

# Ferritic stainless steel grades

## AISI 400



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### Introduction

The ferritic range of AISI 400 series, differs from other stainless steels because it does not contain any nickel. Therefore, it is not affected by the erratic price fluctuations of this alloy. Choosing ferritic solutions, offers stable material costprice.

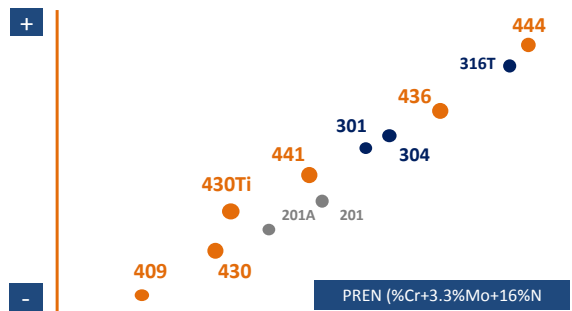
Thanks to the protective layer of chromium oxide on the surface ferritic steels are permanently protected from corrosion. Within our AISI 400 program a wide range of qualities is offered. F.e. AISI 430 applies for products exposed to moderately corrosive environments, whereas 444 grades are suited to highly corrosive due to (f.e.) chlorinated liquid. AISI 436 grades combine excellent performance and aesthetics. AISI 441 applications: ceilings, hoods, basins and other outside surfaces.

### General

NEN-EN approved types of austenitic stainless steel 400

AISI	EU code acc. EN 10088	ASTM A 240
409	X2CrTi12 / 1.4512	UNS S40900
410S	X2CrNi12 / 1.4003	UNS S41008
430	X6Cr17 / 1.4016	UNS S43000
430Ti	X3CrTi17 / 1.4510	UNS S43010
436	X6CrMoNb17-1 / 1.4526	UNS S43600
439	X2CrTi17 / 1.4510	UNS S43035
441	X2CrMoNb18 / 1.4509	UNS S43932
444	X2CrMoTi18-2 / 1.4521	UNS S44400

### Corrosion



### Chemical

Elements	%:	C	Si	Mn	Cr	Ni	Ti
409		0.080	1.00	1.00	11.75	0.05	0.75
410S		0.080	1.00	1.00	14.50	0.75	0.20
430		0.120	1.00	1.00	18.00	0.75	--
430Ti		0.100	1.00	1.00	19.50	0.75	0.50
436		0.120	1.00	1.00	18.00	0.05	--
439		0.025	1.00	1.00	19.00	0.05	--
441		0.030	1.00	1.00	19.00	0.05	--
444		0.025	1.00	1.00	19.50	1.00	--
<b>304</b>		<b>0.050</b>	<b>0.40</b>	<b>1.10</b>	<b>18.20</b>	<b>8.05</b>	--

### Mechanical

Werkstoff	min.	R <sub>m</sub>	max.	Re/R <sub>p</sub> min.	AO min.
1.4512	380 (MPa)		560	220 (MPa)	25 %
1.4003	450 (MPa)		650	320 (MPa)	20 %
1.4016	450 (MPa)		600	280 (MPa)	18 %
1.4510	420 (MPa)		630	240 (MPa)	23 %
1.4526	480 (MPa)		560	300 (MPa)	25 %
1.4510	420 (MPa)		600	240 (MPa)	23 %
1.4509	430 (MPa)		630	250 (MPa)	18 %
1.4521	420 (MPa)		640	320 (MPa)	20 %
<b>1.4301</b>	<b>540 (MPa)</b>		<b>750</b>	<b>230 (MPa)</b>	<b>45 %</b>

### Applications

- Catering-, kitchen equipment (pots, hoods, shelves)
- Column plates, tanks, tubes and installations
- Building gutters, roofing, facades and tooling
- Domestic electric appliances and heating systems
- Automotive exhaust systems and auto- /rail parts

### Characteristics

- Comply to general metalworking and welding
- Basic ductility, drawability (less comp. to 300 series)
- Very good resistance to moderate corrosion
- Stainless EU Material Safety Data Sheet 1/2001/58/EC
- NFA 36 711 standard Stainless steel c. wi. Foodstuffs

### Technical guide for the choice of grades

This table classifies grades relative (indicative) to different properties:

Grade	Forming	Weldability	Corrosion		Toughness	Examples of applications
			pitting	crevice		
403	X	XXXX	X	N	XXXX	Structural frames, bulk rail wagons, container- and transport
409D	XXX	XXXXX	X	N	XXX	Heat exchange tubes and installations
430	X	XXX	XX	X	XXX	Machine frames, cabinets, doors and facades
441	XX	XXXXX	XXX	XX	XX	Decorative tubes and components
201L	XXXX	XXXXXX	XXX	XXX	XXXXXX	Cryogenic tanks, Automotive- and rail transport
201D	XXXXX	XXXXX	XXX	XXX	XXXXXX	Food processing products, general sheet/metal work, structures
301	XXXX	XXXX	XXX	XXX	XXXXXX	Automotive parts, cylinder gaskets, braking systems
304	XXXXX	XXXXX	XXX	XXXX	XXXXXX	Food processing products, general sheet/metal work, structures
316L	XXXXXX	XXXXXX	XXXX	XXXXX	XXXXXX	Water-, chemical-, pharmaceutical-, oil-, gas-, paper industry
321	XXXXX	XXXXXX	XXX	XXXX	XXXXXX	See applications 304 + high temperature properties