

## Technical Data Sheet

AISI-430

### General Presentation

The ferritic group of steels includes AISI-430, a non-hardenable steel with straight chromium. This steel is well-known for its corrosion resistance, formability, and practical mechanical properties. Because of its resistance to nitric acid, it can be used in certain chemical applications.

### Classification

Ferritic stainless steel

### Application

AISI-430 stainless steel is used in structural members, different kinds of severely formed parts, and siding and roofing for railway cars and trailers.

### Processing

Cold forming with low amount of deformation is easily feasible above room temperature. Sharp chamfers parallel to the direction of rolling have to be avoided. Sheets with greater thicknesses and/or higher amount of deformation should be preheated up to 200 - 400 °C. If applicable, a hot forming at 700 - 900 °C can be necessary. The corrosion resistance is affected by annealing colors, which occur after hot forming or welding, or scalings. These have to be removed by pickling (pickling solution), grinding or sand blasting. It is only allowed to use iron-free tools for these workings. Machining does not differ from machining of non-alloy carbon steels with comparable or corresponding strength.

### Forming

AISI- 430 has a low work hardening rate which enables easy bending and forming. The low ductility rate, however, makes it difficult to perform very rigorous operations. It is possible for grade 430 wire to handle rigorous cold heading. Sub-critical intermediate annealing may be required for extreme cold working.

### Weldability

To perform any welding, stainless steel grade 430 has to be pre-heated at 150-200°C (302-392°F). In case of embrittlement in the welded metal, the particular area can be post-weld annealed at 790-815°C (1454-1499°F); however grain refinement will not happen.

It is recommended that grade 430, 308L, 309 or 310 filler rod should be used based on the application.

### Corrosion

All ferritic grades, such as stainless steel AISI-430, are extremely resistant to stress corrosion cracking. AISI-430 has good corrosion resistance to a wide range of substances, including organic acids and nitric acid. Corrosion resistance is maximized when the surface is well-polished or buffed. Its resistance to pitting and crevice corrosion is comparable to that of AISI-304.

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### Chemical Properties

Chemical properties of the alloy is given below (maximum values unless indicated otherwise).

Name	Number	C (%)	Si (%)	Mn (%)	P (%)	S (%)	Cr (%)
X6Cr17	1.4016	0,080	1,00	1,00	0,040	0,015	16,0 to 18,0

### Mechanical Properties

The following table summarizes the mechanical properties at room temperature (minimum values).

Tensile S. (MPa), Rm	Yield S. (MPa), Rp 0,2	Elongation (%)	Elastic Modulus (GPa)
430-600	260	20	200

### Some Physical Properties

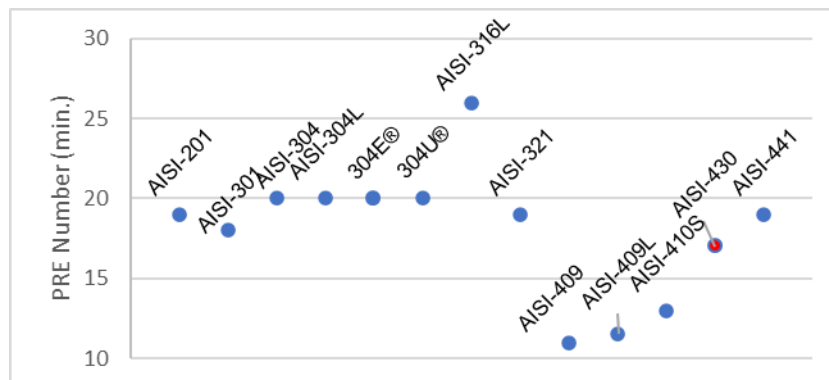
Thermal conductiv ity at 20 °C (W/(m.K)	Specific thermal capacity at 20 C° J/(kg.K)	Electrical resistivity at 20 °C (Ω.mm <sup>2</sup> /m )
25	460	0,60

### Comparison With Different Stainless Steel Grades

	AISI-409	AISI-430	AISI-410S
% C + N	0.030	0.08	0,08
% Cr min. / max.	10.5 / 12.5	17.5 / 19.5	12.0 / 14.0
% Mo min. / max.	-	-	-

### Corrosion Resistance

PRE value of each alloy is given on the graph below. AISI-430 is indicated with red dot on graph.



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## Available Products

Process	Alloy Type	Alloy (AISI)	EN No.	Surface	Product Type	Range		
						thickness (mm)	width (mm)	length (cm)
Cold rolled + Solution annealed	Austenitic	201	1.4372	2B, 2D, 2H, 2J, 2C, NO:4, SB	Coil, strip, sheet, plate, disc	0,25-3	50-1300	20-600 or coil
		301	1.4310					
		304/304L	1.4301/1.4307					
		304E@/304U@	-					
		316L	1.4404					
	321	1.4541						
	Ferritic	409/409L	1.4512					
		410S	1.4000					
		430	1.4016					
		441	1.4509					

## Geometrical Properties

The tolerances of thickness according to TS EN ISO 9445-2 Standard is given below (dimensions in millimeters).

Specified thickness (t)	Special tolerances for a specified width of	
	$w \leq 1000$	$1000 < w \leq 1300$
$t < 0,30$	$\pm 0,030$	-
$0,30 \leq t < 0,40$	$\pm 0,030$	$\pm 0,035$
$0,40 \leq t < 0,50$	$\pm 0,035$	$\pm 0,035$
$0,50 \leq t < 0,60$	$\pm 0,035$	$\pm 0,035$
$0,60 \leq t < 0,80$	$\pm 0,040$	$\pm 0,040$
$0,80 \leq t < 1,00$	$\pm 0,040$	$\pm 0,050$
$1,00 \leq t < 1,20$	$\pm 0,050$	$\pm 0,055$
$1,20 \leq t < 1,50$	$\pm 0,055$	$\pm 0,060$
$1,50 \leq t < 2,00$	$\pm 0,065$	$\pm 0,070$
$2,00 \leq t < 2,50$	-	-
$2,50 \leq t < 3,00$	-	-

The tolerances on width for cold-rolled wide strip and sheet/plate cut from cold-rolled wide strip mill edges is given below (dimensions in millimeters).

Tolerances for a specified width of	
$600 \leq w < 1000$	$1000 \leq w \leq 2100$
+25 0	+30 0

The tolerances on sheet-plate cut from cold-rolled wide strip mill edges is given below (dimensions in millimeters).

Tolerance	
Length	Normal
$\leq 1500$	+5 /0

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- For thickness tolerances, EN/2 is in our productibility.
- The width tolerances are for slit edge materials.

### Edge Wave, Flatness Tolerances

- According to standard h/l rate is 0.03 max.
- For clients with special requests on flatness we can produce EN/2.

### Sheet/plate

- Minimum sheet length is 200 mm, maximum sheet length is 6000 mm.
- Minimum width is 425 mm, maximum width is 1300 (1500 mm is available for contract manufacturing).
- Producibile thicknesses are between 0,3 – 3 mm.
- The above mentioned min. and max. Values are machine manufacturability. Information should be obtained from planning for plate combinations.
- Sheets can be filmed.
- Sheets can be labeled.

Mandrel Dia. (mm)	Thickness (mm)		Width (mm)		Length (cm)		Mandrel Tonnage	Packet Tonnage
	Min.	Max.	Min.	Max.	Min.	Max.	Max.	Max.
503	0,5	3	425	1500	20	600	10	2,5

### Strip

- Strip inner diameter is 508 mm.
- For thicknesses of 0.90 mm and above, the slitting process is combined as 50 mm\*15mm. The strip outer diameter is a maximum of 1750 mm.
- For thicknesses below 0.90 mm, the slitting process is combined as 50 mm \* 15 mm. Maximum roll weight should be 10 tons.
- Slitting is not performed in thicknesses below 0.30 mm thickness.
- Paper wrapping is not possible for strips under 350 mm width.
- For thicknesses over 1.80 mm, the slitting process should be asked to the planning department.
- Thin film coating can be done on the edge cutting.
- It is possible to label on the edge cut rolls.

Cutting Type	Mandrel Dia. (mm)		Thickness (mm)		Width (mm)	
	Entry	Exit	Min.	Max.	Min.	Max.
Edge Cutting	508 - 610	508 - 610	0,3	3	300	1280
Multi Slitting	508 - 610	508 - 610	0,6	3	40	-

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### Subjected Certificates and Standards

#### Certificates:

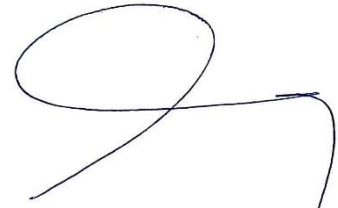
- TS EN ISO 9001:2015
- TS EN ISO/IEC 17025:2017
- TS EN ISO 9001:2015 EN AS 9100:2018
- IATF 16949:2016
- TS ISO 10002:2018
- 2014/68/EU: EN 764-5, section 4.2 and AD 2000-Merkblatt W0
- TS EN 10088-2:2014,
- 2001/95/EC General Product Safety Directive
- 1935/2004 EU Food Contact Regulations (EC)
- 98/79/EC In Vitro Diagnostics Medical Devices and Repealing Directive
- EU 2017/745 Medical Devices
- EU NO 305/2011 Construction Products Regulation
- 2011/65/EU Restriction of Hazardous Substances Directive ROHS
- 2016/26/EU, 2017/225/EU, 2018/35/EU REACH
- 2014/34/EU ATEX

#### Standards:

- TS EN 10088-2:2014,
- TS EN 10088-4:2013,
- TS EN 9445-2:2010,
- TS EN 10028-7:2016,
- TS 3157 EN ISO 3651-2:2000,
- ASTM A240/A240M-22b-2022,
- ASTM A480/A480M-22a-2022,
- ASME SA 240/SA 240M-2021,
- ASME SA 480/SA 480M-2021,
- ASTM A262,
- EN 764-5 Section 4.2,
- ISPM 15:2019 Fumigation



İrfan Can DİNÇER, B.Sc.  
**Metallurgical & Materials Engineer**  
**Quality and R&D Engineer**



Eur. Ing. Hamdi EKİCİ, Ph.D.  
**Metallurgical & Materials Engineer**  
**Quality and R&D Manager**