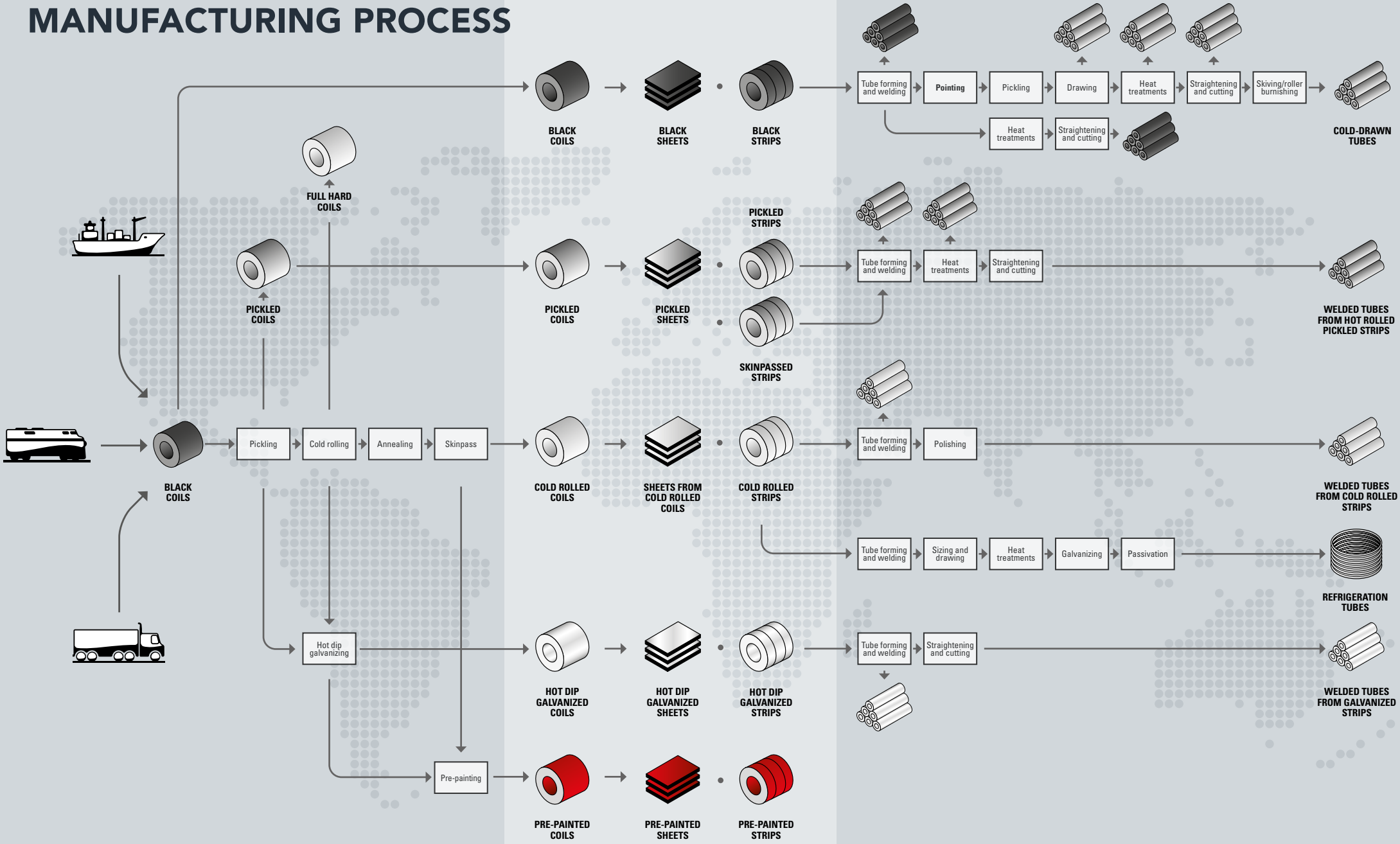
MARCEGAGLIA
CARBON STEEL

Marcegaglia do Brasil
Garuva plant

MANUFACTURING PROCESS



Marcegaglia do Brasil

7 millions wire on tube condensers

240 millions meters of welded tubes for refrigeration

180.000 tons of electro-welded carbon tubes

25.000 tons of stainless steel tubes

120.000 tons of blanks

18.000 tons of slitters

12.000 tons of cold formed sections

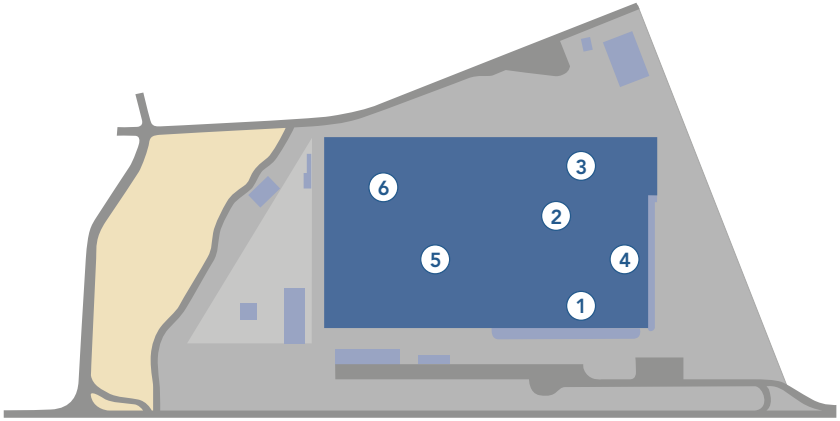
The Marcegaglia do Brasil belongs to the italian industrial group Marcegaglia, that is leading the European and worldwide steel market. A unique combination of the dynamic italian family business model with the great operating capacity and presence in the international markets, typical of the large corporations.
The factory in Brasil was inaugurated in 2000, located in Garuva, State of Santa Catarina, and it is specialized in manufacturing **steel products** and **components for refrigeration**. The complex consists of 116,000 sqm coverd area, within a total area of 220,000 sqm.

CORPORATE CULTURE

Independence, dynamism, resilience, competence, versatility, reactivity: these distinctive values made Marcegaglia the privileged partner in the steel processing industry.
The company culture is based on people centricity and sharing of the same key values which are shaping Marcegaglia unique business model.

Production lines

1. Components for refrigeration
2. Carbon steel welded tubes
3. Stainless steel welded tubes
4. Carbon steel strips
5. Carbon steel sheets
6. Cold formed sections



Typical applications and markets supplied

MECHANICAL AND PRECISION USES

Machinery and equipment

Commercial, educational and domestic furniture

Fitness equipment

Mining

Agricultural implements

Equipment structure

Axis and supports

Piping for irrigation equipment

TUBES FOR STRUCTURE AND ADORNMENT

Civil construction

Metallic structure

Handling and storage systems

Rack, pallets, and shelves

Foundations and artesian wells

Lightning

Residential, commercial and/or industrial works

FLUIDS CONDUCTION

Energy industry

Structural tubes

Conveyance piping

Heat exchangers

Preventive firefighting systems

TUBES FOR AUTOMOTIVE APPLICATIONS

Automotive

Autoparts
Motorcicle parts
System providers
Emissions

Road And Railroad Equipment

Axis
Chassis
Bodies
Protectors
Cabinets
Wagons

TUBES FOR CONDENSERS AND APPLIANCES PARTS

House and commercial appliances

Condensers
Heat loop
Gas
Refrigeration and ventilation

Carbon steel welded tubes

Min. diameter (mm)	12,70
Max. diameter (mm)	171,45
Min. thickness (mm)	0,60
Max. thickness (mm)	8,00

SUPPLY CONDITIONS

- Dimensional tolerances according to manufacturing standard
- Upon request: tubes can be supplied with dimension/thickness not included in tables and/or with special shapes
- Additional requests not included in the above mentioned standards must be analysed and agreed beforehand

STANDARDS

NBR 6591:2008
NBR 8261:2010
ASTM A 500:2013
EN 10305-3:2016
EN 10305-5:2016
EN 10220 (antiga DIN 2458)
EN 10255 (antiga DIN 2440)
ASTM A513

Standard lengths

Tubes standard length is 6000 mm (other dimensions upon request)
Cut to length tubes - minimum length 70 mm (according to availability of size and thickness)
Tubes are supplied in bundles (quantities according to Marcegaglia standards)

Technical characteristics

PRODUCT RANGE	Profile: round, square, rectangular and especial shapes
WELDING	High frequency (HF/ERW) Weld seam position: for square, rectangular and special shaped tubes - upon request

SUPPLY CONDITIONS

- Additional requests not included in the above mentioned standards must be analysed and agreed beforehand.

Carbon steel flats

CARBON STEEL SHEETS

Min. thickness (mm)	0,35
Max. thickness. (mm)	12,70
Min. width (mm)	250
Max. width (mm)	2.000
Min. length (mm)	300
Max. length (mm)	12.000

Tolerances accordingly to standards.

Carbon steel flats

CARBON STEEL STRIPS

Min. thickness (mm)	0,35
Max. thickness (mm)	8,00
Min. width (mm)	25
	45
Max. width (mm)	2.000

Tolerances accordingly to standards.

Max. outside diameter (mm)	2.100
Inside diameter (mm)	762
	610
	762

Cold formed sections

Min. width (mm)	50
Max. width (mm)	150
Min. thickness (mm)	2,00
Max. thickness (mm)	3,75

STANDARD

ABNT NBR 6355:2012

Technical characteristics

DESIGNATION	Continuos cold formed

Stainless steel welded tubes

Min. diameter (mm)	15,87
Max. diameter (mm)	168,30
Min. thickness (mm)	1,00
Max. thickness (mm)	3,91

STANDARDS

ASTM A268/268M, ASTM A269/269M,
ASTM A249/A249M, ASTM A270/A270M,
ASTM A312/A312M, ASTM A554/A554M

SUPPLY CONDITIONS

- Dimensional tolerances according to manufacturing standard
- Upon request: tubes can be supplied with dimension/thickness not included in tables and/or with special shapes
- Additional requests not included in the above mentioned standards must be analysed and agreed beforehand
- Identification with label on bundles and marking on tubes

Standard lengths

Tubes standard length is 6 m (other dimensions upon request)
Cut to length tubes - minimum length 70 mm; bevelled edges upon request (according to availability of size and thickness)
Tubes are supplied in bundles (quantities according to Marcegaglia standards)

Technical characteristics

PRODUCT RANGE	Round, square and rectangular tubes
WELDING	High frequency (HF), Laser or TIG
FINISHING	Series 3XX: bright brushed/polished except square and rectangular
	Series 4XX: smooth surface. Can be brushed on request

SUPPLY CONDITIONS

- Additional requirements or ones diverging from the present specifications must be analyzed and agreed beforehand
- Tubes can be supplied in coils or bars

Refrigeration tubes

Electro-welded steel tubes, unplated or zinc coated. They are mainly used to manufacture condensers, evaporators and heating tubes.

Min. diameter (mm)	4,00
Max. diameter (mm)	9,52
Min. thickness (mm)	0,64
Max. thickness (mm)	0,71

Technical characteristics

GRADE	Welded low carbon steel tube (SAE J526)	
SURFACE APPEARANCE	The unplated tube is supplied with oiled outer surface Hot dip galvanized Resistance in salt spray: according to ASTM B117 (zinc coated tube) ≥ 48 hours	
PHYSICAL-CHEMICAL PROPERTIES	Insoluble internal residue max 12 mg/m2 Soluble internal residue max 28 mg/m2 Total internal residue max 40 mg/m2	ASTM A254/84 NBR 14666
	Internal moisture max 50 mg/l	NBR 14667
	Chemical reactivity	NBR 14668
	Compatibility with R134a gas max -36 °C	NBR 14669
MECHANICAL CHARACTERISTICS	Tensile strength ≥ 290 MPa Yield strength ≥ 170 MPa Elongation ≥ 14% Hardness max 80 HR 15 T Hydrostatic resistence ≥ 725 psi Expansion max 25%	

Preserve the Environment. Properly dispose of the materials that make up the product.

Recyclable steel
(product / steel strap)

Paper
(tag)

Plastic
(seal / Stretch film)

Wood

Member of CISQ Federation

CERTIFIED MANAGEMENT SYSTEM
ISO 9001 - ISO 14001

INMETRO

Standard and optional testing

TESTS

Eddy current test
Visual test
Dimensional test
Expansion test
Weld test
Flattening test
Torsion test
Leak
Straightness test

TESTES EM LABORATORY TESTS

Tensile strenght test
Elongation test
Folding / Inlay test
Hardness test
Visual test
Dimensional test
Roughness test
Salt spray test
Moist chamber test
Internal moisture test
Soluble internal residue test
Insolible internal residue test
Compatibility with R134a gas
Metallographic test
Chemical analysis up to
30 elements

The quality of Marcegaglia manufacturing system in Garuva Brazil is certified by:
SO 9001
ISO 14001
NBR 6591 and NBR 8261
NBR 5580 and NBR 5590 A
CRCC Certification (Petrobrás)

November 2023

OUR STEEL BRINGS YOUR WORLD TO LIFE

MARCEGAGLIA
CARBON STEEL

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