


Born from fire,
made to endure

STAINLESS STEEL



sij | acroni



Acroni is the largest Slovenian steel manufacturer, which produces steel by recycling scrap in an electric arc furnace, casting it on a continuous caster and rolling it into quality flat rolled steel products.

The company is among the most important global suppliers of heavy plates. Besides stainless steel, Acroni also produces wear resistant, high tensile, structural, pressure vessel and tool steel plates, and coils in electrical, special and ferritic grades.

Our consistent quality is guaranteed by constant development and improvement in processes and materials, along with the introduction of a quality assurance system in accordance with ISO 9001, environmental management systems in accordance with ISO 14001, and occupational health and safety management systems in accordance with OHSAS 18001.

Our experts are always prepared to offer our customers their assistance so that the excellent properties of our steels may be exploited to their full advantage and the satisfaction of the customer.

Acroni is a member of SIJ – SLOVENIAN STEEL GROUP.

STAINLESS STEEL

Stainless steels represent a family of corrosion-resistant steels that contain at least 10.5% of chromium.

Apart from chromium, these steels are alloyed with nickel, molybdenum, titanium, niobium and other elements.

Their mechanical properties and applications depend on their chemical composition. The durability and serviceability of a manufactured product depends on the careful choice of the right steel grade.

WE PRODUCE STAINLESS STEEL AS:

- QUARTO PLATES
- FERRITIC HOT AND COLD ROLLED STRIPS AND SHEETS

Born from **fire**,
made to **endure**

A woman with short, reddish-brown hair, wearing a white lab coat, is focused on her work in a laboratory. She is adjusting a glass apparatus, possibly a titration setup, which includes a burette and a flask. The background shows various laboratory equipment and a window with blinds. The lighting is bright, highlighting the woman's concentration and the details of the glassware.

STAINLESS STEEL MATERIAL SELECTION



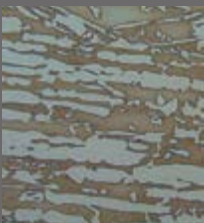
AUSTENITIC STAINLESS STEEL (γ - iron)

Austenitic stainless steels are characterized by good to excellent corrosion resistance combined with very good weldability and formability. The austenitic structure has good creep resistance and good oxidation resistance which make them useful at elevated temperatures. Austenitic steel can also be used in cryogenic applications and in the annealed condition it is the only non-magnetic steel.



DUPLEX STAINLESS STEEL (Austenitic-ferrite)

Duplex stainless steels have high strength, good toughness and very good corrosion resistance, especially toward stress corrosion cracking and corrosion fatigue. These steels have also good weldability and reasonable formability.



FERRITIC - MARTENSITIC STAINLESS STEEL (α - iron)

Ferritic - martensitic stainless steels have good corrosion resistance, especially towards stress corrosion cracking. Lower carbon and nitrogen contents improve both weldability and toughness which otherwise can be limited.



STAINLESS STEEL – QUARTO PLATES

GRADES	Designation Acroni	Designation EN	Number W.Nr.	Designation AISI/ASTM
AUSTENITIC STEEL GRADES	Acroni 4301	X5CrNi18-10	1.4301	304
	Acroni 4305	X8CrNiS18-9	1.4305	303
	Acroni 4306	X2CrNi19-11	1.4306	304L
	Acroni 4307	X2CrNi18-9	1.4307	304L
	Acroni 4307S			304L+S
	Acroni 4311	X2CrNiN18-10	1.4311	304LN
	Acroni 4315	X5CrNiN19-9	1.4315	304N
	Acroni 4541	6CrNiTi18-10	1.4541	321
	Acroni 4550	X6CrNiNb18-10	1.4550	347
	Acroni 4550A			347H
	Acroni 4878	X8CrNiTi18-10	1.4878	321H
	Acroni 4948	X6CrNi18-10	1.4948	304H
	Acroni 4401	X5CrNiMo17-12-2	1.4401	316
	Acroni 4404	X2CrNiMo17-12-2	1.4404	316L
	Acroni 4404S			316L+S
AUSTENITIC STEEL GRADES WITH Mo	Acroni 4432	X2CrNiMo17-12-3	1.4432	316L
	Acroni 4435	X2CrNiMo18-14-3	1.4435	316L
	Acroni 4436	X3CrNiMo17-13-3	1.4436	
	Acroni 4429	X2CrNiMoN17-13-3	1.4429	316LN
	Acroni 4919A			316H
	Acroni 4571	X6CrNiMoTi17-12-2	1.4571	316Ti
	Acroni 44XX			317L
	HEAT RESISTANT AUSTENITIC STEEL GRADES	Acroni 4828	X15CrNiSi20-12	1.4828
Acroni 4833		X12CrNi23-13	1.4833	309/309S
Acroni 4835		X9CrNiSiNce21-11-2	1.4835	
Acroni 4841		X15CrNiSi25-21	1.4841	314
Acroni 4845		X8CrNi25-21	1.4845	310/310S
HEAT RESISTANT FERRITIC STEEL GRADES	Acroni 4713	X10CrAlSi7	1.4713	
	Acroni 4724	X10CrAlSi13	1.4724	
	Acroni 4742	X10CrAlSi18	1.4742	
	Acroni 4746		1.4746	
	Acroni 4762	X10CrAlSi25	1.4762	
FERRITIC OR MARTENSITIC STEEL GRADES	Acroni 4000	X6Cr13	1.4000	410S
	Acroni 4003	X2CrNi12	1.4003	
	Acroni 4006	X12Cr13	1.4006	410
	Acroni 4313	X3CrNiMo13-4	1.4313	
	Acroni 4542	X5CrNiCuNb16-4	1.4542	630
DUPLEX STEEL GRADES	Acroni 4462	X2CrNiMoN22-5-3	1.4462	2205
	Acroni 4362	X2CrNiN23-4	1.4362	2304
	Acroni DX 2001			UNS 32001
	Acroni 4410	X2CrNiMoN25-7-4	1.4410	2507

Dimensions of Quarto Plates

Thickness (mm)	8	9 - 130
Width (mm)	1000 – 2000	1000 - 2500
Length (mm)	2000 – 12000	2000 - 12000
Weight (kg)	max. 9600	max. 9600

TYPE OF PROCESS ROUTE AND SURFACE FINISH OF THE PRODUCTS ¹⁾ (EN 10088-2)

Symbol	Type of condition	Surface finish	Notes
1D	Hot rolled, heat treated, pickled	Free of scale	Usually standard for most steel grades; also common finish for further processing.
1C	Hot rolled, heat treated, not descaled	Covered with rolling scale	Suitable for parts which will be descaled or machined in subsequent production or for certain heat-resisting applications.

1) Not all process routes and surface finishes are available for all steel grades

STAINLESS STEEL - HOT AND COLD ROLLED STRIPS AND SHEETS

GRADES	Designation Acroni	Designation EN	EN Number W.Nr.	Des.AISI/ASTM
HEAT RESISTANT FERITIC STEEL GRADES	Acroni 4713	X10CrAlSi7	1.4713	
	Acroni 4724	X10CrAlSi13	1.4724	
	Acroni 4742	X10CrAlSi18	1.4742	
	Acroni 4746	X8CrTi25	1.4746	
	Acroni 4762	X10CrAlSi25	1.4762	

	Hot and cold rolled STRIP	Hot and cold rolled SHEET
Thickness (mm)	1,0 - 6,0	1,0 - 6,0
Width (mm)	1000	1000
Length (mm)	2000 – 6000	2000 - 6000
Weight (kg/mm width)	Coil weight: 6 - 8	
ID (mm)	610	

TYPE OF PROCESS ROUTE AND SURFACE FINISH OF THE PRODUCTS ¹⁾ (EN 10088-2)

	Symbol	Type of condition	Surface finish	Notes
HOT ROLLED	1C	Hot rolled, heat treated, not descaled	Covered with rolling scale	Suitable for parts which will be descaled or machined in subsequent production or for certain heat-resisting applications.
COLD ROLLED	2C	Cold rolled, heat treated, not descaled.	Smooth with scale from heat treatment.	Suitable for parts which will be descaled or machined in subsequent production or for certain heat-resisting applications.

1) Not all process routes and surface finishes are available for all steel grades

STAINLESS STEEL STANDARDS

MATERIAL STANDARDS ADDITIONAL SPECIFICATION

EN 10088-1	Stainless steels — Part 1: List of stainless steels
EN 10088-2	Stainless steels — Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes
EN 10088-4	Stainless steels — Part 4: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for construction purposes
EN 10028-7	Flat products made of steels for pressure purposes — Part 7: Stainless steels
EN 10095	Heat resisting steels and nickel alloys
EN 10269	Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties
ASTM A240/A 240M	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A167	Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A176	Standard Specification for Stainless and Heat-Resisting Chromium-Steel Plate, Sheet, and Strip
ASME SA 240M	Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for pressure vessels and for General Applications

TOLERANCES ON DIMENSIONS AND SHAPE

EN 10029	Hot rolled steel plates 3 mm thick or above — Tolerances on dimensions, shape and mass
ASTM A480/A 480M	Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip
EN ISO 18286	Hot rolled Stainless steel plates — Tolerances on dimensions and shape



CORROSION RESISTANCE OF STEEL

EN ISO 3651-1	Determination of resistance to intergranular corrosion of stainless steels - Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels - corrosion test in nitric acid medium by measurement of loss in mass (Huey test)
EN ISO 3651-2 Method A, B, C	Determination of resistance to intergranular corrosion of stainless steels - Part 2: Ferritic, austenitic and ferritic - austenitic (duplex) stainless steels - corrosion test in media containing sulfuric acid
EN ISO 15156 – 3	Materials for use in H ₂ S - containing environments in oil and gas production - Part 3: Cracking-resistant CRAs (corrosion-resistant alloys) and other alloys
ASTM A262 Practice A, B, C, E, F	Standard Practices for detecting susceptibility to intergranular attack in austenitic stainless steels
ASTM A923 Method A, B, C	Standard Test methods for detecting detrimental intermetallic phase in Duplex austenitic / ferritic stainless steels
ASTM G 48 Praktice A	Standard Test methods for Pitting Corrosion Resistance of stainless Steels and Related Alloys by Use of Ferric Chloride Solution
NACE MR 0103	Materials resistant to sulfide stress cracking in corrosive petroleum refining environments
NACE MR 0175	Metals for sulfide stress cracking and stress corrosion cracking resistance in sour oilfield environments

QUALIFICATION

System:	ISO 9001 Quality management systems ISO 14001 Environmental management systems OHSAS 18001 Occupational Health and Safety management systems
Approvals:	AD 2000 — Merkblatt W0 AD 2000 — Merkblatt W 2 AD 2000 — Merkblatt W 10 CE Making acc CPD 89/106/EEC Pressure Equipment Directive 97/23/EC Lloyd's Register of Shipping (LR) German Lloyd (GL) Det Norske Veritas (DNV) NORSOK M-650

CERTIFICATE

EN 10204 codes for inspection documents:

3.1	Manufacturers inspection
3.2	Notified body inspection or third party inspection

sij | griffon &
romano

Griffon & Romano S.p.A. a socio unico
Via Dossetti, 11
20066 Melzo (MI)
T.: +39 024407381
M: info@griffon-romano.it
www.griffon-romano.it