

COMPACT UNIVERSAL ORBITAL CUTTER

AREA OF EXPERTISE

- Mechanics

CERN developed the orbital cutting machine for repair of awkwardly located pipes in tight spaces. It is relevant for the industrial piping needs of accelerator facilities, as well as in sectors with environmental hazards, such as oil and gas piping, heat exchangers, and piping in nuclear plants.

IP STATUS

- Know-how
- Detailed design and schematics

ADVANTAGES

- Solution more compact with respect to other solutions on the market
- Easily adaptable to a wide range of pipe diameters, thickness and material

TECHNOLOGY READINESS LEVEL

- 1st prototype manufactured at CERN
- 2nd prototype manufactured at G.B.C. Industrial Tools S.p.A.

SPECIFICATIONS FOR MACHINE DEVELOPMENT

- Autonomous cutting, driven by hydraulic motor.
- Flexible diameter (from 100 to 1200 mm).
- Adaptable circular saw for pipes of different thicknesses and materials.
- The device includes: a chain which holds the machine in contact with the tube and allows the machine to move around the tube; a power supply and control for electric motor (for machine displacement); a hydraulic power supply (for autonomous cutting)
- Cuts pipes in a range from 100 mm in diameter to 1200 mm in diameter (maximum pipe thickness 7 mm)
- Hydraulic motor power - 1100 W
- Electric motor power - 15W
- Blade idle speed - 80 to 300 rpm
- Blade diameter – 68mm
- Cutting speed - 20 – 60 mm/min
- Feeding system - Steel wheels
- Machine rotation direction - Clockwise or Counter-Clockwise
- Feeding speed - Manual
- Weight (body only) – 5kg
- Pipe locking system - Chain
- Guiding system - Chain

CONTACT

kt@cern.ch

Find out more at:
kt.cern



APPLICATIONS

- High energy physics laboratories.
- Nuclear facilities.
- Oil and gas industry

PHOTOS OF THE SECOND PROTOTYPE

Copyright CERN

Author: Luca Dassa

Note that for the second prototype shown below some of the above listed specifications are different.

Figure 1

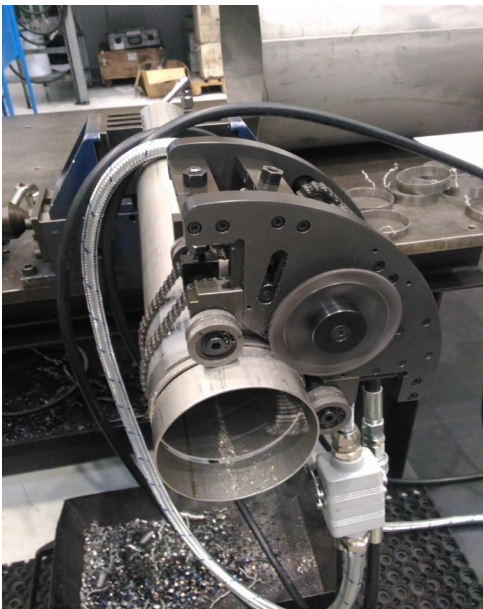


Figure 2

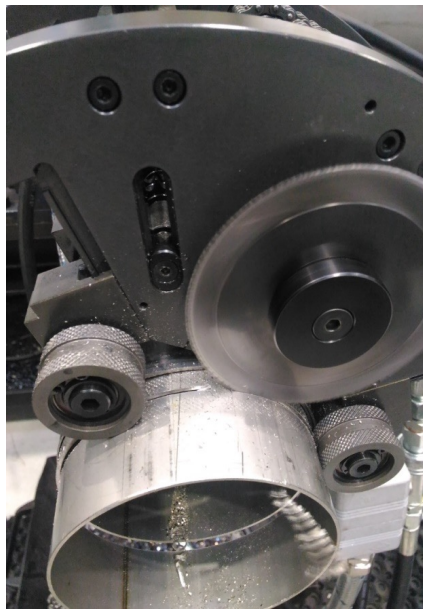


Figure 3

