



**BARS, RODS,
REBARS & WIRE RODS**



Rationalised sizes (SAIL TMT rebars)

Nominal Diameter (mm)	Weight (kg/m)	Length (m)	Mill
6	0.222	Coil form	IWRM
8	0.395	Coil form/ Straight*	BWRM/TWRM/ BRM
10	0.617		
12	0.89		
16	1.58	5.5 to 13.5	DMM/IBRM
20	2.47		DMM/IBRM
25	3.85		DMM/IBRM/BMM
28	4.83		BMM/IBRM
32	6.31		BMM/IBRM
36	7.99		BMM/IBRM
40	9.85		BMM/IBRM
45	12.5		BMM

* May be supplied in straight length from IBRM

*Bright Bar Quality

Abbreviations used : BWRM - Bhilai Wire Rod Mill, IWRM - IISCO Wire Rod Mill, BMM - Bhilai Merchant Mill, DMM - Durgapur Merchant Mill, IBRM - IISCO Bar & Rod Mill (New)

Tolerances on Length and Nominal Mass as per IS:1786-2008

Specified Lengths : If bars are specified to be cut to certain lengths, each bar shall be cut within the deviations of +75mm, -25mm on the specified length, but if minimum lengths are specified the deviations shall be +50mm, 0mm

Packaging: Signode Strapping in bundles of 5 tonnes

Common grades: IS:2062, 2011 for bars and rods; IS: 1786, 2008 for rebars. Also available in ASTM-A615 Grade 40 (for TMT Wire Rods) and ASTM-A 615 Grade 40/Grade 60 (for TMT bars), if sufficient orders are there.

Chemical Composition SAIL TMT (IS : 1786, 2008 amended 2017)

Grade	% C max	% S max	% P max	S + P max	Carbon Equivalent max.
Fe 500	0.30	0.055	0.055	0.105	As per IS 1786
Fe 550	0.30	0.055	0.055	0.100	
Fe 600	0.30	0.040	0.040	0.075	
Fe 500 D	0.25	0.040	0.040	0.075	
Fe 550 D	0.25	0.040	0.040	0.075	
Fe 500 HCR*	0.25	0.040	0.040	0.075	
Fe 550 HCR*	0.25	0.040	0.040	0.075	
Fe 600 HCR*	0.30	0.040	0.040	0.075	
Fe 415S EQR	0.25	0.045	0.040	0.075	
Fe 415S HCR EQR *	0.25	0.045	0.040	0.075	
Fe 500S EQR	0.032	0.040	0.040	0.075	
Fe 500S HCR EQR*	0.032	0.040	0.040	0.075	

* In case of Cu-P grade HCR TMT, Total Cu + P is 0.40% min., P can be added upto 0.12% max, provided C < 0.15%.

In case of Cu-Cr grade HCR TMT, Total Cu + Cr is 0.75% min.

When Micro Alloying Elements like Nb, V, Ti added, shall be 0.3% max. either singly or in combine.

Chemical Composition SAIL TMT Rock/Roofbolt

Grade	% C max	% S max	% P max	S + P max	Alloying/ Micro Alloying
Fe 500	0.25	0.040	0.040	0.075	0.3% max.
Fe 600	0.30	0.040	0.040	0.075	
Fe 640	0.30	0.040	0.040	0.075	

Mechanical Properties of SAIL TMT (IS: 1786, 2008 amended 2017)

Grade	Yield Strength (MPa)		Ultimate Tensile Strength min. (MPa)	UTS/YS* min.	% Elongation min.	% Uniform Elongation [#] min
	min.	max.				
Fe 500	500	-	545	1.08	12	-
Fe 550	550	-	585	1.06	10	-
Fe 600	600	-	660	1.06	10	-
Fe 500 D	500	-	565	1.10	16	5
Fe 550D	550	-	600	1.08	14.5	5
Fe 500 HCR	500	-	565	1.10	16	5
Fe 550 HCR	550	-	600	1.08	14.5	5
Fe 600 HCR	600	-	660	1.06	10	-
Fe 415S EQR	415	540	1.25 times YS	1.25	18	8
Fe 415S HCR EQR	415	540	1.25 times YS	1.25	18	8
Fe 500S EQR	500	650	1.25 times YS	1.25	16	8
Fe 500S HCR EQR	500	650	1.25 times YS	1.25	16	8

Mechanical Properties of SAIL TMT Rock/Roofbolt

Grade	Yield Strength (MPa)	Ultimate Tensile Strength min. (MPa)	UTS/YS* min.	% Elongation min.
Fe 500	500	565	1.1	16
Fe 600	600	660	1.1	12
Fe 650	650	700	1.06	10

* UTS/YS refers to ratio of Ultimate Tensile Strength to the 0.2% proof stress or Yield Strength of the test piece.

With mutual consent

Applications

Grade	Application	Special Qualities
SAIL TMT D	Reinforced Concrete Construction (RCC) in buildings, bridges and other concrete structures.	Excellent bendability, good weldability and high fatigue resistance on dynamic loading.
SAIL TMT HCR	RCC Construction exposed to coastal, marine or underground environment	In addition to SAIL TMT D, it possesses high corrosion resistance properties
SAIL TMT EQR	RCC construction in earthquake prone zone	In addition to SAIL TMT D, it has high UTS/YS ratio, higher elongation, uniform elongation and narrow range of YS.
SAIL TMT HCR EQR	RCC construction in corrosion as well as earthquake prone zone.	Possess combined properties of SAIL TMT HCR & SAIL TMT EQR.
SAIL TMT Rock/Roofbolt	Underground mine and tunnel roof support, Slope stabilisation in hills and Soil nailing/ anchoring	High strength, better toughness and excellent bond properties with grouting materials due to its modified rib design.

Wire Rods from Bhilai Steel Plant

Size in mm	Weight kg/m	Mill
5.5	0.186	BWRM
6	0.222	BWRM
7	0.302	BWRM
8	0.395	BWRM
10	0.617	BWRM

Abbreviation used : BWRM - Bhilai Wire Rod Mill

Coil Weight : 850 kg per coil

Coil Dimension : Outer diameter -1240/1380 mm; Inner diameter 830/956 mm;
Height 512/620 mm

Packaging : Each coil is strapped with metallic straps.

Common grades : IS 2062/2011, IS 2879/1998, SWR-14, SWR-10, SAE 1008*, SAE 1010*
(*CHQ under development)

Materials are also available in the following foreign specifications :

JIS-G-3505-SWRM-10, JIS-G-3112-1991-SR-235, ASTM-A 510, M-93, SAE-1015, if sufficient orders are available.

Chemical Composition

Specification	Grade	C %	Mn %	S % max	P % max
IS: 2062/2011	Grade A	0.23 max	1.50 max	0.045	0.045
IS: 2879	Rimming	0.1 max	0.38-0.62	0.03	0.03
SWR-14		0.14 max	0.60 max	0.05	0.05
SWR-10		0.1 max	0.60 max	0.04	0.04
SAE 1008		0.1 max	0.30-0.50	0.05	0.04
SAE 1010		0.08-0.13	0.30-0.60	0.05	0.04
High Carbon	EN-8	0.35-0.45	0.60-1.0	0.03	0.035
	EN-9	0.50-0.60	0.50-0.80	0.03	0.035

Note : For EN-8 & EN-9, Si 0.1 to 0.35

Applications

Specification	Application
IS : 2062/2011	Structural applications
IS : 2879/1998	Arc welding electrodes, welding machine wires
SWR-14, SAE-1010	Bolts, nuts, rivets, machine screw, wire nail, fencing wire, wire netting, bright bar and other general engineering applications
SWR-10, SAE-1008	Cable armouring, wire mesh and other low carbon applications

Applications

Specification	Application
Carbon steel SAE 1006 - SAE 1085; JIS G 3506;	Various grades of steel wires galvanized or plain and for making nails, mesh, rope wires, pre-stressed concrete wire, needle wires, general purpose wires, industrial wires, agriculture wires, brush wires, chain rivet wires, umbrella ribs, piano wire etc.
IS: 2879, SWRY 11-21, YSW 11-41, YGW 11-41	CO ₂ gas shielded arc welding, submerged arc welding wire and general electrodes
Spring Steel JIS G 4801, SUP 9 - SUP13	Coil springs for shock absorber, clutch, valve and other dynamically stressed application in automobile industry.
Bearing Steel SAE 52100, EN31	For manufacture of bearing components like balls, rollers and needles. Also used in manufacturing of axle, spindle, gear etc.
Cold Heading Quality IS:11169 (Part 1), IS: 2255, SAE1010/ 1015/1018/1020, SAE10B21/ SAE15B25/ SAE15B41/19MnB4	For manufacturing of fasteners like bolts, nuts or screws by cold forging or extruding and are widely used in general and automobile industries.
Free Cutting Steel - SUM11/12/ 22L, SAE 12L14, EN 1A/8M	For manufacturing intricate automobile parts and white good appliances.
IS: 2062, 2011	General applications in structures

Wire Rods from IISCO Steel Plant

Diameter (mm)	Weight (kg/m)	Mill
5.5	0.186	IWRM
6	0.222	IWRM
7	0.302	IWRM
8	0.394	IWRM
10	0.616	IWRM
12	0.887	IWRM
14	1.208	IWRM
16	1.578	IWRM
20	2.465	IWRM
22	2.983	IWRM

Abbreviations used : IWRM - IISCO Wire Rod Mill

Coil Weight : 2000kg max.

Coil Inner Diameter : 850/900mm

Coil Outer Diameter : 1250mm

Coil Height before/after compacting : 2000/1500mm

Packaging by strapping : Tying with metallic strap

Tolerance : As per IS: 16124, 2004

Product Attributes : Fine grain steel or as per customer requirement of killed steel variety

Depth of decarburisation = 1.5% of Wire Rod Diameter (maximum)

Gaseous Content: Nitrogen = 70 ppm (maximum). With our Vacuum Degassing facility, we can adhere to stricter specifications on mutual agreement

Chemical Composition of ISP Wire Rods

Carbon Grade Steel

Grade SAE	Chemical Composition by weight %				
	C	Mn	P max	S max	Si
1006	0.08 max.	0.25-0.40	0.04	0.05	0.15 ~ 0.30
1008	0.10 max.	0.30-0.50	0.04	0.05	0.15 ~ 0.30
1010	0.08-0.13	0.30-0.60	0.04	0.05	0.15 ~ 0.30
1012	0.10-0.15	0.30-0.60	0.04	0.05	0.15 ~ 0.30
1015	0.13-0.18	0.30-0.60	0.04	0.05	0.15 ~ 0.30
1018	0.15-0.20	0.60-0.90	0.04	0.05	0.15 ~ 0.30
1020	0.18-0.23	0.30-0.60	0.04	0.05	0.15 ~ 0.30
1030	0.28-0.34	0.60-0.90	0.04	0.05	0.15 ~ 0.30
1035	0.32-0.38	0.60-0.90	0.04	0.05	0.15 ~ 0.30
1038	0.35-0.42	0.60-0.90	0.04	0.05	0.15 ~ 0.30
1040	0.37-0.44	0.60-0.90	0.04	0.05	0.15 ~ 0.30
1065	0.60-0.70	0.60-0.90	0.04	0.05	0.35 max
1075	0.70-0.80	0.40-0.70	0.04	0.05	0.35 max
1085	0.80-0.93	0.70-1.00	0.04	0.05	0.35 max
Grade JIS G 3506	Chemical Composition by weight %				
	C	Si	Mn	P	S
HSWR 52A	0.49-0.56	0.15-0.35	0.30-0.60	0.040 max.	0.040 max.
HSWR 62A	0.59-0.66	0.15-0.35	0.30-0.60	0.040 max.	0.040 max.
HSWR 82A	0.79-0.86	0.15-0.35	0.30-0.60	0.030 max.	0.030 max.

Mild Steel Wire rods

IS 7887	Chemical Composition by weight %			
	C	Mn	P	S
1	0.06 Max	0.35 Max	0.050 Max	0.050 Max
2	0.08 Max	0.25-0.40	0.050 Max	0.050 Max
3	0.10 Max	0.70 Max	0.050 Max	0.050 Max
4	0.08-0.13	0.30-0.60	0.050 Max	0.050 Max
4M	0.08-0.13	0.60-0.90	0.050 Max	0.050 Max
5	0.10-0.15	0.30-0.60	0.050 Max	0.050 Max
6	0.13-0.18	0.30-0.60	0.050 Max	0.050 Max
6M	0.13-0.18	0.60-0.90	0.050 Max	0.050 Max
7	0.15-0.20	0.60-0.90	0.050 Max	0.050 Max
7M	0.15-0.20	0.60-0.90	0.050 Max	0.050 Max
8	0.18-0.23	0.30-0.60	0.050 Max	0.050 Max
8M	0.18-0.23	0.60-0.90	0.050 Max	0.050 Max
9	0.20-0.25	0.30-0.60	0.050 Max	0.050 Max
10	0.20-0.28	0.30-0.60	0.050 Max	0.050 Max
10M	0.22-0.28	0.60-0.90	0.050 Max	0.050 Max

Note:

- 1 Silicon to be mutually agreed upon between the purchaser and the manufacturer.
- 2 When the steel is silicon killed, the product analysis shall show a minimum of 0.10 percent silicon. When the steel is aluminium killed or the total aluminium content should not be less than 0.02 percent. When the steel is Aluminium silicon killed, the silicon content shall not be less than 0.05 percent and total aluminium content shall not be less than 0.01 percent.
- 3 When required, copper is specified as an added element.
- 4 If required, other values for sulphur and phosphorous may be agreed between the manufacturer and the purchaser.

High Carbon Steel Wire rods

Steel wire rods shall be designated in various grades as per the chemical compositions or as per tensile strength.

As per Chemical Composition

Grade IS 7904	Chemical Composition max. by weight %										
	C	Si	Mn	P Max	S Max	Cr Max	Ni Max	Mo Max	Cu Max	Al Max	S+P Max
HC38	0.35- 0.40	0.10 -0.35	0.30 -0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC42	0.40- 0.45	0.10- 0.35	0.30- 0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC46	0.43- 0.48	0.10- 0.35	0.30- 0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06

Grade IS 7904	Chemical Composition max. by weight %										
	C	Si	Mn	P Max	S Max	Cr Max	Ni Max	Mo Max	Cu Max	Al Max	S + P Max
HC48	0.45-0.50	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC50	0.48-0.53	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC52	0.50-0.55	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC56	0.53-0.58	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC58	0.55-0.60	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC60	0.58-0.63	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC62	0.60-0.65	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC66	0.63-0.68	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC68	0.65-0.70	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC70	0.68-0.73	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC72	0.70-0.75	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC76	0.73-0.78	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC78	0.75-0.80	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC80	0.78-0.83	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC82	0.80-0.85	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC86	0.83-0.88	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06
HC88	0.85-0.90	0.10-0.35	0.30-0.90	0.035	0.035	0.15	0.20	0.05	0.25	0.04	0.06

Note:

1. If Cr, B, Nb, V, Ti are added intentionally, the grades may contain Cr up to 0.30 percent and B up to 8 ppm as per mechanical property required in wire rods. However, the total percentage of Cr and micro alloy elements (Nb, V, Ti) individually or in combination should not exceed 0.30 percent.
2. Steel may be supplied as grade A and grade B depending upon Mn content 0.30-0.60 percent and 0.60-0.90 percent in grades respectively for example the grade will be designated as HC70A or HC70B depending upon Mn content 0.30-0.60 percent or 0.60-0.90 percent in HC70 grades respectively.

3. The grade containing Cr >0.15% would be designated with the suffix indicating the chemical symbol for example HC70ACr will have chemical composition of HC70A and Cr individually or in combination with other Microalloying elements should not exceed 0.30 percent.
4. Nitrogen content of steel shall not exceed 0.012 percent, which shall be ensured by the manufacturer by occasional check analysis.
5. Stricter specification for nitrogen, phosphorus and sulphur may be mutually agreed between the manufacturer and the purchaser.
6. Tramp elements [Cr, Ni, Mo, Cu] individually or in combination can be stricter than the values mentioned above, may be mutually agreed upon between the manufacturer and the purchaser at the time of ordering

As per Tensile Strength

Various high carbon grades of steel wire rods designated as per tensile strength shall fall within the tensile strength range of 535 MPa to 1250 MPa. The minimum of the required ultimate tensile strength (UTS) range shall be used as a suffix to HCT for grade designation; for example HCT635, where the required minimum of the UTS is 635 MPa. If alloying/ micro-alloying elements are added intentionally to meet the mechanical properties requirements, the grades will be designated with a suffix indicating their chemical symbol for example HCT535Cr will have minimum tensile strength of 535 MPa and chromium 0.30 maximum.

Permissible Variation in Mechanical Properties

S.No	Steel Grade	UTS MPa	Percent RA Minimum
i	HCT535 to HCT840	0, +200	35
ii	> HCT840 to HCT1030	0, +200	30
iii	> HCT1030 to HCT1250	0, +300	30

NOTE

Permissible variation in product analysis of Carbon Steel, Maximum limits of partial decarburization and limit values for non-metallic inclusions as per IS 7904

Electrode Quality Steel

Grade IS 2879	Chemical Composition max. by weight %								
	C	Si	Mn	P	S	Cu	V	Ti	Al
EWNr	0.10	0.03	0.38-0.62	0.025	0.025	0.15	0.003	0.003	0.012

Note : Cr + Ni + Mo = 0.15% max., No individual M A elements shall be more than 0.10%

Chemical Composition of ISP Wire Rods

Spring Steels

Grade JIS G 4801	Chemical Composition max. by weight %							
	C	Si	Mn	P	S	Cr	V	B
SUP 3	0.75-0.90	0.15-0.35	0.30-0.60	0.035	0.035	-	-	-
SUP 6	0.56-0.64	1.50-1.80	0.70-1.00	0.035	0.035	-	-	-
SUP 7	0.56-0.64	1.80-2.20	0.70-1.00	0.035	0.035	-	-	-
SUP 9	0.52-0.60	0.15-0.35	0.65-0.95	0.035	0.035	0.65-0.95	-	-
SUP 9A	0.56-0.64	0.15-0.35	0.70-1.00	0.035	0.035	0.70-1.00	-	-
SUP 10	0.47-0.55	0.15-0.35	0.65-0.95	0.035	0.035	0.80-1.10	0.15-0.25	-
SUP 11A	0.55-0.65	0.15-0.35	0.70-1.00	0.035	0.035	0.70-1.00	-	0.0005
SUP 12	0.51-0.59	1.20-1.60	0.60-0.90	0.035	0.035	0.60-0.90	-	-
SUP 13	0.56-0.64	0.15-0.35	0.70-1.00	0.035	0.035	0.70-0.90	-	-

Note : Throughout classes, the value of Cu as impurities shall not exceed 0.30%

Free Cutting Carbon Steels

Grade JIS G 4804	Chemical Composition by weight %				
	C	Mn	P	S	Pb
SUM 11	0.08-0.13	0.30-0.60	0.040 max.	0.08-0.13	-
SUM 12	0.08-0.13	0.60-0.90	0.040 max.	0.08-0.13	-
SUM 12L	0.08-0.13	0.60-0.90	0.040 max.	0.08-0.13	0.10-0.35
SUM 21	0.13 max.	0.70-0.10	0.07-0.12	0.16-0.23	-
SUM 22	0.13 max.	0.70-1.00	0.07-0.12	0.24-0.33	-
SUM 22L	0.13 max.	0.70-1.00	0.07-0.12	0.24-0.33	0.10-0.35

High Carbon Chromium Bearing Steels

Grade JIS G 4805	Chemical Composition by weight %						
	C	Si	Mn	P max.	S max.	Cr	Mo
SUJ 1	0.95-1.10	0.15-0.35	0.50 max.	0.025	0.025	0.90-1.20	-
SUJ 2	0.95-1.10	0.15-0.35	0.50 max.	0.025	0.025	1.30-1.60	-
SUJ 3	0.95-1.10	0.40-0.70	0.90-1.15	0.025	0.025	0.90-1.20	-
SUJ 4	0.95-1.10	0.15-0.35	0.50 max.	0.025	0.025	1.30-1.60	0.10-0.25
SUJ 5	0.95-1.10	0.40-0.70	0.90-1.15	0.025	0.025	0.90-1.20	0.10-0.25

Note : Other elements Ni, Cu shall not exceed 0.25%

Grade	C	Si	Mn	P	S	Cu	Cr	Al
SAE 52100	0.98-1.10	0.15-0.30	0.25-0.45	0.025 max	0.015 max	0.25 max	1.4-1.6	0.02-0.05

Chemical Composition of ISP Wire Rods

Alloy Steels

Grade	Chemical Composition max. by weight %							
SAE	C	Mn	P	S	Si	Ni	Cr	Mo
SAE 4135	0.33-0.38	0.70-0.90	0.035	0.04	0.15-0.30	-	0.80-1.10	0.15-0.25
SAE 4140	0.38-0.43	0.75-1.00	0.035	0.04	0.15-0.30	-	0.80-1.10	0.15-0.25
SAE 8620	0.18-0.23	0.70-0.90	0.035	0.04	0.15-0.30	0.40-0.60	0.04-0.70	0.15-0.25
SAE 9254	0.51-0.59	0.60-0.80	0.035	0.04	0.20-1.60	-	0.60-0.90	-
Grade	Chemical Composition by weight %							
JIS G 4105	C	Si	Mn	P max.	S max.	Cr	Mo	
SCM 415	0.13-0.18	0.15-0.35	0.60-0.85	0.03	0.03	0.90-1.20	0.15-0.30	
SCM 420	0.18-0.23	0.15-0.35	0.60-0.85	0.03	0.03	0.90-1.20	0.15-0.30	

Note : As impurities, Ni and Cu shall not exceed 0.25% and 0.30% respectively for all grades.

Cold Heading Quality

SAE	Chemical Composition by weight %					
	C	Si	Mn	P	S	B
10B21	0.18-0.23	0.15-0.30	0.80-1.10	0.040 max.	0.040 max.	0.0005-0.0030
15B23	0.18-0.25	0.15-0.30	0.80-1.10	0.040 max.	0.040 max.	
15B25	0.22-0.30	0.15-0.30	0.75-1.25	0.040 max.	0.040 max.	
15B41	0.36-0.44	0.15-0.30	1.35-1.65	0.040 max.	0.040 max.	

E 250 Grade as per IS: 2062, 2011

IS 11169	Chemical Composition by weight %						
	C	Si	Mn	P	S	Cr	B
45C8 (C45)	0.40-0.50	0.10-0.35	0.60-0.90	0.035 max.	0.035 max.	-	-
21C10BT*	0.18-0.23	0.15-0.30	0.80-1.10	0.035 max.	0.035 max.	-	0.0005-0.0030
26C10BT*	0.23-0.29	0.15-0.30	0.90-1.2	0.035 max.	0.035 max.	-	
34C14BT*	0.32-0.37	0.15-0.30	1.20-1.50	0.035 max.	0.035 max.	-	
38Cr4Mn2BT*	0.35-0.40	0.15-0.30	0.30-0.50	0.035 max.	0.035 max.	0.95-1.15	

*Suffix BT indicates Boron treated steel.