

The Stainless Sparkle Of Quality



BIS Approved
NABL Accredited Chem & Mech Labs.
ISO 9001 & IATF16949 Certified by UL DQS
ISO 14001 & OHSAS 18001 Certified by TUV Nord
AD 2000 Merkblatt WO /PED Certified by TUV Nord



Sunflag - The Group

The Sunflag Group founded in 1937 in Kenya is today a diversified global conglomerate, with manufacturing facilities spread across eight countries and business operations in most others, across the globe.

Set up on strong foundations of business ethics and commitment to quality, the USD 600 million group has emerged as a leader and world-best, in its chosen diversified businesses of Steel Products, Textiles, Fashion Garments, Artificial Leather, Agriculture, Agro & Forest based produce, Power Generation, Financing & Project Consultancy. With 20 group companies, the group today employs over 10,000 people.





Sunflag - The Stellar Steel Story

The Group's focus on engineering competencies has seen it emerge as one of the major players in the steel industry.

Sunflag Iron & Steel Company Limited, the Group's flagship company, set up a state-of-the-art integrated steel plant in technical collaboration with Krupp, Mannesmann Demag and Hamburger Stahlwerke, Germany. This is one of the world's most advanced and integrated steel plants located at Bhandara, India, in very close proximity to its raw materials and has a capacity to produce over 5,00,000 tonnes per annum of high quality steel of a varied product mix. using iron ore and non coking coal as basic raw materials.

Sunflag Steel today caters to the demand of various core sector industries like automobiles, railways, defense, agriculture,

engineering etc. It is approved as an OEM authorized supplier of high quality steel by major companies in India and overseas, including General Motors, for worldwide supplies of their spring steel requirements.

The varied product mix of specialized steel includes a wide range of Carbon Steels, Alloy Steels, Free Cutting Steels, Spring Steels, Ball Bearing Steels, Micro Alloyed Steel, Valve Steels & Stainless Steel. These are manufactured in strict confirmation to Indian & International standards like, DIN/ SAE/ AISI/ ASTM/ EN, JIS, GOST & BIS.

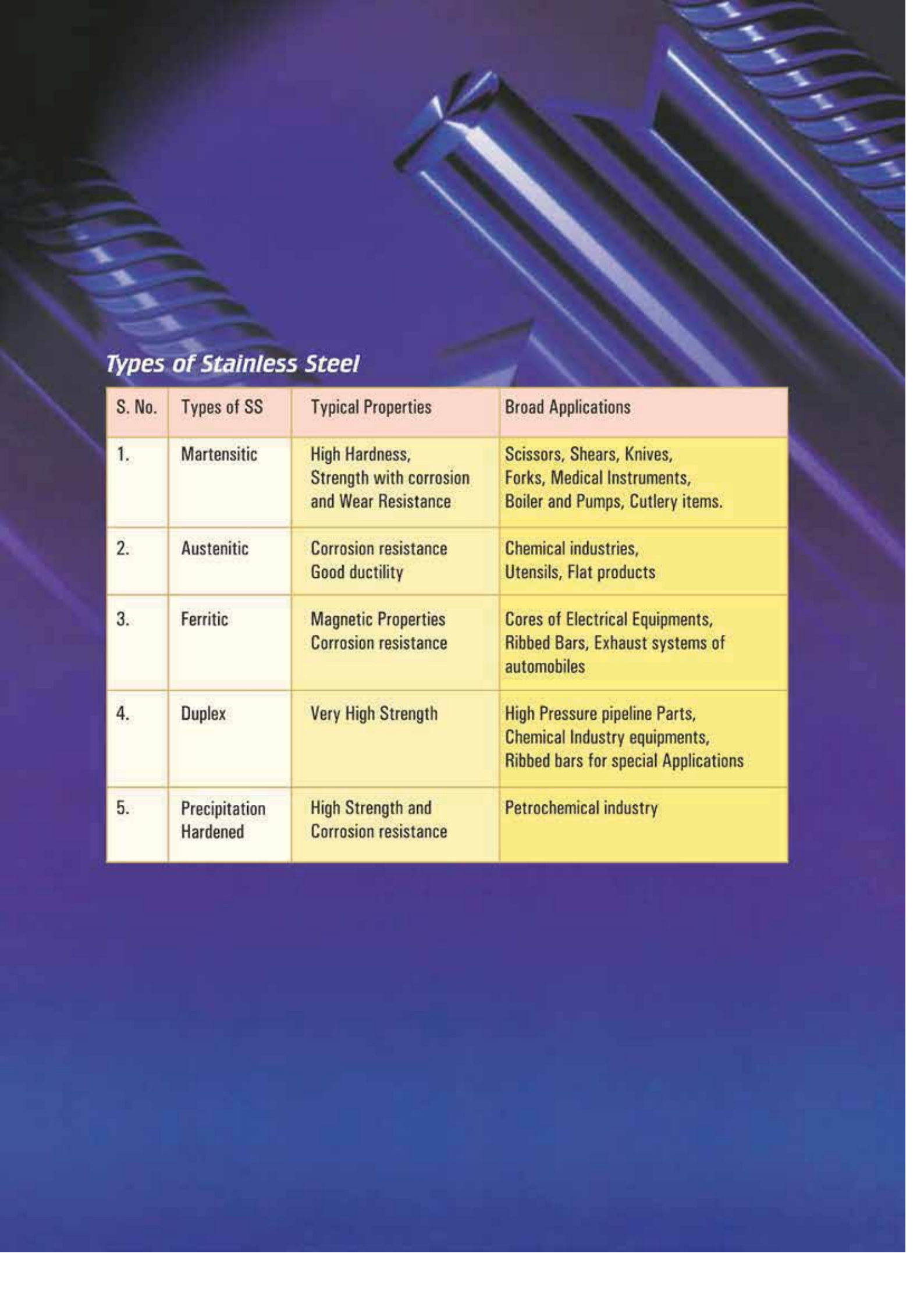
A 30 MW captive power plant using waste gases and coal-fired burners ensures consistent and quality power supply, as well as cost competitiveness.

ainless Steel

Stainless steel is steel containing 10.5% or more of chromium, which imparts it with corrosion resistant properties, by the formation of an impervious layer of chromium oxide on the surface.

Stainless Steel finds many applications, which include :

- ◆ Construction industry
- ◆ Boiler industry
- ◆ Pumps and Shaft applications
- ◆ Flanges
- ◆ Surgical applications
- ◆ Cutlery
- ◆ Weaving and Knitting Wires
- ◆ High Temperature Corrosion Resistance Chemical and Petrochemical industries
- ◆ Springs etc.



Types of Stainless Steel

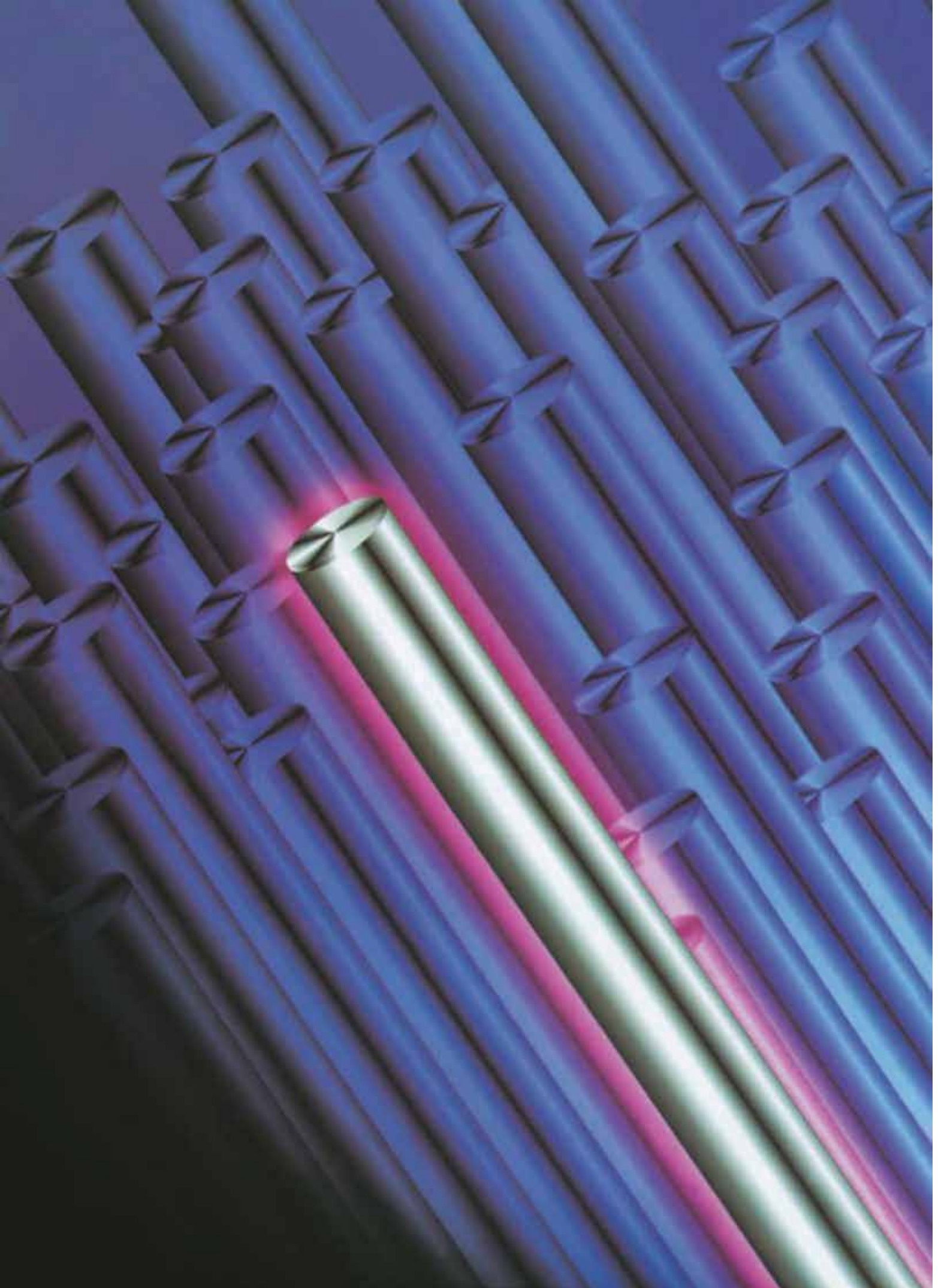
S. No.	Types of SS	Typical Properties	Broad Applications
1.	Martensitic	High Hardness, Strength with corrosion and Wear Resistance	Scissors, Shears, Knives, Forks, Medical Instruments, Boiler and Pumps, Cutlery items.
2.	Austenitic	Corrosion resistance Good ductility	Chemical industries, Utensils, Flat products
3.	Ferritic	Magnetic Properties Corrosion resistance	Cores of Electrical Equipments, Ribbed Bars, Exhaust systems of automobiles
4.	Duplex	Very High Strength	High Pressure pipeline Parts, Chemical Industry equipments, Ribbed bars for special Applications
5.	Precipitation Hardened	High Strength and Corrosion resistance	Petrochemical industry



Stainless Steel Manufactured at Sunflag Steel

Steel Grade	%C	%Mn	%P	%S	%Si	%Cr	%Ni	%Mo	Others	
Austenitic Stainless Steels										
AISI 302	0.15 max	2.0 max	0.045 max	0.030 max	1.00 max	17.0-19.0	8.0-10.0	-	N2 : 1000 ppm max	
AISI 302HQ	0.03 max	2.0 max	0.045 max	0.030 max	1.00 max	17.0-19.0	8.0-10.0	-	%Cu : 3.0 - 4.0	
AISI 303	0.15 max	2.0 max	0.20 max	0.15 min	1.00 max	17.0-19.0	8.0-10.0	-	-	
AISI 304	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	18.0-20.0	8.0-11.0	-	-	
AISI 304L	0.03 max	2.0 max	0.045 max	0.030 max	1.00 max	18.0-20.0	8.0-12.0	-	-	
AISI 304N	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	18.0-20.0	8.0-11.0	-	N2 : 1000-1600 ppm	
AISI 304LN	0.03 max	2.0 max	0.045 max	0.030 max	1.00 max	18.0-20.0	8.0-11.0	-	N2 : 1000-1600 ppm	
AISI 308	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	19.0-21.0	10.0-12.0	-	-	
AISI 308LE	0.025 max	1.50 - 2.00	0.020 max	0.010 max	0.30 - 0.50	19.5-22.0	9.50-11.0	-	N2 - 600 ppm max	
AISI 309	0.20 max	2.0 max	0.045 max	0.030 max	1.00 max	22.0-24.0	12.0-15.0	-	-	
AISI 310	0.25 max	2.0 max	0.045 max	0.030 max	1.50 max	24.0-26.0	19.0-22.0	-	-	
AISI 316	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	16.0-18.0	10.0-14.0	2.0 - 3.0	-	
AISI 316L	0.03 max	2.0 max	0.045 max	0.030 max	1.00 max	16.0-18.0	10.0-14.0	2.0 - 3.0	-	
AISI 316Ti	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	16.0-18.0	10.0-14.0	2.0 - 3.0	Ti : 5x(C+N) - 0.70 % N2 : 1000 ppm max	
AISI 316N	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	16.0-18.0	10.0-14.0	2.0 - 3.0	N2 : 1000-1600 ppm	
AISI 316LN	0.03 max	2.0 max	0.045 max	0.030 max	1.00 max	16.0-18.0	10.0-13.0	2.0 - 3.0	N2 : 1000-1600 ppm	
AISI 317	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	18.0-20.0	11.0-15.0	3.0 - 4.0	N2 - 1000 ppm max	
AISI 321	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	17.0-19.0	9.0-12.0	-	Ti : 5x(C+N) - 0.70 %	
AISI 347	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	17.0-19.0	9.0-12.0	-	Cb : 10xC - 1.10 %	
AISI 201 (0.30% Ni min)	0.08 - 0.12	8.00 - 9.00	0.080 max	0.015 max	0.40 - 0.60	14.00-14.50	0.30 - 0.35	-	Cu : 1.70 - 2.00% N2 : 1400-1600 ppm Customer preferred Chemistry	
AISI 201 (0.40% Ni min)	0.07 - 0.10	8.00 - 9.00	0.080 max	0.015 max	0.40 - 0.60	14.00-14.50	0.40 - 0.45	-	Cu : 1.70 - 2.00% N2 : 1400-1600 ppm Customer preferred Chemistry	
AISI 201 (0.70% Ni min)	0.08 - 0.10	8.00 - 9.00	0.080 max	0.015 max	0.40 - 0.60	14.00-14.50	0.70 - 0.75	-	Cu : 1.70 - 2.00% N2 : 1400-1600 ppm Customer preferred Chemistry	
AISI 204Cu (1.50% Ni min)	0.07 - 0.10	8.00 - 9.00	0.080 max	0.015 max	0.30 - 0.70	15.00-16.00	1.50 - 1.60	-	Cu : 1.50 - 1.80% N2 : 1400-1600 ppm Customer preferred Chemistry	
AISI 204Cu (1.80% Ni min)	0.060 max	6.50 - 8.50	0.060 max	0.010 max	1.0 max	15.50-17.50	1.80 - 2.20	-	Cu : 2.0 - 3.0% N2 : 1400-1600 ppm Customer preferred Chemistry	
W.No. 1.4301	0.07 max	2.0 max	0.045 max	0.030 max	1.00 max	17.0-19.5	8.0-10.50	-	N2 - 1100 ppm max	
W.No. 1.4306	0.03 max	2.0 max	0.045 max	0.030 max	1.00 max	18.0-20.0	10.0-12.0	-	N2 - 1100 ppm max	
W.No. 1.4541	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	17.0-19.0	9.0-12.0	-	Ti : 5xC - 0.70 %	
W.No. 1.4401	0.07 max	2.0 max	0.045 max	0.030 max	1.00 max	16.5-18.5	10.0-13.0	2.0 - 2.50	N2 - 1100 ppm max	
W.No. 1.4404	0.03 max	2.0 max	0.045 max	0.030 max	1.00 max	16.5-18.5	10.0-13.0	2.0 - 2.50	N2 - 1100 ppm max	
W.No. 1.4571	0.08 max	2.0 max	0.045 max	0.030 max	1.00 max	16.5-18.5	10.5-13.5	2.0 - 2.50	Ti : 5xC - 0.70 %	
Martensitic Stainless Steels										
AISI 410	0.15 max	1.0 max	0.040 max	0.030 max	1.00 max	11.5-13.5	-	-	-	
AISI 416	0.15 max	1.25 max	0.060 max	0.15 min	1.00 max	12.0-14.0	-	-	-	
AISI 414	0.15 max	1.0 max	0.040 max	0.030 max	1.00 max	11.5-13.5	1.25 - 2.50	-	-	
AISI 420	0.15 min	1.0 max	0.040 max	0.030 max	1.00 max	12.0-14.0	-	-	-	
AISI 431	0.20 max	1.0 max	0.040 max	0.030 max	1.00 max	15.0-17.0	1.25 - 2.50	-	-	
W.No.1.4006	0.08 - 0.15	1.50 max	0.040 max	0.030 max	1.00 max	11.5-13.5	-	-	-	
W.No.1.4021	0.16 - 0.25	1.50 max	0.040 max	0.030 max	1.00 max	12.0-14.0	-	-	-	
W.No.1.4057	0.12 - 0.22	1.50 max	0.040 max	0.030 max	1.00 max	15.0-17.0	1.50 - 2.50	-	-	
Ferritic Stainless Steels										
AISI 409(Cb)	0.030 max	1.0 max	0.040 max	0.030 max	1.00 max	10.50-11.75	0.75 - 1.00	-	Cb : 10x(C+N) - 0.80 %	
AISI 430	0.12 max	1.0 max	0.040 max	0.030 max	1.00 max	16.0-18.0	-	-	-	
AISI 430L	0.030 max	1.0 max	0.040 max	0.030 max	1.00 max	16.0-18.0	0.50 max	-	N2 : 300 ppm max	
AISI 446	0.20 max	1.50 max	0.040 max	0.030 max	1.00 max	23.0-27.0	0.75 max	-	N2 - 2500 ppm max	
Precipitation Hardening Stainless Steels										
17 - 4 PH (Type 630)	0.070 max	1.0 max	0.040 max	0.030 max	1.00 max	15.00-17.50	3.0 - 5.0	-	Cb + Ta : 0.15 - 0.45% %Cu : 3.0 - 5.0	
15 - 5 PH (Type XM-12)	0.070 max	1.0 max	0.040 max	0.030 max	1.00 max	14.00-15.50	3.50 - 5.50	-	Cb + Ta : 0.15 - 0.45% %Cu : 2.50 - 4.50	
W.No. 1.4542	0.07 max	1.50 max	0.040 max	0.030 max	0.70 max	15.0-17.0	3.0 - 5.0	-	Nb : 5xC - 0.45 % %Cu : 3.0 - 5.0	
Razor Blade Quality	0.62 - 0.67	0.60 - 0.70	0.025 max	0.025 max	0.30 max	13.00-13.50	-	-	-	
Steel Grade	%C	%Mn	%P	%S	%Si	%Cu	%Cr	%Ni	%Mo	Others
ER308L	0.000 - 0.025	1.50 - 1.90	0.000 - 0.028	0.000 - 0.010	0.30 - 0.60	0.00 - 0.20	19.50 - 20.00	9.00 - 9.20	0.00 - 0.25	-
308LAWS	0.000 - 0.030	1.50 - 2.00	0.000 - 0.030	0.012 - 0.020	0.30 - 0.60	0.00 - 0.20	19.50 - 20.00	9.00 - 9.20	0.00 - 0.25	-
ER308LSi	0.000 - 0.025	1.50 - 2.00	0.000 - 0.025	0.005 - 0.015	0.65 - 1.00	0.00 - 0.30	19.60 - 20.50	9.00 - 10.00	0.00 - 0.30	-
ER307Si	0.030 - 0.070	6.00 - 6.75	0.000 - 0.030	0.000 - 0.010	0.65 - 0.90	0.00 - 0.30	18.00 - 18.75	8.00 - 8.20	0.00 - 0.30	-
ER316L	0.000 - 0.030	1.50 - 2.5	0.000 - 0.030	0.005 - 0.015	0.30 - 0.60	0.00 - 0.30	18.50 - 19.50	11.00 - 14.00	2.00 - 3.00	-
ER316LSi	0.000 - 0.030	1.00 - 2.5	0.000 - 0.030	0.005 - 0.015	0.65 - 1.00	0.00 - 0.30	18.00 - 20.00	11.00 - 14.00	2.00 - 3.00	-
AISI304H	0.06 - 0.08	1.00 - 1.30	0.000 - 0.035	0.000 - 0.010	0.00 - 0.60	0.00 - 0.40	18.00 - 18.50	8.00 - 8.30	-	-
TP410	0.00 - 0.04	0.00 - 0.75	0.000 - 0.040	0.000 - 0.015	0.00 - 0.75	0.00 - 0.50	12.50 - 13.50	0 - 70	-	-
TP304/304L	0.00 - 0.03	0.00 - 2.00	0.000 - 0.040	0.000 - 0.015	0.00 - 0.75	0.00 - 0.50	18.00 - 19.50	8.20 - 10.50	-	-

Similar other grades can be produced with different designation & chemistries



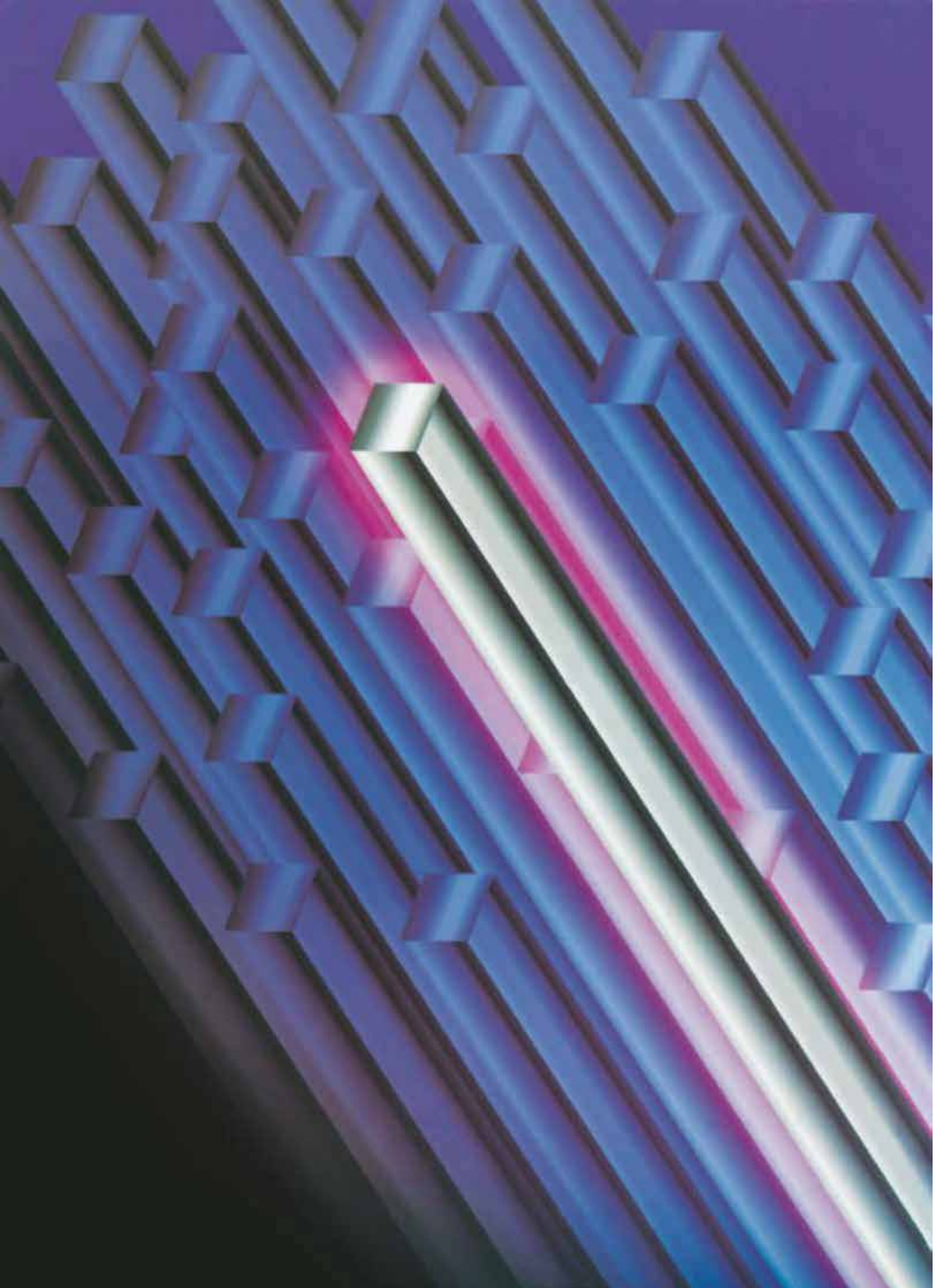


Stainless Steel Bright Bars

Cold Drawn and Polished	CD + P
Cold Drawn and Centreless Ground	CD + CG
Rough Turned	RT
Smooth Turned and Polished	ST + P
Smooth Turned & Centreless Ground	ST + CG
Forged and Turned	FT

Bright Bar Capability

Cold Drawn and Polished	4.5 - 32 mm (coil route) 14 - 50 mm (straight bar route)
Cold Drawn and Centreless Ground	10 - 32 mm (coil route) 14 - 50 mm (straight bar route)
Turned Bars	15 - 95 mm
Smooth Turned and Polished	15 - 95 mm
Smooth Turned and Centreless Ground	15 - 95 mm





Stainless Steel Billets-As Cast & Rolled

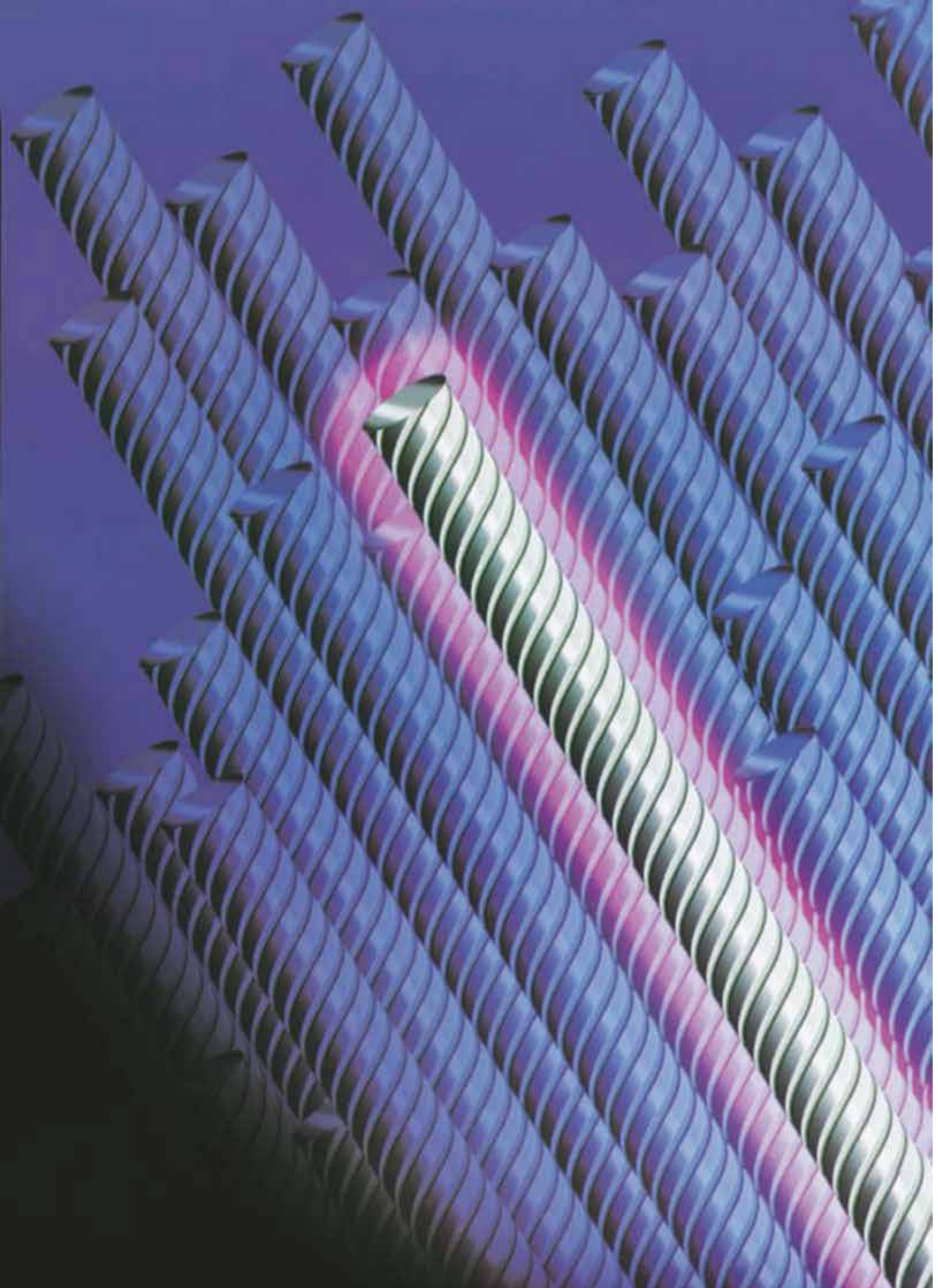
Supply Condition	As Cast
	Spot Ground
	Four Face Ground
	Hot Rolled Annealed and Pickled
As Cast Billet Sizes	130 x 130 mm 160 x 160 mm 180 x 180 mm 210 x 230 mm 240 x 280 mm 280 x 320 mm
Rolled Billet Sizes	50 mm x 50 mm x 6 m 55 mm x 55 mm x 6 m 60 mm x 60 mm x 6 m 63 mm x 63 mm x 6 m 75 mm x 75 mm x 6 m 80 mm x 80 mm x 6 m

Stainless Steel As Cast Billets

As Rolled Straight Length Bars	
Round	15mm to 200mm
Round Cornered Square	50, 55, 60, 63, 75, 80, 95, 98 mm

Stainless Steel As Ingots

Ingot Size (mm)	Wt (MT)
290 X 445 X 1700	1.8 MT
323 X 412 X 1700	2.7 MT
480 X 637 X 1700	4.2 MT





Stainless Steel Rebars

Condition	Size Range	Supply Length
As rolled	6, 8, 10 mm	Coils
As rolled and descaled	12 - 32 mm	Straight Length Bars * Length 12 Mtr.





Stainless Steel Wire Rods

Hot Rolled Annealed and Pickled Wire Rods*

Coil Weight	900 kgs to 1500 Kgs
Coil ID	850 mm min.
Coil OD	1250 mm max.
Size Range	5.5 - 38 mm Dia - Rounds 5.5 13.3 - 27.5 mm A/F-Hexagons







Stainless Steel Round Edge Flat Bars



Width	50 mm minimum
	150 mm maximum
Thickness	5 mm minimum
	28 mm maximum



QMS Certification and Approvals

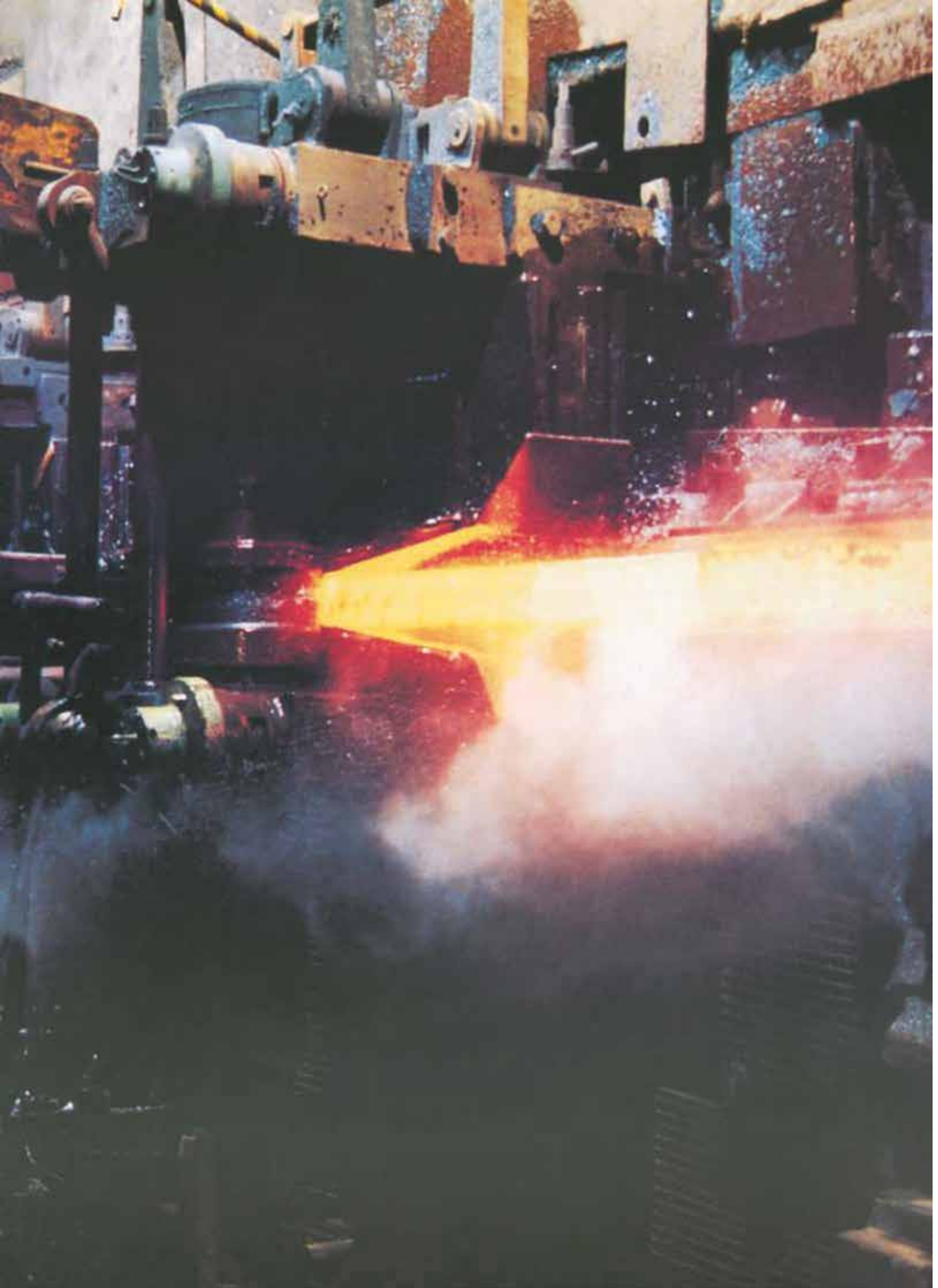
The guiding Philosophy in Sunflag Steel is enhancing customer satisfaction through continual improvement.

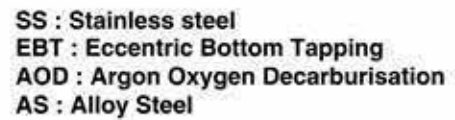
To continuously achieve higher level of performance in these areas sunflag had adopted and effectively

implemented various Quality Management system

QMS system	Scope	Validity	Certification Body
ISO 9001:2008	Complete plant operation	Upto September 2018	UL DQS , Germany
ISO / TS 16949 :2009	Complete plant operation	Upto September 2018	UL DQS , Germany
AD 2000 / MerkblattWO / PED	Pressure equipment directives	Upto April 2019	TUV Nord, Germany
ISO 14001:2004	Environmental management Certification	Upto September 2018	TUV Nord, Germany
OHSAS 18001 :2007	Occupational Health & Safety Management systems	Upto April 2019	TUV Nord, Germany
NABL certification	Sunflag chemical & mechanical laboratories	Upto August 2018	NABL India









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