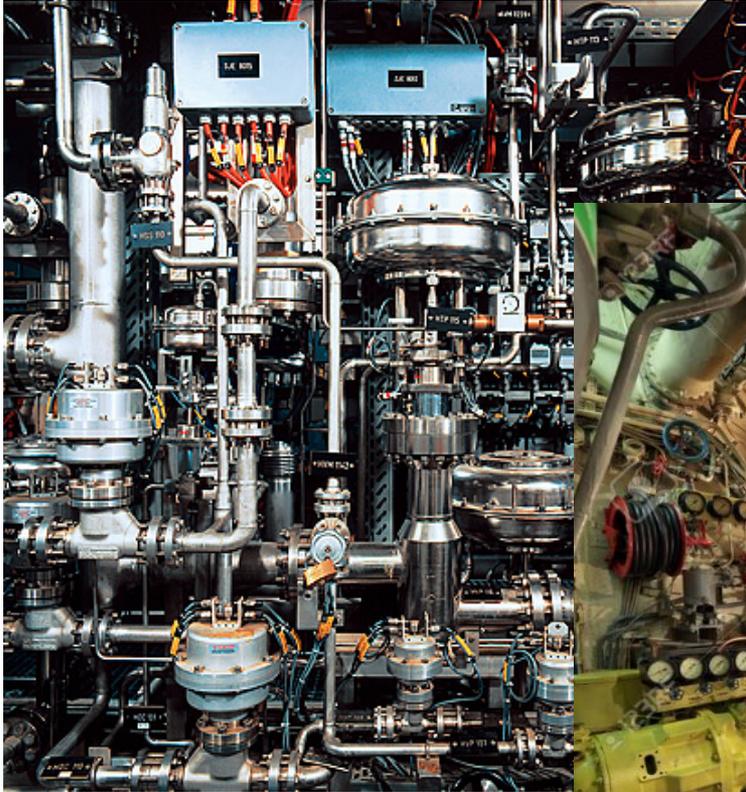
Where can our machines be used ?

Ships and Vessels: Propulsion area, Structure, Oil and Gas Piping



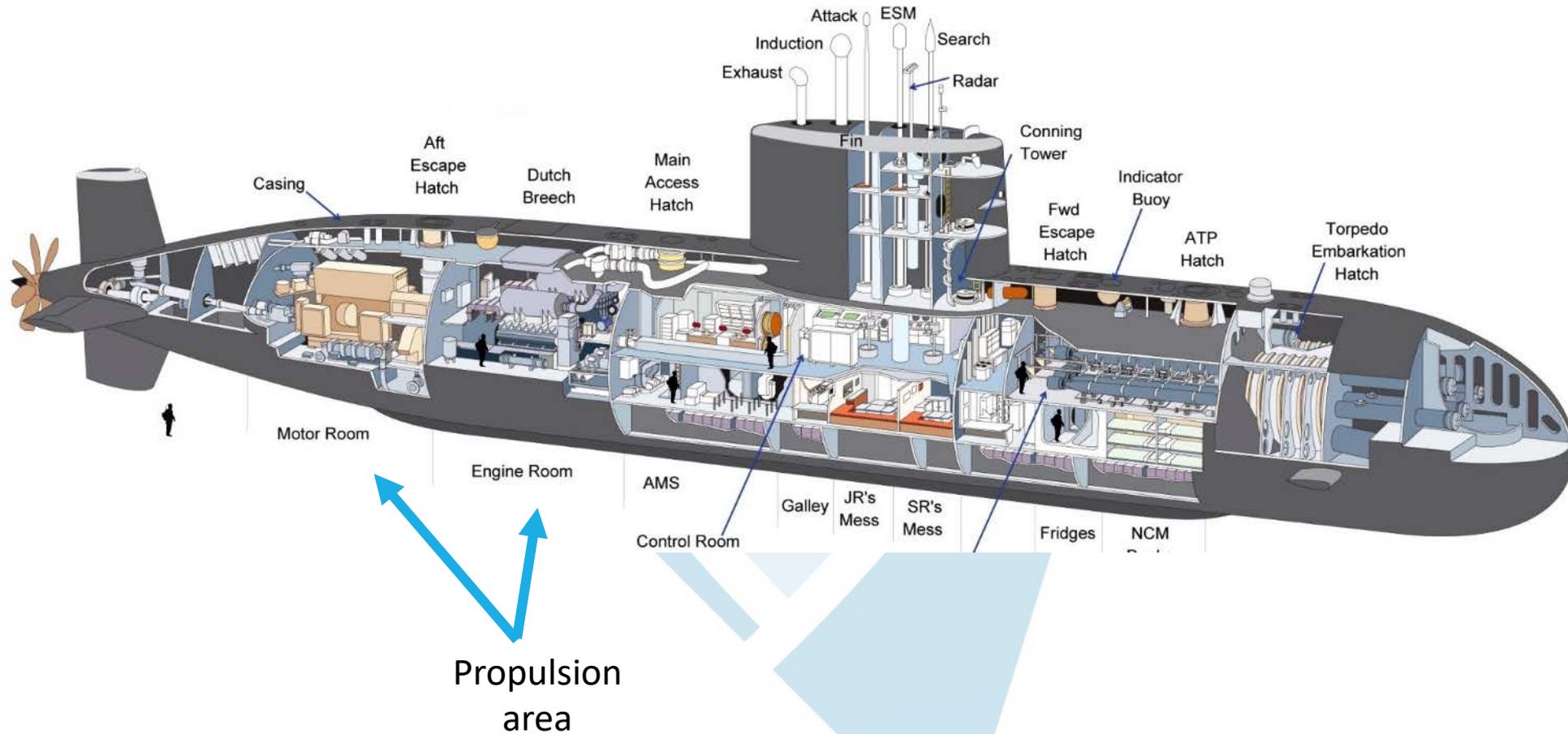
Where can our machines be used ?

Machine room



Where can our machines be used ?

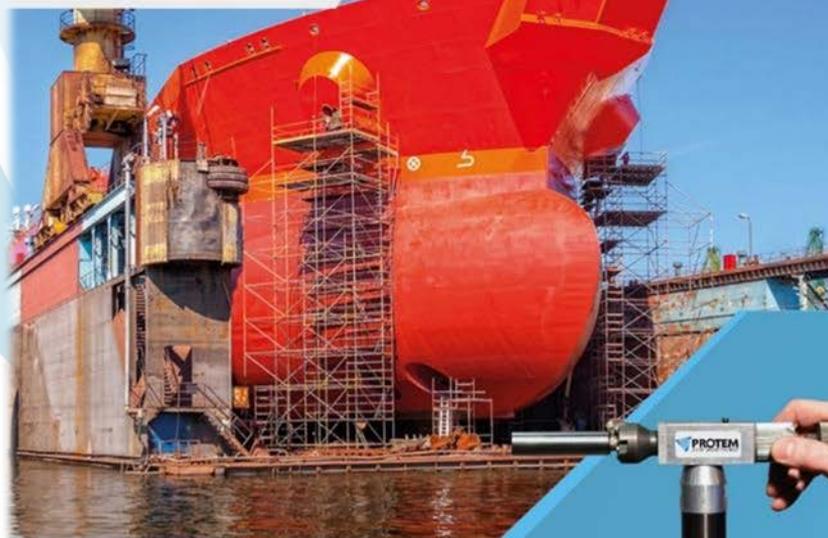
Submarines : Essentially in the propulsion area



SM8 and S18, the best tools for shipbuilding

SM8 & S18 ID CLAMPING BEVELING MACHINES

Ø 8mm ID to 42mm OD
0,315 ID to 1,654" OD



PORTABLE PIPE
BEVELING MACHINES
REPEATABLE HIGH QUALITY
WELD END PREPARATION



SM8 and S18, the best tools for shipbuilding

Advantages

Available with electric, battery or pneumatic drive

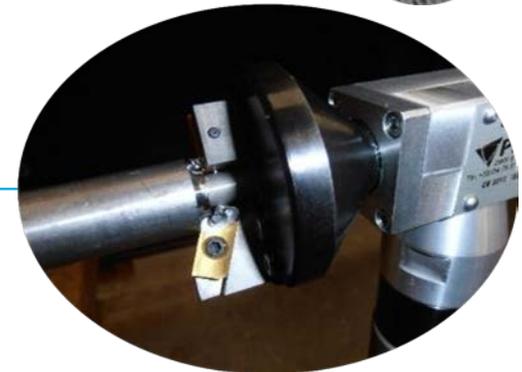
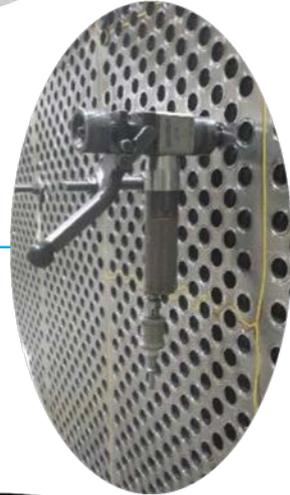
Simultaneous Facing, beveling and counterboring

Self ID centering

Quick feed lever option for repetitive jobs

Tool insert option

Design for low clearance area



TT cutting and beveling machine

- The TT-NG-series machines are designed for cutting and beveling pipe from 1/8" to 168" OD
- Powerful: Any material can be machined by the TT machines
- The TT-NG-series machines are built to cut and bevel tubes wall thickness up to 100 mm (3.937")



TT SERIES
OD MOUNT
ORBITAL CUTTING
& BEVELING MACHINES
1/8" to 168" OD
10,3 mm to 4267,2 mm OD

PERFECT CUTS
AND BEVELS
FOR MAXIMUM EFFICIENCY



LIGHT AND RUGGED
FOR LIMITLESS
MACHINING JOBS!



CUTTING AND BEVELING
OPERATION SIMULTANEOUSLY:
INCREASED PRODUCTIVITY

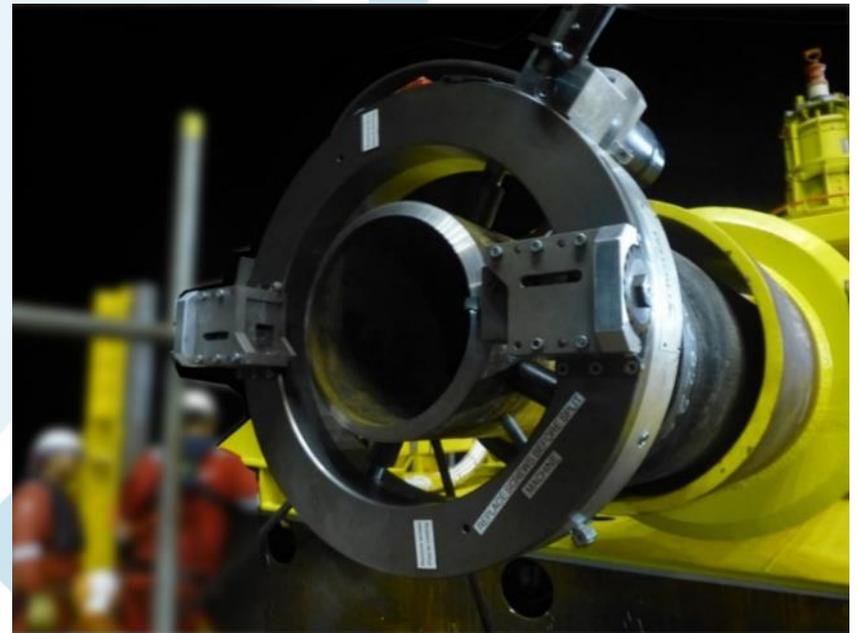


SLIDING TOOL HOLDERS
EASIER AND FASTER TO
SET UP

TT cutting and beveling machine

Advantages

- Can be use On-site
- Can be use in low clearance areas.
- Set up in any position. Possibility to open the machine in two **halves**.



US 25 Beveling machine

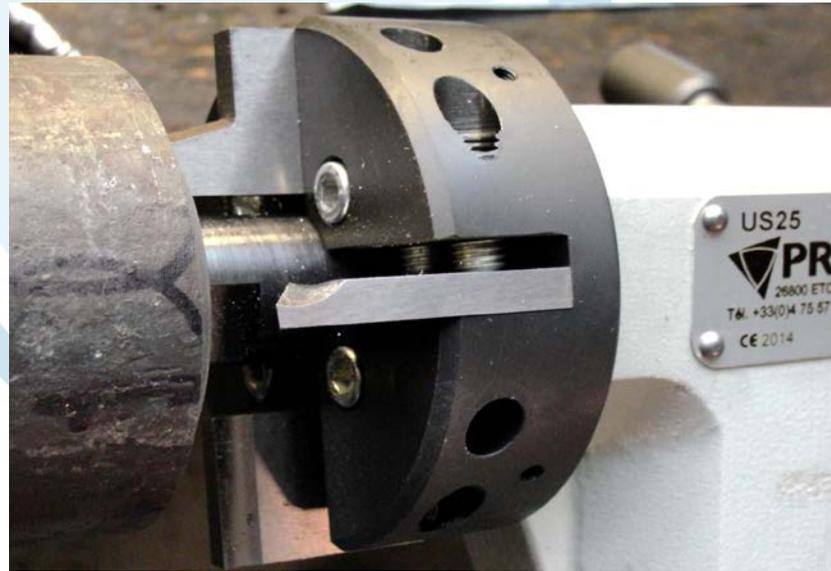
- The US25 machine is designed to bevel tubes with a diameter from 12,5 mm to 120 mm
- Lightweight, only 5,5 kg
- Powerful: Thick tubes in any material can be machined by the US25



US 25 Beveling machine

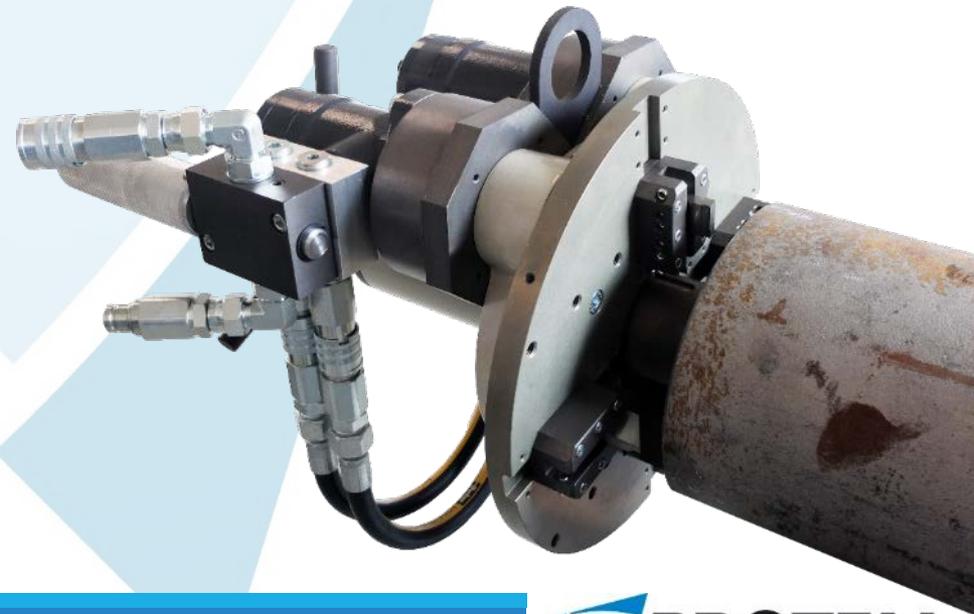


- Can be use on-site and in low clearance areas. Optimized design to allow jobs in small clearances areas.
- Easy to handle and set up.
- Up to 4 tools at the same time.



US Serie Beveling machines

- The US Series cover a range from 12,5 mm from 914 mm (1/2" – 36")
- Easy to handle and set up. Lightweight.
- Versatile and reliable machines. Lot of options available.



Special equipment Examples

Submarines : Beveling machine for submarine Hulls

Protem designed and manufactured a milling machine with an adjustable machining head which will work on the upper and lower end of the hull section.

The work to be performed is compound bevels on the inner and outer edge of a circular pressure hull section.

Thickness of section varies between 55 and 100 mm



Special equipment Examples

Submarines :

Automated Machine for welding submarine hulls

Protem designed and manufactured 3 automated machines using a MIG/NARROW GAP welding heads (10 mm gap, 100mm deep).

The weld is performed in two simultaneous passes though diametrically opposed welding heads in multiple passes using an oscillating wire feeder.

Weld fusion problems are eliminated.

High quality welds are achieved in both vertical and horizontal position.

The work to be performed is to weld thick plates (120 mm) using MIG/NARROW GAP process (horizontal and vertical).

