

Frequently Asked Questions



S.No. Questions	Our Answers	
1 CHEMISTRY GUARANTEE ELEMENTAL RANGE	Can be guaranteed with elemental range control like: C: 03 points, Mn:05 points, Si: 05 points, Cr: 05 points, Ni: 05 points, Mo: 03 points, V: 04 points, S: as per the requirements with guarantee of 0.005% max.	
2 TRAMPS / IMPURITY LEVELS	S : 0.005 max, P : 0.020 max. Cr : 0.05, Ni : 0.04 ,Mo : 0.03, Cu :0.03 max, Sn : 0.003 max, Pb : 0.0005 max, Zn : nil, Hg : nil, Cb: 0.0020 max, Ti: 0.0030 max, As: 0.005 max	
3 HARDENABILITY GUARANTEE	Can be given in restricted / closer band of 5 HRC minimum and the required DI value certified.	
4 REDUCTION RATIO	ANNEX-I, gives the reduction ratios of rounds / square / flats in different rolled sections	
5 FACILITIES FOR HEAT TREATMENT	Bogie hearth Furnace: 2 no. 6 mtr length for normalizing, Spheroidising annealing Hardening & Tempering Isothermal annealing, Solution annealing, Machine straightening: upto 60 mm in house. Press straightening for RCS section. Band saw machine for end cutting if desirable by customer. Abrasive Cut off m/c- 2 no.	
6 COLD SHEARABILITY GUARANTEE	Carbon steel: Low & Medium Carbon grades in as rolled condition Alloy steel: low Alloy, Low carbon in as rolled condition medium carbon alloy steel in annealed condition	
7 HARDNESS LEVEL OF STEEL IN AS ROLLED CONDITION:	TYPE OF STEEL	BHN (max)
	Free Cutting Steel	150
	Low carbon Steel	180
	Medium Carbon Steels	240
	Low C Low Alloy Steel	240
	Low C High Alloy steels	280
	Med C High Alloy	350
	Medium Carbon Low Alloy Steel	270
	Ball Bearing	350
	Silico Mn Springs Steels	320
	Spring Steel, Flats / RDS -	320
	SUP 9 / SUP-11 Flats	320

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8	HEAT SIZE	55 MT (Average)																															
9	BILLET & BLOOM SIZE	Billet: 130 X 130 mm sq. Blooms: 160 X 160 mm sq. 180 X 180 mm sq. 280 X 320 mm rectangle (New Caster Under Erection)																															
10	SPECIFIC LENGTHS	Customer Specified Length Can be supplied with GAS/ SHEAR /SAW CUT, ENDS 10 % SHORT Lengths as per agreement.																															
11	MEANS OF ASSURING NO MIX-UP:	System provide identification & traceability of product throughout the manufacturing & handling process. Aided also with facilities of 100 % Spark and spectral test by metascope and mobile spectrometer.																															
12	TESTING FACILITIES	Analytical: Spectro- meters 2 nos. Latest Addition of SPECTRO LAB model with 36 channels analyses soluble- Al, B, Ti & Ca, Oxygen & Nitrogen levels besides all other elements like- C, Mn, S, P, Si, Cr, Ni, Mo, V, Al, Cu, Sn, Sb, Tc, B, As Zn, Hg, Bi, Ca, O, N ₂ etc. with good analytical consistency and accuracy LECO: C & S LECO: O ₂ & N ₂ ELTRA: Hydrogen & Oxygen both residual & diffusible. OH-90 Chemical Analysis Facilities for Fluxes, Ferroalloys and refractories Mechanical & Metallurgical properties Universal testing Machine For Tensile Testing Rockwell, Brinell, Vickers Hardness Testing. Impact testing, hardenability test, Metallography by Image Analyser. Ultrasonic testing, Magnaflux testing, Mobile Spectrometer For Antimixing Test (Under Installation), Shot Blasting, Automatic Ultrasonic Test Eddy Current facilities Oil & fuel Analysis facilities.																															
13	INCLUSION RATING GRAIN SIZE AND GAS LEVEL	Tested in Accordance with ASTM, IS, DIN, & JIS Standards Inclusion Rating: (ASTM / IS) <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>NON-VD</td> <td>*2.0 / 1.5</td> <td>2.0 / 1.5</td> <td>2.0 / 1.5</td> <td>2.0 / 1.5</td> </tr> <tr> <td>VD</td> <td>*2.0 / 0.5</td> <td>1 / 0.5</td> <td></td> <td>1.5 / 0.5</td> </tr> </tbody> </table> *For Sulphur Content 0.020 Mi. 1.5/ 0.5 Can Be Guaranteed For Sulphur Content 0.010 Max. Grain Size: 5-8 ASTM E-45 GAS LEVEL-MBF-EAF-LF-VD / VOD Route <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Gas Content (PPM)</th> <th>LOW C</th> <th>MED C</th> <th>HIGH C</th> </tr> </thead> <tbody> <tr> <td>Oxygen (O₂)</td> <td>20</td> <td>20</td> <td>15</td> </tr> <tr> <td>Nitrogen (N₂)</td> <td>70</td> <td>70</td> <td>70</td> </tr> <tr> <td>Hydrogen (H₂)</td> <td>2.00</td> <td>2.00</td> <td>1.5</td> </tr> </tbody> </table>		A	B	C	D	NON-VD	*2.0 / 1.5	2.0 / 1.5	2.0 / 1.5	2.0 / 1.5	VD	*2.0 / 0.5	1 / 0.5		1.5 / 0.5	Gas Content (PPM)	LOW C	MED C	HIGH C	Oxygen (O ₂)	20	20	15	Nitrogen (N ₂)	70	70	70	Hydrogen (H ₂)	2.00	2.00	1.5
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14	COLOUR CODE SYSTEM:	Gradewise Colour Coding For Identification & Traceability.																															
15	BUNDLE SIZE:	Round / Square and hexagons 1.5-2.0 MT (approx.), Wire tied at 3-4 places for each bundle. Coil: 1000 Kg. (approx.), Strapping At Three Places Specific packing can also be arranged, in agreement with customers.																															
16	METHOD OF STACKING MATERIALS:	Stacked sizewise, Gradewise & Customerwise at work and at warehouse with proper protection.																															

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17	MAJOR OEM CUSTOMERS:(DOMESTIC)	TATA MOTORS, ASHOK LEYLAND, HINDUSTAN MOTORS, MAHINDRA & MAHINDRA LTD., HYUDAI, HONDA, GENERAL MOTOR, TVS, NHK, TC SPRINGS, DELPHI, MICO BOSCH, MARUTI UDYOG LTD., RAILWAYS, TATA BEARING, JOHN DEERE, FEDERAL MOGHUL, BRAKES INDIA, HERO HONDA, BAJAJ AUTO, FORCE MOTOR, DEFENSE.																																																						
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19	DETAILS OF OUR MILLS: BSM:(-Bar & Section mill) ASM:(Alloy Steel Mill) WRD :(Garret Coiler Route) WRB: (Wire Rod Block Mill)	<p>BSM: Mannesman Demag: Bar & Section Continuous 18 Stand Rolling Mill. Totally Computer Controlled for mill / Set-up, loop minimum tension control, long cooling bed, Controlled Computer for sequence control & cut length optimization entire cooling bed is covered with canopy to provides low cooling rate of the rolled product.</p> <p>ASM: One Tandem with -3 High 22"stand, 3 stands 18"(1 stand 2 high & 2 stands 3 high) for rolling rounds, Square & flats (*Finishing stand on roller bearings)</p> <p>WRD: Morgardshammer Garret Coiler for wire rod segment with output size 12 mm to 38 mm.</p> <p>WRB: Danieli Morgardshammer 10 Stand wire rod block mill with output size 5.5mm to 12 mm.</p>																																																						
20	SIZE TOLERANCE LEVELS:	<p>FLATS/ ROUNDS/ RCS/ HEXAGONS: ANNEXURE II</p> <p>FERROUS STRIP/ BRIGHT BARS: ANNEX III</p>																																																						
21	CAPABILITY TO ROLL IN 1/2 MM RANGE SIZE:	<table border="1"> <tbody> <tr><td>16</td><td>16.30 mm dia</td></tr> <tr><td>17</td><td>17.30mm dia</td></tr> <tr><td>18</td><td>18.50 mm dia</td></tr> <tr><td>20</td><td>20.40 mm dia</td></tr> <tr><td>27</td><td>27.50 mm dia</td></tr> <tr><td>23.5</td><td>24.00 mm dia</td></tr> <tr><td>25</td><td>25.50 mm dia</td></tr> <tr><td>28</td><td>28.50 mm dia</td></tr> </tbody> </table>	16	16.30 mm dia	17	17.30mm dia	18	18.50 mm dia	20	20.40 mm dia	27	27.50 mm dia	23.5	24.00 mm dia	25	25.50 mm dia	28	28.50 mm dia																																						
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22	CERTIFICATION DETAILS:	<p>Invoice / Challan cum TC No. Date of Supply</p> <p>Lorry & Wagon No.</p> <p>Products: RNDS / FLATS / RCS / SCS / HEX/WRD /STRIPS/ REBAR</p> <p>Colour Code</p> <p>Product Sizes:</p> <p>Supply Condition:</p> <p>As Rolled / Annealed / Normalized / Spheriodized</p> <p>Peeled / Ground</p> <p>Magnetic Particle Testing / Ultrasonic Tested</p> <p>Process Route: MBF- EAF- LHF- VD/VOD- CCM (EMS)- ROLLING MILL</p> <p>Chemical Composition:</p> <p>Billet / bloom Size</p> <p>Mechanical Properties & Hardness:</p> <p>Metallurgical Properties:</p>																																																						

Grain Size, Decarburization, Inclusion rating, Microstructure, Jominy
DI value & any other special requirements of Customer.

Annexure I

Reduction ratio & WT/MTR Of Rounds - Annexure I						
SR.NO.	SECTION (MM)	SECTION AREA	REDN.RATIO 130X130	REDN.RATIO 160X160	REDN.RATIO 180X180	WEIGHT/MTR
1	5.5-RD	23.75	711.69	1078.06	1364.43	0.19
2	6.0-RD	28.26	598.02	905.87	1146.50	0.22
3	6.5-RD	33.17	509.55	771.87	976.90	0.26
4	7.0-RD	38.47	439.36	665.54	842.32	0.30
5	7.5-RD	44.16	382.73	579.76	733.76	0.35
6	8.0-RD	50.24	336.39	509.55	644.90	0.39
7	8.5-RD	56.72	297.97	451.37	571.26	0.45
8	9.0-RD	63.59	265.79	402.61	509.55	0.50
9	9.5-R	70.85	238.54	361.35	457.33	0.56
10	10.0-RD	78.50	215.29	326.11	412.74	0.62
11	10.5-RD	86.55	195.27	295.80	374.37	0.68
12	11.0-RD	94.99	177.92	269.52	341.11	0.75
13	11.5-RD	103.82	162.79	246.59	312.09	0.81
14	12.0-RD	113.04	149.50	226.47	286.62	0.89
15	13.0-RD	132.665	127.39	192.97	244.22	1.04
16	13.5-RD	143.20	118.13	178.93	-	1.12
17	14-RD	153.86	109.84	166.39	210.58	1.21
18	15-RD	176.79	95.68	144.93	-	1.39
19	16-RD	200.96	84.09	127.39	-	1.58
20	16.25-RD	207.48	81.52	123.49	-	1.63
21	17-RD	226.87	74.49	112.84	142.82	1.78
22	17.1-RD	229.54	73.62	111.53	141.15	1.80
23	17.3-RD	235.16	71.93	108.96	-	1.85
24	18-RD	254.57	66.44	100.65	-	2.00
25	18.3-RD	262.88	64.29	97.38	-	2.06
26	18.5RD	268.91	62.90	95.28	-	2.11
27	19-RD	283.39	59.64	90.34	114.33	2.22
28	19.1-RD	286.38	59.01	89.39	113.14	2.25
29	20-RD	314.29	53.82	81.52	-	2.47
30	20.6-RD	333.12	50.73	76.85	97.26	2.62
31	20.64-RD	334.72	50.53	76.48	-	2.63
32	21-RD	346.19	48.81	73.94	-	2.72
33	21.8-RD	373.06	45.30	68.62	86.85	2.93
34	22-RD	380.28	44.48	67.37	85.28	2.99
35	23-RD	415.64	40.69	61.64	78.02	3.26
36	24-RD	452.57	37.37	56.61	-	3.55
37	24.5-RD	471.20	35.87	54.33	68.76	3.70
38	25-RD	491.07	34.44	52.17	-	3.85
39	26-RD	531.14	31.84	48.24	-	4.17
40	26.10-RD	534.75	31.60	47.87	60.59	4.2
41	27-RD	572.27	29.53	44.73	56.62	4.49
42	27.1-RD	576.51	29.31	44.40	56.20	4.53
43	27.5-RD	594.20	28.46	43.12	-	4.66
44	28-RD	616.00	27.46	41.59	52.65	4.84
45	28.5-RD	638.20	26.50	40.14	-	5.01
46	30-RD	707.14	23.92	36.23	45.86	5.55

Reduction ratio & WT/MTR Of Rounds - Annexure I

SR.NO.	SECTION	SECTION	REDN.RATIO	REDN.RATIO	REDN.RATIO	WEIGHT/MTR
	(MM)	AREA	130X130	160X160	180X180	
47	31-RD	754.39	22.40	33.93	42.95	5.92
48	32-RD	804.57	21.02	31.84	40.30	6.32
49	33-RD	855.64	19.76	29.94	-	6.72
50	33.6-RD	886.23	19.07	28.88	36.56	6.96
51	34-RD	908.29	18.62	28.21	-	7.13 Cont....
52	34.5-RD	934.35	18.09	27.40	34.68	7.33
53	35-RD	962.50	17.57	26.62	-	7.56
54	35.1-RD	967.13	17.47	26.47	33.5	7.59
55	36-RD	1018.29	16.61	25.16	-	7.99
56	37.1-RD	1080.48	15.64	23.69	29.99	8.48
57	38-RD	1134.57	14.90	22.58	28.56	8.91
58	38.1-RD	1139.51	14.83	22.47	28.43	8.95
59	40-RD	1257.14	13.45	20.38	25.80	9.87
60	40.1-RD	1262.29	13.39	20.28	25.67	9.91
61	41.5-RD	1351.97	12.50	18.94	23.97	10.61
62	42-RD	1386.00	12.20	18.48	-	10.88
63	42.1-RD	1391.34	12.15	18.40	23.29	10.92
64	42.5-RD	1417.91	11.92	18.05	22.85	11.13
65	43-RD	1452.79	11.64	17.63	-	11.40
66	43.5-RD	1485.42	11.38	17.23	21.81	11.66
67	45-RD	1591.07	10.63	16.10	20.38	12.49
68	46.5-RD	1698.91	9.95	15.08	-	13.34
69	48-RD	1810.29	9.34	14.14	17.91	14.21
70	50-RD	1964.29	8.61	13.04	16.51	15.42
71	52-RD	2124.57	7.96	12.06	15.26	16.68
72	54-RD	2291.14	7.38	11.18	14.15	17.99
73	55-RD	2376.79	7.12	10.77	13.63	18.66
74	56-RD	2464.00	6.86	10.39	13.16	19.34
75	58-RD	2640.74	6.40	9.69	12.27	20.73
76	60-RD	2828.57	5.98	9.05	11.46	22.20
77	63-RD	3118.50	5.42	8.21	10.39	24.48
78	65-RD	3319.64	5.09	7.71	9.76	26.06
79	70-RD	3850.00	4.39	6.65	8.42	30.22
80	75-RD	4415.63	3.83	5.80	7.34	34.66
81	80-RD	5028.57	3.36	5.09	6.44	39.47
82	85-RD	5676.79	2.97	4.51	5.71	44.56
83	90-RD	6364.29	2.65	4.02	5.09	49.96
84	100-RD	7857.14	2.15	3.26	4.12	61.68

REDUCTION RATIO & WT/MTR. : RCS Annexure I						
SR.NO.	SECTION	SECTION	REDN.RATIO	REDN.RATIO	REDN.RATIO	WEIGHT/MTR
	(MM)	AREA	130X130	160X160	180X180	
1	40-RCS	1600	10.56	16.00	20.25	12.56
2	43.5-RCS	1892.25	8.93	13.53	17.12	14.85
3	45-RCS	2025	8.35	12.64	16.00	15.90
4	50-RCS	2500	6.76	10.24	12.96	19.63
5	55-RCS	3025	5.59	8.46	10.71	23.75
6	56-RCS	3136	5.39	8.16	10.33	24.62
7	60-RCS	3600	4.69	7.11	9.00	28.26
8	63-RCS	3969	4.26	6.45	8.16	31.16
9	70-RCS	4900	3.45	5.22	6.61	38.47
10	75-RCS	5625	3.00	4.55	5.76	44.16
11	80-RCS	6400	2.64	4.00	5.06	50.24
12	85-RCS	7225	2.34	3.54	4.48	56.72
13	90-RCS	8100	2.09	3.16	4.00	63.59
14	95-RCS	9025	1.87	2.84	3.59	70.85
15	96-RCS	9216	1.83	2.78	3.52	72.35

Annexure II

FLATS AS PER IS 3431:					
Width Range (mm)	Tolerance (mm) (+/-)			Tolerance (mm)	
	Width (W)	Thickness (T)		Concavity (max.) for	
		<= 10	> 10	T <= 10	T > 10
40 - 50	0.3	0.15	-	0.15	0.15
51 - 75	0.5	0.15	0.2	0.15	0.2
76 - 100	0.7	0.2	0.25	0.2	0.2
101 - 125	0.9	0.25	0.4	0.3	0.4

Rounds & Wire Rods (Hot Rolled)						
Nominal Size (MM)		Tolerance (MM)				
Over	Up to & Including	Grade I		Grade II		Corner Radius for Square r Max
		Permissible Deviation	Out of Round OR Out of Square	Permissible Deviation	Out of Round OR Out of Square	
-	8	+ / - 0.13	0.20	+ / - 0.50	0.50	1
8	11	+ / - 0.15	0.24	+ / - 0.50	0.50	1
11	15	+ / - 0.18	0.25	+ / - 0.50	0.50	1.5
15	22	+ / - 0.20	0.30	+ / - 0.50	0.50	1.5
22	25	+ / - 0.24	0.35	+ / - 0.50	0.50	2
25	28	+ / - 0.25	0.40	+ / - 0.75	0.75	2
28	31	+ / - 0.28	0.45	+ / - 0.75	0.75	2
31	34	+ / - 0.30	0.50	+ / - 0.75	0.75	2.5
34	38	+ / - 0.36	0.60	+ / - 0.75	0.75	2.5
38	50	+ / - 0.40	0.60	+ / - 0.75	0.75	2.5
50	64	+ 0.80 / - 0	0.80	+ / - 1.00	1.00	3
64	80	+ 1.20 / - 0	0.80	+ / - 1.00	1.00	3
80	89	+ 1.20 / - 0	0.80	+ / - 1.25	1.25	3
89	100	+ 1.60 / - 0	1.20	+ / - 1.25	1.25	3

Annexure II

ROUND CORNERED SQUARE BILLET AS PER SS4027				
RCS Size (mm)	Tolerance on Size (mm)	Tolerance on out of Squareness (mm)	Tolerance on Straightness (mm / mtr)	Corner Radius (mm)
40	+ / - 0.75	1.12	6	3 +/- 0.60
45	+ / - 0.75	1.12	4	4 +/- 0.80
50	+ / - 0.75	1.12	4	4 +/- 0.80
55	+ / - 1.00	1.5	4	4 +/- 0.80
60	+ / - 1.00	1.5	4	8 +/- 1.50
63	+ / - 1.00	1.5	4	8 +/- 1.60
70	+ 1.8 / - 0	1.5	4	9 +/- 2.00
75	+ 1.8 / - 0	1.5	4	9 +/- 2.00
80-89	+ 1.8 / - 0	1.5	4	10 +/- 2.50
> 89-100	+ 2.4 / - 0	1.8	2.5	11 +/- 2.50

DIMENSIONAL TOLERANCES FOR HEXAGONS: -					
NOMINAL SIZE (MM)		TOLERANCE (MM)			
Over	Up to and Including	GRADE - I		GRADE - II	
		Permissible Deviation	Out of Hex.	Permissible Deviation	Out of Hexagon
-	13	+ / - 0.18	0.300	+ / - 0.50	0.75
13	25	+ / - 0.25	0.400	+ / - 0.50	0.75
25	38	+ 0.60 / - 0.40	0.600	+ / - 0.80	1.20
38	50	+ 0.80 / - 0.40	0.800	+ / - 0.80	1.20

Annexure: III

ROUNDS (BRIGHT BARS): h11			
SIZE (mm Dia)		TOLERANCE ON DIA (MM)	
OVER	UPTO AND INCLUDING	Cold Drawn	Peeled/Turned
-	10	0	-----
10	18	+ 0 / - 0.11	+ 0 / - 0.11
19	31	+ 0 / - 0.13	+ 0 / - 0.13
32	50	+ 0 / - 0.16	+ 0 / - 0.16

TOLARENCEES FOR FERROUS STRIPS AS PER (ASTM A480/480M-04a)				
A. THICKNESS TOLERANCE				
Specific Thick. in MM	Upto 150mm	150-300 mm	300-600 mm	
0.15	0.010	0.015	0.020	
0.25	0.015	0.020	0.025	
0.50	0.025	0.030	0.035	
0.75	0.030	0.040	0.050	
1.00	0.030	0.040	0.050	
1.25	0.035	0.045	0.050	
1.50	0.040	0.050	0.060	
1.75	0.050	0.060	0.070	
2.00	0.050	0.060	0.070	
2.50	0.500	0.070	0.080	
B. WIDTH TOLERANCE. :				
Specific Thick. in MM	<40 mm	40 to 125mm	125 to 250 mm	250 to 600 mm
0.25	0.09	0.10	0.125	0.50
0.50	0.10	0.125	0.15	0.50
1.00	0.13	0.125	0.20	0.50
1.50	0.13	0.15	0.25	0.50
2.50	***	0.20	0.30	0.60