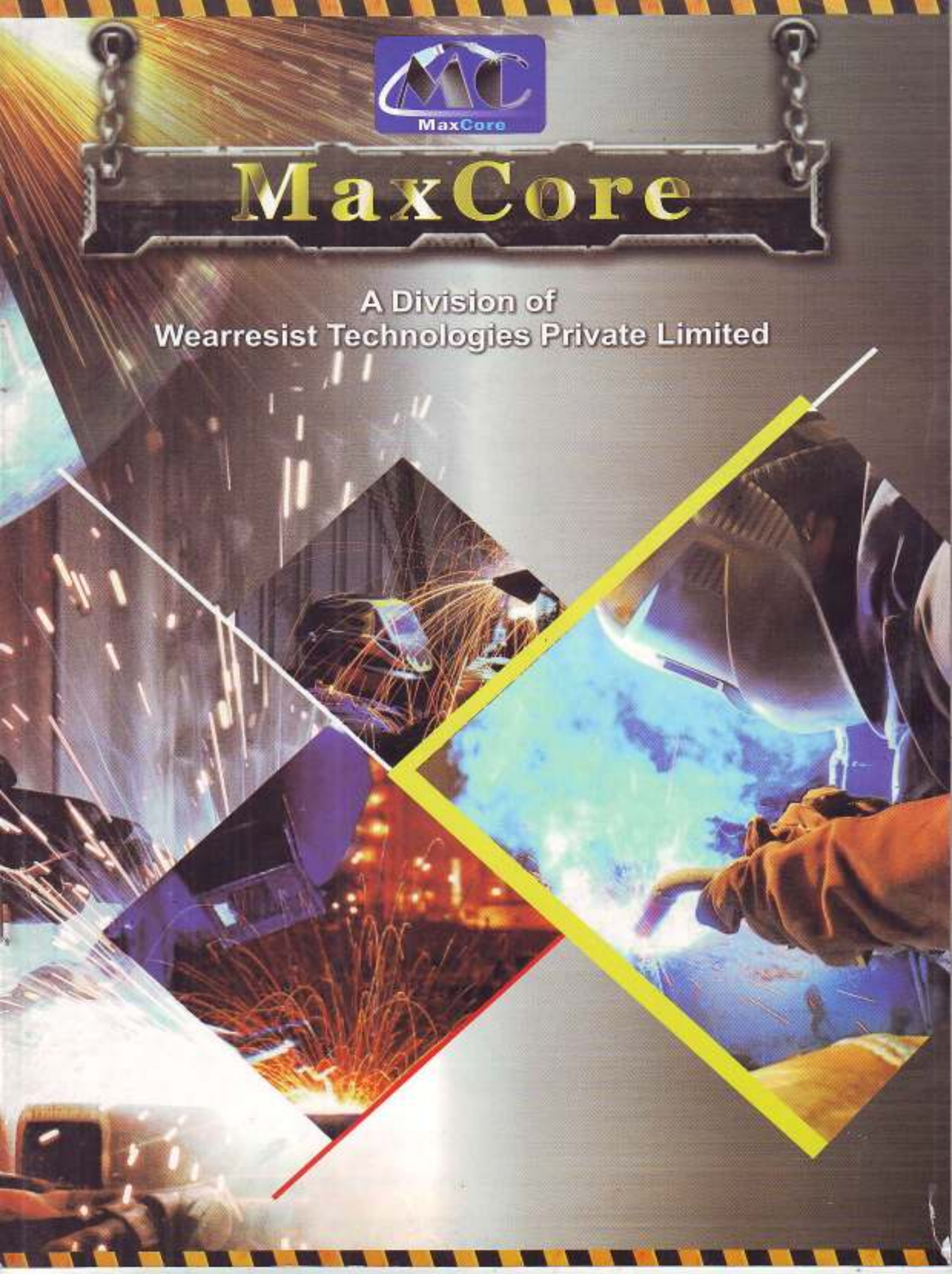

MaxCore
MaxCore
A Division of
Wearresist Technologies Private Limited

About Us

MaxCore research and development strategy is to continually improve its products and processes. The company seeks to develop new, high quality product families faster, with the primary focus on long-term benefits and enhanced & consistent quality along with reduction of environmental impact. The constant development of welding processes is an important part of this work and goes a long way in realizing the key objective of benefiting the customer. We have an accomplished research and development facility. Over the years, we have not only introduced consumables for different welding processes but also innovated several new products and it's implementation by which life of wear prone parts enhanced. We have brought in the finest production and testing machines to support our development programs.

The company has made uncompromising selections and investments in its plant, machinery and new generation manufacturing equipments. The manufacturing operation & process of MaxCore is well supported witha strong quality assurance system and quality control officials.

Flux Cored Wires for Joining, Stainless Steel & other special applications :

Advantages of Flux Cored Wires....

The number of possible combinations of metal and powder is huge. Therefore almost required chemistry and mechanical properties can be created with a Flux cored wires.

- **Deposition rates (kg/h) are higher than welding with electrodes or solid wire.**
- **Deposition rates between 2 & 11 kg/h can be attained.**
- **Excellent weld quality remains constant in a wider range of welding parameters.**
- **Ease of operation-less welding skill is required compared to stick electrodes.**
- **Number of arc hours per working day is doubled in comparison with stick electrodes.**
- **Labor and overhead are the most expensive factors in a welding operation, Welding with high deposition Wires provides an immediate means of cost reduction without an exorbitant investment in equipment.**

Our research and development facility & quality assurance department is well supported by latest machineries for various welding processes. Our mechanical testing facilities encompass various weld evaluation tests as per national & international standards which includes UTM, Impact Machine, Hardness tester, Abrasion tester etc.

The chemical laboratory is enriched with all kinds of analytical & instrumental testing facilities like spectro analysis and micro-scopic examinator along with wet analysis testing facility for weld metal evaluations. Our team of R & D and engineers is always prepared to accept new challenges and interested in modifying materials for specific application, thereby making us capable to be the customer's partner in development new materials.

We are proud to say that ours is the first indian welding company which not only supplies products but also work with the customers to improve the product performance by which service life of wear prone products gets improves. Our products have received approval from all over the world.

Packing Data

- **Standard wires diameters :** 1.20, 1.60mm supplied in 12.5kgs layer wound plastic spools.
- **Also available in other diameters and other types of packaging on request**

Sr No	MaxCore Product	Classification	Application	Characteristics
1	MaxCore 308	AWS A5.22 / ASME SFA5.22 E308T1-1/-4	MaxCore 308 flux cored wire is designed for welding of 20%Cr-10%Ni stainless steels. It is widely used in petro-chemical industries for high temperature use. It can be used to weld 301, 302, 304, 304H, 308, and 347 types of stainless steel.	MaxCore 308 is a flux cored wire for all position welding to be used with 100%CO_2 or 75-80Argon/ 20-25% CO_2 shielding gases. The wire has a fast freezing slag system which assists the operator when welding out of position. The electrode performs equally well when welding in the flat and horizontal positions. The electrode gives very low spatter and exhibits excellent slag peeling that minimizes clean up after welding.
2	MaxCore 308L	AWS A5.22 / ASME SFA5.22 E308T1-1/-4	MaxCore 308L flux cored wire is designed for welding of 18%Cr-8%Ni stainless steels. It is widely used in chemical, petro-chemical, pharmaceutical, paper and pulp, and textile industries. It can be used to weld 301, 302, 304, 304L, 308, 308L types of stainless steel.	MaxCore 308L is a flux cored wire for all position welding to be used with 100%CO2 or 75-80Argon/ 20-25% CO2 shielding gases. The wire has a fast freezing slag system which assists the operator when welding out of position. The electrode performs equally well when welding in the flat and horizontal positions. The electrode gives very low spatter and exhibits excellent slag peeling that minimizes clean up after welding.
3	MaxCore 309	AWS A5.22 / ASME SFA5.22 E309T1-1/-4	MaxCore 309 flux-cored wire is used for welding 25%Cr-12%Ni stainless steels and welding dissimilar alloys. The higher carbon content of 0.04-0.08% in this electrode helps in high temperature applications. It is used in refineries, petro-chemicals and processing equipments. It is used in a big way in dissimilar joints between carbon and stainless steels and also between carbon and low alloy steels. It has also substantial application as first layer of overlay in cladding carbon steels.	MaxCore 309 flux cored wire is welded in all position welding to be used with CO2 or Argon + CO2 mixed shielding gases. This wire benefits from fast freezing slag systems which assist the operator when welding out of position and performs equally well when welding in the flat and horizontal positions.
4	MaxCore 309L	AWS A5.22 / ASME SFA5.22 E309LT1-1/-4	MaxCore 309L flux-cored wire is used for welding 25%Cr-12%Ni stainless steels and welding dissimilar alloys. It has wide usage in refineries, petro-chemicals and processing equipments. It is used in a big way in dissimilar joints between carbon and stainless steels and also between carbon and low alloy steels. It has also substantial application as first layer of overlay in cladding carbon steels.	MaxCore 309L flux cored wire is welded in all position welding to be used with CO2 or Argon + CO2 mixed shielding gases. This wire benefits from fast freezing slag systems which assist the operator when welding out of position and performs equally well when welding in the flat and horizontal positions.
5	MaxCore 309LMo	AWS A5.22 / ASME SFA5.22 E309LMo T1-1/-4	MaxCore 309LMo is a flux-cored wire used for welding mostly dissimilar metals such as carbon to stainless steels. The welds have superior corrosion resistance, specially high resistance to pitting type of attack. It is widely used in food and beverage industry and in paper and pulp mills. It is also used in many other chemical process equipments. The low carbon in the weld helps to minimize interganular attack.	MaxCore 309LMo flux cored wire is welded in all positions, with a shielding gas of CO2 or Argon + CO2. The wire benefits from fast freezing slag systems which assist the operator when welding out of position. It performs equally well when welding in the flat and horizontal positions.

Typical Weld composition	Mechanical Properties	Type of Current	Size	Current (Amp)	Packing Specification	
					Weight Per Pkt	Weight Per Box
C = 0.065 Mn = 1.25 Si = 0.85 Cr = 20.2 Ni = 10.6 Mo = 0.15 N = 0.05	UTS N/mm^2(lbs/in^2) = 610 (87000) YS N/mm2(lbs/in2) = 450 (64000) E% = 39	AC/DC$^-$	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
C = 0.03 Mn = 1.25 Si = 0.85 Cr = 20.2 Ni = 10.6 Mo = 0.15 N = 0.05	UTS N/mm2 (lbs/in2) = 590 (84000) YS N/mm2(lbs/in2) = 420 (60000) E% = 39	AC/DC+	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
C = 0.08 Si = 0.75 Mn = 1.15 P = 0.025 S = 0.010 Cr = 23.9 Ni = 12.60	U.T.S N/mm2 (lbs/in2) = 630 (89000) Y.S N/mm2 (lbs/in2) = 500(70000) E% = 35	AC/DC$^-$	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
C = 0.03 Si = 0.65 Mn = 1.15 P = 0.025 S = 0.010 Cr = 23.9 Ni = 12.60	U.T.S N/mm2 (lbs/in2) = 600 (85,400) Y.S N/mm2 (lbs/in2) = 470(66,900) E% = 38	AC/DC+	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
C=0.03 Si=0.75 Mn=0.90 P=0.020 S=0.010 Cr=23.0 Ni=13.5 Mo=2.5	U.T.S N/mm2 (lbs/in2) = 660 (94000) Y.S N/mm2 (lbs/in2) = 500(71000) E% = 30	AC/DC+	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg

Sr No	MaxCore Product	Classification	Application	Characteristics
6	MaxCore 312	AWS A5.22 / ASME SFA5.22 E312T1-1/-4	MaxCore 312 flux-cored wire is used for welding dissimilar metals such as carbon to stainless steels or in welding 30%Cr-9% Ni type of alloys. It has a duplex ferritic –austenitic microstructure. The welds exhibit high strength. The higher carbon content of around 0.10% and the duplex microsture gives the weld metal very high strength. It is used in refineries, petro-chemicals and processing equipments. It is used in a big way in dissimilar joints between carbon and stainless steels and also between carbon and low alloy steels.	MaxCore 312 flux cored wire is welded in all positions, with a shielding gas of CO2 or Argon + CO2. The wire benefits from fast freezing slag systems which assist the operator when welding out of position. It performs equally well when welding in the flat and horizontal positions.
7	MaxCore 316	AWS A5.22 / ASME SFA5.22 E316T1-1/-4	MaxCore 316 flux-cored wire is used for welding 20%Cr-12%Ni-2.5%Mo stainless steels. It has higher carbon content of 0.04-0.08% which improves its high temperature and creep strength. It is employed in high temperature applications in processing equipments, furnace parts etc, and in welding 316H steel.	
8	MaxCore 316L	AWS A5.22 / ASME SFA5.22 E316LT1-1/-4	MaxCore 316L flux-cored wire is used for welding 20%Cr-12%Ni-2.5%Mo stainless steels. It has wide usage in pulp and paper, chemicals, pharmaceuticals, chemical processing, and marine applications. It has also application in furnace components because of its creep resistance.	MaxCore 316L flux cored wire is welded in all positions and is used with CO2 or Argon + CO2 mixed shielding gases. This wire benefits from fast freezing slag systems which assist the operator when welding out of position. The electrode performs equally well when welding in the flat and horizontal positions.
9	MaxCore 347	AWS A5.22 / ASME SFA5.22 E347T1-1/-4	MaxCore 347 flux-cored wire is used for welding Type 347, 321, and 348 austenitic stainless steels. The Nb content in this weld metal stabilizes the carbon in the matrix thus preventing sensitization in the welds and loss of corrosion resistance. The niobium carbides also increases the strength of the welds. It is used in welding high temperature components like furnace parts, pressure vessels, chemical tanks, and automotive parts.	MaxCore 347 flux cored wire is welded in all positions with CO2 or Argon + CO2 mixed shielding gases. This wire benefits from fast freezing slag systems which assist the operator when welding out of position. It performs equally well when welding in the flat and horizontal positions.
10	MaxCore 81-W T1	AWS A5.20 / E81 T1-WC, E81 T1-WM	MaxCore 81-W T1 is a flux cored gas shielded wire electrode used for single and multipass welding of low alloy weathering steels. The electrode has excellent welder appeal with spray transfer arc, thin slag, and easy clean up. It works in all positions and has a quick freezing slag. The electrode is an excellent choice where ASTM A588 type of weathering steels are used - such as for bridges and structurals for highways, railways, etc.	MaxCore 81-W T1 can be used in welding bridges, structurals, rail cars, construction equipments, etc, where steels like ASTM A588 or equivalent steels are used. It gives excellent color matching for such applications.

	Typical Weld composition	Mechanical Properties	Type of Current	Size	Current (Amp)	Packing Specification	
						Weight Per Pkt	Weight Per Box
	C=0.10 Si=0.75 Mn=0.90 P=0.020 S=0.010 Cr=29.8 Ni=8.8	U.T.S N/mm2 (lbs/in2) = 810 (115000) Y.S N/mm2 (lbs/in2) = 630(91000) E% = 25	AC/DC'	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
	C=0.03 Si=0.75 Mn=1.40 P=0.025 S=0.010 Cr=19.0 Ni=12.60 Mo=2.50	U.T.S N/mm2 (lbs/in2) = 590 (84000) Y.S N/mm2 (lbs/in2) = 460(65500) E% = 35	AC/DC+	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
	C=0.03 Si=0.75 Mn=1.40 P=0.025 S=0.010 Cr=19.0 Ni=12.60 Mo=2.50	U.T.S N/mm2 (lbs/in2) =570 (81000) Y.S N/mm2 (lbs/in2) = 440(62500) E% = 40	AC/DC'	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
	C=0.06 Si=0.75 Mn=1.15 P=0.025 S=0.010 Cr=19.8 Ni=10.5 Nb=0.60	U.T.S N/mm2 (lbs/in2) =660 (93500) Y.S N/mm2 (lbs/in2) = 440(62600) E% = 35	AC/DC+	1.2mm 1.6mm	F/HF- 190A V-Up-160A	12.5Kg	25 Kg
	C=0.05 Mn = 1.10 Si=0.40 Cr=0.54 Ni=0.68 Cu=0.44	UTS,Kg/mm2 =61 YS,Kg/mm2 = 50 E% = 24 CVN, J@-29C = 50	AC/DC'	1.2mm 1.6mm	F/HF- 190A V-Up-160A	15 kg	25 Kg

Sr No	MaxCore Product	Classification	Application	Features and Benefits:
11	MaxCore 91 T1	Conforms to AWS A5.29 E91 T1-D1	MaxCore 91 T1 is a flux cored gas shielded wire electrode used for single and multipass welding of high tensile steels. The electrode is designed to work in all positions. It has a quick freezing slag which helps the welder to weld out of position. The electrode is an excellent choice where a minimum tensile strength of 62 Kg/mm2(620 MPa, 90 KSI) is required. **Applications:** MaxCore 91 T1 can be used in welding high tensile components such as in railway chassis, earthmoving equipments, etc.	The electrode gives a stable arc that is smooth yet deeply penetrating. It has a fast freezing slag system that helps the welder in out of position welding. It gives consistent arc starts. It gives smooth well washed horizontal fillets .

Sr No	MaxCore Product	Classification	Application	Features and Benefits:	Typical Weld composition	Shielding Gas
12	MaxCore 71 T1	Conforms to AWS A5.20 E71 T-1C, E71 T-1M	MaxCore 71 T1 is a flux cored gas shielded wire electrode used for single and multipass welding of carbon steels. The electrode is designed to work in all positions. It has a quick freezing slag which helps the welder to weld out of position. The electrode is an excellent choice where a minimum tensile strength of 49 Kg/mm2(480 MPa, 70 KSI) is required. Applications: MaxCore 71 T1 can be used in welding structurals, rail cars, construction equipments, etc, where steels like ASTM A516 Gr 70 , A516 Gr70, or A285 or equivalent steels are used.	The electrode gives a stable arc that is smooth yet deeply penetrating. It has a fast freezing slag system that helps the welder in out of position welding. It gives consistent arc starts. It gives smooth well washed horizontal fillets .	F, H, HF, V-Up, OH	100% CO2, or 75-80%Ar/ Bal. CO2 at 275-400 cc/sec (35- 50 cfh)

	Typical Weld composition	Shielding Gas	Polarity	Diameters	Typical Deposit Composition: Shielding	Typical Deposit Composition: CO2-100%	Typical Mechanical Properties: Shielding	Typical Mechanical Properties: CO2-100%	Diameters & Packaging: DIAM	Diameters & Packaging: SPOOLS	Operating Parameters
	F, H, HF, V-Up, OH	100% CO2, or 75-80%Ar/ Bal. CO2 at 275-400 cc/sec (35- 50 cfh)	DC +	1.2, 1.4, 1.6 mm (0.045, 0.052, 1/16")	C Mn Si P S Mo	0.06 1.5 0.7 0.020 0.015 0.4	UTS,KG /MM2 YS,KG/ MM2 E% CVN, J@-40C	60 67 22 30	1.2mm 1.6mm	15 kg	Please contact WR Technologies Pvt Ltd, Wires Division for recommendations.

	Polarity	Diameters	Typical Deposit Composition: Shielding	Typical Deposit Composition: CO2-100%	Typical Deposit Composition: 75-80Ar/BalCO2	Typical Deposit Composition: Shielding	Typical Deposit Composition: CO2-100%	Typical Deposit Composition: 75-80Ar/BalCO2	Typical Deposit Composition: CO2-100%	Typical Deposit Composition: 75-80Ar/BalCO2	Operating Parameters
	DC +	1.2, 1.4, 1.6 mm (0.045, 0.052, 1/16")	C Mn Si P S	0.05 1.25 0.40 0.020 0.015	0.05 1.50 0.50 0.020 0.015	UTS,Kg/mm2 YS,Kg/ mm2 E% CVN,J @-29C	54 46 31 100	58 49 32 110	1.2mm 1.6mm	15 kg	Please contact WR Technologies Pvt Ltd, Wires Division for recommendations.

AWS CHEMICAL COMPOSITIONS:

Sr No	Classification	C%	Ni%	Cr%	Mn %
1	AWS:A5.22E307- T1-1/4	0.04-0.14	9.0-10.7	18-21.5	3.30-4.75
2	AWS:A5.22E308- T1-1/4	0.08 max	9-11	18-21	0.5-2.5
3	AWS:A5.22E308L- T1-1/4	0.04 max	9-11	18-21	0.5-2.5
4	AWS:A5.22E309- T1-1/4	0.15 max	12-14	22-29	0.5-2.5
5	AWS:A5.22E309L- T1-1/4	0.04 max	12-14	22-25	0.5-2.5
6	AWS:A5.22E309Mo- T1-1/4	0.12 max	12-14	22-25	0.5-2.5
7	AWS:A5.22E309-MoL-T1-1/4	0.04 max	20-22.5	22-25	0.5-2.5
8	AWS:A5.22E310- T1-1/4	0.08-0.20	8-12.5	25-28	1-2.5
9	AWS:A5.22E312- T1-1/4	0.15 max	8-10.5	28-32	0.5-2.5
10	AWS:A5.22E316- T1-1/4	0.08 max	11-14	17-20	0.5-2.5
11	AWS:A5.22E316L- T1-1/4	0.04 max	11-14	14-20	0.5-2.5
12	AWS:A5.22E317-L- T1-1/4	0.04 max	12-14	18-21	0.5-2.5
13	AWS:A5.22E318- T1-1/4	0.08 max	11-14	17-20	0.5-2.5
14	AWS:A5.22E410- T1-1/4	0.12 max	0.70 max	11-13.5	1max
15	AWS:A5.22E430- T1-1/4	0.10 max	0.60 max	15-18	1max
16	AWS:A5.22E347- T1-1/4	0.08 max	9-11	18-21	0.5-2.5
17	AWS:A5.22E2209- T1-1/4	0.04 max	8.5-10.5	21.5-23.5	0.5-2.5

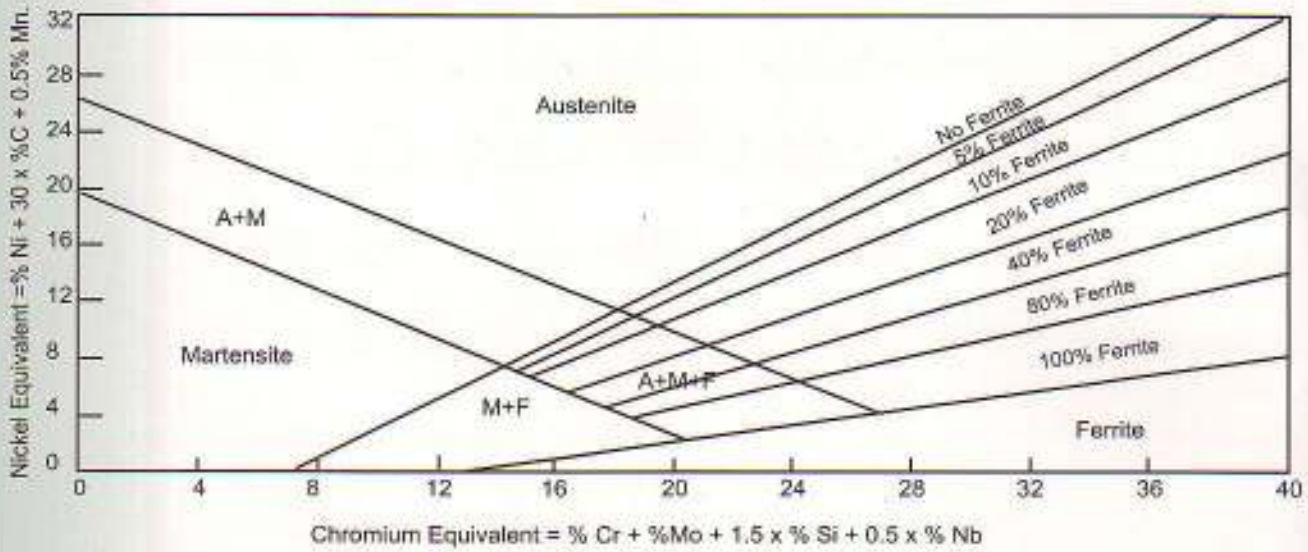
USEFUL CONVERSION TABLE FOR ENGINEERS

Quantity	SI Units	To Cover From
MASS	Kilogram (kg) 1 tone $=10^3$ kg	kg Ton (T)
FORCE	Newton (N) 1 N = 1 kg m / sec^2	kN
STRESS	Pascal (Pa) 1 Pa = 1N/m^2	N/mm^2 (M Pa)
PRESSURE	Pascal (Pa) 1 Bar = 10^5 Pa = 10 N/mm^2	Bar
ENERGY	Joule (J)	J kgfm, kpm kgf m/cm_2
SPEED	mm/sec	mm/sec
DEP. RATE FLOW RATE	kg/hr liter.min	kg/hr liter.min
HEAT INPUT	j/m	Kj/mm

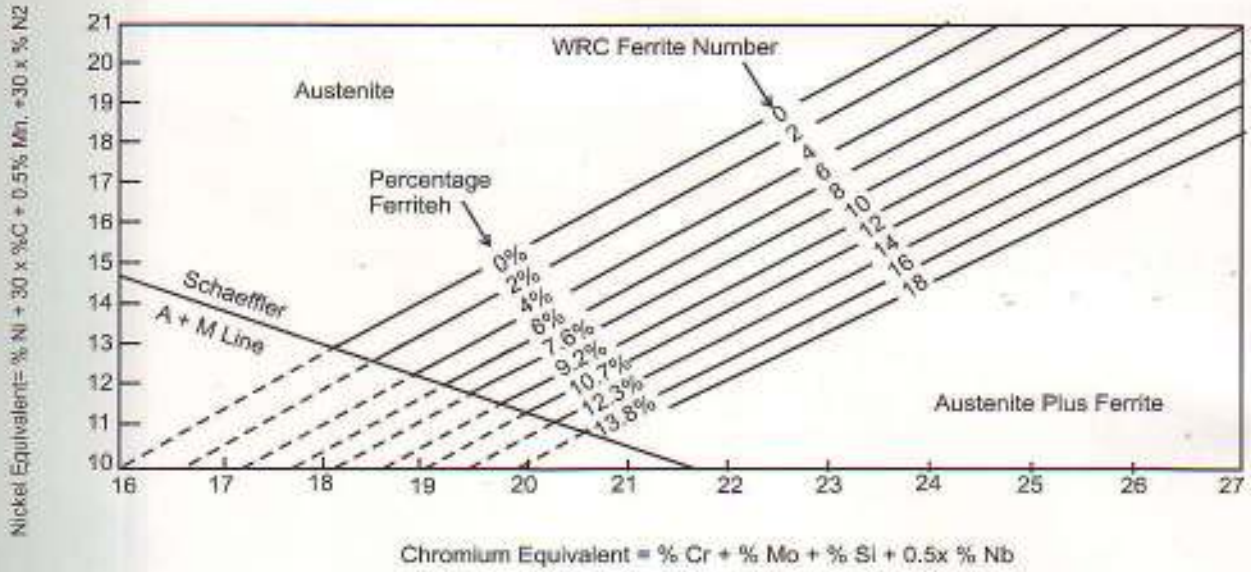
Si %	P %	S %	Mo %	Cu %	Nb %	N
0.90 max	0.04 max	0.03 max	0.5-1.5	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	2-3	0.75 max	-	-
0,90 max	0.04 max	0.03 max	2-3	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	2-3	0.75 max	-	-
0.90 max	0.04 max	0.03 max	2-3	0.75 max	-	-
0.90 max	0.04 max	0.03 max	3-4	0.75 max	-	-
0.90 max	0.04 max	0.03 max	2-3	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	-	-
0.90 max	0.04 max	0.03 max	0.75 max	0.75 max	8xC min to max 1.0	-
0.90 max	0.04 max	0.03 max	2.5-3.5	0.75 max	-	008-0-20

To	Multiply By
iB	2.205
ton (long)	0.984
tone (Short)	1.102
lbf	224.8
kgf, kp	102.0
kgf/mm, kp/mm	0.102
ksi	0.145
pa	1.0 x 10
ibg/in	14.5
kgf/cm	1.02
atm	0.9870
ft lbf	0.7376
kgfm, kpm	0.1020
ft lbf	7.2331
ft lb*	5.7864
inch/min	2.362
m/hr	3.60
lb/hr	2.205
ft/hr	2.119
m/hr	0.06
kj/in	25.4

Schaeffler Constitution Diagram For Stainless Steel Weld Metal



Delong Constitution diagram for stainless steel weld metal

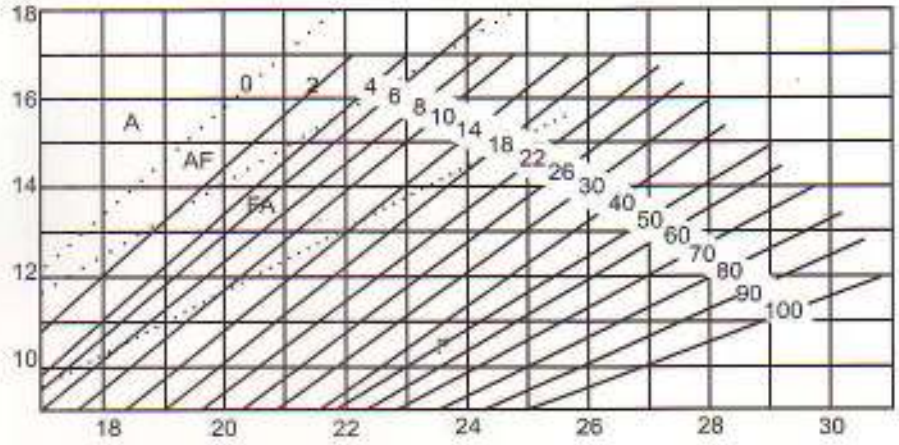


Calculate the Nickel and chromium equivalent from the weld metal analysis. if Nitrogen analysis of the weld metal is not available, assume 0.06% for GTA and covered electrode, or 0.06% for GMA weld metals. If the chemistry is accurate the diagram predicts the WRC Ferrite number within plus or minus 3 in approximately 90% of the tests for the 308, 309, 316 & 317 families.

Comparison with the Schaeffler Diagram.

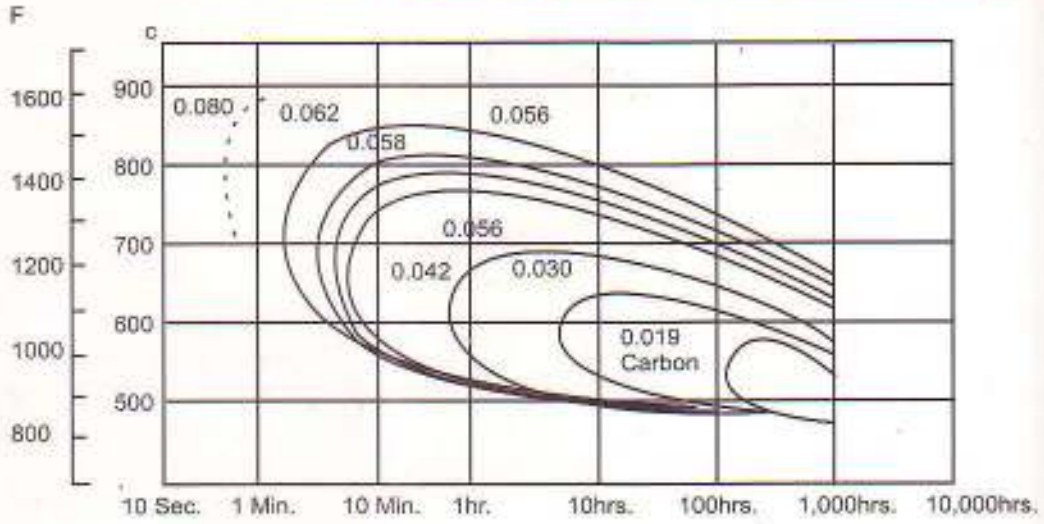
1. A Nickel equivalent of 30 x % N has been added.
2. Ferrite numbers for 308, 308L & 347 covered electrodes are similar. The higher alloy 309, 316 & 317 families have about 2 to 4 higher FN on this diagram.
3. Generally this diagram co-relates better with GTA & GMA weld metals because it allows for nitrogen pick up.
4. The Schaeffler austenite-martensite boundary has been included here for reference.

WRC - 1988 (FN) Diagram for stainless steel weld metal



$$Creq = \%Cr+\%Mo+0.7 \times \%Ni$$

Wffect of Carbon Content on Carbide Precipitation



Time Temperature - Sensitization Curves

Time required for Carbide precipitation in stainless steels with various Carbon contents. Carbon precipitation forms in the areas to the right of the various carbon-content curves.

Within time-period applicable to welding, Chromium-Nickel stainless steels with 0.05% Carbon would be quite free from grain boundery precipitation.

Schaeffler Constitution Diagram For Stainless Steel Weld Metal

1) HEAT INPUT = $\frac{E \times 1 \times 60}{S \times 1000}$ Kj/mm

Where,
E is the arc voltage in Volts
I is welding current in amps
S is the Rate of Travel in mm/min.
This gives the theoretical Heat input, not taking into account losses due to radiation etc.

2) CARBON EQUIVALENT CE = C% + $\frac{Min\%}{6}$ + $\frac{Cr\% + Mo\% + V\%}{5}$ + $\frac{Ni\% + Cu\%}{15}$
(I.I.W. FORMULA)

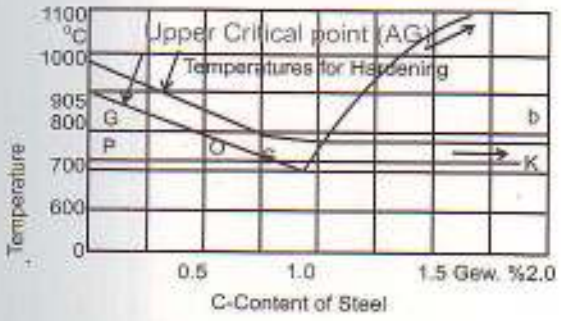
For CE<0.40 Plate thickness<37 mm & diffusible Hydrogen Content < 10ml, Preheat is generally not required

3) % Ferrite by calculation (D'sefarion equation)
% Ferrite = 3 {(Creq - (0.93 x Nieq + 6.7)}
Creq & Nieq to be calculated as per Schaeffler Diagram

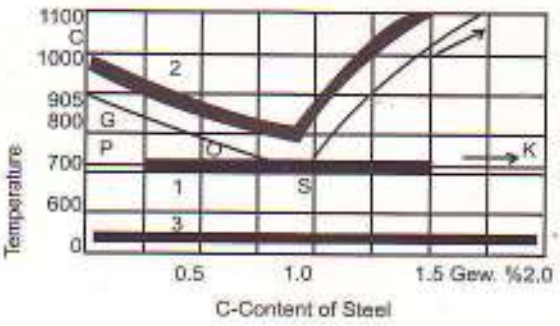
4) Conversion of H2 (glacerine) to H2 (Mercury) - Methrod
H^2 (glacerine) = 0.64 x H^2 (Mercury) -0.93

5) Formula for pitting Index Calculation
P.I. = % Cr + 3.3% Mo + 13% N^2
Higher the Pitting Index Value, Higher is the resistance to pitting.
For Duplex Stainless Steel, It is > 32

6) Temperature Conversion
°F =(°C x 9/5) + 32
C=(°F - 32) + 5/9



Hardening Temperatures
of Carbon Steels
(medium pieces)



Annealing Temperatures
of Carbon Steels
1. Full annealing
2. Normalizing
3. Stress-free annealing

Redrying data for electrode

Type	Redrying Temp.	Time Period	Holding Temp.
Stainless Steel Electrode	200C - 250 C	2 hours.	60 C

Welding Cost Calculations

Welding cost calculations are made for variety of reasons, whether in connection with quoting for a project in order to compare welding processes and techniques. Today there are numbers of computer programmers which can make such calculations easily and quickly, but they all use the same basic principles. Given below are some simple formules which will enable costs to be assessed.

$$\text{Welding speed (m/hr)} = S = \frac{D}{A \times d}$$

$$\text{Meters of weld produced (m)} = M = S \times T \times W$$

$$\text{Labour cost per meter of weld} = Lm = \frac{H \times T}{M}$$

$$\text{Electrode / Wire cost per meter of weld} = \frac{D \times T \times W}{M} \times \frac{C}{N}$$

$$\text{Gas cost per meter of weld} = Gn = \frac{F \times Gp}{S}$$

Where :

D = Deposition rate (kg/hr)
A = Cross sectional are of joint (m)
d = Density of weld metal (kgm)
s = Welding speed (m/hr)
T = Total work time (hr)
W = Welding duty cycle (%)
H = Hourly rate (E/hr)
M = Meters of weld produced (m)
Lm = Labour cost per meter of weld
Em = Electrode/Wire cost per meter of weld
C = Consumable price (per kg.)
N = Deposition coefficient (%)
Gm = Gas cost per meter of weld
F = Gas flow rate (1/min)
Gp = Gas Price