



***Local operations with Global reach***  
*to deliver the best steel solutions we travel places..*

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**We know steel**

## ABOUT US

Stancor Alloys Inc. is an Multinational Company Having Multiple Offices in Asia and Middle East and is Involved into Manufacturing and Exporting of Seamless and Welded Steel Pipes and Tubes as Well as Plates and Sheets of Carbon Steel, Stainless Steel, Special Steel & Alloys. It is also engaged in the development of many Oil and Gas Fields, Power Plants, Petrochemical Refineries, Cement Factories and Automotive Industry in the world. Using Sales and purchasing channels all over the world, Stancor Alloys Inc. is an Attractive partner for suppliers and Customers alike.

At Stancor, we call it Advanced Manufacturing & Exporting, which means One Step Ahead. It is not possible to have progress without change. The dynamic steel market has changed and so has Stancor. Since our Group was found in 1977, we have continued to grow and now we occupy a leading position in the steel market. Our development is based on fundamental values and orientation towards success. We will continue to develop our tried and tested concept, especially, in terms of co-operation with our customers. Annually, we ship around 1.2 million tons of steel and steel pipes to places all over the world. Our Global Strong workforce is totally focused on meeting our customer's needs. Communication with our customers means more than simply talking about the grades for a particular use.

Stancor offers you much more: it is our customized services for handling, packing, transport and third party inspections, which round off our offer, turning steel and steel products into solutions that are in line with market requirements and keep our customers satisfied.

# IT MAKES SENSE TO CHOOSE STANCOR

- In the face of fierce competition in international markets, our strength is profound knowledge of products and markets plus, the additional asset of a comprehensive services range.
- Arrangement of complete packages Consisting of various materials out of new production and/or from stock according to the project requirements.
- Sourcing worldwide backed by our 32 year old network.
- Logistics for tailor made transportation arrangements to destinations all over the world.
- Independent third party inspections can take place at our work site.
- Optimal loading and unloading by means of three modern crane units.
- Weighing of lorries and wagons.
- Prompt delivery, using our own vehicle fleet or contracted forwarding agents who operate internationally.
- In-house testing laboratory which checks and certifies chemical and mechanical characteristics.
- After sales services backed-up by our worldwide presence.
- Quality assurance according to ISO 9001: 2000.\*



## BLOWER & PRESSURE VESSEL

Stancor boiler plates are used in particular in powerplant equipment such as waterwalls, superheaters, steam pipes, columns, etc. Stancor pressure vessel plates are found mainly in chemical, oil & gas refinery. It is also found in equipments such as reactors, strippers, separators, scrubbers, hydrodesulfurizers, hydrocrackers, heat exchangers, amine absorbers, etc.

### PLATES AND FORGED PLATES FOR SHELLS IN DIFFERENT THICKNESSES

Plates from 5 mm (3/16") up to over 300 mm (12") and up to 4350 mm width (157"), depending on steel grade

- Extra large plates with unit weights up to 100 MT (in thicknesses 100/300 mm - 4 to 12")
- Stainless plates up to 200mm thick up to 18 tons
- Roll-bonded clad plates up to 120 mm (4.75")
- Beams for reactors internals stainless steels up to 200 mm thick up to 18 tons.

### SINGLE FORMED HEADS PIECE

#### Hemispherical

- Inner diameter 1000 to 3000 mm (39 to 118")
- Thickness up to 250 mm (10")

#### Elliptical

- Inner diameter 2000 to 3500 mm (78 to 138")
- Thickness up to 250 mm (10")

#### Single Piece Discs (for tubesheets)

- up to 4 500 mm diameter (180")
- 800 mm thick (32")
- Larger diameters available in ready to weld multi-segment discs



### MULTI-PIECES HEADS AND SHELLS

- Ready to weld half shells (diameter up to 6000 mm depending on cut back)
- Ready to weld cap and petals for heads (diameter up to 12000 mm)



ASTM A515-78 PRESSURE VESSEL PLATES, CARBON STEEL, FOR INTERMEDIATE AND LOWER TEMP. SERVICE

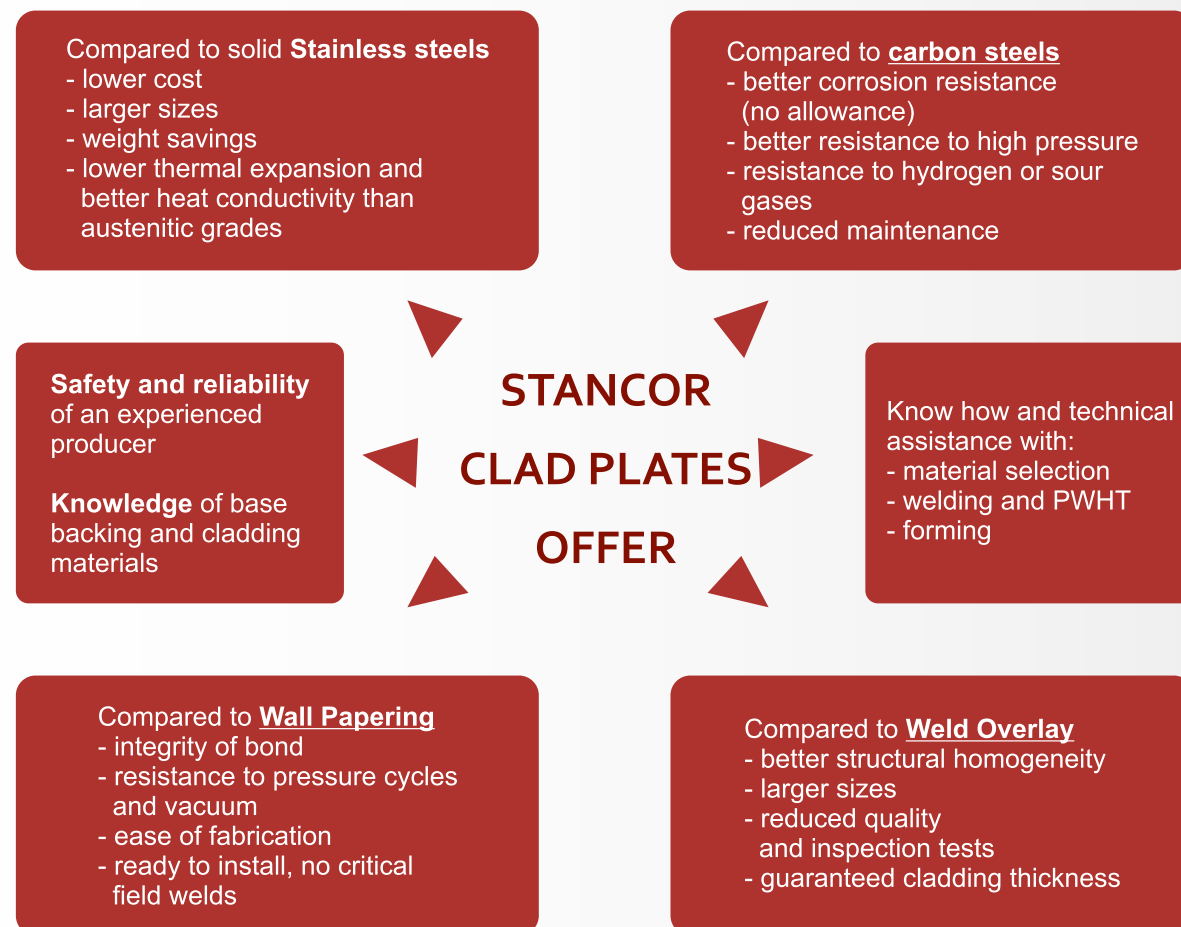
Designation	Chemical Composition, %						Tensile Test			
	Thickness in (mm)	C max	Si	Mn max	P max	S max	Tensile Strength Ksi (Mpa)	Yield Strength Ksi (Mpa), min	Elongation,% min	
									GI=8 in. *2 or 50 mm	GI=2 in
A 516-55	T<1/2 (13)	0.18	0.15~0.30	0.60~0.90	0.035	0.04	55-75 (380-515)	30(205)	23	27
	1<t<2(50) 2<t<4(100) 4<t<8 (200) t>8	0.20 0.22 0.24 0.26	0.15-0.30	0.60~0.90	0.035	0.04				
A 516-60	T<1/2 (13)	0.21	0.15~0.30	0.60~0.90	0.035	0.04	60-80 (415-550)	32(220)	21	25
	1<t<2 (50) 2<t<4 (100) 4<t<8 (200) t<8	0.23 0.25 0.27 0.27	0.15~0.30	0.60~0.90	0.035	0.04				
A 516-65	t<1/2(13) 1<t<2 (50) 2<t<4 (100) 4<t<8(200) t<8	0.24 0.26 0.28 0.29 0.29	0.15~0.30	0.60~0.90	0.035	0.04	65-85 (450-585)	35(240)	19	23
A 516-70	t<1/2 (13) 1<t<2 (50) 2<t<4< (100) 4<t8 (200) t>8	0.27 0.28 0.30 0.31 0.31	0.15~0.30	0.60~0.90	0.035	0.04	70-90 (485-620)	38(260)	17	21

## CLAD PLATES

A clad plate is a combination of two or more different metals, each chosen for its specific properties, metallurgically bonded to obtain an integral continuous single plate offering the benefits of both components. Stancor clad plates are produced by bond-rolling.

By combining for example a stainless steel with a low alloy backer steel, it is possible to benefit from the mechanical properties of the backing material and the corrosion resistance of the stainless steel at a competitive price. Normally the backer metal is a carbon-manganese steel, CrMo or other low alloy material and the cladding can be a stainless steel or a nickel base material.

The processing of Stancor clad plates is basically similar to the processing of solid plates, taking into consideration the properties of the backing steel and of the corrosion resistant cladding. Stancor has prepared detailed forming and welding recommendations to help you optimize the properties of your finished equipment.



## CONSTRUCTION STEEL

Many industries use mechanical parts that place heavy demands on the steel used. Depending on the targeted function, the special properties you need may be mechanical strength, weldability, machinability, formability or large size or thickness.

For example, the steel used to manufacture cranes or the placing booms of concrete pumps must offer high strength and an acceptable level of weldability.

Heavy equipment such as press bodies or pump shells requires a sufficient level of machinability and uniform internal properties all the way through large thicknesses.

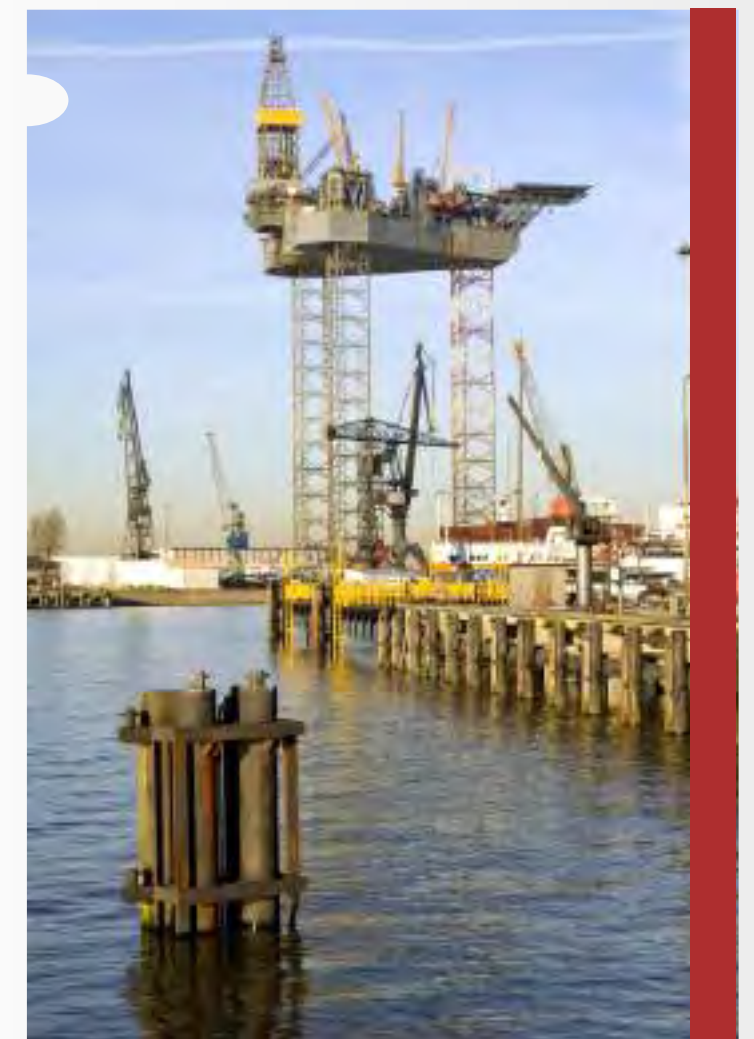
Stancor offers not only a wide range of solutions meeting the requirements of standards, but also its vast know-how acquired in the many applications for which we develop and produce innovative high-performance solutions.

### Applications:

Cranes, mobile cranes, concrete pumping booms, press bodies, penstocks, trailers, bulldozers, loaders, industrial trucks, buckets, pipes, bridges, steel buildings and offshore applications such as jack-up rig legs.

### Products:

Stancor can supply very large plate formats for mechanical applications. Very thick pieces can be proposed with high unit weights, thus avoiding additional welding and assembly operations. Solutions comprising pre-cut and pre-formed parts are also available.





CARBON STEEL PLATES - IS 8500 / SAILMA

CHEMICAL COMPOSITION							MECHANICAL PROPERTIES									
Grade	Ladle Analysis						Grade	Tensile Strength (Min)	Yield Strength (Min)				Elongation Percent (Min)	Bend (Internal diameter)		Charpy V-notch Impact toughness, Joules, Min (Average of 3 Values) Room Temp <sup>o</sup>
IS 8500	C% Max	Mn% Max	S% Max	P% Max	Si% Max	C.E% Max			<16 mm	16-40 mm	41-63 mm	>63 mm		Min <12 mm	12-25 mm	
Fe 440	.20	1.30	.050 .040	.050 .040	45	40	Fe 440	440	300	290	280	By agreement	22	2t	3t	— —
Fe 440B	.20	1.30	.050 .040	.050 .040	45	40	Fe 440B	440	300	290	280	—	22	2t	3t	50 30
Fe 490	.20	1.50	.050 .040	.050 .040	45	42	Fe 490	490	350	330	320	—	22	2t	3t	— —
Fe 490B	.20	1.50	.050 .040	.050 .040	45	44	Fe 490B	490	350	330	320	—	22	2t	3t	50 25
Fe 540	.20	1.60	.045 .040	.045 .040	45	44	Fe 540	540	410	390	380	—	20	2t	3t	— —
Fe 540B	.20	1.60	.045 .040	.045 .040	45	44	Fe 540B	540	410	390	380	—	20	2t	3t	50 25
Fe 570	.22	1.60	.045 .040	.045 .040	45	46	Fe 570	570	450	430	420	—	20	2t	3t	— —
Fe 570B	.22	1.60	.045 .040	.045 .040	45	46	Fe 570B	570	450	430	420	—	20	2t	3t	45 20
Fe 590	.22	1.60	.045 .040	.045 .040	45	48	Fe 590	590	450	430	420	—	20	2t	3t	— —
Fe 590B	.22	1.80	.045 .040	.045 .040	45	48	Fe 590B	590	450	430	420	—	20	2t	3t	45 20



SAILMA High Strength Micro Alloy Structural steel (Semi Killed)

Chemical Composition

Grade	C% Max	Mn% Max	S% Max	P% Max	Nb+V+Ti% Max
SAILMA 300	0.25	1.50	0.055	0.055	0.20
SAILMA 300HI	0.20	1.50	0.040	0.040	0.20
SAILMA 350	0.25	1.50	0.040	0.040	0.20
SAILMA 350 HI	0.20	1.50	0.040	0.040	0.20
SAILMA 410	0.25	1.50	0.040	0.040	0.20
SAILMA 410HI	0.20	1.50	0.040	0.040	0.20
SAILMA 450	0.25	1.50	0.040	0.040	0.20
SAILMA 450HI	0.20	1.50	0.040	0.040	0.20

Mechanical Properties

Grade	UTS (Mpa)	YS (MPa) Min	El.% Min 5.65 So	IMPACT CHARPYV		Bend Test
				0°C-20°C Joules (Min)		
SAILMA300	440-560	300	20			3T
SAILMA300HI	440-560	300	21	40		3T
SAILMA350I	490-610	350	20	—		3T
SAILMA350HI	490-610	350	21	40	30	3T
SAILMA410	510-660	410	19	—		3T
SAILMA 410HI	540-660	410	20	35	25	3T
SAILMA450	570-720	450	18	—		3T
SAILMA450 HI	570-720	450	19	30	20	3T





IS - 2062 -92 STEEL FOR GENERAL STRUCTURAL PURPOSE

Grade	Designation	%Chemical Composition						Supply Tensile	Tensile Strength (min) Kg/mm <sup>2</sup>	Yield Strength (min) kg/mm <sup>2</sup>			% EI in gauge length 5.56/so	Bend Test	Std. Test Piece charpy V Notch Impact Energy joule min	Remark
		C max	Mn max	S max	P max	Si max	CE max			<20 mm	20-40 min	>40 min				
A	Fe 410 WA	0.23	1.5	0.050	0.050	—	0.42	As rolled	41.8	25.50	24.48	23.45	23	31	—	
B	FE410WB	0.22	1.5	0.045	0.045	0.040	0.41	As Rolled Plates above 12mm may be normalised if agreed to between manufacturer & purchaser	41.8	25.50	24.48	23.45	21 for t< 25 mm 3t for > 25 mm	23	27	min Charpy impact energy to be guaranteed at O-C agreed betn. mfrs
C	FE410WC	0.20	1.5	0.040	0.040	0.040	0.39	As Rolled Plates above 12mm shall be normalise	41.8	25.50	24.48	23.45	23	21	27	impact properties to be guaranteed at any one of two temp.- 20c or 40 c as specified by purchaser

IS - 2002 - 62 STEEL PLATES FOR BOILERS

Designation	C max	mn	Chemical Composition			Tensile test			Elongation	
			Si max	P max	S max	Tensile Strength Kf/mm <sup>2</sup>	Yield Strength Kf/mm <sup>2</sup> min		Test	% min piece
IS 2002-1	0.18	0.5 1.2	0.15-0.35	0.035	0.040	36.7-49	24	23	5.65/Sc	24
IS 2002-2	0.20	0.5 1.2	0.15-0.35	0.035	0.40	41.7-54	27	26	5.65/Sc	22
IS 2002-3	0.22	0.5 1.2	0.15-0.35	0.035	0.040	46.8-59	29.5	29	5.65/Sc	21



ASTM A 537 - 35 PRESSURE VESSEL PLATES, HEAT TREATED, CARBON MANGANESES-SILICON STEEL

	%Chemical Composition										Heat Treatment	Tensile Strength			Elongation % min	
	C max		Min. thickness in mm		P max	S max	Cu max	Ni max	Cr max	Mo max		Thickness in mm	Tensile Strength Ksi (MPa)	Yield Strength Ksi (MPa) min	GL= 8 in or 200 mm	GL = 2 in or 50 mm
			t<1-1/2(38)	t>-1-1/2												
A 537 -1	0.24	0.15-0.50	0.70-1.35	1.0-1.60	0.035	0.040	0.035	0.25	0.25	0.08	Normalised	t<2-1 (64) 2-1/2<t <4 (100)	70-90 (485-620) 65-85 (450-585)	50 (345) 45 (310)	18	22
A 537 -2	0.24	0.15-0.50	0.70-1.35	1.0-1.60	0.035	0.040	0.035	0.25	0.25	0.08	Quenched & Tempered	T<2-1/2(64) 2-1/2<t (4)(100)	80-100 (550-690) 75-95 (515-655)	60 (415) 55 (380)	—	22

ASTM A 285 - 80 PRESSURE VESSEL PLATES, CARBON STEEL LOW AND INTERMEDIATE TENSILE

Designation	Chemical Composition							
	C max	Mn max	P max	S max	Tensile Strength Ksi (MPa)	Yield Strength Ksi (Mpa)	Elongation % mm GI + 8 in	GI = 2 in
A 285	0.7	0.90	0.035	0.035	45-65 (310-450)	24-(165)	27	30
A 285 B	0.22	0.90	0.035	0.035	50-70 (385-485)	27(185)	25	28
A 285 C	0.28	0.90	0.035	0.035	55-75 (380-515)	30(205)	23	27



CRYOGENIC STEEL

Stancor offers a range of carbon steel plates specifically for cryogenic storage. Our range of steels are ideal for the containment or transportation of liquefied gases such as oxygen, nitrogen and argon which need to be stored at a temperatures below -196°C. The material is a pressure vessel grade which displays resistance to low temperature brittle fracture.

Many of the pressurised storage tanks designed to hold these gases are double walled with an insulation layer to minimise any generation in heat. Considerations should be made not only to the material used but also the fittings required which will also include piping and valves.

CRYOGENIC STEEL GRADES:

We offer the following steel grades for cryogenic purposes:

- ASTM A553 Class 1 & Class 2 plates
- ASME SA553 Class 1 & Class 2 plates
- ASTM A353
- ASME Sa353



HIGH STRENGTH STRUCTURAL PLATE

It is a general structural steel with a minimum yield strength of 700 MPa. It meets the requirements on the corresponding steel grades and qualities according to EN 10025.

**Applications:** Load carrying structures having very high demands on low weight.

**Designation:** Weldox 700D with guaranteed impact toughness at -20° C (-4°F). Corresponds to S690Q  
Weldox 700E with guaranteed impact toughness at -40° C (-40°F). Corresponds to S690QL  
Weldox 700F with guaranteed impact toughness at -60° C (-76°F). Corresponds to S690QL1



Chemical Composition (ladle analysis)

C *	Si*	Mn*	P	S	B *	Nb*	Cr*	V *	Cu*	Ti	Al *	Mo*	Ni*	N
max %	max %	max %	max %	max %	max %	max %	max %	max %	max %	min %	max %	max %	max %	max %
0.20	0.60	1.60	0.020	0.010	0.005	0.04	0.70	0.09	0.30	0.04	0.015	0.70	2.0	0.010

\* Intentional alloying elements. The steel is grain-refined

$$CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

$$CET = C + \frac{Mn + M}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40}$$

Plate thickness		CEV CET	
		Typical values %	%
Weldox 700D, E	8 mm	0,43	0,29
	20 mm	0,43	0,29
	30 mm	0,46	0,31
	60 mm	0,57	0,35
Weldox 700F	8 mm	0,55	0,36
	20 mm	0,55	0,36
	30 mm	0,55	0,36
	60 mm	0,55	0,36

Mechanical Properties

Plate thickness mm	Yield strength <sup>1)</sup> R <sub>p0.2</sub> , min Mpa <sup>2)</sup>	Tensile strength <sup>1)</sup> R <sub>m</sub> MPa <sup>2)</sup>	Elongation <sup>1)</sup> A <sub>5</sub> min %
4,0 - 53,0	700	780-930	14
53,1 - 100,0	650	780-930	14
100,1- 140,0	630	710-900	14

<sup>1)</sup> For transverse test pieces  
<sup>2)</sup> 1 MPa = 1 N/mm<sup>2</sup>

CORTEN A PLATES STEEL *Weathering Fine Grain Structural Steel*

CORTEN A applies to plates up to 12.5mm in thickness, CORTEN B applies to plates up to 50mm in thickness. The values given in the tables(on the following page) for the mechanical properties are pertinent to the state of delivery condition.

Weathering means that due to their chemical compositions CORTEN A and COR-TEN B steels, when utilised unprotected, exhibits increased resistance to atmospheric corrosion compared to unalloyed steels. This is because it forms a protective layer on its surface under the influence of the weather. The corrosion retarding effect of the protective layer is produced by the nature of its structure components and the particular distribution and concentration of alloying elements in it. The layer protecting the surface develops and regenerates continuously when subjected to the influence of the weather.





Applications:

The steel is used for various types of welded, bolted, and riveted constructions e.g. steel frame structures, bridges, tanks and containers, exhaust systems, vehicles and equipment constructions.

The entire application technology is of fundamental importance for the performance of the products made from this steel. It must be taken into account that not only general climatic conditions but also specific unfavourable local climate conditions in the broadest sense as well as details of a construction may affect the corrosion behaviour of unprotected weathering steel. The dependency on these facts makes it understandable that no warranty can be given. It is recommended to control the corrosion progress of unprotected parts out of weathering steel exposed to the influence of weather in reasonable time intervals. A minimum thickness of 5mm is recommended when exposed to the weather in the unprotected condition.



Chemical Composition (heat analysis, %)

Grade	C	Si	Mn	P	S	Cr	Cu	V	Ni
COR-TEN A	≤0.12	0.25-0.75	0.20-0.50	0.20-0.50	≤0.030	0.50-1.2	0.25-0.5		≤0.65

Mechanical Properties

Grade	Minimum yield point ReH MPa *	Tensile strength Rm Mpa	Minimum elongation A (Lo=5.65 vSo) %
COR-TEN A	355	470 – 63	20

ABRASION RESISTANT *Wear Resistant Steel*

We can supply abrasion resistant steel in the form of gas or plasma cut profiles to exacting tolerances or as formed, drilled, or machines parts. It is of course also available as plate straight from our stocks.

Utilised in **applications** such as tipper bodies, cutting edges, crushing machinery, and excavator buckets abrasion resistant plate from Brown McFarlane is sourced from Western European steel producers and is available in 400, 450, and 500 Brinell hardness, in thicknesses from 3 mm to 150 mm, and up to 12 meters by 3 meters in plate size.

We stock Abrazo plates manufactured by Tata Steel as well as proprietary brands from other steel plate manufacturers.

FABRICATION OF ABRASION RESISTANT STEEL

Welding:

Abrazo 400 can be welded under normal conditions (if you require advice on welding, machining or forming then please contact our office) using MMA, MOG and SAW without preheat, up to a combined thickness of 60mm, provided hydrogen controlled electrodes are used. Consumables should be dried in accordance with scale ‘D’ of BS 5135. Consumables should be chosen on the basis of whether or not the weld metal is exposed to wear conditions.

Machining:

Machining or drilling is more difficult due to hardness. For 400BHN use high-grade cobalt HSS E drilling tools and for 500BHN hard metal drilling tools are necessary.

Forming:

Abrasion steels can be readily cold formed. Compared with steels of lower yields, three factors should be considered: a) Higher press forces. b) A greater bend radius is required. & c) Spring back.



Chemical Composition Content %, maximum (cast analysis)

Steel Grade	C	Si	Mn	P	S	Cr	Ni	Mo	B
BHN 400	0.20	0.70	1.70	0.030	0.015	1.50	0.40	0.50	0.004
BHN 500	0.24	0.70	1.70	0.030	0.015	1.50	0.70	0.50	0.004

Mechanical Properties

Steel Grade	Yield strength Rp0,2 Mpa	Tensile Strength Rm Mpa	Elongation A 5 %	Impact Strength, Charpy V 20 J
BHN 400	1000	1250	10	-40 C
BHN 500	1250	1600	8	-30 C



STAINLESS STEEL

Austenitic stainless steels are the most commonly used materials . This class of stainless steel includes both the 200 and 300 series alloys, which are hardenable by cold working. The 300 series alloys contain chromium and nickel as their major alloying additions.

Type 304 (also known as 18-8) is the most widely used of all stainless steel alloys. The 200 Series alloys possess mechanical and corrosion resisting properties similar to 300 Series materials. They also exhibit high hardness and yield strength as well as excellent ductility and are usually non-magnetic. The 200 series alloys were originally developed to conserve nickel by replacing it with manganese at a ratio of 2% manganese for each 1% of nickel replaced. This reduced nickel content results in the 200 series alloys having a lower and more stable cost than the 300 series materials.



CHEMICAL COMPOSITION OF S. S. PIPES & TUBES

Grade	UNS Designation	Composition %															
		Carbon max	Manganese max	Sulfur max	Phosphorus max	Silicon	Nickel	Chromium	Molybdenum	Titanium	Columbium plus	Tantalum max	Nitrogen <sup>c</sup>	Vanadium	Copper	Cerium	Boron
TP304	S30400	0.08	2.00	0.040	0.030	0.75 max	8.00-11.0	18.0-20.0	---	---	---	---	---	---	---	---	---
TP304H	S30409	0.04-0.10	2.00	0.040	0.030	0.75 max	8.00-11.0	18.0-20.0	---	---	---	---	---	---	---	---	---
TP304L	S30403	0.035	2.00	0.040	0.030	0.75 max	8.00-13.0	18.0-20.0	---	---	---	---	---	---	---	---	---
TP304N	S30451	0.08	2.00	0.040	0.030	0.75 max	8.00-11.0	18.0-20.0	---	---	---	---	0.10-0.16	---	---	---	---
TP304LN	S30453	0.035	2.00	0.040	0.030	0.75 max	8.00-11.0	18.0-20.0	---	---	---	---	0.10-0.18	---	---	---	---
TP309Cb	S30940	0.08	2.00	0.045	0.030	0.75 max	12.0-16.0	22.0-24.0	0.75 max	---	10 x C min 1.10 max	---	---	---	---	---	---
TP309H	S30909	0.04-0.10	2.00	0.040	0.030	0.75 max	12.0-15.0	22.0-24.0	---	---	---	---	---	---	---	---	---
TP309HCb	S3041	0.04-0.10	2.00	0.045	0.030	0.75 max	12.0-16.0	22.0-24.0	0.75 max	---	10 x C min 1.10 max	---	---	---	---	---	---
TP309S	S30908	0.08	2.00	0.045	0.030	0.75 max	12.0-15.0	22.0-24.0	0.75 max	---	---	---	---	---	---	---	---
TP310Cb	S31040	0.08	2.00	0.045	0.030	0.75 max	19.0-22.0	24.0-26.0	0.75 max	---	10 x C min 1.10 max	---	---	---	---	---	---
TP310H	S31009	0.04-0.10	2.00	0.040	0.030	0.75 max	19.0-22.0	24.0-26.0	---	---	---	---	---	---	---	---	---
TP310HCb	S31041	0.04-0.10	2.00	0.045	0.030	0.75 max	19.0-22.0	24.0-26.0	0.75 max	---	10 x C min 1.10 max	---	---	---	---	---	---
TP310S	S31008	0.08	2.00	0.045	0.030	0.75 max	19.0-22.0	24.0-26.0	0.75 max	---	---	---	---	---	---	---	---
	S31272	0.08-0.12	1.5 2.00	0.030	0.015	0.3-0.7	14.0-16.0	14.0-16.0	1.0-1.4	0.3-0.6	---	---	---	---	---	---	0.04 0.00
TP316	S31600	0.08	2.00	0.040	0.030	0.75 max	11.0-14.0	16.0-18.0	2.00-3.00	---	---	---	---	---	---	---	---
TP316H	S31609	0.04-0.10	2.00	0.040	0.030	0.75 max	11.0-14.0	16.0-18.0	2.00-3.00	---	---	---	---	---	---	---	---
TP316L	S31603	0.035	2.00	0.040	0.030	0.75 max	10.0-15.0	16.0-18.0	2.00-3.00	---	---	---	---	---	---	---	---
TP316N	S31651	0.08	2.00	0.040	0.030	0.75 max	11.0-14.0	16.0-18.0	2.00-3.00	---	---	---	0.10-0.16	---	---	---	---
TP316LN	S31653	0.035	2.00	0.040	0.030	0.75 max	11.0-14.0	16.0-18.0	2.00-3.00	---	---	---	0.10-0.18	---	---	---	---
TP317	S31700	0.08	2.00	0.040	0.030	0.75 max	11.0-14.0	18.0-20.0	3.00-4.00	---	---	---	---	---	---	---	---
TP317L	S31703	0.035	2.00	0.040	0.030	0.75 max	11.0-15.0	18.0-20.0	3.00-4.00	---	---	---	---	---	---	---	---
TP321	S32100	0.08	2.00	0.040	0.030	0.75 max	9.00-13.0	17.0-20.0	---	F	---	---	---	---	---	---	---
TP321H	S32109	0.04-0.10	2.00	0.040	0.030	0.75 max	9.00-13.0	17.0-20.0	---	G	---	---	---	---	---	---	---
TP347	S34700	0.08	2.00	0.040	0.030	0.75 max	9.00-13.0	17.0-20.0	---	H	---	---	---	---	---	---	---
TP347H	S34709	0.04-0.10	2.00	0.040	0.030	0.75 max	9.00-13.0	17.0-20.0	---	I	---	---	---	---	---	---	---
TP347LN	S34751	0.005-0.020	2.00	0.040	0.030	0.75 max	9.00-13.0	17.0-20.0	---	---	0.2-0.5 <sup>H</sup>	---	0.06-0.10	---	---	---	---
TP348	S34800	0.08	2.00	0.040	0.030	0.75 max	9.00-13.0	17.0-20.0	---	---	H	0.10	---	---	---	---	---
TP348H	S34809	0.04-0.10	2.00	0.040	0.030	0.75 max	9.00-13.0	17.0-20.0	---	---	I	0.10	---	---	---	---	---
TPXM 10	S21900	0.08-10.00	8.00-10.00	0.040	0.030	1.00 max	5.50-7.50	19.0-21.5	---	---	---	---	0.15-0.40	---	---	---	---
TPXM 11	S21904	0.04-10.00	8.00-10.00	0.040	0.030	1.00 max	5.50-7.50	19.0-21.5	---	---	---	---	0.15-0.40	---	---	---	---
TPXM-15	S38100	0.08	2.00	0.030	0.030	1.50-2.50	17.5-18.5	17.0-19.0	---	---	---	---	---	---	---	---	---
TPXM-19	S20910	0.060	4.00-6.00	0.040	0.030	1.00 max	11.5-13.5	20.5-3.00	1.50-3.00	---	0.10-0.30	---	0.20-0.40	0.10-0.30	---	---	---
TPXM-29	S24000	0.080	11.5-14.5	0.060	0.030	1.00 max	2.25-3.75	17.0-19.0	---	---	---	---	0.20-0.40	---	---	---	---
---	S31254	0.020	1.00	0.030	0.010	0.80 max	17.5-18.5	19.5-20.5	6.00-6.50	---	---	---	0.18-0.22	---	0.50-1.00	---	---
---	S30615	0.16-0.24	2.00	0.030	0.030	3.2-4.0	13.5-16.0	17.0-19.5	---	---	---	---	---	---	---	---	---
---	S30815	0.05-0.10	0.80	0.040	0.030	1.40-2.00	10.0-12.0	20.0-22.0	---	---	---	---	0.14-0.20	---	---	0.03-0.08	---
---	S31050	0.025	2.00	0.020	0.015	0.4	20.5-23.5	24.0-26.0	1.6-2.6	---	---	---	0.09-0.15	---	---	---	---
---	S30600	0.018	2.00	0.020	0.020	3.7-4.3	14.0-15.5	17.0-18.5	0.20 max	---	---	---	---	---	0.50 max	---	---
---	S31725	0.03	2.00	0.040 <sup>J</sup>	0.030	0.75	13.5-17.5	18.0-20.0	4.0-5.0	---	---	---	0.10 max	---	0.75 max	---	---
---	S31726	0.03	2.00	0.040 <sup>J</sup>	0.030	0.75	13.5-17.5	17.0-20.0	4.0-5.0	---	---	---	0.10-0.20	---	0.75 max	---	---
---	S32615	0.07	2.00	0.045	0.030	4.8-6.0	19.0-22.0	16.5-19.5	0.3-1.5	---	---	---	---	---	1.5-2.5	---	---
---	S33228	0.04-0.08	1.00	0.020	0.015	0.30 max	31.0-33.0	26.0-28.0	---	---	0.6-1.0	---	---	---	---	0.05-0.10	---
---	S24565	0.03	5.0-7.0	0.030	0.010	1.00max	16.0-18.0	23.0-25.0	4.0-5.0	---	0.1 max	---	0.04-0.6	---	---	---	---
---	S30415	0.4-0.06	0.80	0.045	0.030	1.00-2.00	9.00-10.0	18.0-19.0	---	---	---	---	0.12-0.16	---	---	0.03-0.08	---
---	S32654	0.020	2.00-4.00	0.030	0.005	0.50 max	21.0-23.0	24.0-25.0	7.00-8.00	---	---	---	0.45-0.55	---	0.030-0.60	---	---
---	S35315	0.04-0.08	2.00	0.045	0.030	0.75	34.0-36.0	24.0-26.0	---	---	---	---	0.12-0.18	---	---	0.03-0.08	---
---	N08367	0.030	2.00	0.030	0.030	1.00 max	23.50-25.50	20.00-22.00	6.00-7.00	---	---	---	0.18-0.25	---	0.75 max	---	---
---	N08904	0.020	2.00	0.045	0.035	1.00	23.0-28.0	19.0-23.0	4.0-5.0	---	---	---	0.10 max	---	1.0-2.0	---	---

New designation established in accordance with Practice E 527 and SAE J 1086.

Maximum, unless otherwise indicated. The method of analysis for nitrogen shall be a matter of agreement between the purchaser and manufacturer.

For welded TP316, TP316N, TP316LN, and TP316H pipe, the nickel range shall be 10.0-14.0 %. For small diameter or thin walls or both, where many drawing passes are required, a carbon maximum of 0.040 % is necessary in grades TP304L and TP316L. Small diameter tubes are defined as those less 0.500 in (12.7mm) in outside diameter and light wall tubes as those less than 0.049 in (1.20 mm) in average wall thickness (1.10 mm) in minimum wall thickness

The titanium content shall be not less than five times the carbon content and not more than 0.70 %. The titanium content shall be not be less than four times the carbon content and not more than 0.60 %. The Columbium plus titanium content shall be not less than ten times carbon content and not more than 1.00 %.

The Columbium plus titanium content shall be not less than eight times carbon content and not more than 1.00 %.

For welded pipe, the phosphorus maximum shall be 0.045 %. Grade S34751 shall have a columbium (Niobium) plus tantalum content of not less than 15 times the carbon content.

MECHANICAL PROPERTIES OF S.S.PIPES

Table-2 Annealing Requirements

A 312/A 312M

Table-3 Tensile Requirements

Grade or UNS Designation	Solution Treating Temperature	Cooling Requirements
All Grades not individually listed below	1900°F(1040°C)	rapid <sup>c</sup>
TP321H, TP347H, TP348H		
Cold Rolled	2000°F (1100°C)	
Hot Rolled only	1925°F (1050°C)	
TP304H, TP316H		
Cold Rolled	1900°F (1040°C)	
Hot rolled only	1900°F (1040°C)	
TP309H, TP309HCb, TP310H	1900°F (1040°C)	
TP310HCb		
S30815	1920°F (1050°C)	rapid
S31272	1920°F (1050°C)	rapid
S31254	2100°F (1150°C)	rapid
S24565	2050-2140°F (1120-1170°C)	rapid
S35315	2010°F (1100°C)	rapid
N08367	2010°F (1100°C)	rapid
N08904	2010°F (1100°C)	rapid

Grade	UNS Designation	Tensile Strength, min Ksi (MPa)	Yield Strength, Min Ksi (MPa)
TP304L	S30403	70 (485)	25 (170)
TP316L	S31603	70 (485)	25 (170)
TP304	S30400	75 (515)	30 (205)
TP304H	S30409	75 (515)	30 (205)
TP309Cb	S30940	75 (515)	30 (205)
TP309H	S30909	75 (515)	30 (205)
TP309HCb	S30941	75 (515)	30 (205)
TP309S	S30908	75 (515)	30 (205)
TP310Cb	S31040	75 (515)	30 (205)
TP310H	S31009	75 (515)	30 (205)
TP310HCb	S31041	75 (515)	30 (205)
TP310S	S31008	75 (515)	30 (205)
	S31272	65 (450)	29 (200)
TP316	S31600	75 (515)	30 (2050)
TP316H	S31609	75 (515)	30 (205)
TP317	S31700	75 (515)	30 (205)
TP317L	S31703	75 (515)	30 (205)
TP321	S32100		
Welded		75 (515)	30 (205)
Seamless			
≤ 3/8 in.		75 (515)	30 (205)
> 3/8 in.		70 (485)	25 (170)
TP321H	S32109		
Welded		75 (515)	30 (205)
Seamless			
< 3/8 in.		75 (515)	30 (205)
> 3/8 in.		70 (485)	25 (170)
TP347	s34700	75 (515)	30 (205)
TP347H	S3470	75 (515)	30 (205)
TP347LN	S34751	75 (515)	30 (205)
TP348	S34800	75 (515)	30 (205)
TP348H	S34809	75 (515)	30 (205)
TPXM-10	S21900	90 (620)	50 (345)
TPXM-11	S21904	90 (620)	50 (345)
TPXM-15	S38100	75 (515)	30 (205)
TPXM-29	S24000	100 (690)	55 (380)
TPXM-19	S20910	100 (690)	55 (380)
TP304N	S30451	80 (550)	35(240)
TP316N	S31651	80 (550)	35 (240)
TP304LN	S31653	75 (515)	30 (205)
---	S31254	94 (650)	44 (300)
---	S30615	90 (620)	40 (275)
---	S30815	87 (600)	45 (310)
---	S30600	78 (540)	35 (240)
---	S31725	75 (515)	30 (205)
---	S31726	80 (550)	35 (240)
---	S31050		
T<0.25 IN.		84 (580)	39 (270)
T>0.25 in.		78 (540)	37 (255)
---	S32615	80 (550)	32 (220)
---	S33228	73 (500)	27 (185)
---	S24565	115 (795)	60 (415)
---	S30415	87 (600)	42 (290)
---	S32654	109 (750)	62 (430)
---	S35315	94 (650)	39 (270)
---	N08367:		
t<0.187		100 (690)	45 (310)
t>0.187		95 (655)	45 (310)
---	N08904	71(490)	31(215)

Elongation in 2 in or 50 mm (or 4D), min,% Longitudinal Transverse  
All Grades except S 31050 and S 32615 35 25 S32615, S31050 25 --N08367  
Prior to the issuance of A 312/A 312 M- 88a, the tensile and yield strength values were 76 (515) and 30 (205) respectively, for nominal wall greater than 3/8 in. (9.5 mm).



STAINLESS STEEL PIPE & TUBE KG/MTRS

N.B	O.D	Schedule 5 S		Schedule 10 S		Schedule 40 S		Schedule 80 S		Schedule 160		Schedule XX-Strong	
		Wall											
Inch	mm	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
1/8"	10.29			1.24	0.281	1.73	0.371	2.41	0.476				
1/4"	13.72			1.65	0.498	2.24	0.643	3.02	0.809				
3/8"	17.15			1.65	0.640	2.31	0.858	3.20	1.12				
1/2"	21.34	1.65	0.814	2.11	1.01	2.77	1.29	3.73	1.65	4.78	1.98	7.47	2.59
3/4"	26.67	1.65	1.033	2.11	1.30	2.87	1.71	3.91	2.23	5.56	2.94	7.82	3.69
1"	33.40	1.65	1.31	2.77	2.12	3.38	2.54	4.55	3.29	6.35	4.30	9.1	5.53
1 1/4"	42.16	1.65	1.67	2.77	2.73	3.56	3.44	4.85	4.53	6.35	5.59	9.70	7.88
1 1/2"	48.26	1.65	1.925	2.77	3.15	3.68	4.11	5.08	5.49	7.14	7.35	10.1	9.69
2"	60.33	1.65	2.424	2.77	3.99	3.91	5.52	5.54	7.60	8.7	11.29	11.0	13.65
2 1/2"	73.03	2.11	3.75	3.05	5.34	5.16	8.77	7.01	11.6	9.53	15.15	14.02	20.71
3"	88.90	2.11	4.58	3.05	6.56	5.49	11.5	4.62	15.5	11.13	21.67	15.24	28.11
3 1/2"	101.60	2.11	5.26	3.05	7.53	5.74	13.8	8.08	18.9				
4"	114.30	2.11	5.93	3.05	8.50	6.02	16.3	8.56	22.7	13.49	34.05	17.12	41.66
5"	141.30	2.77	9.61	3.40	11.74	6.55	22.1	9.53	31.4	15.88	49.87	19.05	58.31
6"	168.28	2.77	11.48	3.40	14.0	7.11	28.7	10.97	43.2	18.26	68.59	21.95	80.43
8"	219.08	2.77	15.00	3.76	20.27	8.18	43.2	12.70	65.5	23.01	113.01	22.22	109.57
10"	273.05	3.40	22.96	4.19	28.21	9.27	61.23	12.70	82.79	28.58	174.90	25.40	157.51
12"	323.85	3.96	31.72	4.57	36.54	9.53	74.93	12.70	98.95	33.32	242.53	25.40	189.81
14"	355.60	3.96	34.9	4.78	41.9								
16"	406.40	4.19	49.2	4.78	48.1								
18"	457	4.19	47.5	4.78	54.2								
20"	508	4.78	60.2	5.54	69.9								
24"	610	5.54	83.9	6.35	96.0								

N.B	O.D	Schedule 20 <sup>1)</sup>		Schedule 120 <sup>1)</sup>	
		Wall	kg/mm	mm	kg/m
Inch	mm	mm			
4"	114.30			11.13	28.8
5"	141.30			12.70	40.9
6"	168.28			14.27	55.0
8"	219.08	6.35	33.8	18.26	91.8
10"	273.08	6.35	42.4	21.44	135.1
12"	323.85	6.35	50.4	25.40	189.8
14"	355.60	7.92	68.9	27.79	228.1
16	406.40	7.92	79.0		
18"	457.20	7.92	89.1		
20."	508	9.53	118.9		
24"	610	9.53	143.3		
ANSI B 36.10					

Gauge	BWG Birmingham/Stubs Iron Wire and Sheets inch	SWG Imperial / Legal Standards Wire Gauge inch	mm	mm
14	0.0830	2.108	0.0800	2.032
16	0.0650	1.651	0.0640	1.626
18	0.0490	1.245	0.0480	1.219
20	0.0350	0.889	0.0360	0.914

DN	DIN 2440, O.D mm	for threading Wall mm	Din 2633, Welding neck flanges Tube O.D Group 1,mm	Tube O.D Group2, mm
6	10.2	2.0		
8	13.5	2.35		
10	17.2	2.35	17.2	14
15	21.3	2.65	21.3	20
20	26.9	2.65	26.9	25
25	33.7	3.25	33.7	30
32	42.4	3.25	42.4	38
40	48.3	3.25	48.3	44.5
50	60.3	3.65	60.3	57
65	76.1	3.65	76.1	
80	88.9	4.05	88.9	
100	114.3	4.5	114.3	108
125	139.7	4.85	139.7	133
150	165.1	4.85	168.3	159
175			193.7	
200			219.1	
250			273	267
300			323.9	
350			355.6	368
400			406.4	419

Here is a digest of two German specification showing DN. These tables are given for guidance only. The fitting catalogue S-1131-ENG gives further information about DIN 2633.

Alternations in the programme may be made without further notice



CARBON STEEL SEAMLESS PIPE DIMENSIONS & WEIGHT

WT = WEIGHT IN KG PER METER

Pipe size mm	Schedule 10		Schedule 20		Schedule 30		Standard		Schedule 40		Schedule 60		Extra Strong		Schedule 80		Schedule 100		Schedule 120		Schedule 140		Schedule 160		Schedule Extra Strong		
	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	Wall	Wt.	
1/8 10.3					1.7	0.357	1.7	0.357					2.4	0.470	2.4	0.470											
1/4 13.7					2.2	0.625	2.2	0.625					3.0	0.804	3.0	0.804											
3/8 17.1					2.3	0.848	2.3	0.804					3.2	1.10	3.2	1.10											
1/2 21.3					2.8	1.26	2.8	1.26					3.7	1.62	3.7	1.62							4.6	1.96	7.5	2.54	
3/4 26.7					2.9	1.68	2.9	1.68					3.9	2.19	3.9	5.5							4.8	2.89	7.5	3.63	
1 33.4					3.4	2.50	3.4	2.50					4.5	3.23	4.5	3.23							6.4	4.23	9.1	5.45	
1 1/4 42.2					3.6	3.38	3.6	3.38					4.9	4.46	4.9	4.46							6.4	5.60	9.7	7.75	
1 1/2 48.3					3.7	4.05	3.7	4.05					5.1	5.40									7.1	7.23	10.2	9.54	
2 60.3					3.9	5.43	3.9	5.43					5.5	7.47	5.5	7.47							8.7	11.1	11.1	13.4	
2 1/2 73.0					5.2	8.62	5.2	8.62					7.0	11.4	7.0	11.4							9.5	14.9	14.0	20.4	
3 88.9					5.5	11.3	5.5	11.3					7.6	15.3	7.6	15.3							11.3	21.3	15.2	27.2	
3 1/2 101.6					5.7	13.6	5.7	13.6					8.1	18.6	8.1	18.6									16.2	34.0	
4 114.3					6.0	16.1	6.0	16.1					8.6	22.3	8.6	22.3			11.1	28.3			13.5	33.5	17.1	41.1	
5 141.3					6.6	21.8	6.6	21.8					9.5	30.9	9.5	30.9			12.7	40.2			15.9	49.0	19.0	57.4	
6 168.3					7.1	28.2	7.1	28.2					11.0	42.5	11.0	42.5			14.3	54.2			18.3	67.5	21.9	79.1	
8 219			6.4	33.3	7.0	36.7	8.2	42.5	8.2	42.5	10.3	53.1	12.7	64.6	12.7	64.6	15.1	75.8	18.3	90.7	20.6	101	23.0	112.0	22.2	108.0	
10 273.0			6.4	41.7	7.8	50.9	9.3	60.2	12.7	81.5	12.7	81.5	15.1	127	81.5	15.1	95.8	18.3	115.0	21.4	133.0	25.4	155	28.6	172.0	25.4	155.0
12 323.9			6.4	49.7	8.4	65.1	9.5	73.8	10.3	79.7	14.3	109.0	12.7	97.4	17.4	132.0	21.4	160.0	25.4	187.0	28.6	208	33.3	239.0	25.4	187.0	
14 355.6	6.4	54.6	7.9	68.1	9.5	81.2	9.5	81.2	11.1	94.3	15.1	126.0	12.7	107.0	19.0	158.0	23.8	195.0	27.8	224	31.8	253	35.7	281.0			
16 406.4	6.4	62.6	7.9	77.9	9.5	93.1	9.5	81.2	11.1	94.3	15.1	126.0	12.7	123.0	21.4	203.0	26.2	245.0	30.9	286.0	36.5	333	40.5	365.0			
18 457.2	6.4	70.5	7.9	87.8	11.1	122.0	9.5	105.0	14.3	156.0	19.0	206.0	12.7	139.0	23.8	254.0	29.4	310.0	34.9	363.0	39.7	408	45.2	459.0			
20 508.0	6.4	78.5	9.5	117.0	12.7	155.0	9.5	117.0	15.1	183.0	20.6	248.0	12.7	155.0	26.2	311.0	32.5	381.0	38.1	441.0	44.4	508	50.0	564.0			
22 558.8	6.4	86.4	9.5	129.0	12.7	171.0	9.5	129.0			22.2	294.0	12.7	171.0	28.6	373.0	34.9	451.0	41.3	526.0	47.6	6000	54.0	671.0			
24 609.6	6.4	94.7	9.5	141.0	14.3	210.0	9.5	141.0	17.4	255.0	24.6	355.0	12.7	187.0	30.9	441.0	38.9	547.0	45.00	639.0	52.4	719.0	59.5	807.0			
26 660.4	7.9	128.0	12.7	203.0			9.5	153.0					12.7	203.0													
28 711.2	7.9	138.0	12.7	219.0	15.9	272.0	9.5	165.0					12.7	219.0													
30 762.0	7.9	147.0	12.7	234.0	15.9	292.0	9.5	176.0					12.7	234.0													
32 812.8	7.9	157.0	12.7	250.0	15.9	312	9.5	188.0					12.7	250.0													
34 863.6	7.9	167.0	12.7	266.0	15.9	332.0	9.5	200.0					12.7	266.0													
36 914.4	7.9	177.0	12.7	282.0	15.9	351.0	9.5	212.0					12.7	281.0													

DUPLEX STAINLESS STEEL

GENERAL CHARACTERISTICS

Duplex stainless steels, also referred to as ferritic austenitic steels, combine many of the beneficial properties of ferritic and austenitic steels. Due to their high content of chromium and nitrogen, and often also molybdenum, these steels offer good resistance to pitting and uniform corrosion. The duplex micro structure contributes to their high strength and high resistance to stress corrosion cracking. Duplex steels also have good weldability.

STEEL GRADES

AvestaPolarit	EN	ASTM
SAF 2304®	1.4362	S32304
2205	1.4462	S32205 S31803
SAF 2507®	1.4410	S32750

APPLICATIONS

- Heat exchangers
- Water heaters
- Pressure vessels
- Tanks
- Rotors, impellers and shafts
- Firewalls and blast walls on offshore platforms
- Digesters and other equipment in the pulp and paper industry
- Cargo tanks and pipe systems in chemical tankers
- Desalination plants
- Flue-gas cleaning
- Seawater systems

CHEMICAL COMPOSITION

The chemical composition of a specific steel grade may vary slightly between different national standards. The required standard will be fully met as specified on the order.

Table 1. Chemical composition

AvestaPolarit steel name	International steel No		Typical composition, %					National steel designations, superseded by EN			
	EN	ASTM	C	N	Cr	Ni	Mo	BS	DIN	NF	SS
4301	1.4301	304	0.04	0.05	18.1	8.3		304S31	1.4301	Z7 CN 18-09	2333
4404	1.4404	316L	0.02	0.04	17.2	10.2	2.1	316S11	1.4404	Z3 CND 17-11-02	2348
4436	1.4436	316	0.02	0.05	16.9	10.7	2.6	316S33	1.4436	Z7 CND 18-12-03	2343
904L	1.4539	N08904	0.01	0.06	20	25	4.5	904S13	1.4539	Z2 NCDU 25-20	2562
254 SMO®	1.4547	S31254	0.01	0.2	20	18	6.1	–	–	–	2378
3RE60	1.4417	S31500	0.02	–	18.5	5	2.7	–	1.4417	–	2376
4460	1.4460	329	0.02	0.09	25.2	5.6	1.4	–	1.4460	Z5 CND 27-05 Az	2324
SAF 2304®	1.4362	S32304	0.02	0.10	23	4.8	0.3	–	1.4362	Z3 CN 23-04 Az	2327
2205	1.4462	S32205*	0.02	0.17	22	5.7	3.1	318S13	1.4462	Z3 CND 22-05 Az	2377
SAF 2507®	1.4410	S32750	0.02	0.27	25	7	4	–	–	Z3 CND 25-06 Az	2328



MECHANICAL PROPERTIES

Tables 2-6 show the mechanical properties of the duplex steels. Data according to EN 10088 when applicable. Permitted design values can vary between different product forms. See the relevant norm for correct values.

Table 2. Minimum values at 20°C

			SAF 2304®			2205			SAF 2507®		
			P	H	C	P	H	C	P	H	C
Proof strength	R <sub>p0.2</sub>	MPa	400	400	420	460	460	480	530	530	550
Tensile strength	R <sub>m</sub>	MPa	630	600	600	640	660	660	730	750	750
Elongation	A <sub>5</sub>	%	25	20	20	25	25	20	20	15	15

P = Hot rolled plate. H = Hot rolled strip. C = Cold rolled strip

Table 3. Typical values at 20°C

			SAF 2304®			2205			SAF 2507®		
			P	H	C	P	H	C	P	H	C
Proof strength	R <sub>p0.2</sub>	MPa	430	480	545	510	565	605	665	590	665
Tensile strength	R <sub>m</sub>	MPa	660	685	735	750	790	835	800	830	895
Elongation	A <sub>5</sub>	%	35	35	35	35	35	35	35	35	33
Hardness	HB		210	220	225	250	250	250	250	250	255

P = hot rolled plate. H = hot rolled strip. C = cold rolled strip

Table 4. Impact toughness. Minimum value for sheet/plate up to 30 mm; Charpy-V, J

	SAF 2304®	2205	SAF 2507®
20°C	100	100	100
-20°C	100	100	100
-40°C	80	80	80

1) Mean value of 3 full-size test bars

Table 6.

	SAF 2304®	2205	SAF 2507®	1.4404
R <sub>p0.2</sub> MPa	446	540	565	280
R <sub>m</sub> MPa	689	767	802	578
Fatigue strength, Mpa	450	510	550	360

Standard deviation of fatigue strength ~ 30 MPa

NICKEL ALLOY

We provide a huge gamut of Nickel Alloys that includes copper nickel alloys and nickel titanium alloy.

We have carved a niche as one of the major nickel alloys manufacturers and nickel titanium alloys suppliers based in India. Our nickel alloys are highly acknowledged in the market for accurate composition and high performance.

We offer nickel alloys in various sizes and dimensions to suit the varied requisites of our clients. Extensively used in various sectors, our nickel alloys are the blend of reliability and durability. Easy to install, our nickel alloys provide long lasting excellent performance.

We offer Nickel based products in standard as well as customized sizes. Our products posses excellent mechanical properties that serve various industries. we have range of Nickel Alloy pipes , tubes, sheets and plates, rods, butt weld fittings, forged fittings, flange, fasteners, sheets, plates and coil etc.



Table 5. Tensile properties at elevated temperatures. Minimum values, MPa

	SAF 2304®		2205		SAF 2507®	
	R <sub>p0.2</sub>	R <sub>m</sub>	R <sub>p0.2</sub>	R <sub>m</sub>	R <sub>p0.2</sub>	R <sub>m</sub>
100°C	330	540	360	590	450	680
150°C	300	520	335	570	420	660
200°C	280	500	315	550	400	640
250°C	265	490	300	540	380	630



(NICKEL BASE ALLOYS) GUIDE TO APPLICATIONS	
NICKEL 200	Commercial pure wrought Nickel for the construction of chemical plant
NICKEL 201	A low-carbon grade of nickel free from the stress- corrosion cracking associated with graphitisation in chemical plant operating at temperatures above 300 <sup>0</sup> C, e.g. caustic soda plant.
NICKEL 205	A high-purity nickel for anodes, plants and grids of electronic valves and for megnetostrictive transducers.
NICKEL 212	Slightly stiffer than pure nickel, used for electrode support wires in radio valves and tungsten filament lamps.
NICKEL 222	A cathode nickel for the sleeves of indirectly heated, oxide-coated cathodes in radio valves.
NICKEL 270	A high-purity nickel with a minimum temperature - coefficient of resistant of 0.006 <sup>0</sup> c over the range 0.100 <sup>0</sup> C. Made by the powder metallurgy process. Used for components of special valves., such as hydrogen thyratons and for electric resistance thermometers and controls.
MONEL alloy 400	A general engineering alloy with good resistance to corrosion by sea water, sulphuric, hydrochloric and phosphoric acids, pharmaceutical products, ammonium sulphate, fatty acids, etc. It retains its strength and toughness up to about 4500 <sup>0</sup> c and is used for chemical, steam and petroleum plant, marine and pickling equipment,
MONEL alloysK-500	An alloy with similar corrosion-resistance to MONEL alloy 400 but amenable to precipitation hardening to give high strength. Used for propeller and pump shafts, bolts, doctor blades and valve spindles.
CAST MONEL alloys	Cast alloy pig supplied for foundry addition to silicon. For corrosion-resistance castings.
INCONEL alloy 600	This alloy has excellent mechanical properties and oxidation-resistance at high temperatures. It is used for furnace parts, heat-treatment equipment, heating element sheating in nuclear engineering and in the construction of chemical plant.
INCONEL alloy 625	An alloy with high strength and toughness from cryogenic temperatures to 100 <sup>0</sup> C in addition to good oxidation-resistance. It resist attack by other media and is virtually immune to chlo ride-stress corrotion cracking. It is used in aerospace and is being evaluated for chemical and marine engineering.
INCOLOY alloy 800	This alloy resist hydrogen/hydrogen sulphide corrosion and chlorides stress corrosion cracking. It is based for pigtails and headers and hydrocarbon “cracker” tubes for other high-temperature processing equipment.
INCOLOY alloy 825	This product resist corrosion by acids and alkalies in either reducing or oxidising conditions. It is resistant to stress-corrosion cracking and pitting and used for chemical plant and pickling plant. A nickel iron cobalt alloy combining a low coefficient of expansion and higher inflexion temperature with higher strength than is usual in this composition range. It is being evaluated for such applications as diesel engine piston crowns compensating members in gas turbine engines and controlled clearance rotating machinery parts.
INCOLOY alloy Ds	A general purpose heat resisting alloy with particular resistance to carburisation and alternating carburisation and oxidation. It is used for furnace parts, heat treatment and vitreous enamelling equipment.

### CORROSION RESISTANT ALLOYS:

Although standard stainless steels do not readily corrode, under harsh conditions, corrosion may lead to holes in the material. By adding optimal quantities of chromium, molybdenum, nickel and other alloying metals, we improve stainless steel to provide overall corrosion protection as well as improve resistance against grain boundary corrosion, pitting and crevice corrosion, and stress corrosion cracking. Stainless steels and nickel alloys with powerful corrosion resistance are used in harsh, corrosive environments such as found in desalination systems, marine structures, fuel cells and atomic power generation plans.

#### Designation / Standard

ASTM A240	EN / DIN	JIS	Grade
UNS S31727	—	—	NAS 155N

With excellent resistance to sulfuric acid dew point corrosion, NAS 155N (UNS S31727) is a stainless steel custom-made for the heat exchangers, flues and chimneys of heavy oil-fired boilers. This alloy is suitable in a wide range of material applications for anti-pollution equipment and other devices exposed to a sulfuric acid environment. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.



#### Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N
Min	—	—	—	—	—	14.5	17.5	3.8	2.8	0.15
Max	0.030	1.00	1.00	0.030	0.030	16.5	19.0	4.5	4.0	0.21

#### Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HB)
≥ 245	≥ 550	≥ 35	≤ 217

#### Applications:

NAS 155N is excellent for use in the chimneys and dampers of heavy oil boilers, exhaust gas heat exchangers and scrubbers, dilute sulfuric acid tanks and carbon black driers as well as any equipment that is routinely subjected to a sulfuric acid dew point.

Designation / Standard

ASTM A240	EN 10088-2 / 10028-7	JIS G4304 / 4305	Grade
UNS S31254	1.4547	SUS 312L	NAS 185N

A stainless steel with high chromium and high molybdenum content, NAS 185N (SUS 312L, UNS S31254) provides superior corrosion resistance in environments that are exceptionally corrosive such as high temperature seawater. Among the corrosion-resistant stainless steel alloys on the market, NAS 185N is an economic choice with corrosion resistance comparable to Hastelloy® alloys and pure titanium. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N
Min	—	—	—	—	—	17.5	19.00	6.00	0.50	0.16
Max	0.020	0.80	1.00	0.030	0.015	19.5	21.00	7.00	1.00	0.22

Mechanical Properties

	0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HB)
Sheet and strip	≥ 310	≥ 690	≥ 35	≤ 223
Plate	≥ 310	≥ 655	≥ 35	≤ 223

Applications:

Seawater environments: desalination systems, seawater heat exchangers, condenser tubes  
High-chlorine environments: pulp and paper mills, bleaching equipment  
Environments containing concentrated sodium chloride: plastic manufacturing equipment, chemical reactor vessels and tubing



Designation / Standard

ASTM A240	EN	JIS G4304/4305	Grade
UNS N08904	1.4539	SUS 890L	NAS 255

An austenitic stainless steel with corrosion resistance superior to SUS 316L and SUS 317L, NAS 255 (UNS N08904, SUS 890L) includes 1.5 percent added copper for excellent resistance against such reducing acids as sulfuric and phosphoric acid. NAS 255 is used in chemical plants as well as a wide range of other applications. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N
Min	—	—	—	—	—	23.0	19.0	4.0	1.0	—
Max	0.020	1.00	2.00	0.045	0.035	28.0	23.0	5.0	2.0	0.10

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HRB)
≥ 220	≥ 490	≥ 35	≤ 90

Applications:

Sulfuric acid and phosphoric acid plants, seawater heat exchangers, chemical plants, food processing plants.

Designation / Standard

ASTM A240	EN	JIS G4304 / 4305	Grade
UNS S32506	—	SUS 329J4L	NAS 64

An austenitic-ferritic duplex stainless steel, NAS 64 (SUS 329J4L, UNS S32506, ASME Code Case 2543) was developed to provide superior resistance to corrosive substances. NAS 64 is particularly resistant to phosphoric acid, acetic acid and various types of sulfur compounds. Owing to its exceptionally low carbon and high molybdenum composition, it provides a level of local corrosion resistance markedly improved over SUS 329J1.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	N	W
Min	—	—	—	—	—	5.5	24.0	3.0	0.08	0.05
Max	0.030	0.90	1.00	0.040	0.015	7.2	26.0	3.5	0.20	0.30

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HB)
≥ 450	≥ 620	≥ 18	≤ 302

Applications:

NAS 64 is suitable for use in a wide range of chemical equipment used in environments that SUS 316 cannot withstand. Applications including anti-pollution equipment and devices that handle such substances as petrochemicals, fiber, pulp and seawater. Due to its high strength, NAS 64 can also be used in harsh environments requiring both mechanical strength and corrosion resistance such as sluice gates, OCTG (oil country tubular goods) and geothermal power generation plants.



Designation / Standard

ASTM A240	EN 10088-2 / 10028-7	JIS	Grade
UNS S32760	1.4501	—	NAS 75N

A super duplex stainless steel with a pitting resistance equivalent (PRE) of at least 40, NAS 75N provides excellent corrosion resistance and strength properties. Compared to UNS S32205, SUS 329J3L and SUS 329J4L (NAS 64), NAS 75N offers superior localized corrosion resistance and is therefore suitable for use in chemical plants, desalination plants and other such harsh environments. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.



Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	N	Cu	W	PRE*
Min	—	—	—	—	—	6.0	24.0	3.0	0.20	0.50	0.50	40
Max	0.030	1.00	1.00	0.030	0.010	8.0	26.0	4.0	0.30	1.00	1.00	—

\* PRE = %Cr + 3.3x%Mo + 16x%N

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HB)
≥ 550	≥ 750	≥ 25	≤ 270

Applications:

Chemical plants, chemical tankers, seawater desalination plants, seawater pumps and other applications.

Designation / Standard

ASTM B424	EN	JIS	Grade
UNS N08825	2.4858	NCF 825	NAS 825

A powerful corrosion-resistant alloy with a high nickel content, NAS 825 (NCF 825, UNS N08825), comparable to Incoloy® 825 Alloy, provides strong resistance against oxidizing and non-oxidizing acids. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Fe	Mo	Cu	Al	Ti
Min	—	—	—	—	—	38.0	19.5	22.0	2.5	1.5	—	0.6
Max	0.05	0.5	1.0	—	0.03	46.0	23.5	—	3.5	3.0	0.2	1.2

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness
≥ 241	≥ 586	≥ 30	—

Applications: Oil drilling, chemical plants



Designation / Standard

ASTM B443	EN	JIS H4902	Grade
UNS N06625	—	NCF 625	NAS 625

A primarily nickel alloy with molybdenum and niobium added to the nickel-chromium base for solute strengthening, NAS 625, comparable to Inconel® 625 Alloy, provides powerful resistance against corrosion and heat. Uses include parts in chemical and garbage incinerator plants. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	Al	Ti	Fe	Co	Nb
Min	—	—	—	—	—	58.0	20.0	8.0	—	—	—	—	3.15
Max	0.01	0.50	0.50	0.015	0.015	—	23.0	10.0	4.0	4.0	5.0	1.0	3.15

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness
≥ 276	≥ 690	≥ 30	—

**Application:** Chemical plants, atomic power, seawater applications, jet engine parts, aircraft material, heat treatment furnace material, evaporators.

Designation / Standard

ASTM B575	DIN 17744 / 17750	JIS H4551	Grade
UNS N06022	2.4602	NW6022	NAS NW22

In this alloy, carbide precipitation in the heat affected zone (HAZ) is suppressed and corrosion resistance is improved by reducing the contents of C and Si. Based on these features, NAS NW22 is widely used in materials under severe environments such as chemical plants. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	Fe	Co	W	V
Min	—	—	—	—	—	—	20.0	12.5	2.0	—	2.5	—
Max	0.015	0.08	0.50	0.02	0.02	Balance	22.5	14.5	6.0	2.5	3.5	0.35

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HRB)
≥ 310	≥ 690	≥ 45	≥ 100

**Applications:** NAS NW22 is used for pharmaceutical plants, semiconductor manufacturing equipment, various types of chemical plants and flue gas desulfurization system.

Designation / Standard

ASTM B575	DIN 17744 / 17750	JIS H4551	Grade
UNS N10276	2.4819	NW 0276	NAS NW276

Providing superior corrosion resistance in both oxidizing and reducing environments, NAS Nw276 is an exceptional alloy made of nickel, chromium and molybdenum. Carbide precipitation is suppressed in the heat-affected zone during welding due to the reduction of carbon and silicon content, further improving the corrosion resistance. These features make NAW NAS NW276 a popular alloy for use in materials subjected to severe environments such as found in chemical plants. Stancor supplies NAS NW276 in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	Fe	Co	W	V
Min	—	—	—	—	—	—	14.5	15.0	4.0	—	3.0	—
Max	0.010	0.08	1.0	0.04	0.03	Balance	16.5	17.0	7.0	2.5	4.5	0.35

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HRB)
≥ 283	≥ 690	≥ 40	≤ (100)

Applications:

Heat exchangers, centrifugal separators, driers, reaction vessels, salt manufacturing plants, flue gas desulfurization plants.







Designation / Standard

ASTM B127	EN	JIS H4551	Grade
UNS N04400	—	NW 4400	NAS NW400

An alloy including copper and nickel, NAS NW400 (NW 4400, UNS N04400), comparable to Monel® 400 Alloy, shares in the noble properties of copper and passivation of nickel to provide excellent corrosion resistance. It is therefore used in seawater desalination systems, heat exchangers and marine structure jackets. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	S	Ni	Cu	Fe
Min	—	—	—	—	63.0	28.0	—
Max	0.3	0.5	2.0	0.024	—	34.0	2.5

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness (HV)
≥ 195	≥ 485	≥ 35	—

Applications:

Marine structure covering; desalination, salt production and oil refining equipment; ship parts; heat exchangers; valves and pump members for chemical and seawater desalination plants.

Heat Resistant Alloys

Among stainless steels and alloys, these high-performance alloys provide superior functionality. Features include high corrosion resistance, heat resistance, high strength and other special features such as not being magnetizable. These alloys are used in harsh environments under tough conditions in advanced technology fields such as desalination, atomic power, semiconductors, solar cells and fuel cells.

Designation / Standard

ASTM B409	EN	JIS G4902	Grade
UNS N08800	1.4876	NCF 800	NAS 800

It provides superior strength, corrosion resistance and acid resistance at high temperatures and is compositionally close to austenitic stainless steels. It was developed as an alloy with properties comparable to Inconel®. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Applications:

NAS 800 is widely used in sheathed heaters, thermocouple protection tubes, heat treatment furnaces and other high-temperature environments.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Cu	Al	Ti	Fe
Min	—	—	—	—	—	30.0	19.0	—	0.15	0.15	39.5
Max	0.10	1.0	1.5	—	0.015	35.0	23.0	0.75	0.60	0.60	—

Mechanical Properties

0.2% proof stress (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness
≥ 205	≥ 520	≥ 30	—



Designation / Standard

ASTM B409	EN	JIS G4902	Grade
UNS N08810	1.4876	NCF 800H	NAS 800H

It maintains structural stability and provides superior strength, corrosion resistance and acid resistance at high temperatures. Using high-temperature heat treatment, the crystal grains as well as the carbon, titanium and aluminum content can be controlled for a high creep strength. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	S	Ni	Cr	Cu	Al	Ti	Al+Ti	Fe
Min	0.06	—	—	—	30.00	19.00	—	0.15	0.15	0.85	39.5
Max	0.10	1.00	1.5	0.015	35.00	23.00	0.75	0.60	0.60	1.20	—

Mechanical Properties

0.2% Yield strength (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness	
			(HV)	(HB)
≥ 170	≥ 450	≥ 30	—	—

Applications:

NAS 800H / 800T are widely used in chemical plants, heat treatment furnaces and other high-temperature environments.

Designation / Standard

ASTM B168	EN	JIS G4902	Grade
UNS N06600	2.4816	NCF 600	NAS 600

It provides the maximum level of resistance against heat as well as acid. It is also commonly used as a corrosion-resistant alloy for its durability in the presence of a range of acids and bases. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Cu	Al	Ti	Fe
Min	—	—	—	—	—	72.0	14.00	1.00	—	—	6.0
Max	0.15	0.5	1.0	—	0.015	—	17.0	0.5	—	—	10.0

Mechanical Properties

0.2% Yield strength (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness	
			(HV)	(HB)
≥ 240	≥ 550	≥ 30	—	—

Applications

Atomic power plants, heat exchangers, industrial chemical evaporators, industrial acid and base machinery, heat treatment furnace parts, afterburner parts and other components used in high temperatures.



Designation / Standard

ASTM B168	EN	JIS G4902	Grade
UNS N06601	2.4851	NCF 601	NAS 601

A nickel-based alloy also containing chromium and aluminum, NAS 601 (NCF 601, UNS N06601) is strong at high temperatures, and has powerful resistance to oxidation, carburization and sulfurization. It excels particularly in descaling resistance in repeated oxidation applications with a high temperature variation, and is therefore used in various parts for heat treatment furnaces, diesel vehicle glow plugs and the like. Stancor supplies this product in pipe, tube, plate, sheet and strip forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Cu	Co	Fe
Min	—	—	—	—	—	58.00	21.00	—	1.00	Balance
Max	1.00	0.50	1.00	0.030	0.015	63.00	25.0	1.00	1.70	

Mechanical Properties

0.2% Yield strength (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness
≥ 205	≥ 550	≥ 30	—

Applications:

NAS 800H / 800T are widely used in chemical plants, heat treatment furnaces and other high-temperature environments.

Designation / Standard

ASTM B443	EN	JIS H4902	Grade
UNS N06625	—	NCF 625	NAS 625

A primarily nickel alloy with molybdenum and niobium added to the nickel-chromium base for solute strengthening, NAS 625, comparable to Inconel® 625 Alloy, provides powerful resistance against corrosion and heat. Uses include parts in chemical and garbage incinerator plants.



Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Mo	Al	Ti	Fe	Co	Nb
Min	—	—	—	—	—	58.0	20.0	8.0	—	—	—	—	3.15
Max	0.01	0.50	0.50	0.015	0.015	—	23.0	10.0	4.0	4.0	5.0	1.0	4.15

Mechanical Properties

0.2% Yield strength (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness
≥ 276	≥ 690	≥ 30	—

Applications:

Chemical plants, atomic power, seawater applications, jet engine parts, aircraft material, heat treatment furnace material, evaporators.

Designation / Standard

ASTM B637	EN	JIS	Grade
UNS N07750	2.4669	NCF 750	NAS 750

A precipitation hardening alloy with a nickel base, NAS 750 provides corrosion resistance along with superior tensile strength, creep rupture and fatigue resistance up to 700. It is used in a wide range of applications such as aircraft and power generation gas turbine parts, nuclear reactor parts, pressure containers, heat-resistant springs and hot working tools. Stancor supplies this product in coil and sheet forms.

Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Cu	Co	Al	Ti	Fe	Nb+Ta
Min	—	—	—	—	—	70.00	14.00	—	—	0.40	2.25	5.00	0.70
Max	0.08	0.50	1.00	—	0.01	—	17.00	0.50	1.00	1.00	2.75	9.00	1.20

Mechanical Properties

0.2% Yield strength (N/mm2)	Tensile strength (N/mm2)	Elongation (%)	Hardness	
			(HV)	(HB)
≤ 448	≤ 896	≥ 40	—	—



STRUCTURAL HOLLOW

The shape, excellent strength properties and good weldability of structural hollow sections provide durable and light steel structures. Our special expertise includes materials for demanding applications in the boom and frame structures of lifting and transportation equipment. The excellent galvanising properties of structural hollow sections allows them to serve even in corrosive atmospheres. Ruukki’s wide-ranging prefabrication services extends our offer to components and demanding customer-specific applications.

In the construction industry, the high buckling strength of structural hollow sections enables long spans in truss structures and sparse diagonal spacing. The great torsional rigidity of structural hollow sections and the possibility of simple connections provide an optimal material for truss structures.

Structural hollow sections also lend themselves well to composite structures. Concrete-filled composite columns make optimal use of the properties of steel and concrete in installation, under standard load or in a fire.

Flexible and simple connections directly to the wall of a structural hollow section are possible.

Guaranteed, uniform properties make sure that your manufacturing process runs smoothly. The cross section of structural hollow sections can be circular, square or rectangular. The sections are delivered in accordance with the EN 10219 standard and with the CE marking. Our range also includes special structural hollow sections for offshore applications with excellent weldability, dimensional tolerances and low-temperature properties. These sections comply with the requirements of the NORSOK standard.

High-strength structural hollow sections  
Our high-strength structural hollow sections enable lightweight, durable structures without limiting the freedom of design. These products are particularly suitable for highly stressed applications requiring high strength, including cranes, telescopic structures and cargo handling equipment. The light weight also provides the added benefit of a higher payload.

Stancor’s materials and services can translate to significant cost reductions in your end product.

Special shapes and grades  
Stancor also manufactures special shapes and grades offering you a wide range of steels with beneficial zinc coating, forming, weather resist-

