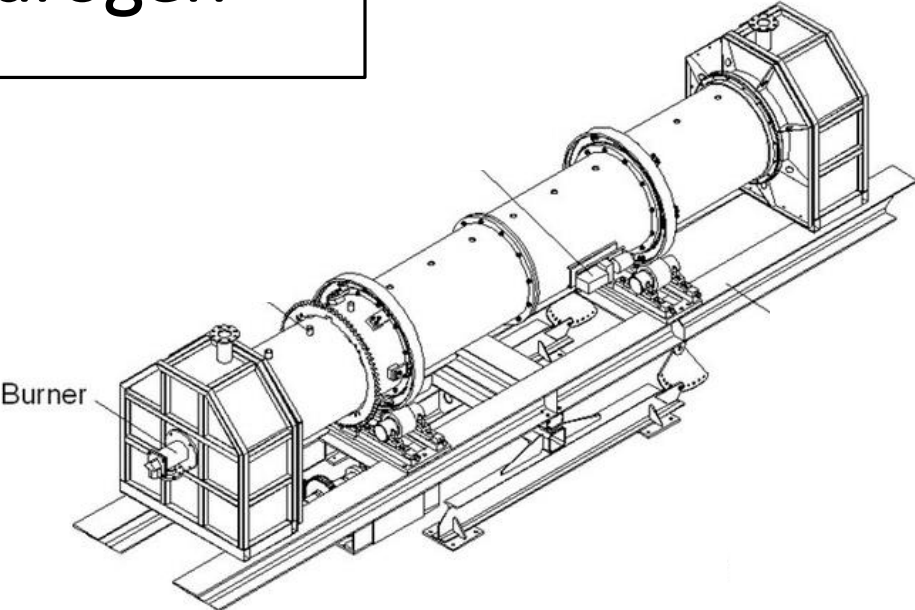
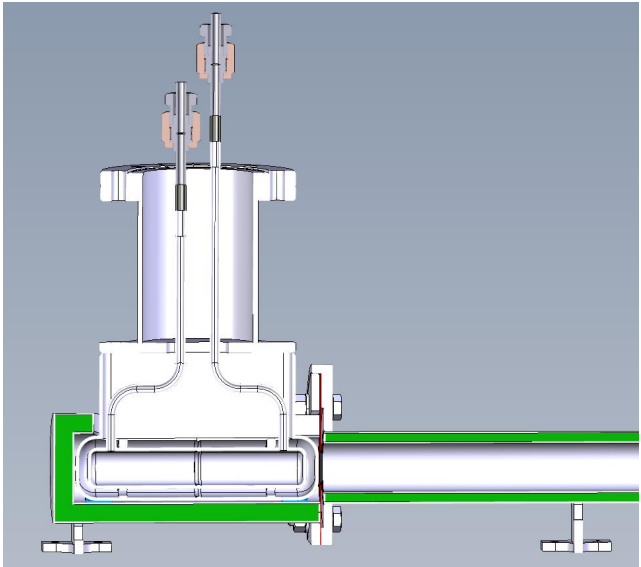


SCHIFFER
Metall- & Vakuumtechnik GmbH

Schiffer: Our Journey from vacuum to hydrogen



Schiffer Metall- & Vakuumtechnik GmbH

- 1997 foundation
- 2018 takeover by DTG
- 2023 75 employees, 1 production site

DTG GmbH Development & Technology

- 1988 foundation
- 1992 first contact to China
- 2008 foundation DTG Shanghai
- 2014 foundation DTG Swiss
- 2017 Establishment of factory planning by taking over company dekaplan
- 2018 take over of Schiffer
- 2019 establishment of repair- & maintanceservice by taking over company MRW
- 2023 80 employees, 4 sites (without Schiffer)

DTG

Development & Technology



Production technology

Turning
Milling
Sheet metal working
Steel construction
Welding
(DIN EN 1090 EX 2)



Plant engineering

Development
Construction
Manufacturing
Assembly





DTG

Development & Technology



Production technology

Turning
Milling
Sheet metal working
Steel construction
Welding
(DIN EN 1090 EX 2)



Plant engineering

Development
Construction
Manufacturing
Assembly



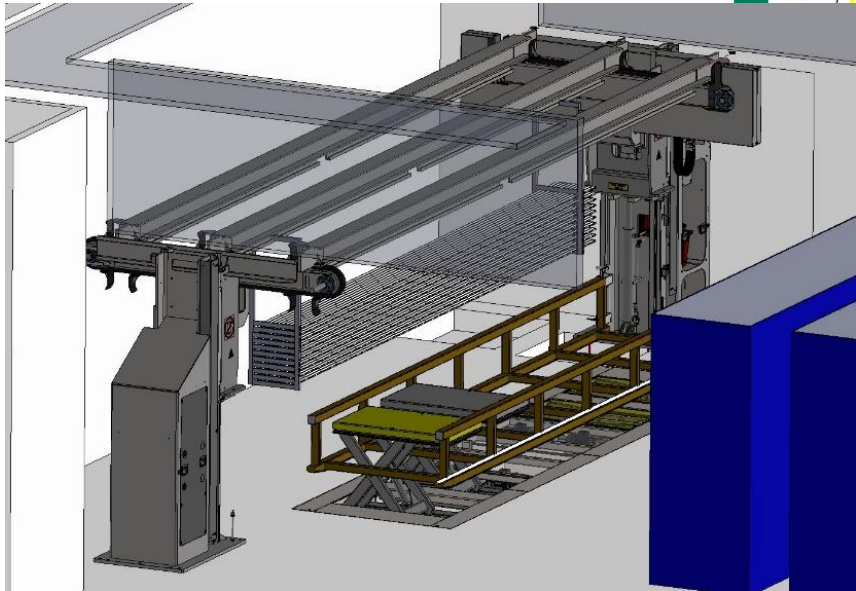
Factory planning

Project planning
and management

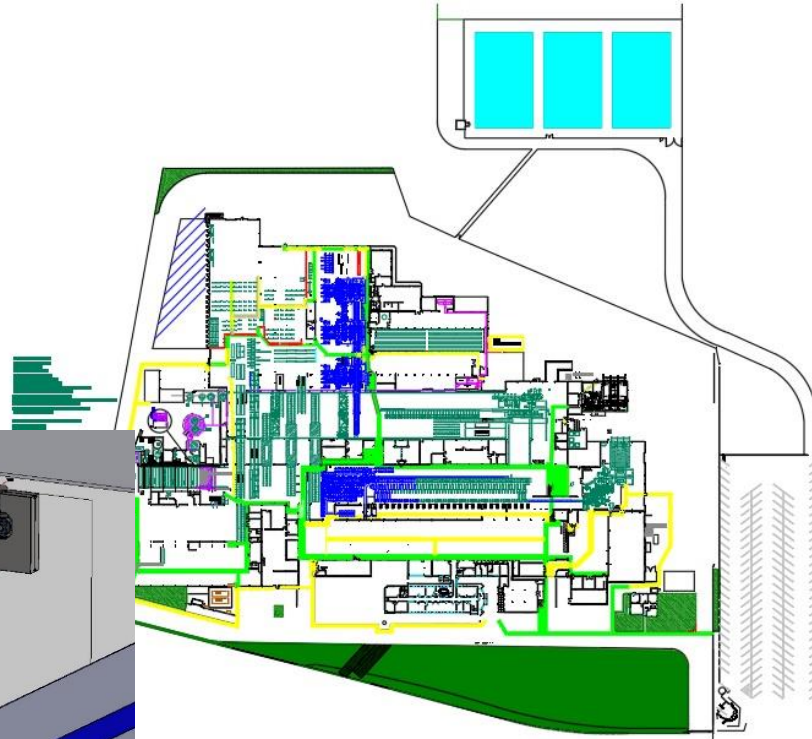


Industrial service

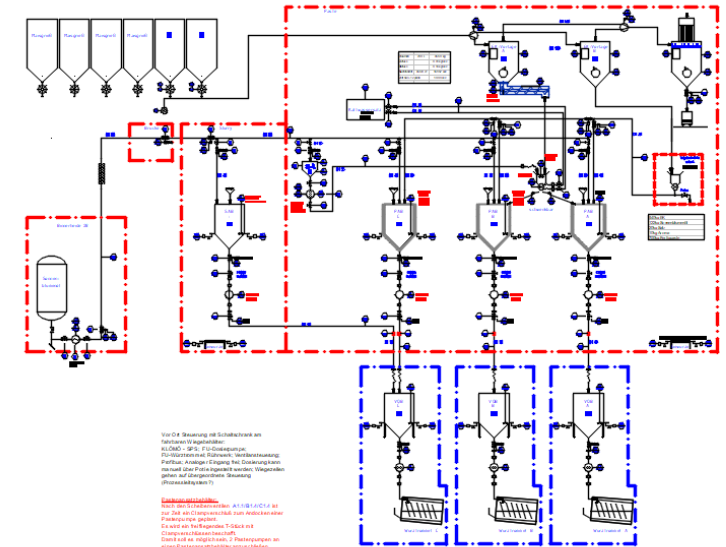
Repair, maintainace and
assembly



3D planning and construction



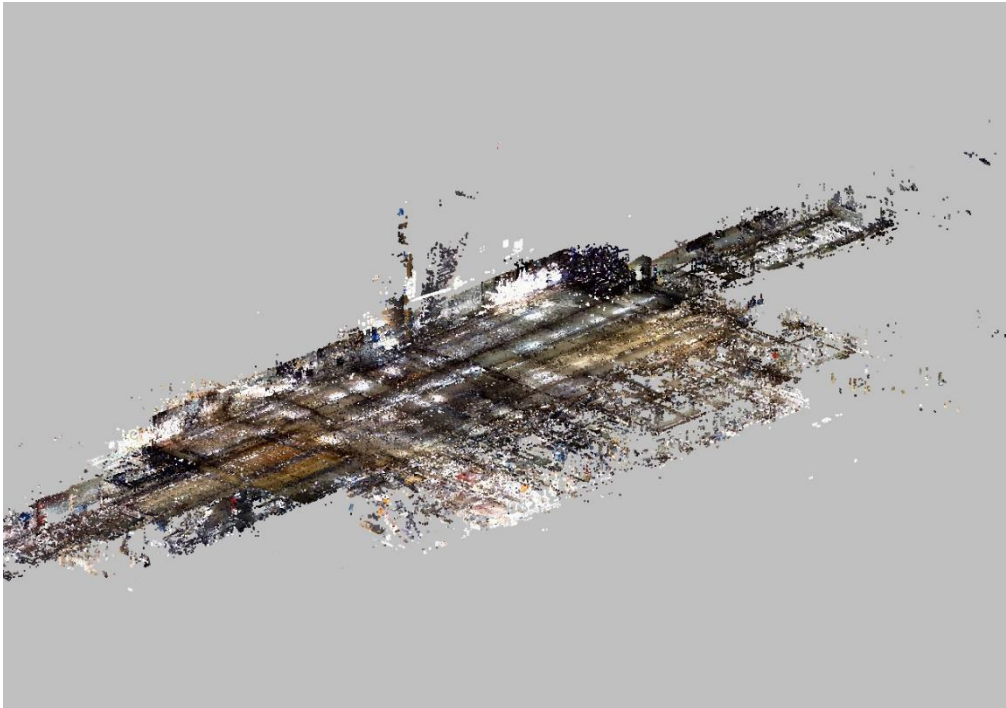
2D Layout planning



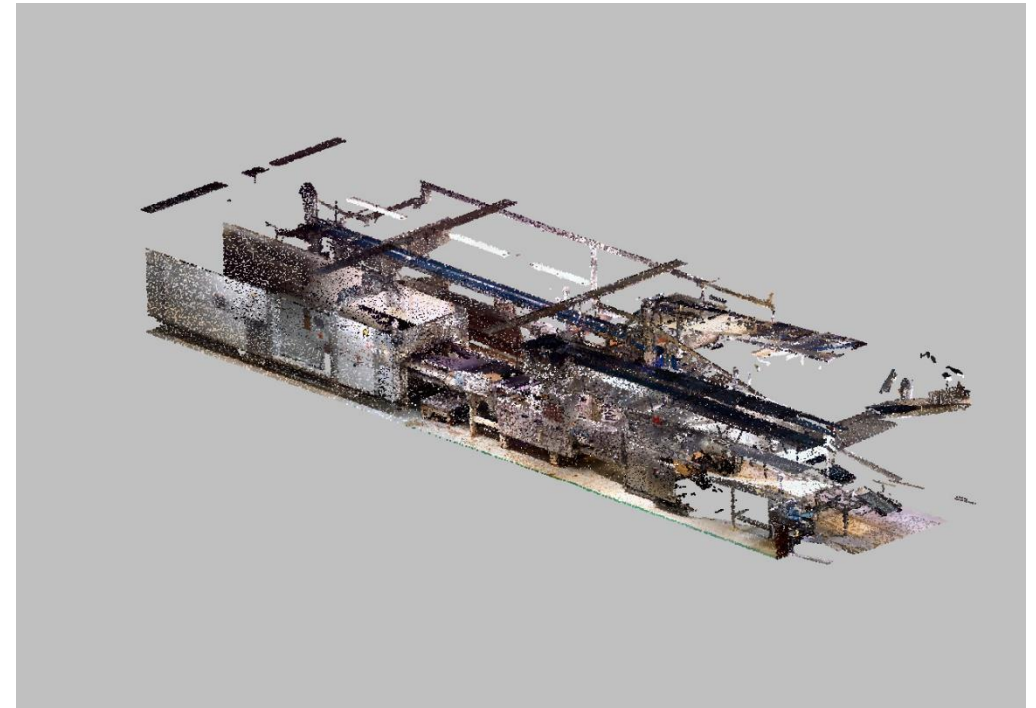
P&ID flow diagrams

planning and design of production plants in 2D and 3D

Laserscanning



Laserscanning: point cloud unprocessed

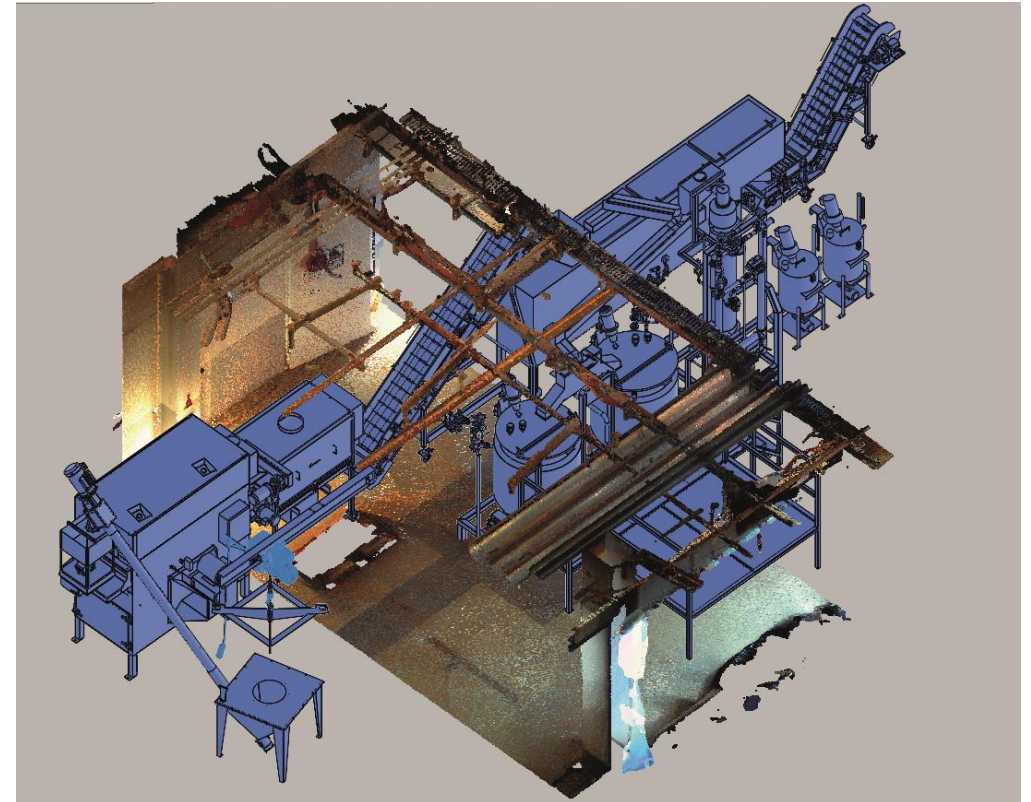


Laserscanning: workspace cut free

Laserscanning



Laserscanning: detailed view



Collision check by overlaying scan and 3D construction

DTG

Development & Technology



Production technology

Turning
Milling
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(DIN EN 1090 EX 2)



Plant engineering

Development
Construction
Manufacturing
Assembly



Factory planning

Project planning
and management



Industrial service

Repair, maintainace and
assembly



Global procurement service

Procurement
customised
drawing parts
(OEM parts) in Asia

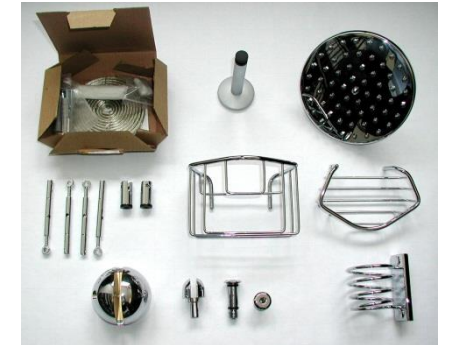


Procurement of customised drawing parts (OEM parts) in Asia

Single Parts – Assembly – Article for sale



Drilling parts



Accessories



Punching parts



Forging parts



Assemblies

Turning



max. diameter 1750 mm

Milling



max. dimensions:
X: 1100 mm y: 3000 mm z: 1100 mm

Welding



WIG

100% of the weld seams are tested by
a helium leakage test
Standard: $< 1 \times 10^{-9} \text{ mbar}/(\text{l} \cdot \text{sec})$

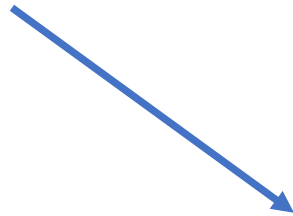


Electron Beam Welding

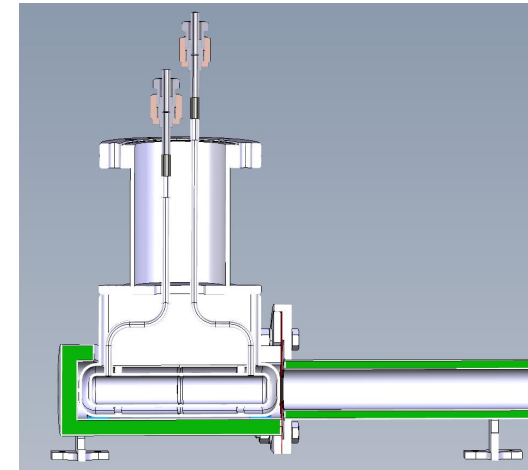
Surface Finishing & Cleaning & Assembly (clean room compatible)



DTG
Engineering

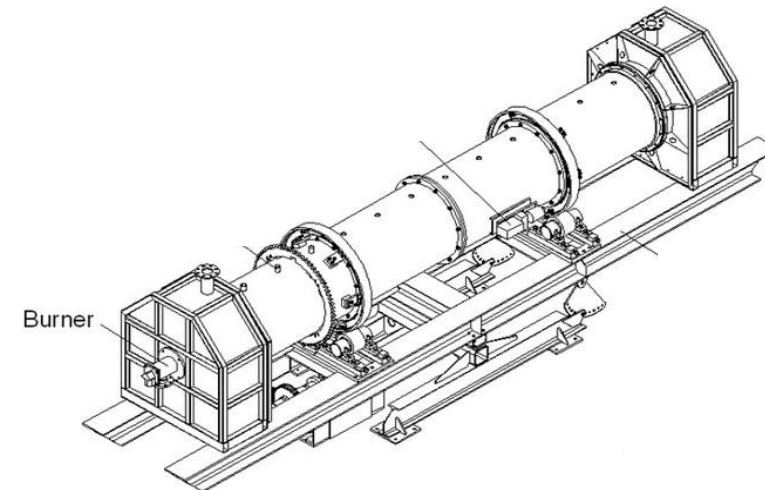


Our journey from
vacuum to hydrogen

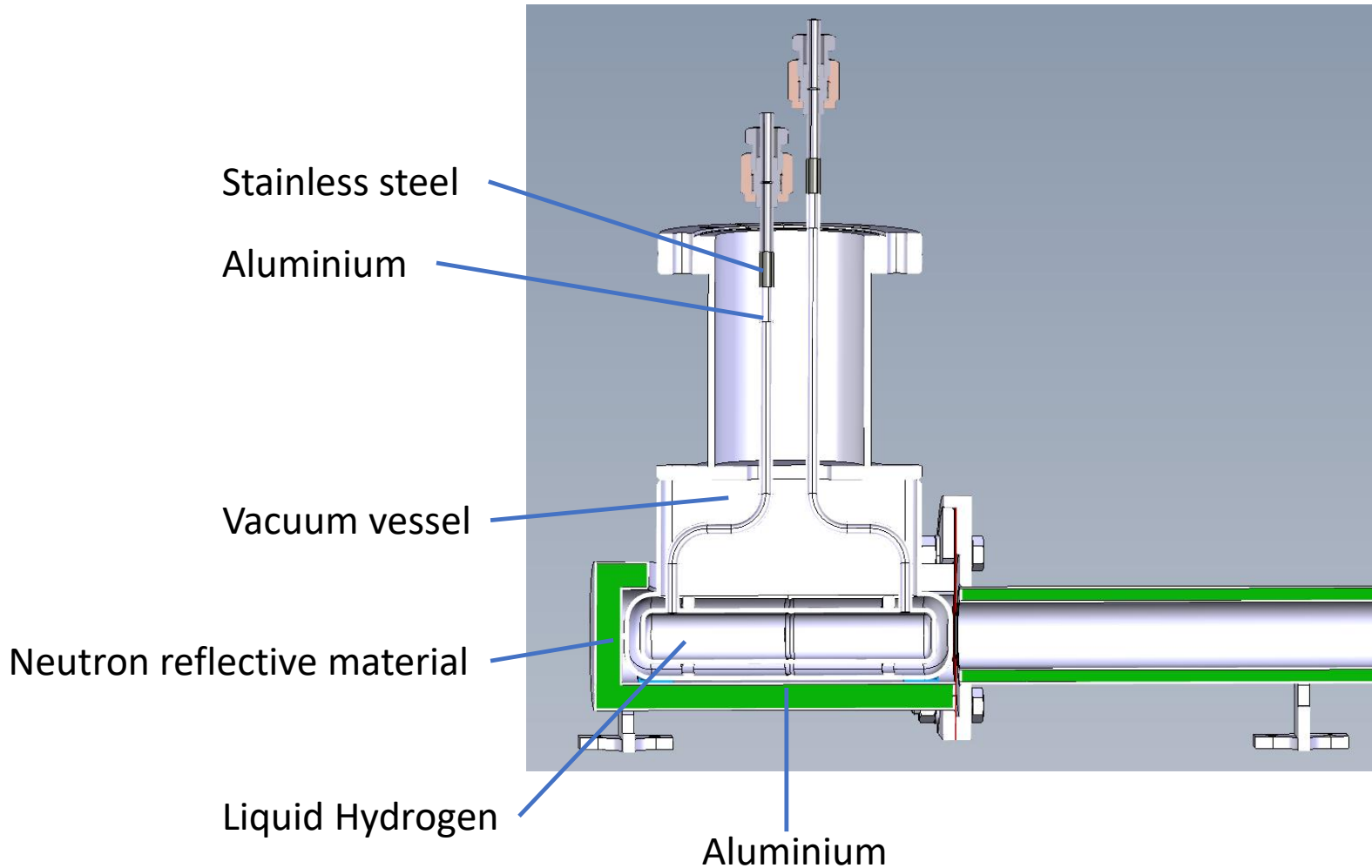


Enabling hydrogen research projects

Production technologies



Developing & implementation of hybrid heating concepts



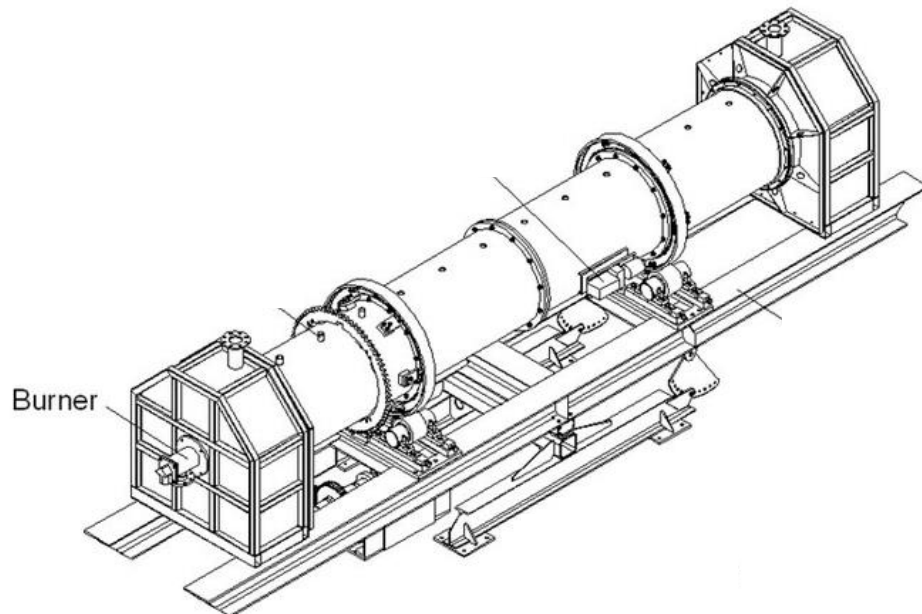
Hydrogen tight & vacuum compatible
 → Leakrate < 1×10^{-9} mbar/(l*sec)
 → high requirement for cleanliness

Aluminium
 → Electron Beam Welding

Aluminium Stainless steel combination
 → Friction welding adapter

Assembly
 → Clean room compatible

Enabling hydrogen research projects



Developing a hybrid heating concept for a rotary kiln

Drying process for quartz sand

20 t / h

800 °C

residual moisture < 0,2%

Goals:

Combination of inductive heating and
natural gas / hydrogen burner

fuel gas mixture 100% natural gas -> 100% H₂

Approach to solve the chicken-and-egg problem

The concept is transferable to various industrial kilns



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