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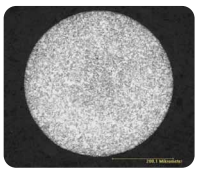
# PlasmaANNEALER HPA40

## For continuous heat treatment of stainless steel



**High-speed annealing of stainless steel and nickel alloy wire, tube, rope or strip**
**Bright, scratch-free heat treatment for high-output production**
**Annealing in-line with drawing, rolling or stranding, less work in progress**
**Small workshop space per kg of output, less material manipulation**

## Heat and Surface Treatment Applications

| | |
|---|---|
| **Material** | Stainless steels, duplex, nickel alloys, heating and resistive alloys, alloy steel |
| **Material Form** | Wire, rod, tube, ribbon, rectangular and shaped wire, stranded conductors, ropes, narrow strips |
| **Plasma Treatment** | Annealing, stress-relieving, hardening, surface heat-treatment |
| **Example Applications** | Welding, fine wire for filters, mesh, braid, knitting, brush wire, wires for ropes and strands<br>Spring wires, medical wires and tubes, precision and structural materials<br>Precision profiles, wire and tubes for jewellery, watch, and precision applications<br>Cold heading wires and fasteners, welding wires, resistive/heating wires and tubes |
| **Industry Sectors** | Medical, automotive, aerospace, aviation, energy, oil and gas, marine, homeware goods, defence, mining, food processing, jewellery, chemical engineering, instrumentation |

# Machine Specifications

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**Dimension Range**

Wire/rod: 1 mm - 20 mm
Tube OD: 2 mm - 25 mm
Rectangular: [W] 2 mm - 30 mm x [T] 0.1 mm - 5 mm
Other dimensions and forms on request

**Machine Dimensions**

Typical length in horizontal design: 6 m - 15 m
Typical length in vertical design: 2 m - 4 m
Subject to design, output and application

**Production Output**

Indicative outputs for recrystallization annealing:
Austenitic stainless: max 170 kg/h
Martensitic stainless: max 225 kg/h
Copper: max 850 kg/h
Higher outputs for stress-relieving, semi-soft annealing and hardening

**Production Speed**

Max 1500 m/min, subject to cross-section and application
Max production speeds subject to application and annealing temperature

**Max Production Speed for recrystallization annealing**

| Wire Diameter | [mm] | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Stainless Steel 304 | [m/mm] | 240 | 90 | 45 | 27 | 18 |
| Copper OFC/ETP | [m/mm] | 1000 | 400 | 200 | 120 | 80 |

**Heating Power**

Max 40 kW
Single or multiple heating modules
Tempering/soak section for required temperature profile

**Cooling**

Gas cooling (inert atmosphere)
Combined gas and water cooling
Rapid cooling for quench hardening

**Atmosphere**

Hydrogen, nitrogen, argon, helium, forming gas, gas mixtures
Type of purging gas subject to application

**Controls**

PLC controls with user-friendly, touch-screen HMI
Production recipe database and computer based surface quality control

**Safety**

CE/UL mark
Compliant to EU and USA safety regulations

# Key Features

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- Bright annealing with superior surface finish
- No surface damaged, no surface scratches or piles
- Simultaneous oil degreasing and fine oxide removal
- Variable finished material softness levels
- Small and uniform grain size
- Fewer wire breaks on subsequent drawing
- Less drawing die wear
- High production output/speed
- In-line operation with drawing, rolling or coating
- Less working capital locked in processed materials
- No warming-up/cooling-down time
- Low power consumption, smaller power connection
- Low purging gas and maintenance costs
- Environment and operator friendly production
- High production output per square meter of floor space
- Compact machine design
- Short installation and commissioning times
- Computer enabled surface quality control