

## NITRIDING HEAT TREATMENT

*Advanced Technologies*

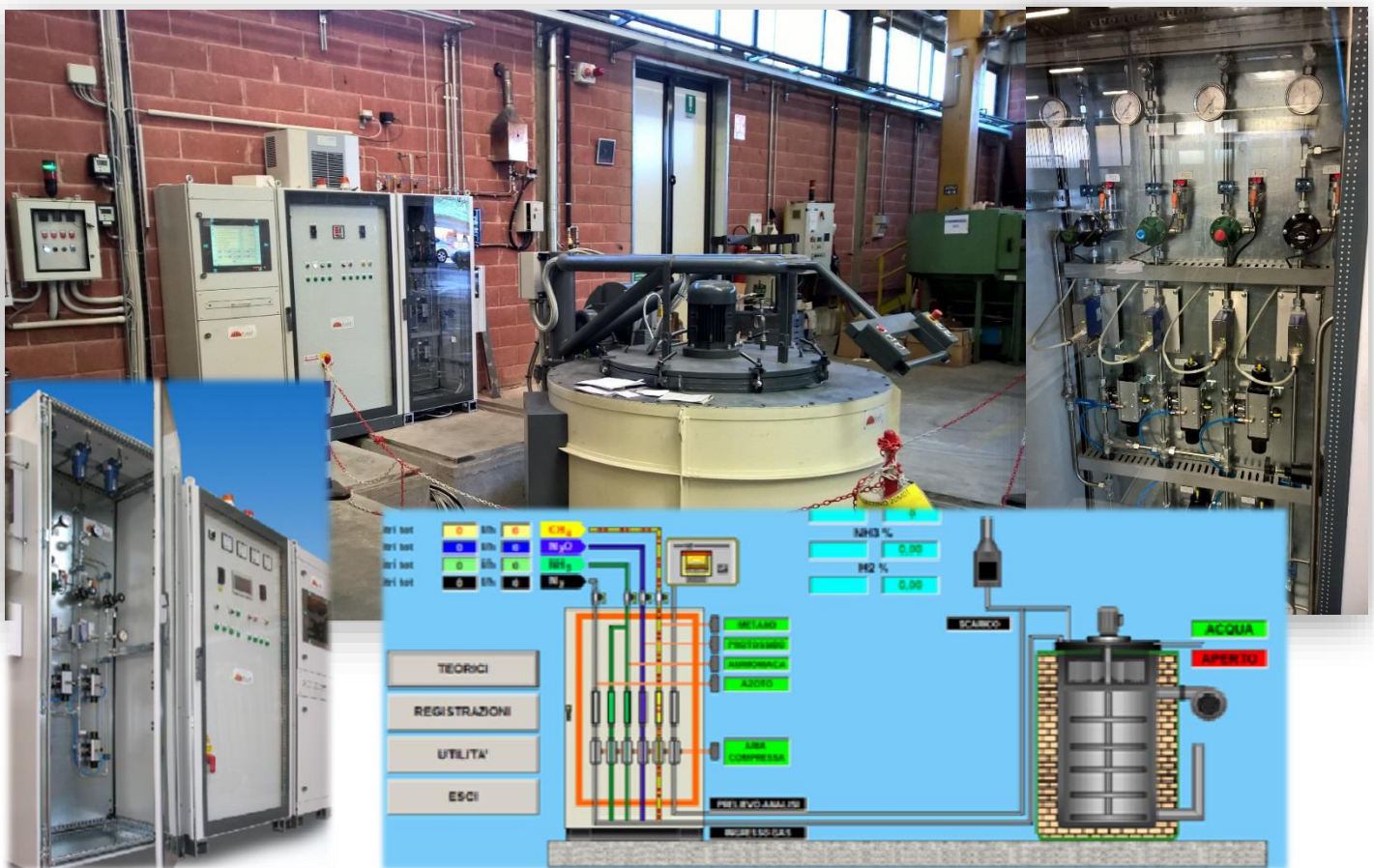
### PROCESS

An integrated heating and cooling cycle with automatic controls and analysis. Nitriding is a heat treatment process that diffuses nitrogen into the surface of a metal to create a case-hardened surface. These processes are most commonly used on low-carbon, low-alloy steels, however, they are also used on medium and high-carbon steels, titanium, aluminum and molybdenum.

#### Typical applications include:

Gears, crankshafts, camshafts, camfollowers, valve parts, extruder screws, diecasting tools, forging dies, extrusion dies, firearm components, injectors and plastic-mold tools.

In gas nitriding, the donor is a nitrogen rich gas, usually ammonia ( $NH_3$ ), (which is why it is sometimes known as ammonia nitriding). When ammonia comes into contact with the heated work piece it dissociates into nitrogen and hydrogen. The nitrogen then diffuses onto the surface of the material creating a nitride layer. The thickness and phase constitution of the resulting nitriding layers can be selected and the process optimized for the particular properties required.



#### Sede legale:

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#### Sede operativa:

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### TECHNICAL DATA

**Charge max dimension:** D.920mm x h.1600mm

**Max weight:** 2000kg

**Materials treated:** Carbon Steel, High Alloy Steel, Special Nitriding steel, Construction Steel, Stainless Steel.  
Eurolls Certifications are available for: Thermal cycle, hardness testing, chemical analysis and micrographic testing.

**Preliminary Treatments:** Quenching and tempering process is necessary before the Nitriding treatment to avoid deformation and to have a proper hardness on the core of the pieces.

**Applications:** Automotive components, Precision parts, Mechanical components, Tool, Dies, Plastic Molds, Shafts, and many others.

#### Nitriding Steel

	EN	NORMA	UNI	DIN	AFNOR	UNE	AISI
<b>1.8509</b>	41CrAlMo7-10	EN 10085	41CrAlMo7	41CrAlMo7-10	40CAD6.12	F-1740	J24056
<b>1.8515</b>	31CrMo12	EN 10085	31CrMo12	31CrMo12	30CD12	F-1712	–
<b>1.8519</b>	31CrMoV9	EN 10085	31CrMoV9	31CrMoV9	30CDV9		

#### Construction Steel

	EN	NORMA	UNI	DIN	AFNOR	UNE	AISI
<b>1.0511</b>	C 40	EN 10083	C 40	Ck 40	XC 42	F-1141	1040
<b>1.0503</b>	C 45	EN 10083	C 45	Ck 45	XC 48	F-1140	1045
<b>1.7225</b>	42 CrMo 4	EN 10083	42 CrMo 4	42 CrMo 4	42 CD 4	F-1252	4140
<b>1.6510</b>	39NiCrMo3	EN 10083	39 NiCrMo 3	36 CrNiMo 4	40 NCD 3	F-1282	9840

### Example:



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