

DOHMEYER

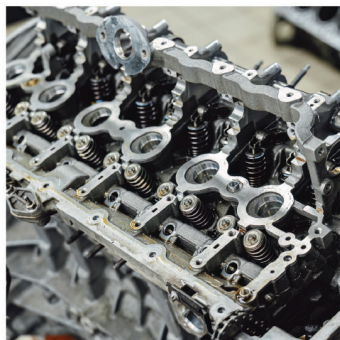
CRYOGENIC • FREEZING • PRECISION

Cryo
Tempering
Chambers



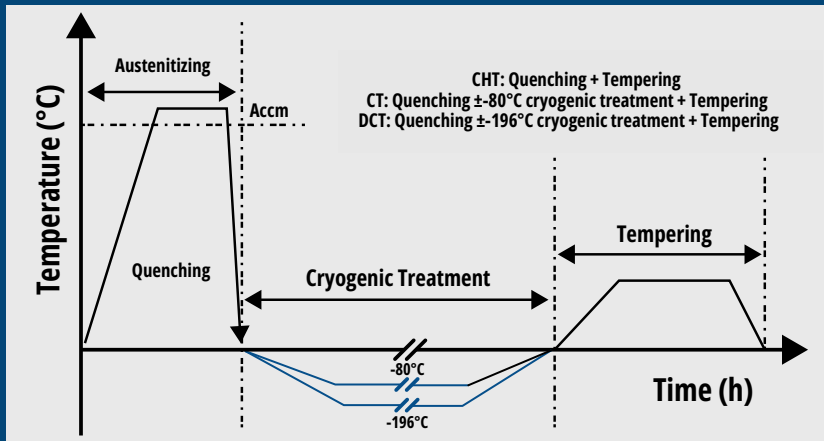
**All-in-One
Solution**

**Go from
-185°C
to +650°C
in one
chamber**



Cryogenic metal treatment

The principles of cryo metal treatment



The more alloy and carbon-rich steel, the deeper the cryogenic treatment is required to eliminate retained austenite.

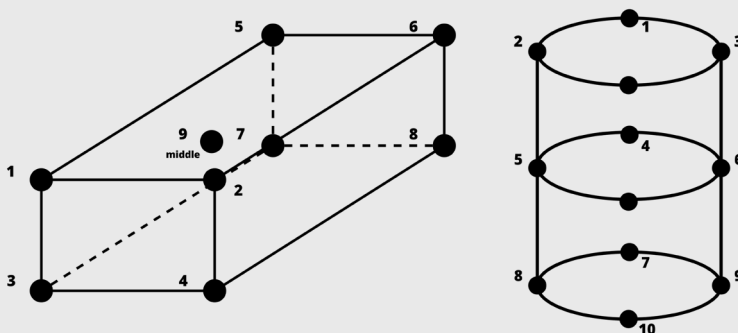
The selection of Sub-Zero or Deep Cryo Treatment between quenching and tempering depends mainly on the steel composition (low/medium/high carbon-rich) and the amount of retained austenite, as well as the required service properties.

Benefits to steel properties

- Hardness: rises significantly as retained austenite transforms into martensite
- Dimensional stability: improved because less austenite remains to distort
- Wear resistance: boosted by ultra fine η -carbides formed during tempering
- Toughness: enhanced, balancing strength with resilience
- Residual Stress Levels: reduced thank to gradual cryogenic soaking



Temperature uniformity testing



AMS2750H

SAE Aviation Material Specification 2750 rev. H

CQI-9

Guidelines for special process heat treat system assessment and callibration for automotive industry

Furnace Class	Temperature Uniformity Range (°F) ⁽¹⁾	Temperature Uniformity Range (°C) ⁽¹⁾
1	±5	±3
2	±10	±6
3	±15	±8
4	±20	±10
5	±25	±14
6	±50	±28

(1) Uniformity range requirement is established by the specification for the material being processed.

Dohmeyer solutions for metal industry

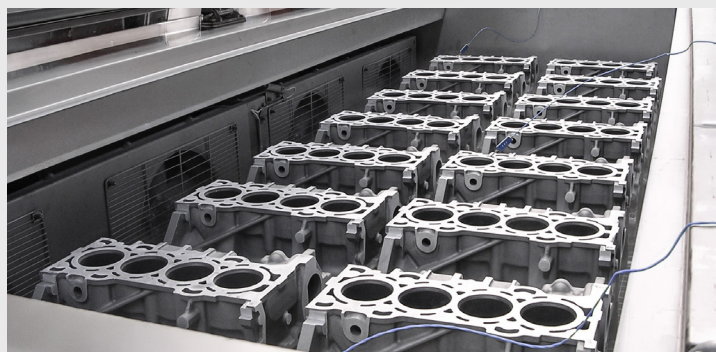
Residual Austenite Cabinet

- Designed to cool down to -185°C and heat up to $+350^{\circ}\text{C}$ in a single cycle.
- Features heat-resistant insulation, a reinforced sealing system and no plastic components.
- Side-mounted fans ensure efficient air circulation
- Container-type locking system ensures tight sealing under extreme conditions.
- On demand, higher tempering temperatures are available.



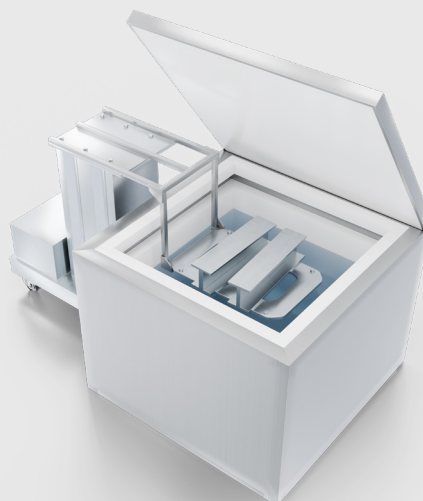
RAC Guillotine Door Version

- Designed to cool down to -185°C and heat up to $+350^{\circ}\text{C}$ in a single cycle.
- Fully automated guillotine doors for automated process.
- On demand, higher tempering temperatures are available.



Top loaded chest freezers and immersion freezers

- Made-to-order chest freezer for oversized parts.
- Loading with overhead crane.
- Temperature range from -185°C to $+350^{\circ}\text{C}$.
- On demand, higher tempering temperatures are available.



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Dohmeyer is the leading global manufacturer of cryogenic refrigeration systems for the food processing, pharmaceutical, aeronautic, plastics and steel industries.

Dohmeyer is a member of AWT

AWT

Arbeitsgemeinschaft
Wärmebehandlung + Werkstofftechnik e.V.



Support:

Dohmeyer are available 24/7 giving access to our specialist support teams providing help and advice to all our customers.



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