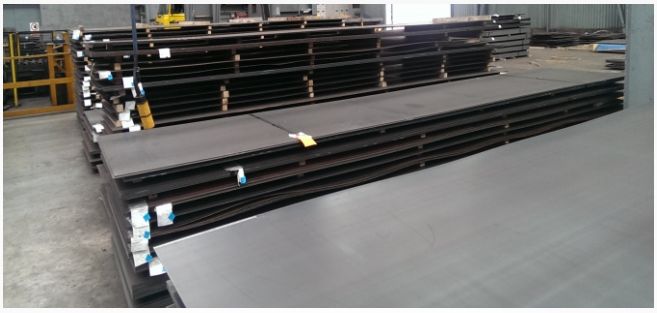
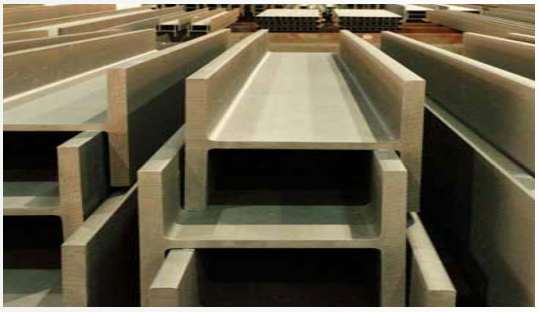
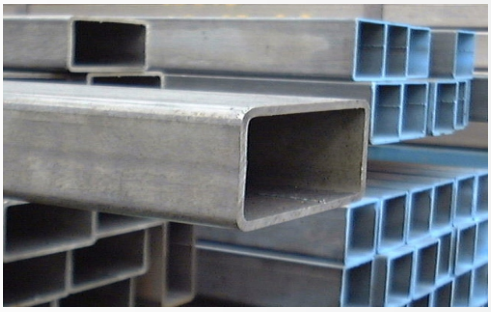
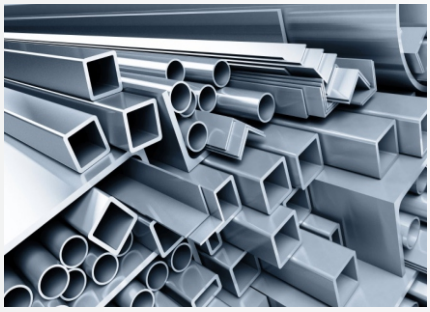
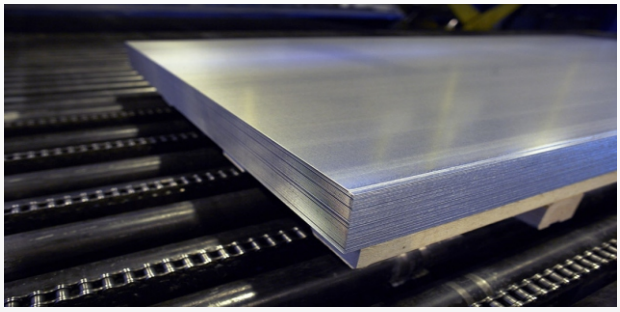
FERRA
DIŞ TİCARET LTD. ŞTİ.




ABOUT US

Since its establishment in 2009, Ferra has distinguished itself as a leading company and a reliable partner in the special steel market. Over the years, Ferra has developed into a specialist for its partners' special requirements taking its competency to an even further level. With its full line of expertise in a wide range of products with special grades, dimensions and shapes, Ferra aims to meet exact needs of its clients.

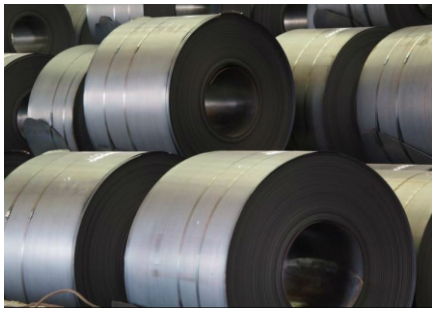
As Ferra, we take pride in maintaining our service quality, providing the best customer service experience in our area proven by a rate of almost 100% returning customers.

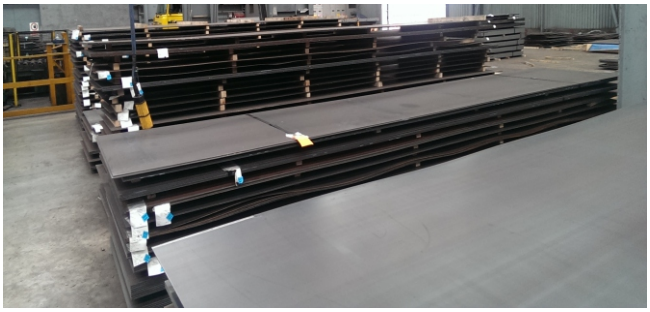
WHAT WE OFFER

- Ultimate attention to each customer and inquiry regardless of the quantity assuring full customer satisfaction at each transaction
- Determination to suply "hard-to-find" materials complying with even the most complex product specifications and certification requirements thanks to our global supply chain
- Expertise to offer price advantage by direct importing, combined orders and freight
- Just-in-time delivery thanks to our capability to manage most challenging logistics operations
- Experience and realibility to supply best quality products at the right price
- Flexibility and dynamism to act immediately upon special conditions and changing requirements
- Organization and means to fullfill our promises
- Capacity to take immediate action to handle and solve claims or complaints if any

We invite you to join our ever-growing number of partners and experience our difference.

CARBON STEEL
FLAT PRODUCTS





We supply carbon steel flat products in coil, sheet and plate form. All materials can be cut to size as per your requirements.

STRUCTURAL STEELS

						IMPACT TEST VALUES	
	GRADE	DIN NO	ERDEMIR NO	YIELD (Reh) min	TENSILE (Rm)	°C	ENERGY (J) k = 16mm
DIN EN 10025-2 : 2004	S275JR	1.0038	4244	275	430-580	20	27
	S275J2	1.0144	6244	275	430-580	-20	27
	S355JR	1.0038	3252	355	470-630	20	27
	S355J0	1.0144	5252	355	470-630	0	27
	S355J2+N	1.0577	6252	355	470-630	-20	27
	S355J2C+N	1.0579	6052	355	470-630	-20	27

WELDABLE FINE GRAIN STRUCTURAL STEELS

					IMPACT TEST VALUES	
	GRADE	**DIN NO**	YIELD (Reh) min	TENSILE (Rm)	°C	ENERGY (J) k = 16mm
DIN EN 10025-3 : 2004	S275N	1.0490	275	370-510	-20	40
	S275NL	1.0491	275	370-510	-50	27
	S355N	1.0545	355	470-630	-20	40
	S355NL	1.0546	355	470-630	-40	27
	S420N	1.8902	420	520-680	-20	40
	S420NL	1.8912	420	520-680	-50	27
	S460N	1.8901	460	540-720	-20	40
	S460NL	1.8903	460	540-720	-50	27

THERMOMECHANICAL ROLLED FINE GRAIN STRUCTURAL STEELS

					IMPACT TEST VALUES	
	GRADE	**DIN NO**	YIELD (Reh) min	TENSILE (Rm)	°C	ENERGY (J) k = 16mm
DIN EN 10025-4 : 2004	S275M	1.8818	275	370-510	-20	40
	S275ML	1.8834	275	370-510	-50	27
	S355M	1.8823	355	470-630	-20	40
	S355ML	1.8834	355	470-630	-40	27
	S420M	1.8825	420	520-680	-20	40
	S420ML	1.8836	420	520-680	-50	27
	S460M	18827	460	540-720	-20	40
	S460ML	1.8838	460	540-720	-50	27

INSPECTION AND EXTRA TESTS

- 3.2 certification
- Charpy V-Notch test between -195 and + 200 degrees
- Ultrasonic test (EN 10160 S1E1 / EN 10160 S2E3)
- Z tests (Z15 / Z25 / Z35)
- NACE MR 0175
- Hardness tests (BRINELL / ROCKWELL)
- HIC

WEATHER / ATMOSPHERIC CORROSION RESISTANT STEEL (CORTEN A / B)

DIN EN 10025-5 : 2004	GRADE		DIN NO	YIELD (Reh) min	TENSILE (Rm)	IMPACT TEST VALUES °C	IMPACT TEST VALUES ENERGY (J) k = 16mm
	S355J0WP	CORTEN A	1.8945	355	485	0	27
	S355J2WP	CORTEN A	1.8946	355	485	-20	27
	S355J0W	CORTEN B	1.8959	355	485	0	27
	S355J2W	CORTEN B	1.8965	355	485	-20	27

	C	Si	Mn	P	S	Al	V	Cu	Cr	Ni
CORTEN A	0.12 max.	0.25-0.75	0.20-0.50	0.07-0.15	0.030 max.	0.015-0.06	-	0.25-0.55	0.50-1.25	0.65 max.
CORTEN B	0.19 max.	0.30-0.65	0.80-1.25	0.035 max.	0.030 max.	0.020-0.06	0.02-0.10	0.25-0.40	0.40-0.65	0.40 max.

	THICKNESSES
CORTEN A (cold rolled)	0,6 - 0,8 - 1 - 1,2 - 1,5 - 1,7 - 2 mm
CORTEN A (hot rolled)	2 - 2,5 - 3 - 4 - 5 - 6 - 7 - 8 - 10 - 12 - 15 - 20 .... 120 mm
CORTEN B (hot rolled)	2 - 2,5 - 3 - 4 - 5 - 6 - 7 - 8 - 10 - 12 - 15 - 20 .... 60 mm

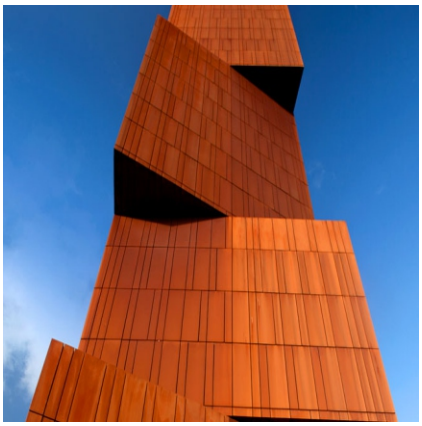
Corten steel is up to eight times resistant to atmospheric corrosion compared to unalloyed steels and is characterized by its special alloy elements including copper, nickel, chrome and phosphor.

Enhanced corrosion resistance is based on the oxide layer called "patina" which forms naturally on the steel surface. Corten is widely preferred in architectural applications for its elegantly brown-orange surface.

Typical Applications:

Corten A : Chimneys, tanks, boilers, oven parts, ship hulls, locomotives, wagons, trailers, trains and metros, containers, building facias, landscaping and architectural applications (sculptures, dust-bins, planters, streetlights, fences)

Corten B : This grade is more suitable for heavy load bearing applications or applications where high weldability is required such as bridges and viaducts.



HIGH STRENGTH STEELS (IN QUENCHED AND TEMPERED CONDITION)

DIN EN 10025-6 : 2004				IMPACT TEST VALUES	
GRADE	**DIN NO**	YIELD (Reh) min	TENSILE (Rm)	°C	ENERGY (J) k = 16mm
S690QL	1.8928	690	770-940	-40	min. 27J
S690QL1	1.8938	690	770-940	-60	min. 27J
S890QL	1.8963	890	940-1100	-40	min. 27J
S890QL1	1.8925	890	940-1100	-60	min. 27J
S960QL	1.8933	960	980-1150	-40	min. 27J
S960QL1	1.8934	960	980-1150	-60	min. 27J

Typical Applications: Lifting equipments, earth moving equipments (cranes, attachments), trailer frames, tanks, overpasses

Mill	**Brand Name**
ThyssenKrupp	: Naxtra M700 / Xabo 890 / Xabo 960
Dillinger Hütte	: Dillimax 690T / Dillimax 890T

Mill	**Brand Name**
VoestAlpine	: Aldur 700QL / Aldur 700M
Ilsenburger	: Maxil 690 / Maxil 960

HIGH YIELD STRENGTH STEELS FOR COLD FORMING

EN 10149-2						
GRADE	**DIN NO**	**RUUKKI**	**TATA STEEL**	**ERDEMIR**	YIELD (Reh) min	TENSILE (Rm)
S355MC	1.0976	Laser 355 MC	QStE380TM	4936	355	430-550
S420MC	1.0980	Laser 420 MC	QStE420TM	4942	420	480-620
S460MC	1.0982	Laser 460 MC	QStE460TM	4946	460	520-670
S500MC	1.0984	OPTIM 500 MC	QStE500TM	4950	500	550-700
S550MC	1.0986	OPTIM 550 MC	QStE550TM	4955	550	600-760
S600MC	1.8969	OPTIM 600 MC	QStE600TM	4960	600	600-760
S650MC	1.8976	OPTIM 650 MC	QSTE 690TM	4965	650	600-760
S700MC	1.8974	OPTIM 700 MC	YMPRESS S700MC	4970	700	750-950

Typical Applications: Trailer frames, truck-automobile body parts, mobile crane booms

ABRASION RESISTANT STEELS

GRADE	**DIN NO**	**THICKNESS**	**HARDNESS VALUES**	
300 HB	1.8704	4-50 mm	270-340	BRINELL
400 HB	1.8714	3-120 mm	360-440	BRINELL
450 HB	1.8722	3-100 mm	410-490	BRINELL
500 HB	1.8734	5-60 mm	450-530	BRINELL
600 HB		10-50 mm	> 550	BRINELL
X120Mn12	1.3401	1,5 - 40 mm	240-340	BRINELL

Typical Applications: Dumper trucks, wear-exposed parts of mining machinery (buckets, blades, crushers), scrap presses

Mill	**Brand Name**
SSAB	: Hardox
Ruukki (SSAB)	: Raex
Ilsenburger	: Brinar

Mill	**Brand Name**
VoestAlpine	: Durostat
Dillinger Hütte	: Dillidur
Industeel	: Fora

STEELS FOR PRESSURE AND BOILER PURPOSES

NONALLOY AND ALLOY STEELS

DIN EN 10028-2 2009

GRADE	DIN NO	ERDEMIR NO	YIELD (Reh) min	TENSILE (Rm)	IMPACT TEST VALUES °C	IMPACT TEST VALUES ENERGY (J) k = 16mm
P265GH	1.0425	6341	265	410-530	0	27
P295GH	1.0481	6347	295	460-580	0	27
P355GH	1.0473	6352	355	510-650	0	27
16Mo3	1.5415	6345	275	440-590	+20	27
13CrMo4-5	1.7335		300	450-600	+20	27
10CrMo9-10	1.7380		300	480-630	+20	27

NORMALIZED, WELDABLE, FINE GRAIN STEELS

DIN EN 10028-3 2009

GRADE	DIN NO	YIELD (Reh) min	TENSILE (Rm)	IMPACT TEST VALUES °C	IMPACT TEST VALUES ENERGY (J) k = 16mm
P275NH	1.0487	275	390-510	-20	30
P275NL1	1.0488	275	390-510	-40	27
P275NL2	1.1104	275	390-510	-50	27
P355NH	1.0565	355	490-630	-20	30
P355NL1	1.0566	355	490-630	-40	27
P355NL2	1.1106	355	490-60	-50	27
P460NH	1.8935	460	570-720	-20	30
P460NL1	1.8915	460	570-720	-40	27
P460NL2	1.8918	460	570-720	-50	27

- GH grade plates are heat resistant up to 400°C whereas 16Mo3 and 13CrMo4-5 grades can resist up to 500°C heat.
- GH – suitable for use in high temperatures
- NH – suitable for use in medium to high temperatures; with impact test at -20°C or up
- NL1 – suitable for use in low temperatures; with impact test at -40°C or up
- NL2 – suitable for use in especially low temperatures; with impact test at -50°C or up
- These steels can be supplied with HIC testing especially if used in tank manufacturing for petroleum and gas industries.

STEELS IN ASTM / ASME STANDARDS

GRADE	YIELD (Reh) min	TENSILE (Rm)
A / SA 516 Gr. 60	220	415-550
A / SA 516 Gr. 70	260	485-620
A / SA 387 Gr. 11 Cl. 2	310	515-690
A / SA 387 Gr. 12 Cl. 2	275	450-585
A / SA 387 Gr. 22 Cl. 2	310	515-690
A / SA 283 Gr. C	205	380-515
A / SA 285 Gr. C	205	380-515
A / SA 387 Gr. 5 Cl. 2	310	515-610
SA 537 CL1	345	485-620

SHIPBUILDING STEELS

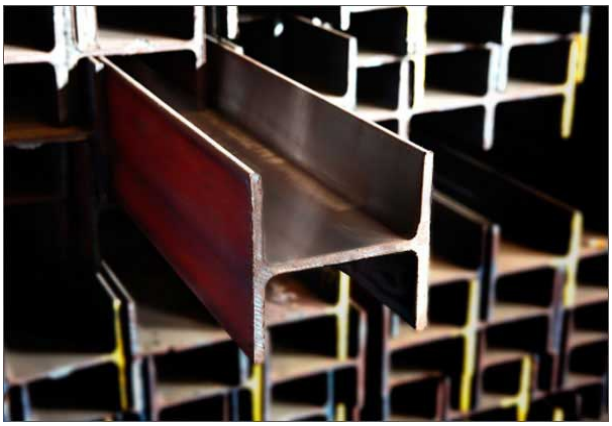
GRADE	YIELD (Reh) min	TENSILE (Rm)	ELONGATION (%)	°C	MIN. IMPACT ENERGY KV (J) (longitudinal)	MIN. IMPACT ENERGY KV (J) (transverse)
A	235	400-520	22	-	-	-
B	235	400-520	22	0	27	20
D	235	400-520	22	-20	27	20
E	235	400-520	22	-40	27	20
A 36	355	490-630	21	0	34	24
D 36	355	490-630	21	-20	34	24
E 36	355	490-630	21	-40	34	24
F 36	355	490-630	21	-60	34	24

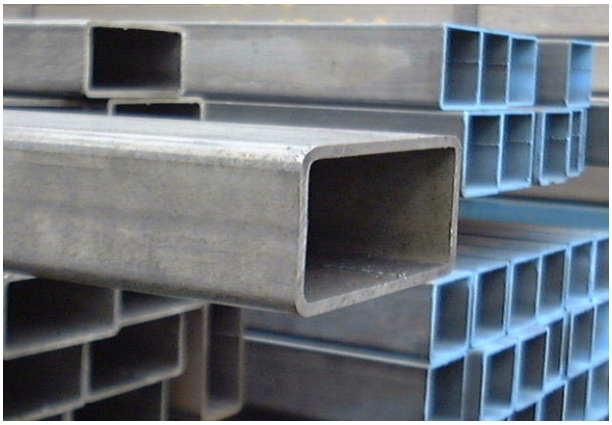
OFF-SHORE STEELS

	GRADE	DIN NO	YIELD (Reh) min	TENSILE (Rm)	°C	MIN. IMPACT ENERGY KV (J) (longitudinal)
EN 10225	S355G8+M	1.8810	345	470-630	-40	50
	S355G10+N/M	1.8813	345	470-630	-40	50
	S355G2+N	1.8801	345	470-630	-20	50
	S355G3+N	1.8802	345	470-630	-40	50
	S420G2+M	1.8857	400	500-660	-40	60
	S460G2+M	1.8887	420	520-680	-40	60

- All shipbuilding grade steels can be supplied with short delivery time from European stocks with 3.2 R.I.N.A – A.B.S- B.V – D.N.V – L.R.S – R.R classification.
- Extra certification and inspection can be offered upon request.

CARBON STEEL
LONG PRODUCTS





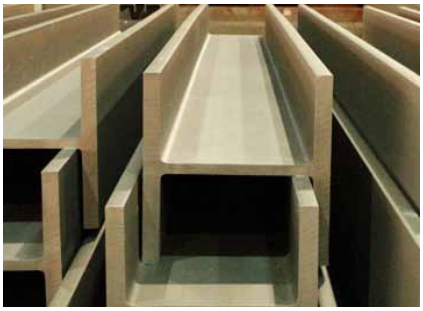
BEAMS AND SECTIONS

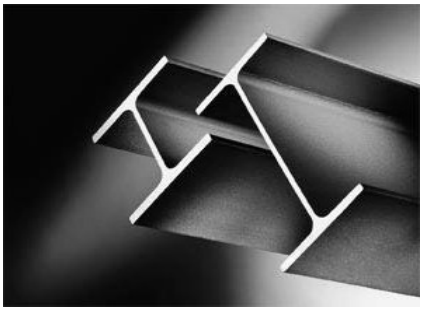
MATERIAL	DIMENSION	GRADES				LENGTH
HEA	100 - 1000 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
HEB	100 - 1000 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
HEM	100 - 1000 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
HD	260 - 360 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
HL	920 - 1000 - 1100 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
IPE	80 - 750 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
IPN	80 - 600 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
UPN	80 - 400 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
UPE	80 - 400 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
U	40 X 20 - 65 X 42 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
UC	152 X 152 - 305 X 305 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
UB	127 X 75 - 533 X 210 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
PFC	100 X 50 - 300 X 100 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM

MERCHANT BARS

MATERIAL	DIMENSIONS	GRADE				LENGTH
EQUAL ANGLES	20 X 20 X 3 - 300 X 300 X 38 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
UNEQUAL ANGLES	30 X 20 X 3 - 250 X 90 X 16 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
SQUARE BAR	8 - 300 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
ROUND BAR	8 - 600 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
FLAT BAR	15 - 600 MM (THICKNESS 3 - 100 MM)	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM
T BAR	20 X 20 X 3 - 140 X 140 X 15 MM	S235JR	S355J2+AR / M / N	S355ML	16Mo3	6000 - 18000 MM

MATERIAL	DIMENSIONS	LENGTH
CRANE RAIL	A45 - A150	6000 - 12000 MM
RAILWAY RAIL	S10 - S64	6000 - 12000 MM

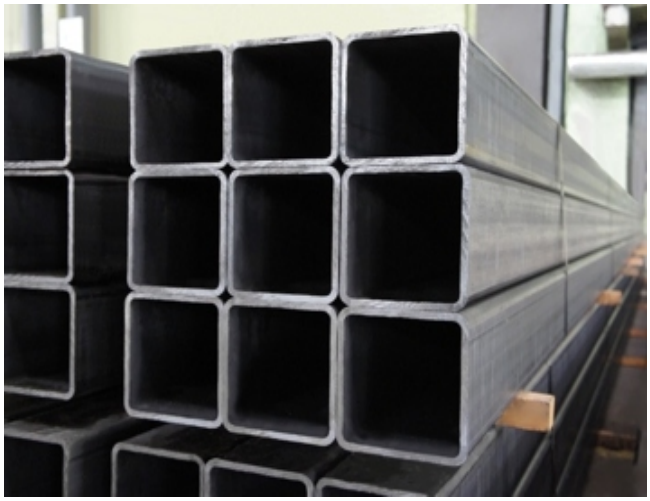




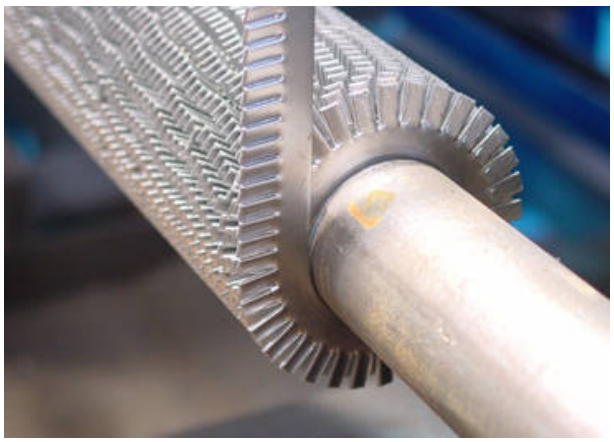
SQUARE, RECTANGULAR, CIRCULAR HOLLOW SECTIONS

MATERIAL	DIMENSIONS	STANDARD	TYOE	GRADE	LENGTH
SQUARE HOLLOW SECTION	30 X 30 - 400 X 400 MM	EN 10210 - HOT ROLLED	SEAMLESS	S235JRH - S355J2H - S460NH	6000 - 18000 MM
	30 X 30 - 400 X 400 MM	EN 10210 - HOT FORMED	ERW	S235JRH - S355J2H - S460NH	6000 - 18000 MM
	30 X 30 - 400 X 400 MM	EN 10219 - COLD FORMED	ERW	S235JRH - S355J2H - S460NH	6000 - 18000 MM
RECTANGULAR HOLLOW SECTION	40 X 20 - 600 X 400 MM	EN 10210 - HOT ROLLED	SEAMLESS	S235JRH - S355J2H - S460NH	6000 - 18000 MM
	40 X 20 - 600 X 400 MM	EN 10210 - HOT FORMED	ERW	S235JRH - S355J2H - S460NH	6000 - 18000 MM
	40 X 20 - 600 X 400 MM	EN 10219 - COLD FORMED	ERW	S235JRH - S355J2H - S460NH	6000 - 18000 MM
ROUND HOLLOW SECTIONS	21.3 X 1.8 - 660 X 25.0 MM	EN 10210 - HOT ROLLED	SEAMLESS	S235JRH - S355J2H - S460NH	6000 - 18000 MM
	21.3 X 1.8 - 660 X 25.0 MM	EN 10210 - HOT FORMED	ERW	S235JRH - S355J2H - S460NH	6000 - 18000 MM
	21.3 X 1.8 - 660 X 25.0 MM	EN 10219 - COLD FORMED	ERW	S235JRH - S355J2H - S460NH	6000 - 18000 MM

- Hollow sections can be supplied from stock or new production in welded or seamless form as hot rolled or cold rolled.
- Hollow sections can be cut-to-length.



STEEL PIPES & PIPING MATERIALS



Types of pipes we supply:

- Welded / seamless pipes
- Hot rolled / cold rolled pipes
- Straight / U-bended / Fin tubes
- Standard, heavy-wall, large diameter, custom size pipes
- Round, square, rectangular, oval pipes

Typical Applications:

- Steel constructions
- Heat exchangers
- Pressure vessel and boiler manufacturing
- Petrochemical industry
- Refineries
- Fertilizer industry
- Sugar industry
- Plant fabrication
- Hydraulic circuits
- Decoration

CARBON STEEL AND ALLOY PIPES	GRADE
DIN EN 10216-1 Seamless non-alloy steel tubes for pressure purposes with specified room temperature properties	P195TR1, P235TR1, P265TR1, P195TR2, P235TR2, P265TR2
DIN EN 10216-2 Seamless steel tubes for pressure purposes – Nonalloy and alloy steel tubes with specified elevated temperature properties	17Mn5, 19Mn5, 16Mo3 (15Mo3), 13CrMo4-5 (13CrMo4-4), P235GH (St35.8), P265GH (St 45.8)
DIN EN 10216-3 Seamless steel tubes for pressure purposes - Alloy fine grain steel tubes	P355N, P355NH, P275NL1, P355NL2
DIN EN 10217-1 Welded steel tubes for pressure purposes - Nonalloy steel tubes with specified elevated temperature	P195TR1, P235TR1, P265TR1, P195TR2, P235TR2, P265TR2
ASTM A106-13 Seamless carbon steel pipes for high temperature service	Grade A, Grade B, Grade C
ASTM A210-02 Seamless medium-carbon steel boiler and superheater tubes	Grade A-1, Grade C
ASTM A179/A179M-90a Seamless cold drawn low-carbon steel heat exchanger and condenser tubes	Low carbon steels
ASTM A192-02 Seamless high-pressure carbon steel boiler tubes	Low carbon steels
DIN 17175 (new DIN EN 10216-1) Heat resistant seamless pipes	St35.8, St 45.8, 15Mo3, 13CrMo4-5

LOW TEMPERATURE PIPES	GRADE
DIN EN 10216-4 Seamless steel tubes for pressure purposes of non-alloy and alloy steels with specified low-temperature properties	P215NL, P265NL
ASTM A333-13 Seamless and welded steel pipes for low-temperature service with required notch toughness	Grade 1 - Grade 6

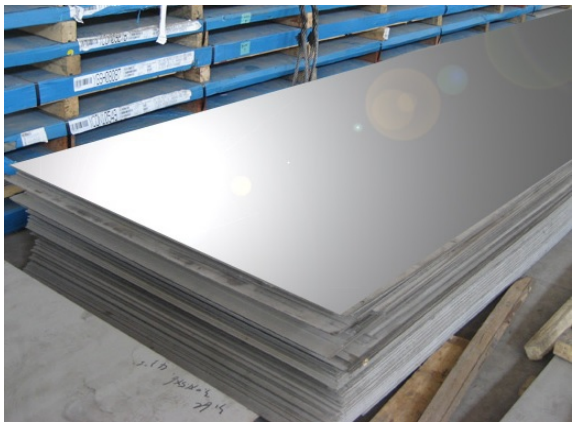
MECHANICAL PIPES	GRADE
DIN EN 10296-1 Welded circular steel tubes for mechanical and general engineering purposes - Nonalloy and alloy steel tubes	E155, E190, E195, E220, E235, E260, E275, E320, E355, E370
DIN EN 10297-1 Seamless circular steel tubes for mechanical and general engineering purposes - Nonalloy and alloy steel tubes	E235, E355, E470..
DIN EN 10297-2 Seamless stainless steel tubes for mechanical and general engineering purposes	1.4541..
DIN EN 10305-1 Cold drawn seamless precision steel tubes	E235, E355, E470..
ASTM A511 Seamless stainless steel mechanical tubing	MT 316, MT 321

STRUCTURAL AND GENERAL PURPOSE PIPES	GRADE
DIN EN 10210-1 Hot-finished structural hollow sections of non-alloy and fine grain structural steels	S355J2H (St52.3), S355J0H
DIN EN 10255 Nonalloy steel tubes suitable for welding and threading	S195T

STAINLESS STEEL PIPES	GRADE
DIN EN 10216-5 Seamless stainless steel tubes for pressure purposes	1.4301, 1.4306, 1.4948, 1.4401, 1.4404, 1.4571, 1.4541, 1.4878, 1.4547
ASTM A335-11 Seamless ferritic alloy-steel pipe for high-temperature service	P5, P9, P11, P12, P22, P91..
ASTM A213-14 Seamless ferritic and austenitic alloy-steel boiler, superheater and heat-exchanger tubes	T5, T9, T91, T22, TP304, TP316, TP304L, TP316L, TP321
ASTM A312-14 Seamless, welded, and heavily cold worked austenitic stainless steel pipes	TP 304/304L, 316/316L/316Ti, 321/321L, 347/347H
DIN EN 10217-7 Welded stainless steel tubes for pressure purposes	1.4301, 1.4306, 1.4948, 1.4401, 1.4404, 1.4571, 1.4541, 1.4878, 1.4547, 1.4462,1.174571
DIN EN 10357 Austenitic, austenitic-ferritic and ferritic longitudinally welded stainless steel tubes for the food and chemical industry	1.4301, 1.4307, 1.4404
DIN EN 10312 Welded stainless steel tubes for the conveyance of water and other aqueous liquids	1.4301, 1.4307, 1.4401, 1.4404

FITTING AND PIPING MATERIALS				
FLANGES	**BUTT-WELDING FITTINGS**	**FORGED FITTINGS**	**INDUCTION ELBOWS**	**FASTENING MATERIALS**
Slip-on Flange	Elbow	Elbow	2D	Gaskets
Blind Flange	Tee	Tee	3D	Studs
Welding Neck	Reduction Tee	Reduction Tee	5D	Bolts & Nuts
Socket Weld	Eccentric Reduction	Weldolet	7D	Isolation Kits
Flat	Concentric Reduction	Sockolet	10D	
Orifige	Cap	Elbolet	20D	
	Lateral	Flangolet		
	Swedge Nipple	Coupling		

STAINLESS STEEL PRODUCTS



STAINLESS STEELS

Stainless steels contain a minimum of 10% chromium. They gain their corrosion resistance from a tenacious, regenerating surface layer of chromium oxide. Even if this oxide layer is physically damaged, it rapidly regenerates and preserves corrosion resistance. However, a chemical environment that can disrupt this layer can initiate corrosion. Stainless steel is highly resistant to atmospheric corrosion, but not immune to corrosion in all environments. The major alloying elements in stainless steels are chromium and nickel. Chromium provides corrosion resistance and additional strength whereas Nickel primarily provides strength. Different grades are created via addition of various elements. There are over 150 different stainless steel grades which can generally be categorized as:

Austenitic: 70% of all stainless steel production accounts for this group. 300-series among this group is the most popular type of stainless steel. Austenitic stainless steels are the most weldable and corrosion resistant group due to their high chromium and nickel content. 200-series in this group have manganese substituted for some of the nickel as a cost-saving measure.

Ferritic: These steels contain less than 0.10% carbon and are magnetic. As a group, they are more corrosion resistant than the martensitic grades, but generally inferior to the austenitic grades. These are chrome steels with no nickel. They have weak weldability but good formability. They are mainly used for decorative items, sinks, and exhaust systems.

Martensitic: This group of stainless steels is similar to the ferritic group, but has higher level of carbon enabling them to be tempered and hardened. They are highly useful in situations where strength is more important than corrosion resistance. They don't contain nickel and are magnetic. Weldable martensitics usually require preheating and post-weld heat treatment. They are used in steam and gas turbines in petrochemical industry, cutting utensils, surgical instruments, fasteners, ball bearings and press plates.

Duplex: Duplex steels are a combination of ferritic and austenitic steels allowing savings in material costs. Ferrite and austenite content is approximately equal. They have higher yield strength and greater stress corrosion cracking resistance to chloride than austenites. Primary areas of use are chemical plants and piping applications.

Precipitation Hardening: With the addition of elements such as Aluminum, Copper and Niobium that allow them to be hardened by a solution and aging heat treatment, these steels become extremely strong. They offer a unique combination of fabricability, strength, ease of heat treatment, and corrosion resistance. Although they are primarily developed as aerospace materials, they are also used in commercial applications like manufacture of rings, chains, valves and pressure vessels.

	GRADE	DIN NO	EQUIVALENT
AUSTENITIC STANDARD GRADES	201	1.4372	X12CrMnNiN17-7-5
	202	1.4373	X12CrMnNiN18-9-5
	204Cu	1.4597	X9CrMnCuNB17-8-3
	301	1.4307 / 1.4310	X10CrNi18-8
	301LN	1.4318	X2CrNiN18-7
	303	1.4305	X10CrNiS18-9
	304	1.4301	X5CrNi18-10
	304L	1.4306 / 1.4307	X2CrNi18-9 / X2CrNi19-11
	304N	1.4315	X5CrNiN19-9
	304LN	1.4311	X2CrNiN18-10
	304H	1.4948	X6CrNi18-10
	309 / 309S	1.4828 / 1.4833	X12CrNi23-13
	310	1.4810	X15CrNi25-20
	310S	1.4845	X8CrNi25-21
	314	1.4841	X15CrNiSi2520
	316	1.4401 / 1.4404	X5CrNiMo17122 / X2CrNiMo17122
	316L	1.4436 / 1.4432	X2CrNiMo17-12-3 / X2CrNiMo18-14-3
	316LN	1.4406/1.4429	X2CrNiMoN17-3-3
	316Ti	1.4571	X6CrNiMoTi17-12-2
	317LN	1.4434	X2CrNiMoN18-12-4
	317L	1.4438	X2CrNiMo18-15-4
	321	1.4541	X6CrNiTi18-10
	321H	1.4878	X8CrNiTi18-10
	347	1.4550	X6CrNiNb18-10
	347H	1.4961	X8CrNiNb16-13
	904L	1.4539	X1NiCrMoCuN25-20-5

	GRADE	DIN NO	EQUIVALENT
FERRITIC	3Cr12	1.4003	X2CrNi12
	409	1.4512	X2CrTi12
	410S	1.4000	X6Cr13
	430	1.4016	X6Cr17
	430F	1.4019 / 1.4104	X14CrS17
	439	1.4510	X3CrTi17
	441	1.4509	X2CrTiNb18
	444	1.4521	X2CrMoTi18-2

	GRADE	DIN NO	EQUIVALENT
MARTENSITIC	410	1.4006	X12Cr13
	420	1.4021	X20Cr13
	440 A B C	1.4023 / 1.4041 / 1.4040	X110Cr17 / X85Cr17 / X68Cr17
	422	1.4929	X23CrMoWMnNiV12-1-1

HEAT RESISTANT	GRADE	DIN NO	EQUIVALENT
		1.4713	X10CrAlSi7
		1.4724	X10CrAlSi13
		1.4742	X10CrAlSi18
	446	1.4749	X18CrN28
		1.4762	X10CrAlSi25
		1.4828	X15CrNiSi20-12
	309S	1.4833	X12CrNi23-13
	253MA	1.4835	X9CrNiSiNCe21-11-2
	314	1.4841	X15CrNiSi25-21
	310S	1.4845	X8CrNi25-21
		1.4876	X10NiCrAlTi32-21
	321	1.4878	X8CrNiTi18-10
	304H	1.4948	
		2.4816	ALLOY 600

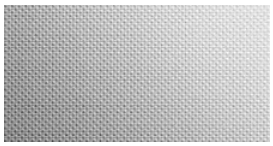
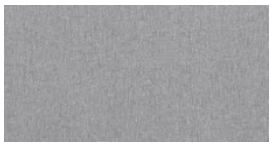
PRECIPITATION HARDENING	GRADE	DIN NO	EQUIVALENT
	17-4	1.4713	X10CrAlSi7
	15-5	1.4749	X18CrN28
	17-7	1.4724	X10CrAlSi13
		1.4422	X1CrNiMoCu12-5-2
		1.4423	X1CrNiMoCu12-7-3
	17-4PH	1.4542	X5CrNiCuNb16-4
	17-7PH	1.4568	X7CrNiAl17-7
	15-7 mo	1.4742	X10CrAlSi18

DUPLEX	GRADE	DIN NO	EQUIVALENT
	Nitronic 19D		
	2205	1.4462	318LN
	2304	1.4362	
	4501	1.4501	
	2507	1.4410	

DECORATIVE SHEETS
No.4 Brushed/Satin + PVC
Hairline
Titanium Coated (Gold, black, bronze, rose..)
No.8 , 8k, Mirror
Linen
Embossed
Art Etching
3D
Fingerprint proof
Bead blasted



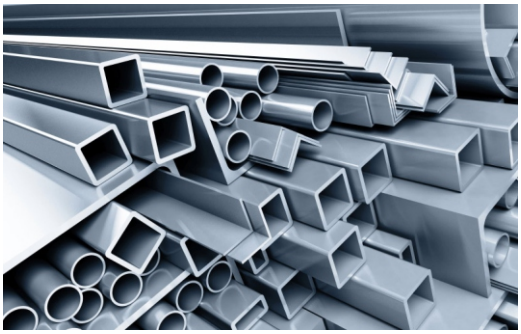


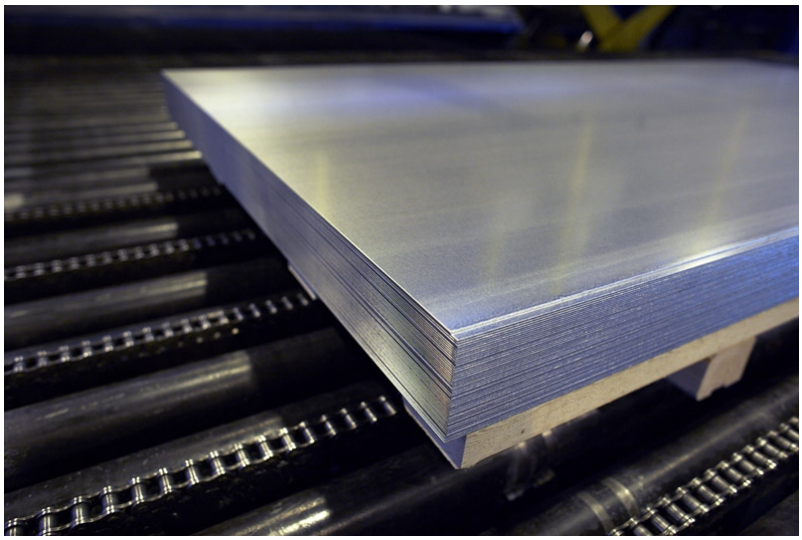



HIGH NICKEL ALLOYS & SUPERALLOYS

This group is preferred for their outstanding corrosion and high temperature resistance. In order to enhance their corrosion resistance they contain very large amounts of nickel and/or chrome and molybdenum. They are used in extremely corrosive conditions in the energy, chemical and petrochemical industries. They are mainly used in hottest parts of gas turbines for power generation and aircrafts, turbine blades and jet/rocket engines, in marine industry, submarines, chemical processing industry and nuclear reactors.

GRADE	EQUIVALENT
NICKEL 200/201	UNS N02200/N02201, 2.4060/2.4066
Alloy 20	UNS N08020, 2.4660, Carpenter 20, 20Cb-3, Incoloy 20
Alloy C-276	UNS N102761, 2.4819, Hastelloy C-276
Alloy X	UNS N06002, 2.4665, Inconel HX, Hastelloy X
Alloy C22	N06022, 2.4602, Hastelloy C-22
Alloy 400	UNS N04400 , 2.4360, Alloy 400, Monel 400
Alloy 800H / 800HT®	UNS N08810/N08811, 1.4959, Alloy 800, Incoloy 800H/HT
Alloy 825	UNS N08825, Incoloy 825
Alloy 600	UNS N06600, 2.4816, Inconel 600
Alloy 625	UNS N06625, 2.4856, Inconel 625
Alloy 617	UNS N06617, NiCr23Co12Mo, 2.4663
Alloy 825	UNS N08825, 2.4858
2205	UNS S31803, S32205
SUPER DUPLEX 2507	UNS S32750, 1.4410, F53, SAF2507
SUPER DUPLEX ZERON 100	UNS S32760, 1.4501
LDX2101	UNS S32101, 1.4162

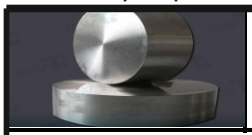
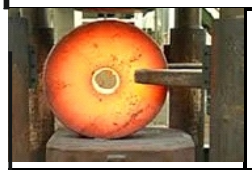
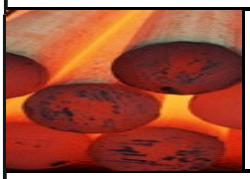
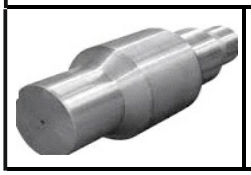




FORGED STEELS

Typical Applications :

- Aviation
- Gas and steam turbine manufacturing
- Nuclear industry
- Petroleum industry
- Cement industry
- Automotive, railroads, mining and shipbuilding industry
- High pressure pump and valves
- Hydropower turbines

	Forged Discs	Max. Thickness:500mm Max. weight : 49 tons can be perforated
	Open die forging	Max. Dia. 1000mm Max. weight : 38 tons
	Seamless forged ring	Dia. 180-6000mm (carbon / stainless) Dia 180-3000mm (nickel alloy) Max. height 1500mm
	Forged Bar	Dia. 300-1400mm Length : 2-12 m Max. weight 50 tons
	Forged shaft	Max. Dia 1500 mm Max. weigth 40 tons

GRADES	
Carbon steels	1004 - 1080, SA105, SA350 LF1, LF2, LF3, LF6, A707, A694
Alloy steels	4130, 4140, 8620, 8630
Chrome moly	SA182, F1, F5, F5a, F9, F9l, F11, F12, F22
Stainless steels	304/L/H, 316/L/H, 310, 317L, 321H, 347H, 410, 416, 420, 17-4, 440, Alloy 20
Nickel alloys	200, 201, 400, K500, 600, 625, 800H/HT, 825, X-750, C276, Hastelloy B & C22
Other alloys	Nitronic 50/60, 254 SMO (F44), AL6XN, 2507 (F53), Zeron 100 , 904L, 2205 (F51/60)

OUR REFERENCES

OUR REFERENCES	MATERIAL SUPPLIED
ELEKTRİK ÜRETİM A.Ş. - ÇAN POWER PLANT	16Mo3 SHEET
ELEKTRİK ÜRETİM A.Ş. - AFŞİN-ELBİSTAN POWER PLANT	P460NL2 PLATE
TRAKYA CAM - BULGARIA FACTORY BUILDING	16Mo3 AND CORTEN A SHEET
TÜRKİYE LOKOMOTİF VE MOTOR FABRİKASI A.Ş.	S355J2H SEAMLESS PIPES
YOLBULAN BAŞTUĞ A.Ş.	16Mo3 AND CORTEN A SHEET
BOTAŞ A.Ş.	P355NL2 PLATE
ETİ ALÜMİNYUM A.Ş.	16Mo3 SHEET
KÜTAHYA ŞEKER FABRİKALARI A.Ş.	16Mo3 SHEET
ÇOLAKOĞLU METALURJİ	RAEX 450 SHEET
MERSİN SODA SAN. A.Ş.	P265GH SHEET
SODA SANAYİ A.Ş.	13CrMo4-5 SHEET
TÜPRAŞ A.Ş.	410S U PIPE
TÜRKİYE PETROLLERİ ANONİM ORTAKLIĞI	A 106 GR. B PIPE
BURSA STADIUM PROJECT	S355J2 HEA - IPE BEAM AND SECTIONS
İÇDAŞ ENERJİ	CORTEN A SHEET
EÜAŞ AMBARLI POWER PLANT	CORTEN A SHEET
PİRİ REİS UNIVERSITY BUILDING	CORTEN A SHEET
NEXT LEVEL SHOPPING MALL PROJECT	CORTEN A SHEET
ÖZDİLEK SHOPPING MALL PROJECT	CORTEN A SHEET
ÇANAKKALE CEMETERY REHABILITATION PROJECT	CORTEN A SHEET

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