

Moda 430Ti/4520

EN 1.4520

General characteristics

Moda 430Ti/4520 is an alternative to Moda 430/4016 with better formability and weldability for stamping, drawability applications, and complex shapes. It is a medium-chromium ferritic stainless steel that can be used in many mildly corrosive environments. Because of its titanium alloying, Moda 430Ti/4520 can be welded in all dimensions without becoming susceptible to intergranular corrosion. It is possible to use Moda 430Ti/4520 at elevated temperatures, like for instance in the cold end of automotive exhaust systems.

Typical applications

- Counter tops
- Flue induction connectors
- Automotive applications

Products & dimensions

Cold rolled products, available dimensions (mm)

Surface finish		Coil / Strip		Plate / Sheet	
		Thickness	Width	Thickness	Width
2B	Cold rolled, heat treated, pickled, skin passed	0.40-3.00	30-1550	0.40-3.00	350-1500
2BB	Bright-pickled	0.40-3.00	30-1530	0.40-3.00	600-1530
2C	Cold rolled, heat treated	0.80-3.00	30-1530		
2D	Cold rolled, heat treated, pickled	0.40-3.00	30-1530	0.40-3.00	600-1530
2E	Cold rolled, heat treated, mech. desc. pickled	0.50-3.00	30-1530	0.50-3.00	600-1530
2G	Ground	0.40-3.00	30-1530	0.40-3.00	600-1530
2J	Brushed or dull polished	0.40-3.00	30-1530	0.40-3.00	600-1530
2M	Patterned	0.40-3.00	30-1530	0.40-3.00	600-1530
2R	Cold rolled, bright annealed	0.05-3.00	3-1500	0.40-3.00	350-1500
2S	Surface coated	0.40-3.00	30-1500		

Continuous hot rolled products, available dimensions (mm)

Surface finish	Coil / Strip		Plate / Sheet	
	Thickness	Width	Thickness	Width

1C	Hot rolled, heat treated, not descaled	2.75-6.00	50-1530		
1D	Hot rolled, heat treated, pickled	3.00-6.00	350-1250	3.00-6.00	30-1250
1G	Ground	2.75-3.00	750-1500	2.75-3.00	750-1500
1M	Patterned	2.75-3.00	750-1500	2.75-3.00	750-1500
1U	Black hot rolled	2.75-6.00	50-1530		

Chemical composition

The typical chemical composition for this grade is given in the table below, together with composition limits given for the product according to different standards. The required standard will be fully met as specified on the order.

The chemical composition is given as % by mass.

	C	Mn	Cr	Ni	Mo	N	Other
Typical	0.02		16.2				Ti
EN 10088-2	≤0.025	≤0.50	16.0-18.0			≤0.015	Ti

Corrosion resistance

Moda 430Ti/4520 has good corrosion resistance in solutions of many halogen-free organic and inorganic compounds over a wide temperature and concentration range. It can withstand many sufficiently diluted organic and mineral acids depending on the temperature and concentration of the solution. Moda 430Ti/4520 may suffer from uniform corrosion in strong organic and mineral acids, as well as in hot concentrated alkaline solutions.

In aqueous solutions containing halogenides, e.g. chlorides or bromides, pitting and crevice corrosion may occur depending on the halogenide concentration, temperature, pH-value, concentration of oxidizing compounds, and crevice geometry, if applicable. For a short period of time, for instance during cooking of food in stainless steel dishes, Moda 430Ti/4520 can tolerate even relatively high chloride concentrations. The presence of corrosion-inhibiting or accelerating compounds like e.g. transition metal ions or organic compounds may influence the corrosion behavior of Moda 430Ti/4520. Due to its ferritic crystal structure, Moda 430Ti/4520 is not prone to chloride-induced stress corrosion cracking.

Moda 430Ti/4520 can be used for indoor applications in rural areas and urban environments where chloride contamination is low. The best material performance is usually reached with the help of adequate design, correct post-weld treatment, and regular cleaning during use (if applicable).

Due to its titanium content, the risk of sensitization to intergranular corrosion is strongly reduced when compared to non-stabilized ferritic grades. Moda 430Ti/4520 can be used in the temperature range in which chromium carbides would precipitate in non-stabilized ferritic grades. Its maximum service temperature in dry air is 800 °C. The presence of other corrosive compounds in the hot environment, like water or sulfur compounds, may reduce the maximum service temperature significantly.

For more information on corrosion resistance, please refer to the Outokumpu Corrosion Handbook or contact our corrosion experts.

Pitting corrosion resistance		Crevice corrosion resistance
PRE	CPT	CCT
16	<10	<0

Pitting Resistance Equivalent (PRE) is calculated using the following formula: $PRE = \%Cr + 3.3 \times \%Mo + 16 \times \%N$

Corrosion Pitting Temperature (CPT) as measured in the Avesta Cell (ASTM G 150), in a 1M NaCl solution (35,000 ppm or mg/l chloride ions).

Critical Crevice Corrosion Temperature (CCT) is obtained by laboratory tests according to ASTM G 48 Method F

Mechanical properties

	$R_{p0.2}$	$R_{p1.0}$	R_m	Elongation ¹⁾	Impact		
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Cold rolled coil and sheet	MPa	MPa	MPa	%	strength J	Rockwell	HB	HV
Typical (thickness 1 mm)	265	285	430					

Hot rolled coil and sheet	R _{p0.2} MPa	R _{p1.0} MPa	R _m MPa	Elongation ¹⁾ %	Impact strength J	Rockwell	HB	HV
Typical (thickness 4 mm)	310	335	460	33			76	

¹⁾Elongation according to EN standard:

A₈₀ for thickness below 3 mm.

A for thickness = 3 mm.

Elongation according to ASTM standard A₂ or A₅₀.

Physical properties

Density	Modulus of elasticity	Thermal exp. at 100 °C	Thermal conductivity	Thermal capacity	Electrical resistance	Magnetizable
kg/dm ³	GPa	10 ⁻⁶ /°C	W/m°C	J/kg°C	μΩm	
7.7	220	10,4	20	430	0.70	Yes

Fabrication

More detailed information concerning welding procedures can be obtained from the Outokumpu Welding Handbook, available from our sales offices.

Standards & approvals

Standard	Designation
EN 10088-2	1.4520

Contacts & Enquiries

Contact your nearest sales office

www.outokumpu.com/contacts

Working towards forever.

We work with our customers and partners to create long lasting solutions for the tools of modern life and the world's most critical problems: Clean energy, clean water and efficient infrastructure. Because we believe in a world that lasts forever.

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