



# COLD-HEADING STEEL WIRE



# ALMOST 70 YEARS OF EXPERIENCE IN STEEL WORKING

Rodacciai can offer to its customers a very particular range of services and functionalities that make it a privileged interlocutor for everything related to the steel world.

Spread all over the world, with 3 production sites and 27 commercial branches, Rodacciai is able to stand by the customers in every production phase, starting from the raw material choice, arriving at the final product and services.



## DYNAMICITY, INNOVATION AND RESILIENCE

However, experience, know-how and support are not the only features that make Rodacciai a preferred player in the world of cold finished steel.

Rodacciai ensures production flexibility and quality thanks to the number of cold-finished steel production lines and the great advantage of having a rolling mill.

All this means an increase of flexibility, punctuality and fast deliveries.

In addition to being a cold-drawing plant, having the highest number of production lines installed all over the world, Rodacciai can also boast to have a 100 % complete production cycle control for the production of the stainless steels, produced in its Spanish steel mill (Olarra Aceros Inoxidables). This guarantees a consistent quality to all the customers, making Rodacciai a reliable partner for its customers.

# Rodacciai





# COLD HEADING WIRE

## Introduction

Rodacciai production range for cold-heading wire can be divided into 3 main categories:

- **Low carbon steels**
- **Boron-alloyed steels**
- **Alloyed steels, without Boron added**

The standard reference for cold heading wire is **EN 10263 : 2017**.

Rodacciai supplies the steel grades mentioned in the various parts of the Norm (ref. parts 1 - 4), in different supply conditions and according to the requirements provided for the different features of the product: mechanical properties, decarburization, surface finishing, surface quality, etc.

Rodacciai can also evaluate specific requirements from customers that go beyond the requisites of EN 10263 : 2017, studying a customized product.







## COLD FINISHING PRODUCTION LINES & CAPACITY

**75.000 tons / year**

PRODUCT RANGE

**Ø 1,60 mm – Ø 34,00mm**

- N. 21 multipass wire drawing machines
- N. 14 wire drawing Bullblocks
- N. 1 cold-drawing lines coil to coil ( range Ø 15,00mm – 35,00mm )
- N. 3 continuous industrial furnaces for wire
- N. 7 bell furnaces
- N. 3 chamber furnaces
- N. 3 muffle furnaces

## HEAT TREATMENT PRODUCTION CAPACITY

**128.000 tons / year**

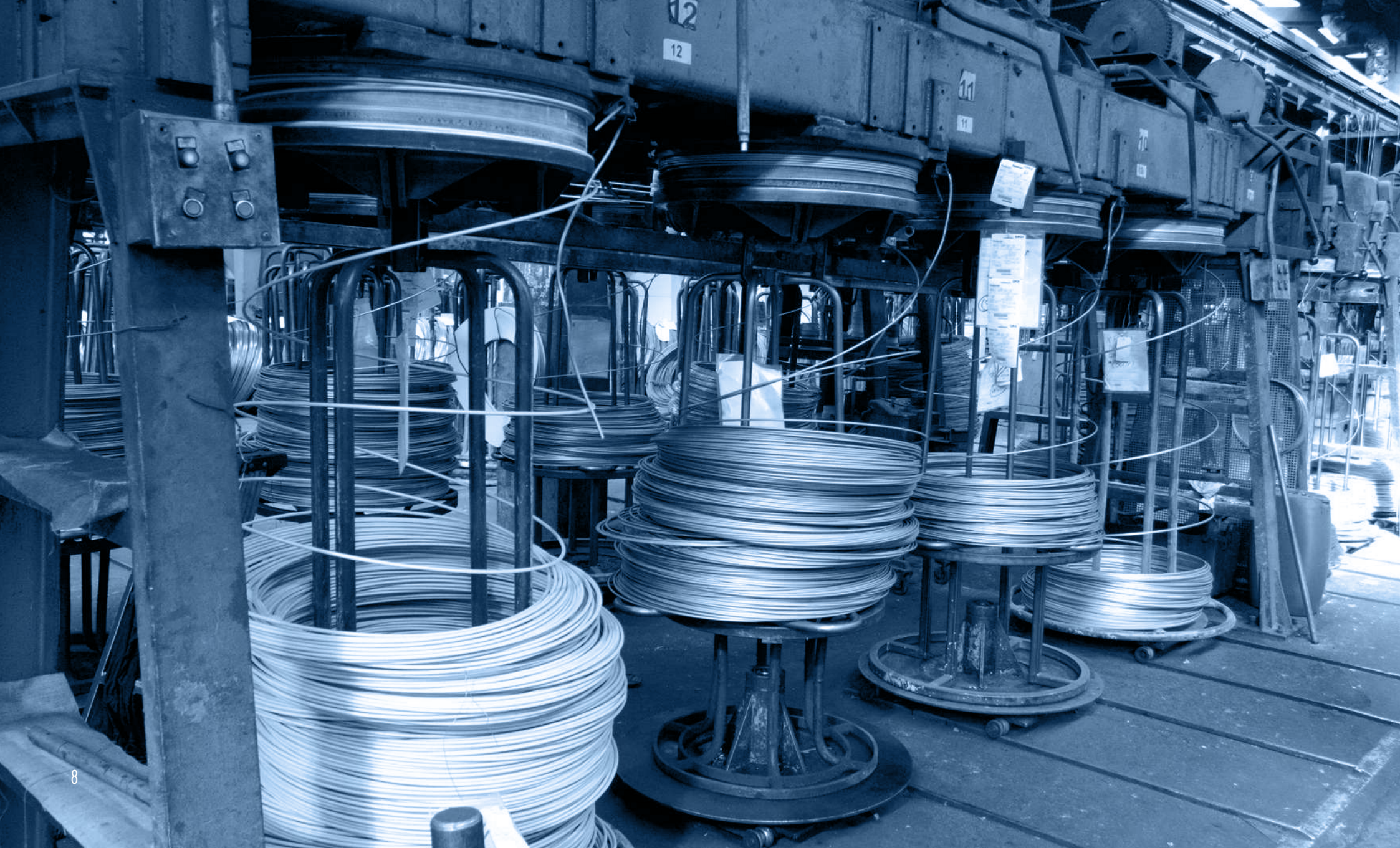
PRODUCT RANGE

**Ø 1,60 mm – Ø 34,00mm**

- N. 3 continuous furnaces
- N. 7 inertized bell furnaces
- N. 3 chamber furnaces
- N. 3 muffle furnaces

**13.000 tons / year**

**115.000 tons / year**





## HEAT TREATMENT & SURFACE FINISHING

Heat treatments serve to homogenize the structure of the raw rolled steel and to reduce internal tensions, thus increasing the deformability of the product.

Surface treatments, performed internally in the company, make the product cleaner and ready for further production steps: **pickling, phosphating, polymerization, liming.**

We internally perform **Q&T, stress relieving, normalization, globular annealing, globular annealing for cold-heading, isothermal annealing, annealing (+A).**

The most commonly used surface finishings are: **stearate, phosphated, with polymer.**





## RODACCIAI HEAT TREATMENT FURNACES (IN HOUSE)

### ▶ CONTINUOUS FURNACES FOR WIRE

Treatment in protected atmosphere: hydrogen/ nitrogen mixture (70 - 30)

Capacity: (Ø1,60-9,00 mm)

### ▶ MUFFLE FURNACE

Heat treatment performed on the semi - finished product

Capacity: Ø > 5,50 mm

### ▶ CONTINUOUS FURNACES

Heat treatment in a protected atmosphere:

nitrogen (100%) for wire - rod and finished product

Capacity: complete range Ø 1,60 mm – Ø 34,00mm

Heat treatment performed on the semi - finished product

Capacity: complete range Ø 1,60 mm – Ø 34,00mm



# STEEL FOR COLD HEADING

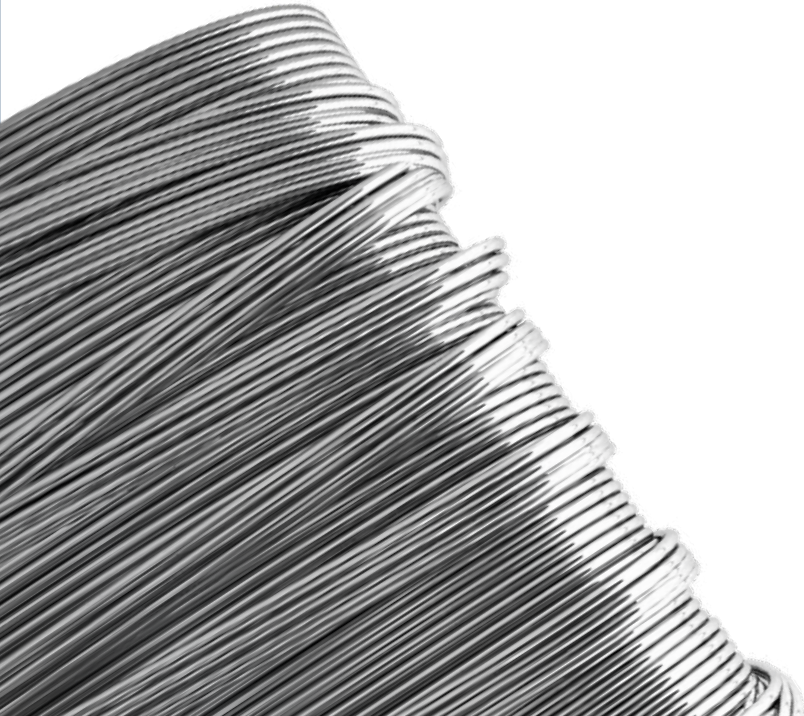
EN 10263-2 - EN 10263-3 - EN 10263-4 - (ISO 4954:2021)

GRADE	CHEMICAL ANALYSIS												
	W.nr.	C	Mn	Si / max	S / max	P / max	Al	Cu / max	B	Cr	Mo	Ni	Others
C4C/SB4/CB4FF	1.0303	0,02÷0,06	0,25÷0,40	0,10	0,025	0,020	-	-	-	-	-	-	-
C10C/CB10FF	1.0214	0,08÷0,12	0,30÷0,50	0,10	0,025	0,025	-	-	-	-	-	-	-
C15C - C15E2C	1.0234 - 1.1132	0,13÷0,17	0,35÷0,60	0,10	0,025	0,025	0,020÷0,060	-	-	-	-	-	-
C20E2C	1.1152	0,18÷0,22	0,30÷0,60	0,30	0,025	0,025	-	0,25	-	-	-	-	-
C35EC	1.1172	0,32÷0,39	0,50÷0,80	0,30	0,025	0,025	-	0,25	-	-	-	-	-
23B2	1.5508	0,20÷0,25	0,60÷0,90	0,30	0,025	0,030	0,020÷0,060	0,25	0,0008÷0,0050	0,30	-	-	-
28B2	1.5510	0,25÷0,30	0,60÷0,90	0,30	0,025	0,030	0,020÷0,060	0,25	0,0008÷0,0050	0,30	-	-	-
35B2**	1.5511	0,32÷0,39	0,50÷0,80	0,40	0,015	0,030	0,020÷0,060	-	0,0008÷0,0050	-	-	-	-
20MnB4	1.5525	0,18÷0,23	0,90÷1,20	0,30	0,025	0,025	0,020÷0,060	0,30	0,0008÷0,0050	-	-	-	-
22MnB4	1.5522	0,20÷0,24	0,90÷1,20	0,30	0,025	0,025	0,020÷0,060	0,25	0,0008÷0,0050	-	-	-	-
23MnB4	1.5535	0,20÷0,25	0,90÷1,20	0,30	0,025	0,025	0,020÷0,060	0,25	0,0008÷0,0050	≤ 0,3	-	-	-
30MnB4	1.5526	0,27÷0,32	0,80÷1,10	0,30	0,025	0,025	0,020÷0,060	0,25	0,0008÷0,0050	≤ 0,30	-	-	-
32CrB4	1.7076	0,30÷0,34	0,60÷0,90	0,30	0,025	0,025	0,020÷0,060	0,25	0,0008÷0,0050	0,90÷1,20	-	-	-
19MnB4* / C23B	1.5523	0,17÷0,24	0,80÷1,15	0,40	0,035	0,035	0,020÷0,060	-	0,0008÷0,0050	-	-	-	-
16MnCr5	1.7131	0,14÷0,19	1,00÷1,30	0,30	0,025	0,025	0,020÷0,060	-	-	0,80÷1,10	-	-	-
17Cr3	1.7016	0,14÷0,20	0,60÷0,90	0,30	0,025	0,025	0,020÷0,060	-	-	0,70÷1,00	-	-	-
34Cr4	1.7033	0,30÷0,37	0,60÷0,90	0,30	0,025	0,025	0,020÷0,060	0,25	-	0,90÷1,20	-	-	-
25CrMo4	1.7218	0,22÷0,29	0,60÷0,90	0,30	0,025	0,025	0,020÷0,060	0,25	0,0008÷0,0050	0,90÷1,20	0,15÷0,30	-	-
42CrMo4	1.7225	0,38÷0,45	0,60÷0,90	0,30	0,025	0,025	0,020÷0,060	0,25	-	0,90÷1,20	0,15÷0,30	-	-
21CrMoV5-7**	1.7709	0,17÷0,25	0,40÷0,80	0,40	0,030	0,025	<0,03	-	-	1,20÷1,50	0,55÷0,80	0,60	V=0,20÷0,35
100Cr6***	1.3505	0,93÷1,05	0,25÷0,45	0,15÷0,35	0,015	0,025	<0,050	0,30	-	1,35÷1,60	≤ 0,10	-	O=<15ppm

\* EN 10269:1999 \*\* EN 10269:2013 \*\*\* EN ISO 683-17:2014

# CARBON AND ALLOY STEEL FOR SCREWS AND BOLT PRODUCTION

EN ISO 898 -1 : 2013



STRENGTH CLASSES	APPLICATION	DIAMETER	EXAMPLE
4.8	Cold - heading	< 35	SB4 - CB10FFS
5.8	Cold - heading	<15	C4C - C10C
	Cold - heading	< 35	C4C-C10C - C20E2C
6.8	Cold - heading	< 13	C10C - C20E2C
8.8	Cold - heading	< 11	19/20MnB4 - 30MnB4 - 35B2
		<21	30MnB4 - 35B2
		< 27	30CrB4 - 34Cr4 - 34CrMo4
		< 27	41Cr4 - 42CrMo4
10.9	Cold - heading	< 16	30MnB4 - 35B2
		< 20	30CrB4 - 34Cr4 - 34CrMo4
		< 27	41Cr4 - 42CrMo4
12.9	Cold - heading	< 18	30CrB4 - 34Cr4 - 34CrMo4
		< 22	41Cr4 - 42CrMo4

## MAIN TYPES OF PACKAGING

### PRODUCT RANGE: Ø 1,60 MM – 9,00 MM

Carrier 300 – 600 kg

Carrier 800 – 1.600 kg

Coil on pallet from 500 to 2.000 kg

### PRODUCT RANGE: > Ø 15,00 MM – 34,00MM

Coil on pallet (from 1.000 kg to 2.000 kg max)



# QUALITY CONTROL SYSTEM

Rodacciai works with innovative machinery and optimized production processes to guarantee constant and repeatable high quality products over time. Since 1990 the company has obtained the ISO 9001 system certification, which certifies full compliance with the standards relating to the Quality Management Systems.

In the continuous development of its Quality Policy, Rodacciai through its production lines is able to comply with all the certifications necessary for its products.

All these certifications, constantly updated, ensure the customer full compliance with current regulations and are synonymous of certified quality.



## LABORATORY & CONTROL QUALITY

**Rodacciai LAB**, is a recent and big investment made by Rodasteel Corporation, dedicated to the R&D and to the continuous improvement of its products.

Rodacciai LAB is composed by a laboratory fully furnished with all the necessary equipment and testing machines calibrated in accordance with the requirements of ISO 9001 standards

and a R&D Dept.

The majority of required tests and reports are made inside the Company and the values obtained are studied and registered for further analysis.

**More than 160.000 3.1 certificates are issued annually.**



**Rodacciai** High Performance Steel



# ALL IN HOUSE CONTROL STRATEGY & BUSINESS PROCESS REENGINEERING

The strategic choices, made in the past, have been allowing the Group to differentiate itself over the time. It is precisely starting from these choices that the company is today a leader in the cold finished steel market. Our strategy is composed by: **ALL-IN-HOUSE**, to guarantee our customers continuous product and process improvement. Each phase is monitored and tracked.

**Business Process Reengineering** logic identifies 8 phases, including the redefinition of processes,

identification of the levels for change, the development of concrete objectives and actions for continuous improvements.

**Rodacciai LAB**, an important investment in our laboratory and R&D Dept., creates a high value for both the above explained strategy, helping the company to continuous monitoring the products in each singular step.



# SUSTAINABILITY PRESERVING THE FUTURE

Based on the guidelines given by the United Nation Climate Conferences, Rodacciai coined its own three pillars: people, planet and performances.



## PEOPLE

It is important for Rodasteel to create a work environment that attracts more and more talented individuals and retains those already present



## PLANET

Rodasteel places environmental conservation as a fundamental aspect of its production activities and growth objectives



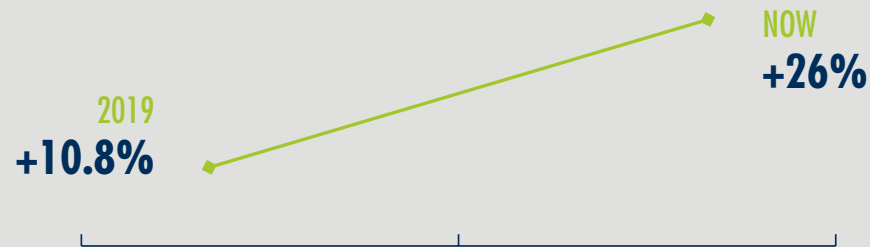
## PERFORMANCE

Rodasteel pays particular attention to the efficiency and reduction of its energy consumption

2030

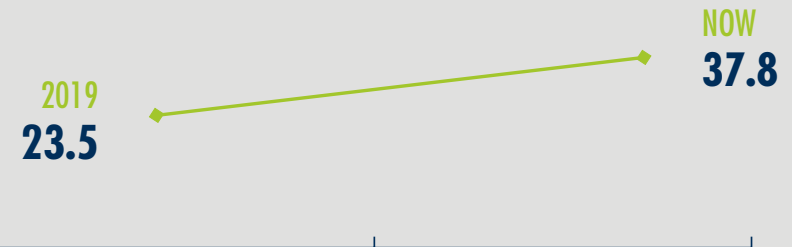
## HIRING RATE

Hiring rate increase (expressed in percentage)



## TRAINING RATE

Total training hours per employee (expressed in hours per capita)





## PEOPLE

Since people are the basis of our success, it is important for Rodasteel to create a work environment that attracts more and more talented individuals and retains those already present for as long as possible.

For this reason, Rodacciai invests in people trainings represented by two main projects:

Rodacciai Academy and Rodajob.

**Rodacciai Academy:** inaugurated in 2015, it deals with the development and skills of the company's human resources in collaboration with stakeholders and the local area. The goal is the transmission and development of knowledge and professional experience, with specific programs dedicated to employees, school and university students and unemployed.

**Rodajob:** inaugurated in 2019, it is a non-profit foundation composed of 26 other companies and 11 training

institutions. The main activity consists in the provision of professionalizing training courses, mainly dedicated to unemployed, precarious young people and high school students.

Rodasteel offers and guarantees equal opportunities to all its employees regardless of gender, geographic origin, disability or any other difference.

Respect for diversity and combating discrimination are also central to the Rodacciai Code of Ethics, alongside other social topics such as the promotion and support of human rights.

Moreover, Rodacciai supports its employees by investing in welfare services. Rodacciai Welfare is a platform aimed at promoting people health and safety.

This tool gives people the access to special services in order to improve their work-life balance and possibilities.



**ROADJOB**  
SHARE OUR FUTURE



Rodasteel places environmental conservation as a fundamental aspect of its production activities and growth objectives. The company is committed to continuously monitoring and evaluating its environmental impacts to identify winning strategies and innovative solutions to mitigate and reduce them.

Responsible **management of raw materials** is a fundamental point for Rodacciai environmental strategy plan. Even though steel is originally created from virgin ferrous minerals, nowadays it can be considered both durable and permanent. In fact, the most used raw material is scrap metal that is 100% recyclable and capable of being remelted without ever losing any of its characteristic properties.

For this reason, Rodasteel is gradually reducing the consumption of virgin raw materials and limiting the production of waste through recovery and reuse.

**Waste management** is extremely important for a company that aspires to monitor and consequently reduce its environmental impacts. According to that aspect, in line with the Group's principle of implementing circular economy initiatives, Olarra concluded in 2021 the project aimed at enhancing the waste produced and reducing the consumption of virgin materials: the Tarcinox project. The initiative aimed at recovering three of the main types of waste produced by Olarra: slag and dust in steelworks and sludge produced in rolling mills. The project is a continuation of an earlier industrial waste initiative (PIVASI) and the starting point of a new plan for the next period, focused on the recovery of the metals contained in the settling sludge as well as in the search for alternatives for the management and valorisation of steel slag.

This path demonstrated the continuous improvements and developments put in place by the corporation.



Rodasteel pays particular attention to the efficiency and reduction of its **energy consumption**. With this purpose, Rodacciai carried out maintenance activities on the heating system of the furnace used for billet processing. In addition, the upgrade of lighting systems with LED lamps was promoted.

For the Group it is also important the monitoring of **pollutants emissions** into the atmosphere. In order to obtain an annual estimate of air emissions for each pollutant the Group first carried out sampling at each site and then multiplied the average concentrations measured at each chimney by the average flows recorded at the time of sampling and by the yearly operating hours of the systems. Moreover, in order to reduce its **greenhouse gas (GHG) emissions** and to improve the environmental impact the Group made the following investments:

- Burners were revamped (Sirone Plant);

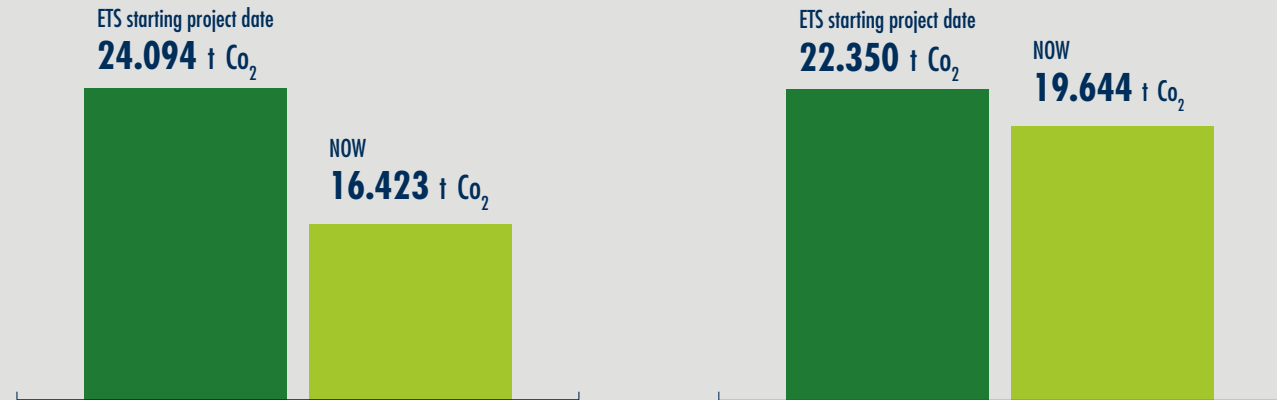
- Construction of a regasifier for the use of biogas (Sirone plant);
- Improvement of two heat treatment furnaces (Olarra plant);
- The purchase and installation of a new bell furnace for roll treatment (Olarra plant);

With an on going perspective, Rodasteel Group, as a member of ETS is defining its road map with the aim of reducing atmospheric emissions and using resources increasingly from renewable sources, in accordance to the goal defined by the European community. As for **electricity consumption**, the installation of solar panels in all production halls and the office building continues.

Responsible management of **water resources** is another important objective for environmental sustainability within the steel industry. Therefore, Rodasteel Group adopted a global strategy with specific projects for all its production sites. For instance, about 346 thousand cubic meters of water were withdrawn in 2022, a 16% decrease from the previous year (-7% from 2020).

## GREENHOUSE GAS (GHG) EMISSIONS

Values of greenhouse gas emissions (expressed in Co<sub>2</sub> tonnage). The reference period is from the ETS (Emission Trading System) starting project date for the production plant to today.





## PERFORMANCES

The environmental sustainability of production processes is a priority for the industrial world and Rodacciai's mission is to accompany its customers in the sustainable steel supply chain.

With this purpose, the Group has planned a path based on some key points:

- Definition of a Sustainability and Decarbonisation Committee
- Increasing the energy efficiency of production processes
- Conservation of water resources
- Sourcing from renewable or more sustainable sources
- Optimisation of waste management
- Development of an automatic performance monitoring system
- Development of the fifth sustainability report for 2023
- Launch of a decarbonisation plan to 2030
- Maintaining the ISO 14001 standard



# REDUCTION PROJECT

## SCOPE 1

- Rolling Mill Furnace fuel supply: a new regasifier for BioGNL  
It will supplement the energy needs of the billet heating furnace reducing the consumption of natural gas.
- Forklift fuel supply: turning from Diesel to Biodiesel.  
Thanks to this project, implemented in the first two months of 2024, it is possible to use Biodiesel fuel for forklifts.
- GOs: Green Energy Procurements.  
The group favors the supply of natural gas, which guarantees the lowest possible carbon footprint.
- Efficiency improvement.  
Continuous upgrading of productions facilities.

## SCOPE 2

- Renewable power generation and self-consumption: Solar Power plants.  
Since 2013 the company has been accommodating solar power plants that produce renewable power for the national grid. Moreover, it is planned to install other solar power plants for the self-consumption.
- PPA e GO: green power procurement.  
The group is planning to gradually increase the consumption of renewable electrical energy through PPA contracts or equipped with Guarantees of Origin guaranteeing the lowest possible carbon footprint.
- Efficiency improvement.  
Continuous upgrading of productions facilities.

## SCOPE 3

- Multimodal goods transport : Road – Rail – Sea  
The company selects the transport service providers verifying that they adopt multi-modal solutions that guarantee excellent performance in terms of CO<sub>2</sub> equivalent reduction.
- Truck fuel supply: turning from Diesel to Biodiesel  
The group has engaged one of main road transport service partners to ensure the use of Biodiesel to power the vehicles used to transport our goods.



[www.rodacciai.com](http://www.rodacciai.com)



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