www.rubig.com

RÜBIG
DRIVING SUCCESS

Technology without limits

Aerospace

RÜBIG

YOUR ALLY, WHEN IT COMES TO HEAT TREATMENT

HEAT TREATMENT PROCESSES

Plasma Nitriding
- PLASNIT® (classic plasma nitriding)
- PLASOX® (including post-oxidization)

Gas Nitriding
- R.NIT+® (classic gas nitriding)
- GASOX® (including post-oxidation)

Case Hardening
- R.CARB+® (classic case hardening)
- Inert gas hardening
- Carbonitiriding

Vacuum Hardening
- R.VAC+® (classic vacuum hardening)
- LPC (low pressure carburizing)

RUBIG PARTNERS RELY ON THE PROMISE OF QUALITY

- Extension of service life
- Increase in wear protection
- Improvement of corrosion resistance
- Adjustment of the necessary strength properties

qualityaustria
SYSTEM CERTIFIED

ISO 9001:2015	No.00271/0
VDA 6.1:2016	No.00064/0
EN 9100:2018	No.00031/0
ISO 14001:2015	No.04765/0
ISO 45001:2018	No.01595/0

CERTIFICATIONS, STANDARDS & LICENCES:

- EN9100
- ISO9001
- Customer approvals of OEMs
- AMS 2759, 2759/1-9, 11,12
- AMS 2750
- Nadcap for plasma nitriding
- Nadcap for vacuum hardening, gas nitriding and carburizing with beginning 2025

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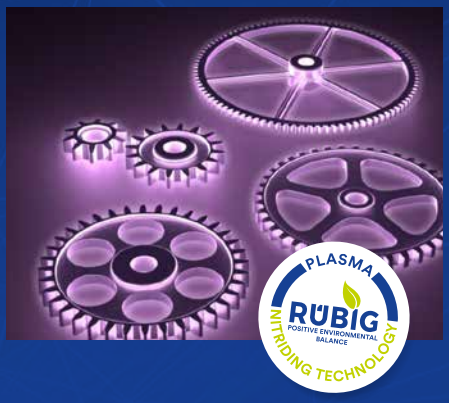
RUBIG INDUSTRIAL FURNACES

TOP OF NITRIDING AND COATING

RUBIG is a leading producer of customized heat treatment plants. The expertise and technological advantage reflected in our furnaces were gained through our in-house job shop. The "SIR-Surface Improvement by RUBIG" concept stands for impeccable surface and ensures that components meet demands even under enormous stress.



All RUBIG furnaces guarantee the following advantages:

MODULARITY
- Flexible systems, perfect for in-house sourcing and future upgrades

INDUSTRY 4.0
- Simple data exchange with supervising control and ERP systems

EFFICIENT OPERATION
- Remote maintenance and online diagnostics for increased efficiency

AEROSPACE PACKAGE
- Data recording fully integrated into the process control system "write once read only"
- Type N thermocouples, incl. AMS certificate
- Warning messages as soon as a thermocouple exceeds the specified AMS limits

Plasma nitriding & coating furnaces

- **MICROPULS® EVEREST**
- **MICROPULS® PROCOAT**
- **MICROPULS® DIAMOND XTENDED**
- **MICROPULS® LOTUS**

TEMPERATURE CONTROL
- Independently controlled heating and cooling zones
- Temperatures are measured directly at the component

MICROPULS® TECHNOLOGY
- Perfect process control using powerful plasma generators

CAPACITIES
- Increased degree of filling for cost-effective plasma nitriding

SIR CONCEPT
- Improved surfaces plus cost savings of up to 20 %

ENVIRONMENTAL COMPATIBILITY
- Optimum energy efficiency and lowest emissions

Gas nitriding furnaces

- **GASCON K2 BELL TYPE**
- **GASCON K2 PIT TYPE**
- **GASCON K2 HORIZONTAL TYPE**

INDIVIDUALITY
- From standard systems to customer-specific systems and special system solutions

LONGEVITY
- Usage of materials like stainless steels or Inconel prolong lifetime of retort

CONTROLLABILITY
- Atmosphere control (dissociation rate, nitriding potential KN) possible

RUBIG HEAT TREATMENT

NITRIDING

PLASMA AND GAS NITRIDING

- Compact, dense and ductile compound layers
- Minimal risk of distortion due to lower treatment temperature
- Highest reproducibility and close tolerances in the treatment result
- Highest process stability
- Sensor controlled furnace control
- Masking either mechanically (plasma nitriding) or by means of pastes (gas nitriding)
  RUBIG provides the design and manufacturing of masking

Nitriding is applied, among others, for the following steels:

- M50
- M50NiL
- 32CDV13
- 40CD12
- Maraging

CASE HARDENING

CASE HARDENING /CARBONITRIDING / CARBURIZING AND INERT GAS HARDENING / TEMPERING / QUENCHING

- Expertise for low-distortion heat treatment
- Highest reproducibility due to fully automatic systems
- Sensor controlled furnace control
- Optimal process control for minimum residual austenite content (sub-zero treatmtent and tempering)
- Masking by means of paste possible

Case hardening is applied, among others, for the following steels:

- AISI/SAE 9310
- 1.6587
- 1.6722
- 1.2842
- 1.7220

VACUUM HARDENING

TEMPERING / LOW PRESSURE CARBURIZING

- No negative influence on the surface (scale, oxides)
- Faster quenching with helium, alternatively also possible with nitrogen
- Minimal risk of distortion
- Low pressure carburizing (LPC) for complex alloys

Vacuum hardening is applied, among others, for the following steels:

- M50NiL
- M50
- Cronidur 30
- AMS 5898
- Inconel 718

RUBIG
COMPETENCE CENTER

Since the 1980s, RUBIG Heat Treatment has remained a renowned specialist in the heat treatment of steel and aluminum materials. The technical expertise gained from the unique synergy effect of the entire group qualifies RUBIG today as a global player in the aerospace and aviation industry. The RUBIG Competence Center (RCC), consisting of an R&D and materials laboratory, is where materials science meets practical experience in metal finishing and processing. Thus, it is the foundation and catalyst for technological leadership.

EXPERTISE AND EXPERIENCE

- Long-standing, strategic partner of Tier 1 suppliers in aerospace and aviation
- Highly developed control and alarm systems from our own facility production
- Highly qualified metallurgists to ensure serial production quality
- Expertise in the estimation of material and heat treatment conditions
- Identification of failure mechanism and determination of reason for failure by the use of systematic problem-solving techniques

METALLOGRAPHIC INVESTIGATIONS

- Light microscopic analysis of the microstructure
- Analysis of the chemical composition (e.g. material grade)
- Hardness test according to Rockwell, Brinell or Vickers
- Corrosion testing (salt spray test chamber, current density/potential test)
- Macroscopic and microscopic examination of damaged components (using stereo microscope, SEM and light microscope)
- In-house development of new heat treatment processes in state-of-the-art production and research furnaces
- X-ray residual stress and retained austenite testing
- Training, workshops and consultation

YOUR BENEFIT

- Heat treatment and testing according to aerospace standards
- Development of customized heat treatment processes and strategic support from component planning to integration into serial production
- Expertise on various new production technologies in the aviation industry
- Gaining more insights on materials science through seminars and trainings

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DRIVING SUCCESS

RUBIG GROUP

4 DIVISIONS – 6 COUNTRIES – 1 SYNERGY

Since its foundation in 1946, RUBIG has evolved from a small drop forging company into a center of excellence for metal processing. The unique synergy potential resulting from the close cooperation between RUBIG Industrial Furnaces, RUBIG Heat Treatment, RUBIG Die Forge and RUBIG Technology adds significant value for customers. They benefit from innovative solutions, especially in the field of materials technology, along with comprehensive consulting expertise.

Sustainability and environmental awareness have been paramount at RUBIG for decades, positioning the company as a technological leader in "Zero Emission" plasma technology. This technology, developed at RUBIG Heat Treatment and RUBIG Industrial Furnaces, is also utilized for forged products.

OUR FOLDER
RUBIG Group

OUR WEBSITE
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