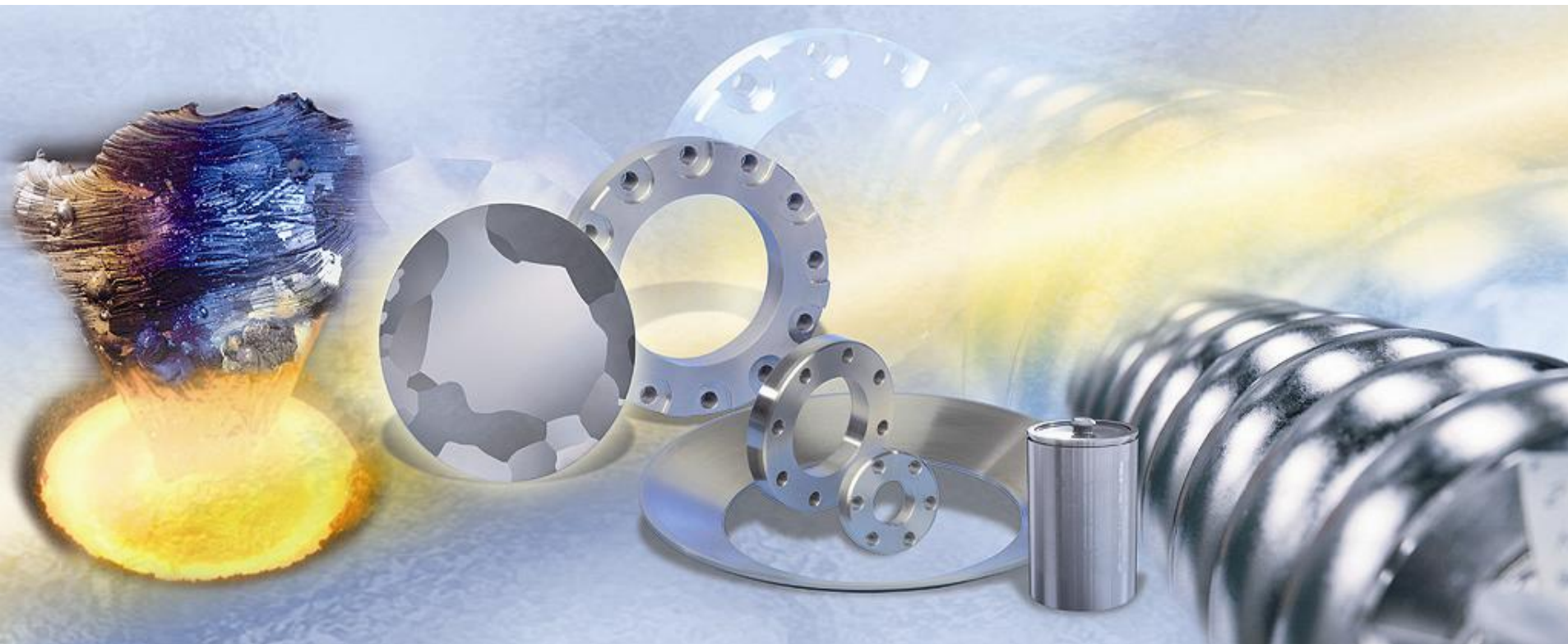


High pure Niobium

Industrialisation, Alternative Production Ways,
and Strategic Cooperation



High pure Niobium

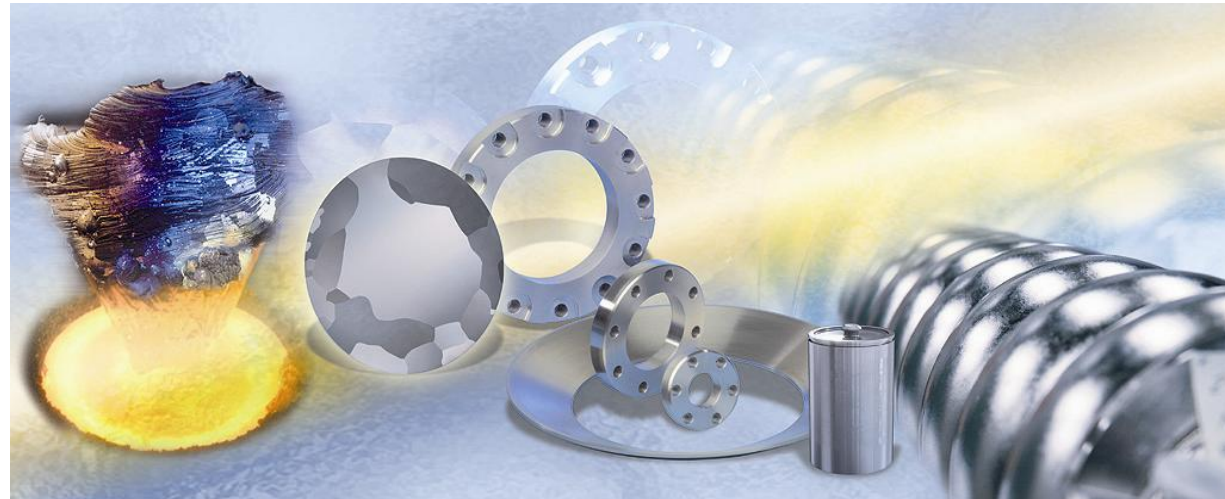
Nb RRR Products

Short Company Overview (HERAEUS), (Plansee)

Industrialisation,

Alternative Production Ways,

Strategic Cooperation

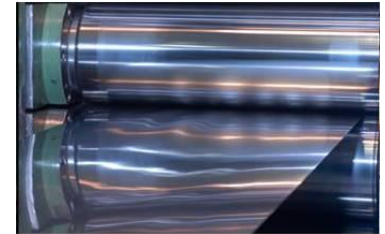


Nb RRR Products

Sheets in Cooperation with **PLANSEE**



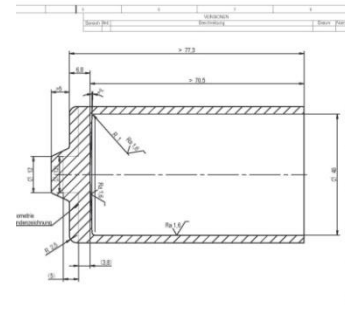
Tubes



HOM coupler bodies

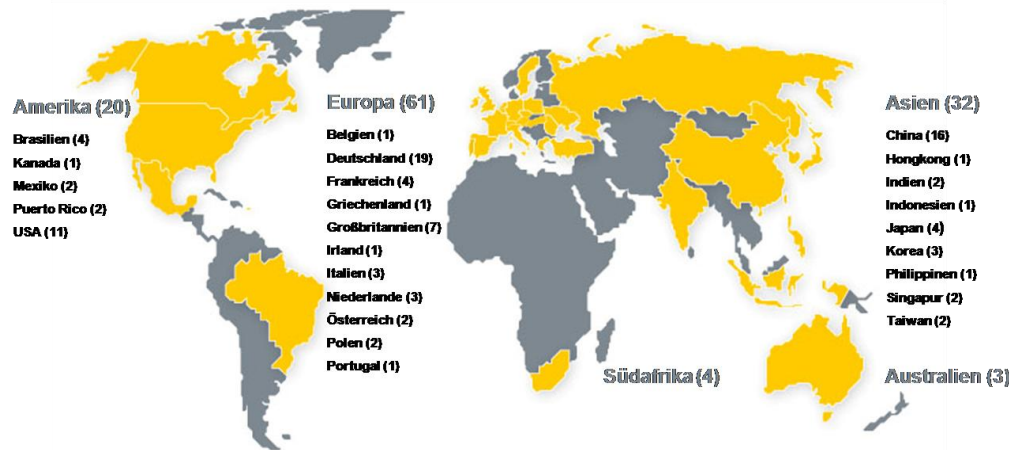
Rods

Large Grain Discs



Short Company Overview

Heraeus is present worldwide with 120 facilities and 25 development centers.



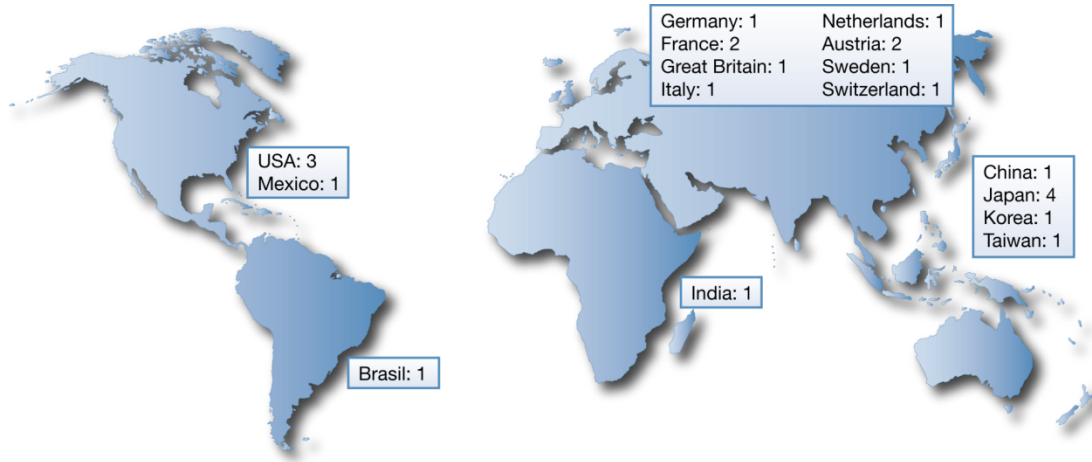
*Karte zeigt Anzahl der Standorte, Stand 31.12.2009

Zahlen, Daten, Fakten 2009

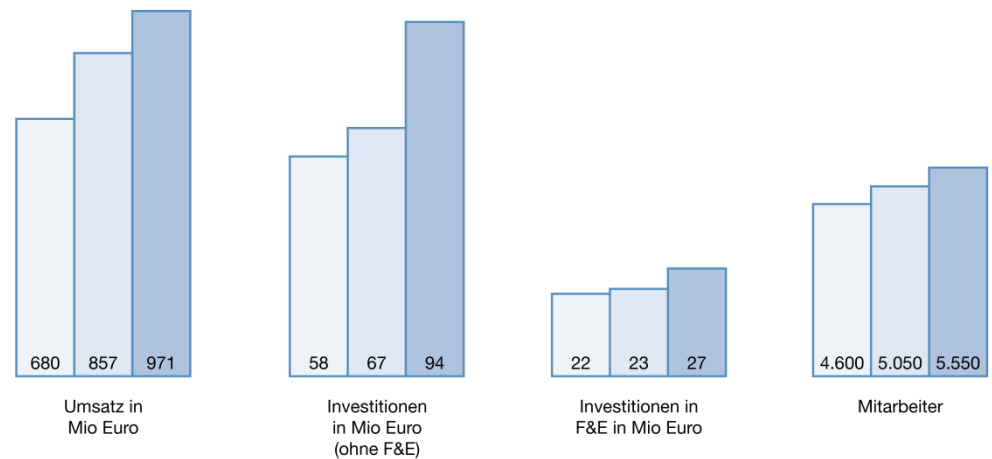
Heraeus		
Produktumsatz	Edelmetallhandelsumsatz	Mitarbeiter per Jahresende
2.586 Mio. €	13.634 Mio. €	12 340

Konzernbereiche		
	Produktumsatz	Mitarbeiter
Edelmetalle – W. C. Heraeus	1.666,8 Mio. €	4902
Sensoren – Heraeus Electro-Nite	294,5 Mio. €	3109
Biomaterialien und Medizinprodukte – Heraeus Medical	59,9 Mio. €	173
Dentalprodukte – Heraeus Dental	288,8 Mio. €	1453
Quarzglas – Heraeus Quarzglas	199,0 Mio. €	1429
Speziallichtquellen – Heraeus Noblelight	71,6 Mio. €	707

PLANSEE Hochleistungswerkstoffe Weltweit.



23 Unternehmen in 16 Ländern



2004/2005

2005/2006

2006/2007

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Industrialisation means

- Quality Assurance
- Stable Production
- Serial Quantities
- Continuous Production runs
- Planning Reliability

High pure Niobium

- Quality Assurance



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- Stable Production

Melting and processing of about 80 t/a of NbZr1% for the lighting industry



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- Serial Quantities
- Continuous Production runs
- Planning Reliability

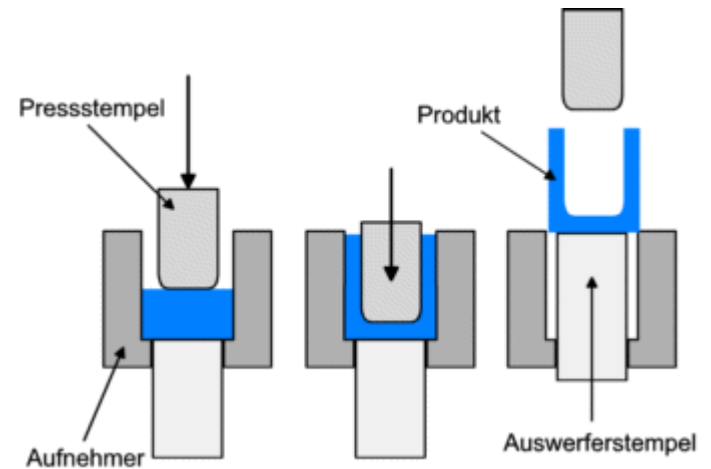
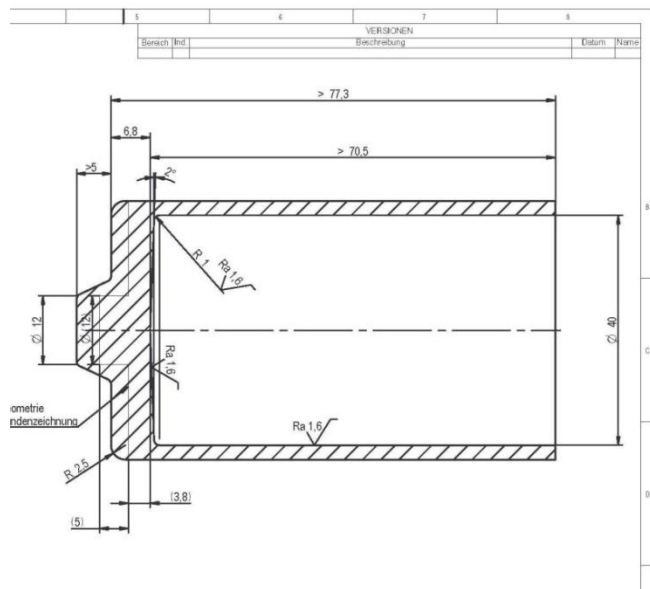
Not given for Nb RRR applications
Waiting for X-FEL and ILC

The industry is still waiting for years,
but hopefully it will start now.

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Alternative Production Ways

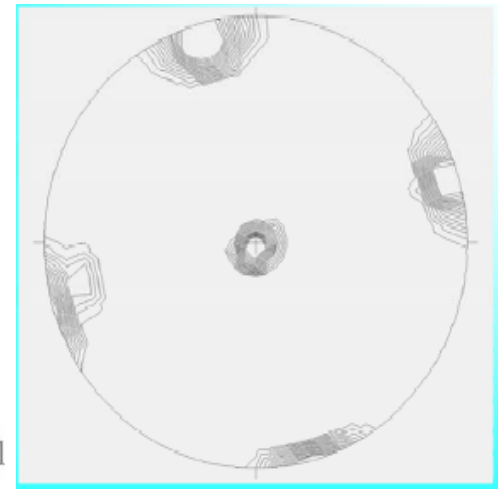
- backextruding of seamless tubes and HOM coupler housing



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Alternative Production Ways

- large grain discs direct cut from Ingot

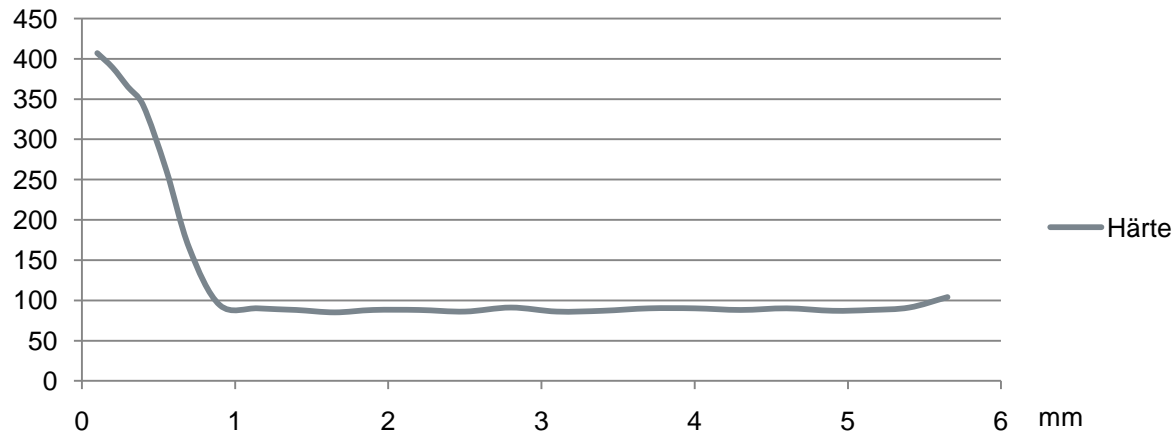


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Alternative Production Ways

- NbZr1% as alternative material for NbTi flanges

Hardness DPH



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Alternative Production Ways

- definition of the right steps in the production chain

it would save material to do the „T“ connecting at long tubes, not cutted to the final length



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Alternative Production Ways

- is intermediate annealing needed ?

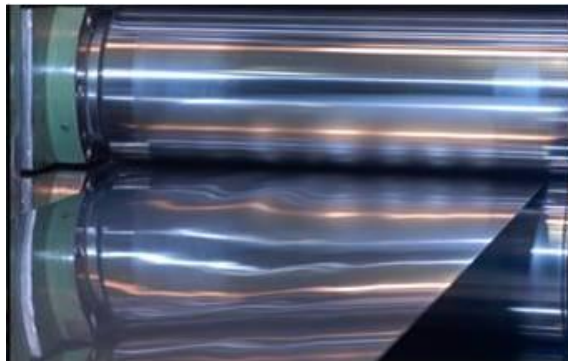
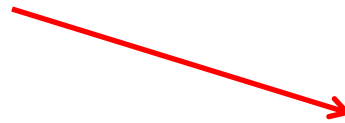
it would fit for the cavity performance
to do only the final annealing at the
finished cavity

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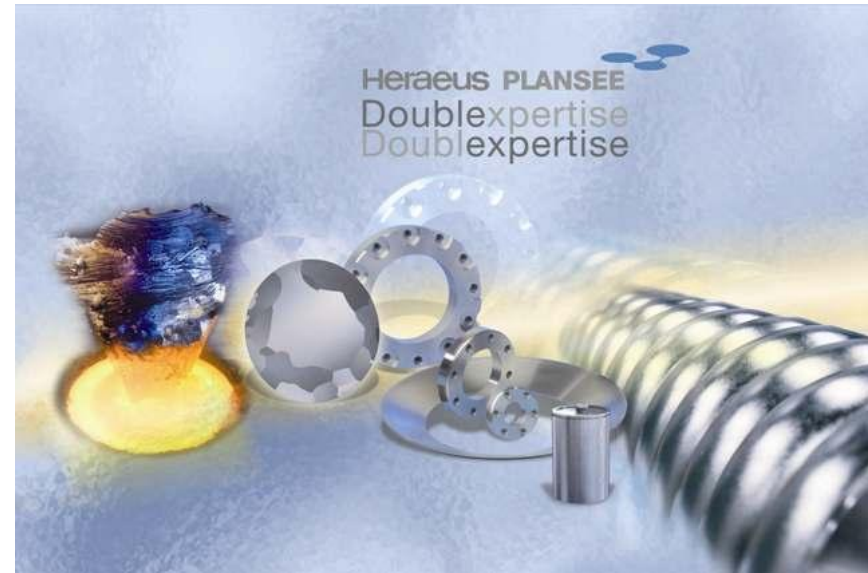
- Strategic Cooperation



Heraeus



PLANSEE



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Thank you

Heraeus PLANSEE
Doublexpertise
Doublexpertise

