

RIAL Vacuum can also count on numerous manufacturing techniques according to the required technical specifications; some are internal, while others are outsourced to highly qualified sub-contractors which offer a whole range of production methods.

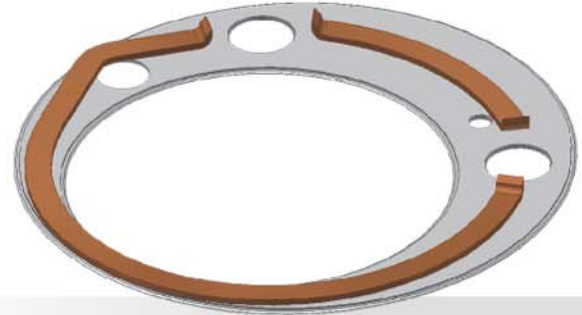
RIAL Vacuum is equipped with a storage area inside the workshop, and the raw material is suitably identified to allow traceability.

The workshop is equipped with precision machinery (CNC turning and milling), TIG and MIG welding machines for stainless steel, aluminium and copper. Rial Vacuum welders are qualified according to UNI EN ISO 287-1. Their qualification covers a thickness range from 0.15mm to 25mm; they have gained a great deal of experience in TIG welding most of all on stainless steel with or without filler material. The quality of TIG welding is assured by application of internal procedure QIS-1. The qualification of welders and welding process is always guaranteed by a third part company.





Special joints were developed for the CERN LHC Project (copper OFHC shunts inside Aluminium 5083 blocks) and evaluated by ultrasound inspection of brazed areas.



Brazing of OFHC copper thermalization rings onto AISI 316L plate for the “central plate” component of the Insulation Vacuum Barrier (LHC Project) CERN



#### BEAM PORT ABSORBER

Diamond Light Source LTD (U.K.)

Two different brazing techniques were tried out for the manufacturing of these items: copper cooling tube to forged copper OFHC body, and AISI 316L sleeve to forged copper OFHC body.

RIAL Vacuum is equipped to clean UHV components using standard procedure, such as:

microblasting or sandblasting

ultrasonic cleaning with alkaline solution at 60°C

rinsing with pure water

hot air drying in closed-cycle furnace at 120°C

Special treatments (i.e. electro-polishing, vacuum firing, outgassing, etc.) are available on request.