# Gaurang

Shaping Steel with Perfection

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Manufacturing Unit-II.
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Grafiko Advt. : 9871451313, 9810730491.

Gaurang

Shaping Steel with Perfection

ISO 9001 CERTIFIED COMPANY

# SHAPING STEEL...
## ... WITH PERFECTION

**BRAND :**

Gaurang SAMRIDHI
GP COILS & SHEETS

Gaurang
ROUND & SQUARE TUBES

# CHAIRMAN MESSAGE

Dear Customers,

I am pleased to take the opportunity to introduce Garuang Products of Companies as a leading manufacture and exporter of Galvanized and Black Steel Pipes and Tubes, in and abroad, since last 25 years.

Considering the potential available, state-of-the-art manufacturing plant for Black Steel Tubes & Pipes was installed with the capacity of 10,000 MT in the beginning and having the acceptability of Gaurang brand pipes and tubes in and abroad, the production capacity increased up to 1,25,000 MT in short span of time, having sizes 15mm up to 400mm with light, medium & heavy class maintaining the standards like IS, ASTM, and other international standard.

After successful introduction of Black Steel Tubes, company added the Galvanized Plant precision pipe plant and many other products to capture the market needs.

Being Proactive, professional and having a Vision to become a leading orginisation of India, company kept on adding similar product range with new size and thickness. CR sheet plant & CRCA plant and large size pipes from 175mm to 400mm, which are in high demand in Domestic & International market where re-construction is on high speed are the example of company proactive-ness in the business.

The outlook for the Steel Industry is very bright in India & abroad, therefore, all proactive decision are being taken to capture the need at all levels.

New projects are under planning for having more bright future for the company which shall be shared in due course of time.

Once again I would like to convey my sincere thanks to you for showing your dedication and patronage.

Yours truly,

Mahendra Aggarwal
Chairman

## Product Range of ERW Mild Steel, Pre-Galvanised & Hot Dip Galvanised Tubes & Pipes

| MS Round Pipes Fincut 19.05 OD to 406.4 OD | |
|---|---|
| Outside Diameter (mm) | Thickness mm |
| 15.88 | 0.60-2.8mm |
| 17.20 | 0.60-2.8mm |
| 18.50 | 0.60-2.8mm |
| 19.05 | 0.60-2.8mm |
| 21.3 | 0.60-3.2mm |
| 22.23 | 0.60-3.0mm |
| 25.4 | 0.60-3.2mm |
| 26.9 | 0.60-3.2mm |
| 28.58 | 0.60-3.2mm |
| 30.4 | 0.60-3.2mm |
| 31.75 | 0.60-3.2mm |
| 33.7 | 0.60-4.0mm |
| 38.1 | 0.60-4.0mm |
| 40.0 | 1.80-5.0mm |
| 41.3 | 0.60-5.0mm |
| 42.4 | 0.60-5.0mm |
| 44.5 | 0.60-3.2mm |
| 48.3 | 0.60-5.0mm |
| 50.8 | 0.70-5.0mm |
| 57.15 | 0.60-5.0mm |
| 60.3 | 0.70-5.0mm |
| 63.5 | 0.70-5.0mm |
| 70.0 | 1.80-5.0mm |
| 73.0 | 2.50-8.0mm |
| 76.1 | 0.8-8.0mm |
| 88.9 | 2.0-8.0mm |
| 94.0 | 2.0-8.0mm |
| 101.6 | 2.0-8.0mm |
| 108 | 2.0-8.0mm |
| 114.3 | 2.0-8.0mm |
| 127 | 1.6-8.0mm |
| 133 | 2.5-8.0mm |
| 139.7 | 2.8-10mm |
| 141.3 | 2.8-10mm |
| 144.0 | 2.8-8.0mm |
| 152.4 | 2.5-8.0mm |
| 159 | 2.5-8.0mm |
| 165.1 | 2.8-10mm |
| 168.3 | 2.8-10mm |
| 193.7 | 3.0-10mm |
| 219.1 | 3.0-10mm |
| 273 | 3.6-10mm |
| 323.9 | 3.0-10mm |
| 355.6 | 4.0-10mm |
| 406.4 | 4.0-10mm |

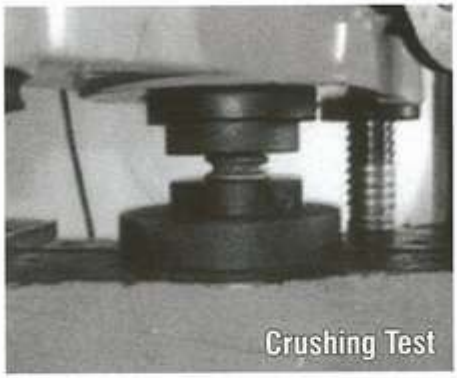
| MS Square Pipes | |
|---|---|
| Size | Thickness mm |
| 15x15 | 0.60-2.5mm |
| 20x20 | 0.60-2.8mm |
| 25x25 | 0.60-4.0mm |
| 30x30 | 0.60-2.8mm |
| 32x32 | 0.60-4.5mm |
| 38x38 | 0.60-4.5mm |
| 40x40 | 0.60-4.5mm |
| 45x45 | 2.0-4.5mm |
| 50x50 | 0.6-5.0mm |
| 60x60 | 0.8-6.0mm |
| 70x70 | 2.0-4.5mm |
| 72x72 | 2.5-6.0mm |
| 75x75 | 2.0-4.5mm |
| 80x80 | 2.0-6.0mm |
| 90x90 | 2.5-6.0mm |
| 91.5x91.5 | 2.5-6.0mm |
| 100x100 | 2.5-8.0mm |
| 113x113 | 2.5-8.0mm |
| 120x120 | 2.5-8.0mm |
| 135x135 | 3.0-8.0mm |
| 150x150 | 3.0-8.0mm |
| 250x250 | 4.0-8.0mm |

**TUBES & PIPES ARE ALSO AVAILABLE IN SPECIAL GRADE LIKE YS-355, YS-450 & YS-550.**

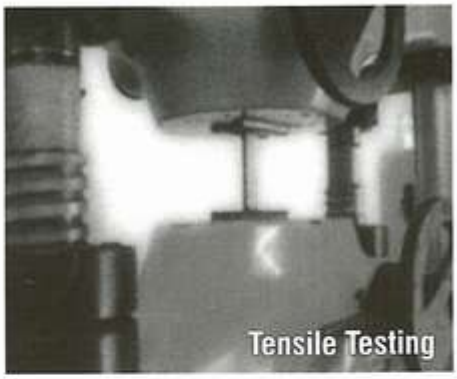
| MS Rectangular Pipes | |
|---|---|
| Size | Thickness mm |
| 30x20 | 0.60-2.80mm |
| 40x20 | 0.60-2.80mm |
| 40x25 | 0.60-2.80mm |
| 50x25 | 0.60-4.0mm |
| 60x40 | 0.7-2.80mm |
| 60x30 | 0.7-2.80mm |
| 75x25 | 0.7-2.80mm |
| 66x33 | 1.8-4.0mm |
| 80x40 | 2.0-5.4mm |
| 96x48 | 2.0-5.4mm |
| 145x82 | 2.5-6.0mm |
| 200x100 | 3.0-8.0mm |

# QUALITY PROFILE

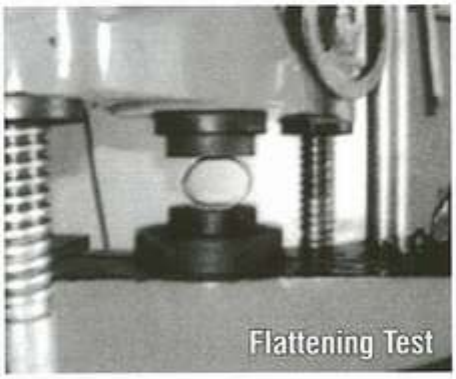
"TQS thru' TQM" (Total Quality Service through Total Quality Management) Gaurang is having vast and rich experience of about 25 years. Quality control is a continuous process and Gaurang focus is maintained by qualified engineers. A rigid vigilance is being maintained to ensure that quality products are being produced and sent out of the factory. Raw material is tested for chemical composition, tensile strength, elongation, thickness and tolerance. The pipes are subject to the Bend, Flattening Elongation and Tensile Tests to ensure weld strength. Products are tested Hydro static Test' each pipe tested at required pressure as applicable specification & customer required to ensure that there more leakage. Galvanized pipes are tested for the uniformity of zinc coating. Each pipes checks visually under proper illumination for surface finish & dimensional check. All relevant Indian and International standard are being followed at the time of manufacturing to ensure that Right Product at Right Time is being delivered to its valuable customers, all over the world.


Crushing Test

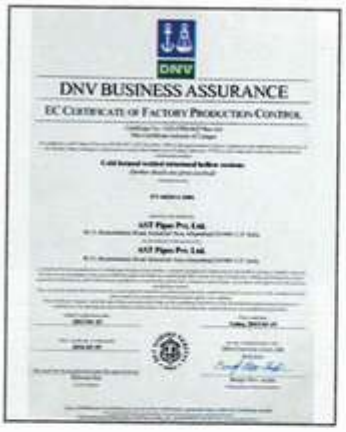
Bend Test


Tensile Testing

On Line NDT


Flattening Test

Drift Expansion Test



Awarded by U.P. Govt.
For one of the Best
State Unit in
the Year 1990-91

## ISO 9001 Certified Company

# STEEL TUBE

## Steel Tubes for Ordinary uses in Water Gas and Air Lines Conforming to IS : 1239 (Part - 1) 2004 & EN:10255, EN:10219

| N.B. and Series | | Outside Diameter | | Wall Thickness | | Nominal Weight Black Tubes | | | | Nominal Weight Galvanized Tubes | | | | Sockets | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Plain End | | Screwed & Socketed | | Plain End | | Screwed & Socketed | | Minimum O.D. | Minimum Length |
| mm | | minimum mm | maximum mm | mm | swg | kg/m | m/ tonne | kg/m | m/ tonne | kg/m | m/ tonne | kg/m | m/ tonne | mm | mm |
| 15 | L | 21.0 | 21.4 | 2.00 | 14 | 0.947 | 1056 | 0.956 | 1046 | 0.947 | 1056 | 0.956 | 1046 | | |
| | M | 21.0 | 21.8 | 2.60 | 12 | 1.21 | 826 | 1.22 | 819 | 1.21 | 826 | 1.22 | 819 | 27.0 | 37.0 |
| | H | 21.0 | 21.8 | 3.20 | 10 | 1.44 | 694 | 1.45 | 689 | 1.44 | 694 | 1.45 | 689 | | |
| 20 | L | 26.4 | 26.9 | 3.20 | 13 | 1.38 | 724 | 1.39 | 719 | 1.38 | 724 | 1.39 | 719 | | |
| | M | 26.5 | 27.3 | 2.60 | 12 | 1.56 | 641 | 1.57 | 637 | 1.56 | 641 | 1.57 | 637 | 32.5 | 39.0 |
| | H | 26.5 | 27.3 | 3.20 | 10 | 1.87 | 534 | 1.88 | 532 | 1.87 | 534 | 1.88 | 532 | | |
| 25 | L | 33.2 | 33.8 | 2.60 | 12 | 1.98 | 505 | 2.0 | 500 | 1.98 | 505 | 2.0 | 500 | | |
| | M | 33.3 | 34.2 | 3.20 | 10 | 2.41 | 415 | 2.43 | 411 | 2.41 | 415 | 2.43 | 411 | 39.5 | 46.0 |
| | H | 33.3 | 34.2 | 4.00 | 8 | 2.93 | 341 | 2.95 | 339 | 2.93 | 341 | 2.95 | 339 | | |
| 32 | L | 41.9 | 42.5 | 2.60 | 12 | 2.54 | 393 | 2.57 | 389 | 2.54 | 393 | 2.57 | 389 | | |
| | M | 42.0 | 42.9 | 3.20 | 10 | 3.10 | 322 | 3.13 | 319 | 3.10 | 322 | 3.13 | 319 | 49.0 | 51.0 |
| | H | 42.0 | 42.9 | 4.00 | 8 | 3.79 | 264 | 3.83 | 261 | 3.79 | 264 | 3.82 | 261 | | |
| 40 | L | 47.8 | 48.4 | 2.90 | 11 | 3.23 | 309 | 3.27 | 306 | 3.23 | 309 | 3.27 | 306 | | |
| | M | 47.9 | 48.8 | 3.20 | 10 | 3.56 | 281 | 3.60 | 277 | 3.56 | 281 | 3.60 | 277 | 56.0 | 51.0 |
| | H | 47.9 | 48.8 | 4.00 | 8 | 4.37 | 229 | 4.41 | 226 | 4.37 | 229 | 3.82 | 226 | | |
| 50 | L | 59.6 | 60.2 | 2.90 | 11 | 4.08 | 245 | 4.15 | 241 | 4.08 | 245 | 4.15 | 241 | | |
| | M | 59.7 | 60.8 | 3.60 | 9 | 5.03 | 199 | 5.10 | 196 | 5.03 | 199 | 5.10 | 196 | 68.0 | 60.0 |
| | H | 59.7 | 60.8 | 4.50 | 7 | 6.19 | 161 | 6.26 | 159 | 6.19 | 161 | 6.26 | 159 | | |
| 65 | L | 75.2 | 76.0 | 3.20 | 10 | 5.71 | 175 | 5.83 | 171 | 5.71 | 175 | 5.83 | 171 | | |
| | M | 75.3 | 76.6 | 3.60 | 9 | 6.42 | 155 | 6.54 | 153 | 6.42 | 155 | 6.54 | 153 | 84.0 | 69.0 |
| | H | 75.3 | 76.6 | 4.50 | 7 | 7.93 | 126 | 8.05 | 124 | 7.93 | 126 | 8.05 | 124 | | |
| 80 | L | 87.9 | 88.7 | 3.20 | 10 | 6.72 | 149 | 6.89 | 145 | 6.72 | 145 | 6.89 | 145 | | |
| | M | 88.0 | 89.5 | 4.00 | 8 | 8.36 | 119 | 8.53 | 117 | 8.36 | 119 | 8.53 | 117 | 98.0 | 75.0 |
| | H | 88.0 | 89.5 | 4.80 | 6 | 9.90 | 101 | 10.10 | 99 | 9.90 | 101 | 10.10 | 99 | | |
| 100 | L | 113.0 | 113.9 | 3.60 | 9 | 9.75 | 102 | 10.0 | 100 | 9.75 | 102 | 10.0 | 100 | | |
| | M | 113.1 | 115.0 | 4.50 | 7 | 12.20 | 82 | 12.50 | 80 | 12.20 | 82 | 12.50 | 80 | 124.0 | 87.0 |
| | H | 113.1 | 115.0 | 5.40 | 5 | 14.50 | 69 | 14.80 | 67 | 14.50 | 69 | 14.80 | 67 | | |
| 125 | M | 138.5 | 140.8 | 4.80 | 6 | 15.90 | 63 | 16.40 | 61 | 15.90 | 63 | 16.40 | 61 | | |
| | H | 138.5 | 140.8 | 5.40 | 5 | 17.9 | 56 | 18.40 | 54 | 17.9 | 56 | 18.40 | 54 | 151.0 | 96.0 |
| 150 | M | 163.9 | 166.5 | 4.80 | 6 | 18.90 | 53 | 19.50 | 51 | 18.90 | 53 | 19.50 | 51 | | |
| | H | 163.9 | 166.5 | 5.40 | 5 | 21.3 | 47 | 21.90 | 45 | 21.3 | 47 | 21.9 | 45 | 178.0 | 96.0 |

TOLERANCES

(A) Thickness

1. Light Tubes + not limited - 8%
2. Medium and + not limited Heavy Tubes - 10%

(B)

| | | Weight |
|---|---|---|
| 1. | Single Tube (Light Series) | + 10% - 8% |
| 2. | Single tubes (Medium and Heavy series) | ± 10% |
| 3. | For quantities per load of 10 tonnes minimum (Light series) | + 7.5% - 5% |
| 4. | For quantities per load of 10 tonnes minimum (medium and heavy series) | ± 7.5% |

(c) Length Unless otherwise specified 4 to 7 meters.

## Steel Tubes for Water and Sewage Purposes conforming to IS : 3589 : 2001 (Grade Fe 330 Fe 410 and Fe 450

| N.B. size mm | Outside diameter mm | Wall Thickness mm | Weight (Plain End) | |
|---|---|---|---|---|
| | | | kg/m | m/tonne |
| 150 | 168.3 | 2.6 | 10.6 | 94 |
| | | 3.2 | 12.0 | 83 |
| | | 4.0 | 16.2 | 62 |
| | | 4.5 | 18.2 | 55 |
| 200 | 219.1 | 2.6 | 13.9 | 72 |
| | | 3.6 | 19.1 | 52 |
| | | 4.5 | 23.8 | 42 |
| | | 6.3 | 33.1 | 30 |
| 250 | 273 | 3.6 | 23.9 | 42 |
| | | 4.0 | 26.5 | 38 |
| | | 5.6 | 33 | 30 |
| | | 6.3 | 41.1 | 24 |
| 300 | 323.9 | 4.0 | 31.8 | 31 |
| | | 4.5 | 35.4 | 28 |
| | | 5.6 | 44 | 23 |
| | | 7.1 | 55.5 | 18 |
| 350 | 355.6 | 4.0 | 34.7 | 29 |
| | | 5.0 | 43.2 | 23 |
| | | 5.6 | 48.3 | 21 |
| | | 8.0 | 68.6 | 15 |
| 400 | 406.4 | 4.0 | 39.7 | 25 |
| | | 5.0 | 49.5 | 20 |
| | | 6.3 | 62.2 | 16 |
| | | 8.8 | 86.3 | 12 |

### Physical Properties

| Grade | Y.S. Min | T.S. Min | % age Elongation Min |
|---|---|---|---|
| FE 330 | 195 | 330 | 20 |
| FE 410 | 235 | 410 | 18 |
| FE 450 | 275 | 450 | 15 |

### TOLERANCES

a. Outside diameter of ERW pipe ± 0.75%

b. Thickness ± 10%

c. Unless otherwise specified, Lengths are in single random lengths from 4 to 7 meters and double random lengths from 7 to 14 meters.

Note : Sizes other than specified above may be supplied as per customer requirement.

## Steel Tubes For Water Wells (Casing Pipes)
## Conforming to IS : 4270:2001
## Fe 410 and Fe 450

| N.B. and Series | Outside Diameter | Thick ness | Nominal Weight Black Tubes Plain End |
|---|---|---|---|
| mm | mm | mm | kg/m |
| 100 | 114.3 | 5.0 | 13.48 |
| 125 | 141.3 | 5.0 | 16.80 |
| 150 | 168.3 | 5.0 | 20.13 |
| 175 | 193.7 | 5.4 | 25.10 |
| 200 | 219.1 | 5.4 | 28.46 |
| 225 | 244.5 | 6.0 | 35.29 |
| 250 | 273.1 | 7.1 | 46.57 |
| 300 | 323.9 | 7.1 | 55.47 |
| 350 | 355.6 | 8.0 | 68.57 |
| 350 | 355.6 | 10.0 | 85.22 |
| 350 | 355.6 | 12.0 | 101.67 |
| 400 | 406.4 | 8.0 | 78.60 |
| 400 | 406.4 | 10.0 | 97.75 |
| 400 | 406.4 | 12.0 | 116.71 |

### Physical Properties

| Grade | Y.S. (MIN) MPa | T.S. (MIN) Mpa | %age Elongation Min |
|---|---|---|---|
| FE410 | 235 | 410 | 15 |
| FE450 | 275 | 450 | 13 |

### TOLERANCES

| | | |
|---|---|---|
| a. | Outside Diameter | ±1.0% |
| b. | Thickness | +15% |
| | Upto 406.4 mm OD | - 12.5% |
| c. | Weight | + 10% |
| | Single Tube | - 8% |
| d. | Length unless otherwise specified 4 to 7 mtrs | |

## Steel Tubes for Structural Purposes Conforming to IS : 1161 : 1998 Grade YST 210, YST 240, YST 310

| N.B. and Series | Outside Diameter | Thickness | Nominal Weight Black Tubes Plain End | | Calculated Nominal Weight Galvanized Tubes Plain End | |
|---|---|---|---|---|---|---|
| | mm | mm | Kg/m | m/tonne | Kg/m | m/tonne |
| L | 21.3 | 2.0 | 0.941 | 1056 | 1.00 | 1003 |
| 15 M | | 2.6 | 1.21 | 826 | 1.26 | 794 |
| H | | 3.2 | 1.44 | 694 | 1.49 | 671 |
| L | 26.9 | 2.3 | 1.38 | 725 | 1.43 | 699 |
| 20 M | | 2.6 | 1.56 | 641 | 1.61 | 621 |
| H | | 3.2 | 1.87 | 535 | 1.92 | 521 |
| L | 33.7 | 2.6 | 1.98 | 505 | 2.03 | 493 |
| 25 M | | 3.2 | 2.41 | 415 | 2.46 | 407 |
| H | | 4.0 | 2.93 | 341 | 2.98 | 336 |
| L | 42.4 | 2.6 | 2.54 | 394 | 2.62 | 382 |
| 32 M | | 3.2 | 3.10 | 323 | 3.18 | 314 |
| H | | 4.0 | 3.79 | 264 | 3.87 | 258 |
| L | 48.3 | 2.9 | 3.23 | 310 | 3.34 | 299 |
| 40 M | | 3.2 | 3.56 | 281 | 3.67 | 272 |
| H | | 4.0 | 4.37 | 229 | 4.48 | 236 |
| L | 60.3 | 2.9 | 4.08 | 245 | 4.20 | 238 |
| 50 M | | 3.6 | 5.03 | 199 | 5.15 | 194 |
| H | | 4.5 | 6.16 | 162 | 6.31 | 158 |
| L | 76.1 | 3.2 | 5.71 | 175 | 5.86 | 171 |
| 65 M | | 3.6 | 6.42 | 156 | 6.57 | 152 |
| H | | 4.5 | 7.93 | 126 | 8.10 | 123 |
| L | 88.9 | 3.2 | 6.72 | 149 | 6.90 | 145 |
| 80 M | | 4.0 | 8.36 | 120 | 8.54 | 117 |
| H | | 4.8 | 9.90 | 101 | 10.08 | 99 |
| L | 101.6 | 3.6 | 8.70 | 115 | 8.97 | 111 |
| 90 M | | 4.0 | 9.63 | 144 | 7.20 | 139 |
| H | | 4.8 | 11.50 | 87 | 11.77 | 85 |
| L | 114.3 | 3.6 | 9.75 | 103 | 9.97 | 100 |
| 100 M | | 4.5 | 12.20 | 82 | 12.42 | 81 |
| H | | 5.4 | 14.50 | 69 | 14.72 | 68 |
| L | 127.0 | 4.5 | 13.60 | 74 | 13.90 | 72 |
| 110 M | | 4.8 | 14.50 | 69 | 14.80 | 68 |
| H | | 5.4 | 16.20 | 62 | 14.80 | 61 |
| L | 139.7 | 4.5 | 15.00 | 67 | 15.25 | 66 |
| 125 M | | 4.8 | 15.90 | 63 | 16.15 | 62 |
| H | | 5.4 | 17.90 | 56 | 18.15 | 55 |
| L | 152.4 | 4.5 | 16.40 | 61 | 16.78 | 60 |
| 135 M | | 4.8 | 17.50 | 57 | 17.88 | 56 |
| H | | 5.4 | 19.60 | 51 | 19.98 | 55 |
| L | 165.1 | 4.5 | 17.80 | 56 | 18.20 | 55 |
| 150 M | | 4.8 | 18.90 | 53 | 19.30 | 52 |
| H | | 5.4 | 21.30 | 47 | 21.70 | 46 |
| | | 4.5 | 18.20 | 55 | 18.66 | 54 |
| L | 168.3 | 4.8 | 19.40 | 52 | 19.88 | 50 |
| 150 M | | 5.4 | 21.70 | 46 | 22.24 | 45 |
| H | | 6.3 | 25.20 | 40 | 41.00 | 24 |
| L | 193.7 | 4.8 | 22.40 | 45 | 22.94 | 44 |
| 175 M | | 5.4 | 25.10 | 40 | 25.64 | 39 |
| H | | 5.9 | 27.30 | 37 | 27.84 | 36 |
| L | 219.1 | 4.8 | 25.40 | 39 | 25.95 | 39 |
| 200 M | | 5.6 | 29.50 | 34 | 30.05 | 33 |
| H | | 5.9 | 31.00 | 32 | 31.55 | 32 |
| 225 H | 244.5 | 5.9 | 34.70 | 29 | 35.36 | 28 |
| 250 H | 273.0 | 5.9 | 38.90 | 26 | 39.68 | 25 |
| 300 H | 323.9 | 6.3 | 49.30 | 20 | 50.28 | 20 |
| 350 H | 355.6 | 8.0 | 68.60 | 15 | 69.58 | 14 |

### A. Tensile Properties

| Grade | Y.S. (MIN) Mpa | T.S. (MIN) Mpa | % age Elongation |
|---|---|---|---|
| YST-210 | 210 | 330 | 20 |
| YST-240 | 240 | 410 | 17 |
| YST-310 | 310 | 450 | 14 |

Note : Elongation percent for tubes up to and including 25mm NB for all grades shall be 12 minimum.

**B - Tolerance**

(i) Outside Diameter
upto & including 48.3 mm + 0.4mm
- 0.8mm
Over 48.3mm ± 1%
(ii) Thickness ± 10%
(iii) Weight single tube Light, + 10%
- 8%
Medium & Heavy ± 10%
-
- 10 tonne lots light ± 5%
- 10 tonne lots Medium & Heavy ± 7.5%

## Steel Tubes for mechanical & General Engineering Purpose is 3601:2006

Dimensions and design properties of steel tubes Grade WT 160 & WT 210

| Outside Dia-meter mm1 | Thick-ness mm2 | Mass kg/m 3 | Area of cross section cm 4 | Moment of Inertia cm 5 | Modules of Section cm 6 | Modules of Gyration cm 7 |
|---|---|---|---|---|---|---|
| 21.3 | 1.8 | 0.866 | 1.10 | 0.53 | 0.50 | 0.69 |
| | 2.0 | 0.952 | 1.21 | 0.57 | 0.54 | 0.69 |
| | 2.6 | 1.20 | 1.53 | 0.68 | 0.64 | 0.67 |
| | 3.2 | 1.43 | 1.82 | 0.77 | 0.72 | 0.65 |
| 26.9 | 1.8 | 1.11 | 1.42 | 1.12 | 0.83 | 0.89 |
| | 2.0 | 1.23 | 1.56 | 1.22 | 0.91 | 0.88 |
| | 2.3 | 1.40 | 1.78 | 1.36 | 1.01 | 0.87 |
| | 2.6 | 1.56 | 1.98 | 1.48 | 1.10 | 0.86 |
| | 3.2 | 1.87 | 2.38 | 1.70 | 1.27 | 0.85 |
| 33.7 | 2.0 | 1.56 | 1.99 | 2.51 | 1.49 | 1.12 |
| | 2.3 | 1.78 | 2.27 | 2.81 | 1.67 | 1.11 |
| | 2.6 | 1.99 | 2.54 | 3.09 | 1.84 | 1.10 |
| | 3.2 | 2.41 | 3.07 | 3.60 | 2.14 | 1.08 |
| | 4.0 | 2.93 | 3.73 | 4.19 | 2.49 | 1.06 |
| 44.4 | 2.3 | 2.27 | 2.90 | 5.85 | 2.76 | 1.42 |
| | 2.6 | 2.55 | 3.25 | 6.46 | 3.05 | 1.41 |
| | 3.2 | 3.09 | 3.94 | 7.62 | 3.59 | 1.39 |
| | 3.6 | 3.44 | 4.39 | 8.33 | 3.93 | 1.38 |
| | 4.0 | 3.79 | 4.83 | 8.90 | 4.24 | 1.36 |
| 48.3 | 2.3 | 2.61 | 3.32 | 8.80 | 3.64 | 1.63 |
| | 2.6 | 2.93 | 3.73 | 9.77 | 4.05 | 1.62 |
| | 2.9 | 3.25 | 4.14 | 10.70 | 4.43 | 1.61 |
| | 3.2 | 3.56 | 4.53 | 11.59 | 4.80 | 1.60 |
| | 3.6 | 3.97 | 5.05 | 12.69 | 5.25 | 1.59 |
| | 4.0 | 4.37 | 5.57 | 13.77 | 5.70 | 1.57 |
| 60.3 | 2.3 | 2.29 | 4.19 | 17.65 | 5.85 | 2.05 |
| | 2.6 | 3.70 | 4.71 | 19.64 | 6.51 | 2.04 |
| | 2.9 | 4.11 | 5.23 | 21.59 | 7.16 | 2.03 |
| | 3.2 | 4.51 | 5.74 | 23.47 | 7.78 | 2.02 |
| | 3.6 | 5.03 | 6.41 | 25.87 | 8.58 | 2.01 |
| | 4.0 | 5.55 | 7.07 | 28.15 | 9.34 | 2.00 |
| | 4.5 | 6.19 | 7.89 | 30.90 | 10.20 | 1.98 |
| 76.1 | 2.6 | 5.24 | 6.00 | 40.57 | 10.66 | 2.60 |
| | 2.9 | 5.75 | 6.67 | 44.74 | 11.76 | 2.59 |
| | 3.2 | 6.44 | 7.33 | 48.78 | 12.80 | 2.58 |
| | 3.6 | 7.11 | 8.20 | 54.01 | 14.20 | 2.57 |
| | 4.5 | 7.95 | 10.10 | 65.12 | 17.10 | 2.54 |
| | 5.0 | 8.77 | 11.16 | 70.87 | 18.63 | 2.52 |
| 88.9 | 2.9 | 6.15 | 7.83 | 72.47 | 16.30 | 3.04 |
| | 3.2 | 6.76 | 8.62 | 79.21 | 17.80 | 3.03 |
| | 4.0 | 8.38 | 10.70 | 96.34 | 21.70 | 3.00 |
| | 5.0 | 10.30 | 13.20 | 116.40 | 26.20 | 2.97 |
| | 5.4 | 11.10 | 14.00 | 123.80 | 27.80 | 2.97 |
| | 5.6 | 11.50 | 14.65 | 127.64 | 28.72 | 2.95 |
| 101.6 | 3.6 | 8.70 | 11.10 | 133.20 | 26.20 | 3.47 |
| | 4.0 | 9.63 | 12.30 | 149.20 | 28.80 | 3.45 |
| | 5.0 | 11.90 | 15.20 | 177.50 | 34.90 | 3.42 |
| 114.3 | 3.2 | 8.77 | 11.16 | 172.33 | 30.15 | 3.93 |
| | 3.6 | 9.83 | 12.50 | 192.00 | 33.60 | 3.92 |
| | 4.5 | 12.20 | 15.50 | 234.30 | 41.00 | 3.89 |
| | 5.4 | 14.50 | 18.50 | 274.50 | 48.00 | 3.86 |
| | 6.3 | 16.80 | 21.20 | 315.00 | 55.10 | 3.83 |
| 139.7 | 3.60 | 12.10 | 15.38 | 356.36 | 51.02 | 4.81 |
| | 4.00 | 13.40 | 17.04 | 392.57 | 56.20 | 4.80 |
| | 4.50 | 15.00 | 19.10 | 437.20 | 62.60 | 4.78 |
| | 5.00 | 16.60 | 21.20 | 480.50 | 68.80 | 4.77 |
| | 5.40 | 17.90 | 22.80 | 514.50 | 73.70 | 4.75 |
| | 6.30 | 20.70 | 26.30 | 591.00 | 84.70 | 4.73 |
| 152.4 | 4.50 | 16.40 | 20.90 | 572.20 | 75.10 | 5.23 |
| | 5.00 | 18.20 | 23.20 | 629.50 | 82.60 | 5.21 |
| | 5.40 | 19.60 | 24.90 | 674.50 | 88.50 | 5.20 |
| 165.1 | 4.50 | 17.80 | 22.70 | 732.60 | 88.70 | 5.68 |
| | 5.00 | 19.70 | 25.10 | 806.60 | 97.70 | 5.66 |
| | 5.40 | 21.20 | 27.10 | 864.70 | 105.00 | 5.65 |
| | 6.30 | 24.80 | 31.40 | 992.00 | 120.00 | 5.63 |
| 168.3 | 4.00 | 16.20 | 20.64 | 696.87 | 82.81 | 5.81 |
| | 4.50 | 18.20 | 23.20 | 777.20 | 98.40 | 5.79 |
| | 5.00 | 20.10 | 25.70 | 855.80 | 102.00 | 5.78 |
| | 5.40 | 21.70 | 27.60 | 917.70 | 109.00 | 5.76 |
| | 6.30 | 25.20 | 32.10 | 1053.00 | 125.00 | 5.73 |
| | 7.10 | 28.20 | 35.94 | 1169.66 | 139.00 | 5.70 |
| | 8.00 | 31.60 | 39.70 | 1288.00 | 153.00 | 5.69 |
| 193.7 | 5.00 | 23.30 | 29.60 | 1320.00 | 136.00 | 6.67 |
| | 5.40 | 25.10 | 31.90 | 1417.00 | 146.00 | 6.66 |
| | 5.90 | 27.30 | 34.80 | 1536.00 | 159.00 | 6.64 |
| | 6.30 | 29.10 | 37.00 | 1600.00 | 165.00 | 6.60 |
| | 8.00 | 36.60 | 46.30 | 2004.00 | 207.00 | 6.57 |
| 219.1 | 4.5 | 23.80 | 30.32 | 1746.18 | 159.40 | 7.59 |
| | 5.0 | 26.40 | 33.60 | 1928.00 | 176.00 | 7.57 |
| | 5.6 | 29.50 | 37.60 | 2142.00 | 195.00 | 7.56 |
| | 6.3 | 33.10 | 42.00 | 2404.00 | 219.00 | 7.54 |
| | 8.0 | 41.60 | 52.00 | 1940.00 | 268.00 | 7.52 |

* Other sizes can also be manufactured as per customer requirement

### Physical Properties

| Grade | Y.S. (min.) (Mpa) | T.S. (min.) (Mpa) | % age Elongation (min.) | |
|---|---|---|---|---|
| | | | As welded (less than or equal to 33.7mm OD) | As welded (less than or equal to 33.7mm OD) |
| WT 160 | 160 | 310 | 15 | 22 |
| WT 210 | 210 | 330 | 12 | 20 |

### Tolerances

a. Outside Diameter upto & including 51mm ±0.18mm
Over 51mm ± 0.25%

Note : The tolerance of thickness excluding the weld shall be ±10%

### Special size can be rolled

| Out side diameters mm | upto thickness |
|---|---|
| 19.0 | 3.20 |
| 25.4 | 4.00 |
| 38.0 | 5.00 |
| 50.8 | 5.00 |
| 57.0 | 5.40 |
| 60.3 | 5.4 |
| 63.5 | 5.40 |
| 70.0 | 5.40 |
| 76.1 | 7.0 |
| 88.9 | 7.4 |
| 114.3 | 8.00 |
| 139.7 | 9.5 |
| 144.0 | 8.00 |
| 168.3 | 10.00 |

## Steel Tubes use for Special Engineering Purpose As Per IS 9295/1983

| Outside Diameter (OD) | Thickness | Weight | |
|---|---|---|---|
| mm | mm | kg/mtr. | Mtr/tonne |
| 63.5 | 3.65 | 5.39 | 186 |
| | 4.50 | 6.55 | 153 |
| 76.1 | 3.65 | 6.52 | 153 |
| | 4.50 | 7.95 | 126 |
| 88.9 | 4.05 | 8.47 | 118 |
| | 4.85 | 10.05 | 100 |
| | 6.30 | 12.83 | 78 |
| 101.6 | 4.05 | 9.74 | 103 |
| | 4.85 | 11.57 | 86 |
| | 6.30 | 14.81 | 68 |
| 108.0 | 4.05 | 10.38 | 96 |
| | 4.85 | 12.34 | 81 |
| | 6.30 | 15.80 | 63 |
| 114.3 | 4.50 | 12.19 | 82 |
| | 5.40 | 14.50 | 69 |
| | 6.30 | 16.78 | 60 |
| 120.0 | 4.50 | 12.82 | 78 |
| | 5.40 | 15.26 | 66 |
| | 6.30 | 17.67 | 57 |
| 127.0 | 4.50 | 13.60 | 74 |
| | 4.85 | 14.61 | 68 |
| | 5.40 | 16.19 | 62 |
| | 6.30 | 18.75 | 53 |
| 133.0 | 4.50 | 14.30 | 70 |
| | 4.85 | 15.33 | 65 |
| | 5.40 | 16.99 | 59 |
| | 6.30 | 19.69 | 51 |

| Outside Diameter (OD) | Thickness | Weight | |
|---|---|---|---|
| mm | mm | kg/mtr. | Mtr/tonne |
| 139.7 | 4.50 | 15.00 | 67 |
| | 4.85 | 16.13 | 62 |
| | 5.40 | 17.89 | 56 |
| | 6.30 | 20.73 | 48 |
| 152.4 | 4.50 | 1640 | 61 |
| | 4.85 | 17.65 | 57 |
| | 5.40 | 19.58 | 51 |
| | 6.30 | 22.70 | 44 |
| 159.0 | 4.50 | 17.10 | 58 |
| | 4.85 | 18.44 | 54 |
| | 5.40 | 20.46 | 47 |
| | 6.30 | 23.72 | 42 |
| 165.1 | 4.50 | 17.80 | 56 |
| | 4.85 | 19.17 | 52 |
| | 5.40 | 21.27 | 47 |
| | 6.30 | 24.67 | 41 |
| 168.3 | 4.50 | 18.20 | 55 |
| | 4.85 | 19.55 | 51 |
| | 5.40 | 21.69 | 46 |
| | 6.30 | 25.17 | 40 |
| 193.7 | 5.40 | 25.10 | 40 |
| | 6.30 | 29.12 | 34 |
| | 7.10 | 32.67 | 31 |
| 219.1 | 5.40 | 28.50 | 35 |
| | 6.30 | 33.06 | 30 |
| | 7.10 | 37.12 | 27 |

TOLERANCES :

A) Ovality
- Below 168.3 — 0.5mm
- Including 168.3mm & above — 1.0mm

B) Eccentricity — 5% Max

C) Mass
- I) Single Tube — ± 10%
- II) Per Load of 10 M.T — ± 7.5%

D) Outside Diameter — ± 0.8%

E) Thickness — ± 10%

F) Straightness — 1/1000 of any length

G) length
- I)Random — 4 to 7 Mtr.
- II)Exact — (+)6mm ( - )0mm

## ERW Steel Tube for Line Pipes in Oil & Natural Gas

Conforming to IS : 3183- Grade 210 & 240

| OD (mm) | Wall Thick-ness (mm) | Plain & Weight (Kg/m) | STD Test Pressure (Min) | |
|---|---|---|---|---|
| | | | Grade YST 210 STD 100Kpa | Grade YST 240 STD 100Kpa |
| 88.90 | 3.20 | 6.76 | 89 | 104 |
| | 3.60 | 7.57 | 101 | 117 |
| | 4.00 | 8.37 | 112 | 130 |
| | 4.40 | 9.17 | 123 | 143 |
| | 4.80 | 9.95 | 134 | 156 |
| | 5.50 | 11.31 | 154 | 172 |
| 101.60 | 3.60 | 8.70 | 88 | 102 |
| | 4.00 | 9.63 | 98 | 114 |
| | 4.40 | 10.55 | 108 | 125 |
| | 4.80 | 11.46 | 117 | 137 |
| | 5.70 | 13.48 | 139 | 162 |
| | 6.40 | 15.02 | 156 | 182 |
| | 7.10 | 16.55 | 174 | 193 |
| 114.30 | 3.60 | 9.83 | 78 | 91 |
| | 4.00 | 10.88 | 87 | 101 |
| | 4.80 | 12.96 | 104 | 121 |
| | 5.20 | 13.99 | 113 | 132 |
| | 5.60 | 15.01 | 122 | 142 |
| | 6.00 | 16.02 | 130 | 152 |
| | 6.40 | 17.03 | 139 | 162 |
| | 7.10 | 18.77 | 154 | 180 |
| 141.30 | 3.20 | 10.90 | 56 | 65 |
| | 4.00 | 13.94 | 70 | 82 |
| | 4.80 | 16.16 | 84 | 98 |
| | 5.60 | 18.74 | 98 | 115 |
| | 6.60 | 21.92 | 116 | 135 |
| | 7.10 | 23.50 | 125 | 145 |
| 168.30 | 3.60 | 14.62 | 53 | 62 |
| | 4.00 | 16.21 | 59 | 76 |
| | 4.80 | 19.35 | 71 | 81 |
| | 5.20 | 20.91 | 77 | 89 |
| | 5.60 | 22.47 | 83 | 96 |
| | 6.40 | 25.55 | 94 | 110 |
| | 7.10 | 28.22 | 105 | 122 |

| OD (mm) | Wall Thick-ness (mm) | Plain & Weight (Kg/m) | STD Test Pressure (Min) | |
|---|---|---|---|---|
| | | | Grade YST 210 STD 100Kpa | Grade YST 240 STD 100Kpa |
| 219.10 | 4.80 | 25.37 | 54 | 63 |
| | 5.60 | 29.48 | 63 | 74 |
| | 6.40 | 33.57 | 73 | 84 |
| | 7.00 | 36.61 | 79 | 92 |
| 273.10 | 4.80 | 31.76 | 44 | 51 |
| | 5.60 | 36.94 | 51 | 59 |
| | 6.40 | 42.09 | 58 | 68 |
| | 7.10 | 46.57 | 65 | 75 |
| | 7.80 | 51.03 | 71 | 83 |
| | 8.70 | 56.72 | 79 | 92 |
| | 9.30 | 60.50 | 85 | 98 |
| 323.90 | 4.80 | 37.77 | 37 | 43 |
| | 5.60 | 43.96 | 43 | 50 |
| | 6.40 | 50.11 | 49 | 57 |
| | 7.10 | 55.47 | 54 | 63 |
| | 7.90 | 61.56 | 61 | 71 |
| | 8.40 | 65.35 | 64 | 75 |
| | 8.70 | 67.62 | 67 | 78 |
| | 9.50 | 73.65 | 73 | 85 |
| 355.60 | 4.80 | 41.52 | 34 | 39 |
| | 5.20 | 44.93 | 36 | 42 |
| | 6.40 | 55.11 | 45 | 52 |
| | 7.10 | 61.02 | 50 | 58 |
| | 7.90 | 67.74 | 55 | 64 |
| | 8.70 | 74.42 | 61 | 71 |
| | 9.50 | 81.08 | 66 | 77 |
| 406.40 | 4.80 | 47.54 | 29 | 34 |
| | 5.20 | 51.45 | 32 | 37 |
| | 5.60 | 55.35 | 34 | 40 |
| | 6.40 | 63.13 | 39 | 46 |
| | 7.10 | 69.91 | 43 | 51 |
| | 7.90 | 77.63 | 48 | 56 |
| | 8.70 | 85.32 | 53 | 62 |
| | 9.50 | 92.98 | 58 | 68 |

A. Outside Diameter

The outside diameter tolerances shall be as follows,

Pipe Body

| For Size | Tolerance |
|---|---|
| 48.3 mm and less | +0.40 mm<br>- 0.80 mm |
| 60.3 mm and above | +/-1% |

B. Wall Thickness

The Tolerances on the wall thickness of line pipes shall be as follows :

| Type | For | Tolerance |
|---|---|---|
| Welded Pipes | 73.0 mm and smaller | +20.0%<br>-12.5% |
| | 88.9 mm O.D. & Larger | +18.0%<br>-12.5% |

C. Weight

Single Lengths Standard Weight, regular weight, extra strong and double extra strong pipe

| | |
|---|---|
| Grade YST - 210 and YST - 240 | +10.0%<br>-3.5% |
| Grade YST -170 | +10.0%<br>-5.0% |
| Special plain end pipes - All Grades | +10.0%<br>-5.0% |
| Car loads lots For min 18000 Kg :<br>Grade YST 210 & YST 240<br>GRADE YST 170 | <br>-1.75%<br>-2.5% |

# Steel Tubes & pipe for Fire Fighting As per ASTM - A53 Grade A & B

**Table X2.2 dimensions, weights (masses) per unit Length, and Test pressures for plain end pipe**

| DN Designator | Specified wall, thickness in (mm) | Nominal, weight (mass) per Unit length, Plain end, ib/(kg/m2) | Weight Class | Schedule No. | Test Pressure PSI(kpa.) | |
|---|---|---|---|---|---|---|
| | | | | | Grade A | Grade B |
| 15 | 2.77 | 1.27 | STD | 40 | 700 (4800) | 700 (4800) |
| 20 | 2.87 | 1.68 | STD | 40 | 700 (4800) | 700 (4800) |
| 25 | 3.38 | 2.50 | STD | 40 | 700 (4800) | 700 (4800) |
| | 4.55 | 3.24 | XS | 80 | 850 (5900) | 850 (5900) |
| 32 | 3.56 | 3.39 | STD | 40 | 1200 (8300) | 1300 (9000) |
| | 4.85 | 4.47 | XS | 80 | 1800 (12 400) | 1900 (13 100) |
| 40 | 3.68 | 4.05 | STD | 40 | 1200 (8300) | 1300 (9000) |
| 50 | 3.91 | 5.44 | STD | 40 | 2300 (15 900) | 2500 (17 200) |
| | 5.54 | 7.48 | XS | 80 | 2500 (17 200) | 2500 (17 200) |
| 65 | 5.16 | 8.63 | STD | 40 | 2500 (17 200) | 2500 (17 200) |
| | 7.01 | 11.41 | XS | 80 | 2500 (17 200) | 2500 (17 200) |
| 80 | 3.18 | 6.72 | ... | ... | 1290 (8300) | 1300 (1000) |
| | 3.96 | 8.29 | ... | ... | 1600 (11000) | 1870 (12 900) |
| | 4.78 | 9.92 | ... | ... | 1930 (13 330) | 2260 (15 600) |
| | 5.49 | 11.29 | STD | 40 | 2220 (15 300) | 2500 (17 200) |
| | 6.35 | 12.93 | ... | ... | 2500 (17 200) | 2500 (17 200) |
| | 7.14 | 14.40 | ... | ... | 2500 (17 200) | 2500 (17 200) |
| | 7.62 | 15.27 | XS | 80 | 2500 (17 200) | 2500 (17 200) |
| 90 | 3.18 | 7.72 | ... | ... | 1120 (7700) | 1310 (19 000) |
| | 3.96 | 9.53 | ... | ... | 1400 (6700) | 1640 (11 300) |
| | 4.78 | 11.41 | ... | ... | 1690 (11 700) | 1970 (13 600) |
| | 5.74 | 13.57 | STD | 40 | 2030 (14 000) | 2370 (16 300) |
| | 6.35 | 14.92 | ... | ... | 2250 (15 500) | 2500 (17 200) |
| | 7.14 | 16.63 | ... | ... | 2500 (17 200) | 2500 (17 200) |
| | 8.08 | 18.63 | XS | 80 | 2800 (19 300) | 2800 (19 300) |
| 100 | 3.18 | 8.71 | ... | ... | 1000 (6900) | 1170 (8100) |
| | 3.96 | 10.78 | ... | ... | 1250 (8600) | 1460 (10 100) |
| | 4.78 | 12.91 | ... | ... | 1500 (10 300) | 1750 (12 100) |
| | 5.56 | 14.91 | ... | ... | 1750 (12 100) | 2040 (14 100) |
| | 6.02 | 16.07 | STD | 40 | 1900 (13 100) | 2210 (15 200) |
| | 6.35 | 16.90 | ... | ... | 2000 (13 800) | 2330 (16 100) |
| | 7.14 | 18.87 | ... | ... | 2250 (15 100) | 2620 (18 100) |
| | 7.92 | 20.78 | ... | ... | 2500 (17 200) | 2800 (19 300) |
| | 8.56 | 22.32 | XS | 80 | 2700 (18 600) | 2800 (19 300) |
| 125 | 3.96 | 13.41 | ... | ... | 1010 (7000) | 1180 (8100) |
| | 4.78 | 16.09 | ... | ... | 1220 (8400) | 1420 (9800) |
| | 5.56 | 18.61 | ... | ... | 1420 (9800) | 1650 (11 400) |
| | 6.55 | 21.77 | STD | 40 | 1670 (11 500) | 1950 (13 400) |
| | 7.14 | 23.62 | ... | ... | 1820 (12 500) | 2120 (14 600) |
| | 7.92 | 26.05 | ... | ... | 2020 (13 900) | 2360 (16 300) |
| | 8.74 | 28.57 | ... | ... | 2230 (15 400) | 2600 (17 900) |
| | 9.52 | 30.94 | XS | 80 | 2430 (16 800) | 2800 (19 300) |

# ASTM - A53 Grade A & B

| DN Designator | Specified wall, thickness in (mm) | Nominal, weight (mass) per Unit length, Plain end, ib/(kg/m2) | Weight Class | Schedule No. | Test Pressure PSI(kpa.) | |
|---|---|---|---|---|---|---|
| | | | | | Grade A | Grade B |
| 150 | 4.78 | 19.27 | ... | ... | 1020 (7000) | 1190 (8200) |
| | 5.56 | 22.31 | ... | ... | 1190 (8200) | 1390 (9600) |
| | 6.35 | 25.36 | ... | ... | 1360 (9400) | 1580 (10 900) |
| | 7.11 | 28.26 | STD | 40 | 1520 (10 500) | 1780 (12 300) |
| | 7.92 | 31.32 | ... | ... | 1700 (11 700) | 1980 (13 700) |
| | 8.74 | 34.39 | ... | ... | 1870 (12 900) | 2180 (15 700) |
| | 9.52 | 37.28 | ... | ... | 2040 (14 100) | 2380 (16 400) |
| | 10.97 | 42.56 | XS | 80 | 2350 (16 200) | 2740 (18 900) |
| 200 | 4.78 | 25.26 | ... | ... | 780 (5400) | 920 (6300) |
| | 5.16 | 27.22 | ... | ... | 850 (5900) | 1000 (6900) |
| | 5.56 | 29.28 | ... | ... | 910 (6300) | 1070 (7400) |
| | 6.35 | 33.31 | ... | 20 | 1040 (7200) | 1220 (8400) |
| | 7.04 | 36.31 | ... | 30 | 1160 (7800) | 1350 (9300) |
| | 7.92 | 41.24 | ... | ... | 1300 (9000) | 1520 (10 500) |
| | 8.18 | 42.55 | STD | 40 | 1340 (9200) | 1570 (10 800) |
| | 8.74 | 45.34 | ... | ... | 1440 (9900) | 1680 (11 600) |
| | 9.52 | 49.20 | ... | ... | 1570 (10 800) | 1830 (12 600) |
| | 10.31 | 53.08 | ... | 60 | 1700 (11 700) | 2000 (13 800) |
| 250 | 4.78 | 31.62 | ... | ... | 630 (4300) | 730 (5000) |
| | 5.16 | 34.08 | ... | ... | 680 (4700) | 800 (5500) |
| | 5.56 | 36.67 | ... | ... | 730 (5000) | 860 (5900) |
| | 6.35 | 41.75 | ... | 20 | 840 (5800) | 980 (6800) |
| | 7.09 | 46.49 | ... | ... | 930 (6400) | 1090 (7500) |
| | 7.80 | 51.01 | ... | 30 | 1030 (7100) | 1200 (8300) |
| | 8.74 | 56.96 | ... | ... | 1150 (7900) | 1340 (9200) |
| | 9.27 | 60.29 | STD | 40 | 1220 (8400) | 1430 (9900) |
| | 11.13 | 71.87 | ... | ... | 1470 (10100) | 1710 (11 800) |
| 300 | 5.16 | 40.55 | ... | ... | 570 (3900) | 670 (4600) |
| | 5.56 | 43.63 | ... | ... | 620 (4300) | 720 (5000) |
| | 6.35 | 49.71 | ... | 20 | 710 (4900) | 820 (5700) |
| | 7.14 | 55.75 | ... | ... | 790 (5400) | 930 (6400) |
| | 7.92 | 61.69 | ... | ... | 880 (6100) | 1030 (7100) |
| | 8.38 | 65.18 | ... | 30 | 930 (6400) | 1090 (7500) |
| | 8.74 | 67.90 | ... | ... | 970 (6700) | 1130 (7800) |
| | 9.52 | 73.78 | STD | ... | 1060 (7300) | 1240 (8500) |
| | 10.31 | 79.70 | ... | 40 | 1150 (7900) | 1340 (9200) |
| | 11.13 | 85.82 | ... | ... | 1240 (8500) | 1440 (9900) |
| | 12.70 | 97.43 | ... | ... | 1410 (9700) | 1650 (11 400) |
| 350 | 5.33 | 46.04 | ... | ... | 540 (3700) | 630 (4300) |
| | 5.56 | 47.99 | ... | ... | 560 (3900) | 660 (4500) |
| | 6.35 | 54.69 | ... | 10 | 640 (4400) | 750 (5200) |
| | 7.14 | 61.35 | ... | ... | 720 (5000) | 840 (5800) |
| | 7.92 | 67.90 | ... | 20 | 800 (5500) | 940 (6500) |
| | 8.74 | 74.76 | ... | ... | 880 (6100) | 1030 (7100) |

# ASTM - A53 Grade A & B

| DN Designator | Specified wall, thickness in (mm) | Nominal, weight (mass) per Unit length, Plain end, ib/(kg/m2) | Weight Class | Schedule No. | Test Pressure PSI(kpa.) | |
|---|---|---|---|---|---|---|
| | | | | | Grade A | Grade B |
| | 9.52 | 81.25 | STD | 30 | 960 (6600) | 1120 (7700) |
| | 11.13 | 94.55 | ... | 40 | 1130 (7800) | 1310 (9000) |
| | 11.91 | 100.94 | ... | ... | 1210 (8300) | 1410 (9700) |
| | 12.70 | 107.39 | XS | ... | 1290 (8900) | 1500 (10 300) |
| 400 | 5.56 | 54.96 | ... | ... | 490 (3400) | 570 (3900) |
| | 6.35 | 62.64 | ... | 10 | 560 (3900) | 660 (4500) |
| | 7.14 | 70.30 | ... | ... | 630 (4300) | 740 (5100) |
| | 7.92 | 77.83 | ... | 20 | 700 (4800) | 820 (5700) |
| | 8.74 | 85.71 | ... | ... | 770 (5300) | 900 (6200) |
| | 9.52 | 93.17 | STD | 30 | 840 (5800) | 980 (6800) |
| | 11.13 | 108.49 | ... | ... | 990 (6800) | 1150 (7900) |
| | 11.91 | 115.86 | ... | ... | 1060 (7300) | 1230 (8500) |
| | 12.70 | 123.30 | XS | 40 | 1120 (7700) | 1310 (9000) |

## Tolerances

| | |
|---|---|
| Outside Diameter | Pipe size upto & including DN40 +/-0.4mm |
| Pipe size DN 50 or larger | +/-1% |
| Thickness | -12.5% (max) |
| Weight | +/-10% |

## Galvanising

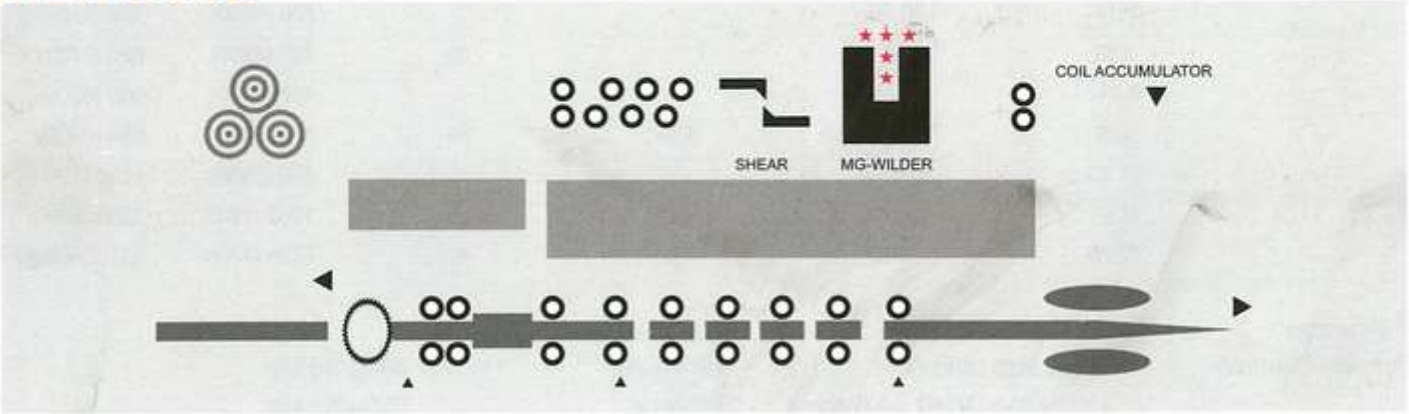
| | |
|---|---|
| Minimum | 490g/Sq Mtr |
| Average | 550g/Sq Mtr |

# HOLLOW SECTION STEEL TUBE

## Gaurang Hollow Sections - Superior is a word that falls short when it comes to quality

Gaurang markets its product under the brand AST (India) & Gaurang which covers MS Black, G.I. Round pipes and Hollow Sections both in Rectangular and Square Quality rolled on High Frequency Induct weld HFIW mills.

## THE PROCESS




### Structural Par Excellence

- International quality raw material
- Enhanced physical strength provides decisive advantage
- Formed at modern HFIW mill under strict quality control.

### Unique Strength & Economy

- Increased tensile capacity because of concentric connection
- Increased compressive strength because of higher radius of gyration
- Full strength under bending moment due to superior torsional rigidity
- Enhanced shear capacity
- Multi fold tensional capacity
- Lower wind drag
- Better fire resistance
- The best during earthquakes

### Cost Benefit

The Hollow Sections are perfect substitute for conventional angle and channel and the market is diversifyng to adopt the sections for the reason of overall cost saving of 15%. In addition to this, the maintenance of these sections is very cheap and it has a better aestheticlook.

## Steel Tubes use for structures Purpose IS 4923 / 1997

Square Hollow Section

| Designation mm HxBxT | Depth or Width mm HxB | Thickness mm | Weight Kg/m |
|---|---|---|---|
| 25.0x25.0X2.6 | 25.00 | 2.60 | 1.69 |
| 25.0x25.0x3.2 | 25.00 | 3.20 | 1.98 |
| 30.0X30.0X2.6 | 30.00 | 2.60 | 2.10 |
| 30.0X30.0X3.2 | 30.00 | 3.20 | 2.49 |
| 30.0X30.0X4.0 | 30.00 | 4.00 | 2.94 |
| 32.0x32.0x2.6 | 32.00 | 2.60 | 2.26 |
| 32.0x32.0x3.2 | 32.00 | 3.20 | 2.69 |
| 32.0x32.0x4.0 | 32.00 | 4.00 | 3.19 |
| 38.0x38.0x2.6 | 38.00 | 2.60 | 2.75 |
| 38.0x38.0x2.9 | 38.00 | 2.90 | 3.03 |
| 38.0x38.0x3.2 | 38.00 | 3.20 | 3.29 |
| 38.0x38.0x3.6 | 38.00 | 3.60 | 3.63 |
| 38.0X38.0X4.0 | 38.00 | 4.00 | 3.95 |
| 40.0X40.0X2.6 | 40.00 | 2.60 | 2.92 |
| 40.0X40.0X3.2 | 40.00 | 3.20 | 3.49 |
| 40.0X40.0X3.6 | 40.00 | 3.60 | 3.85 |
| 40.0X40.0X4.0 | 40.00 | 4.00 | 4.20 |
| 45.0x45.0x4.0 | 45.00 | 4.00 | 5.13 |
| 49.5X49.5X2.9 | 49.50 | 2.90 | 4.07 |
| 49.5X49.5X3.6 | 49.50 | 3.60 | 4.93 |
| 49.5X49.5X4.5 | 49.50 | 4.50 | 5.95 |
| 60.0X60.0X3.2 | 60.00 | 3.20 | 5.50 |
| 60.0X60.0X3.6 | 60.00 | 3.60 | 6.11 |
| 60.0X60.0X4.5 | 60.00 | 4.50 | 7.43 |
| 60.0x60.0x6.0 | 60.00 | 6.00 | 10.42 |
| 70.0x70.0x5.0 | 70.00 | 5.00 | 10.36 |
| 72.0X72.0X3.2 | 72.00 | 3.20 | 6.71 |
| 72.0X72.0X4.0 | 72.00 | 4.00 | 8.22 |
| 72.0X72.0X4.8 | 72.00 | 4.80 | 9.66 |
| 72.0x72.0xx6.0 | 72.00 | 6.00 | 12.68 |
| 80.0X80.0X3.2 | 80.00 | 3.20 | 7.51 |
| 80.0X80.0X4.0 | 80.00 | 4.00 | 9.22 |
| 80.0X80.0X4.8 | 80.00 | 4.80 | 10.87 |
| 91.5X91.5X3.6 | 91.50 | 3.60 | 9.67 |
| 91.5X91.5X4.5 | 91.50 | 4.50 | 11.88 |
| 91.5X91.5X5.4 | 91.50 | 5.40 | 14.01 |
| 113.5X113X4.5 | 113.50 | 4.50 | 14.99 |
| 113.5X113.5X4.8 | 113.50 | 4.80 | 15.92 |
| 113.5X113.5X5.4 | 113.50 | 5.40 | 17.74 |
| 120.0x120.0x8.0 | 120.00 | 8.00 | 28.01 |
| 132.0X132.0X4.8 | 132.00 | 4.8 | 18.71 |
| 132.0X132.0X5.4 | 132.00 | 5.4 | 20.88 |
| 135.0x135.0x4.8 | 145.00 | 4.8 | 19.79 |
| 135.0x135.0x5.4 | 135.00 | 5.4 | 22.17 |
| 150.0X150.0X4.0 | 150.00 | 4.0 | 18.01 |
| 150.0X150.0X5.0 | 150.00 | 5.0 | 22.26 |
| 150.0X150.0X6.0 | 150.00 | 6.0 | 26.40 |
| 150.0X150.0X7.0 | 150.00 | 7.0 | 30.44 |
| 150.0X150.0X8.0 | 150.00 | 8.0 | 34.38 |
| 180.0X180.0X4.0 | 180.00 | 4.0 | 21.78 |
| 180.0X180.0X5.0 | 180.00 | 5.0 | 26.97 |
| 180.0X180.0X6.0 | 180.00 | 6.0 | 32.05 |
| 180.0X180.0X7.0 | 180.00 | 7.0 | 37.03 |
| 180.0X180.0X8.0 | 180.00 | 8.0 | 41.91 |
| 220.0X220.0X4.0 | 220.00 | 4.0 | 26.61 |
| 220.0X220.0X5.0 | 220.00 | 5.0 | 33.25 |
| 220.0X220.0X6.0 | 220.00 | 6.0 | 39.59 |
| 220.0X220.0X7.0 | 220.00 | 7.0 | 45.83 |
| 220.0X220.0X8.0 | 220.00 | 8.0 | 51.96 |
| 250.0X250.0X4.0 | 250.00 | 4.0 | 30.57 |
| 250.0X250.0X5.0 | 250.00 | 5.0 | 37.96 |
| 250.0X250.0X6.0 | 250.00 | 6.0 | 45.24 |
| 250.0X250.0X7.0 | 250.00 | 7.0 | 52.42 |
| 250.0X250.0X8.0 | 250.00 | 8.0 | 59.50 |

Rectangular Hollow Section

| Designation mm | Depth of Section H | Weight of Section B | Thickness T | Weight Kg/m |
|---|---|---|---|---|
| 50.0x25.0x2.9 | 50 | 25 | 2.90 | 2.98 |
| 50.0x25.0x3.2 | 50 | 25 | 3.20 | 3.24 |
| 60.0x40.0x2.9 | 60 | 40 | 2.90 | 4.12 |
| 66.0X33.0X2.9 | 66 | 33 | 2.90 | 4.07 |
| 66.0X33.0X3.6 | 66 | 33 | 3.60 | 4.93 |
| 66.0X33.0X4.5 | 66 | 33 | 4.50 | 5.95 |
| 80.0X40.0X2.9 | 80 | 40 | 2.90 | 5.03 |
| 80.0X40.0X3.2 | 80 | 40 | 3.20 | 5.50 |
| 80.0X40.0X4.0 | 80 | 40 | 4.00 | 6.71 |
| 96.0X48.0X3.2 | 96 | 48 | 3.20 | 6.71 |
| 96.0X48.0X4.0 | 96 | 48 | 4.00 | 8.22 |
| 96.0X48.0X4.8 | 96 | 48 | 4.80 | 9.66 |
| 100.0x50.0x5.0 | 100 | 50 | 5.00 | 10.91 |
| 122.0X61.0X3.6 | 122 | 61 | 3.60 | 9.67 |
| 122.0X61.0X4.5 | 122 | 61 | 4.50 | 11.88 |
| 122.0X61.0X5.4 | 122 | 61 | 5.40 | 14.01 |
| 145.0X82.0X 4.8 | 145 | 82 | 4.80 | 15.92 |
| 145.0X82.0X5.4 | 145 | 82 | 5.40 | 17.74 |
| 172.0X92.0X4.8 | 172 | 92 | 4.80 | 18.71 |
| 172.0X92.0X5.4 | 172 | 92 | 5.40 | 20.88 |
| 200.0x100.0x8.0 | 200 | 100 | 8.00 | 35.51 |
| 240.0x120.0x8.0 | 240 | 120 | 8.00 | 42.71 |

### Physical Properties

| | T.S. Min. MPA | Y.S. Min MPA | Elongation % min for Sizes | |
|---|---|---|---|---|
| | | | 25.4mm & Under | Over 25.4mm |
| YST - 210 | 330 | 210 | 12 | 20 |
| YST - 240 | 410 | 240 | 10 | 15 |
| YST - 310 | 450 | 310 | 08 | 10 |

TOLERANCES

The following tolerances shall be permitted on Hollow section

A) Thickness ±10%

B) Outside Dimension of sides ±1%
With a minimum of ±0.5mm

C) Weight
1. On individual lengths + 10%
- 8%
2. On lots of 10 tonne ±7.5%

D) Squareness of Corner 90° ±02°

E) Radius of Corner outside R=3T Max, where T is the thickness of the section.

# PRECISION TUBES

Gaurang is an Indian pioneer in making precision tubes with new advanced facilities and processes. Producing and developing tubes for automotive and energy applications, Gaurang is a name that spells unconditional commitment, quality, productivity and innovation.

## ROUND TUBE SIZE THICKNESS(mm)

| SIZES | 0.3 mm | 0.4 mm | 0.5 mm | 0.6 mm | 0.7 mm | 0.8 mm | 0.9 mm | 1.0 mm | 1.20 mm | 1.40 mm | 1.50 mm | 1.60 mm | 1.80 mm | 1.90 mm | 2.0 mm | 2.10 mm | 2.20 mm | 2.30 mm | 2.40 mm | 2.50 mm | 2.60 mm | 2.80 mm | 2.90 mm | 3.0 mm | 3.20 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.88 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19.05 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21.20 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22.23 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25.40 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28.58 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31.75 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38.10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40.00 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41.28 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42.00 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42.70 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50.20 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50.80 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60.30 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63.50 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 76.20 | | | | | | | | | | | | | | | | | | | | | | | | | |

## SQUARE TUBE SIZE THICKNESS(mm)

| TUBE OUTSIDE DIAMETER (mm) / SIZES | 0.45 mm | 0.50 mm | 0.60 mm | 0.70 mm | 0.80 mm | 0.90 mm | 1.0 mm | 1.20 mm | 1.40 mm | 1.50 mm | 1.60 mm | 1.80 mm | 2.0 mm | 2.20 mm | 2.50 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15x15 | | | | | | | | | | | | | | | |
| 20x20 | | | | | | | | | | | | | | | |
| 25x25 | | | | | | | | | | | | | | | |
| 30x30 | | | | | | | | | | | | | | | |
| 40x40 | | | | | | | | | | | | | | | |
| 50x50 | | | | | | | | | | | | | | | |
| 60x60 | | | | | | | | | | | | | | | |

## RECTANGULAR TUBE SIZE THICKNESS(mm)

| TUBE OUTSIDE DIAMETER (mm) / SIZES | 0.45 mm | 0.50 mm | 0.60 mm | 0.70 mm | 0.80 mm | 0.90 mm | 1.0 mm | 1.20 mm | 1.40 mm | 1.50 mm | 1.60 mm | 1.80 mm | 2.0 mm | 2.20 mm | 2.50 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30x20 | | | | | | | | | | | | | | | |
| 40x20 | | | | | | | | | | | | | | | |
| 50x25 | | | | | | | | | | | | | | | |
| 60x40 | | | | | | | | | | | | | | | |
| 80x40 | | | | | | | | | | | | | | | |

** Items are available in both fincut & non fincut.

# Special Thickness / Sizes Made up of C.R. Hard Material

| Round Size | Square Size | Rectanuglar Size | Thickness | Kg/mtr | Kg per 6mtr lenght |
|---|---|---|---|---|---|
| 19.05 | 15X15 | | 0.6 | 0.27 | 1.63 |
| 19.05 | 15X15 | | 0.7 | 0.32 | 1.90 |
| 19.05 | 15X15 | | 0.8 | 0.36 | 2.15 |
| 19.05 | 15X15 | | 0.9 | 0.40 | 2.41 |
| 19.05 | 15X15 | | 1.0 | 0.44 | 2.66 |
| 19.05 | 15X15 | | 1.2 | 0.53 | 3.16 |
| 19.05 | 15X15 | | 1.4 | 0.61 | 3.65 |
| 25.4 | 20X20 | | 0.6 | 0.37 | 2.20 |
| 25.4 | 20X20 | | 0.7 | 0.43 | 2.55 |
| 25.4 | 20X20 | | 0.8 | 0.48 | 2.90 |
| 25.4 | 20X20 | | 0.9 | 0.54 | 3.25 |
| 25.4 | 20X20 | | 1.0 | 0.60 | 3.60 |
| 25.4 | 20X20 | | 1.2 | 0.71 | 4.29 |
| 25.4 | 20X20 | | 1.4 | 0.83 | 4.96 |
| 31.75 | 25X25 | 30X20 | 0.6 | 0.46 | 2.76 |
| 31.75 | 25X25 | 30X20 | 0.7 | 0.53 | 3.21 |
| 31.75 | 25X25 | 30X20 | 0.8 | 0.61 | 3.65 |
| 31.75 | 25X25 | 30X20 | 0.9 | 0.68 | 4.10 |
| 31.75 | 25X25 | 30X20 | 1.0 | 0.76 | 4.54 |
| 31.75 | 25X25 | 30X20 | 1.2 | 0.90 | 5.41 |
| 31.75 | 25X25 | 30X20 | 1.4 | 1.05 | 6.27 |
| 33.7 | | | 0.6 | 0.49 | 2.93 |
| 33.7 | | | 0.7 | 0.57 | 3.41 |
| 33.7 | | | 0.8 | 0.65 | 3.88 |
| 33.7 | | | 0.9 | 0.73 | 4.36 |
| 33.7 | | | 1.0 | 0.80 | 4.83 |
| 33.7 | | | 1.2 | 0.96 | 5.76 |
| 33.7 | | | 1.4 | 1.11 | 6.67 |
| 40.2 | 32X32 | | 0.6 | 0.58 | 3.51 |
| 40.2 | 32X32 | | 0.7 | 0.68 | 4.08 |
| 40.2 | 32X32 | | 0.8 | 0.78 | 4.65 |
| 40.2 | 32X32 | | 0.9 | 0.87 | 5.22 |
| 40.2 | 32X32 | | 1.0 | 0.96 | 5.79 |
| 40.2 | 32X32 | | 1.2 | 1.15 | 6.91 |
| 40.2 | 32X32 | | 1.4 | 1.34 | 8.02 |
| 42.4 | | | 0.6 | 0.62 | 3.70 |
| 42.4 | | | 0.7 | 0.72 | 4.31 |
| 42.4 | | | 0.8 | 0.82 | 4.91 |
| 42.4 | | | 0.9 | 0.92 | 5.51 |
| 42.4 | | | 1.0 | 1.02 | 6.11 |
| 42.4 | | | 1.2 | 1.22 | 7.30 |
| 42.4 | | | 1.4 | 1.41 | 8.47 |
| 48.3 | 38x38 | 50x25 | 0.6 | 0.70 | 4.22 |
| 48.3 | 38x38 | 50x25 | 0.7 | 0.82 | 4.92 |
| 48.3 | 38x38 | 50x25 | 0.8 | 0.93 | 5.61 |
| 48.3 | 38x38 | 50x25 | 0.9 | 1.05 | 6.30 |
| 48.3 | 38x38 | 50x25 | 1.0 | 1.16 | 6.98 |
| 48.3 | 38x38 | 50x25 | 1.2 | 1.39 | 8.34 |
| 48.3 | 38x38 | 50x25 | 1.4 | 1.62 | 6.69 |
| 60.3 | | | 0.8 | 1.17 | 7.03 |
| 60.3 | | | 0.9 | 1.32 | 7.89 |
| 60.3 | | | 1.0 | 1.46 | 8.75 |
| 60.3 | | | 1.2 | 1.74 | 10.47 |
| 60.3 | | | 1.4 | 2.03 | 12.17 |
| 63.5 | 60x40 | 48x48 | 0.8 | 1.23 | 7.70 |
| 63.5 | 60x40 | 48x48 | 0.9 | 1.39 | 8.32 |
| 63.5 | 60x40 | 48x48 | 1.0 | 1.54 | 9.23 |
| 63.5 | 60x40 | 48x48 | 1.2 | 1.84 | 11.03 |
| 63.5 | 60x40 | 48x48 | 1.4 | 2.14 | 12.83 |
| 76.1 | 60x60 | 80x40 | 0.8 | 1.48 | 8.89 |
| 76.1 | 60x60 | 80x40 | 0.9 | 1.66 | 9.99 |
| 76.1 | 60x60 | 80x40 | 1.0 | 1.85 | 11.08 |
| 76.1 | 60x60 | 80x40 | 1.2 | 2.21 | 13.27 |
| 76.1 | 60x60 | 80x40 | 1.4 | 2.57 | 15.44 |
| 76.1 | 60x60 | 80x40 | 1.6 | 2.93 | 17.59 |
| 76.1 | 60x60 | 80x40 | 1.8 | 3.29 | 19.74 |

** ALL MATERIAL CAN BE ROLLED IN THE MINUS WEIGHT TOLERNACE AS CUSTOMER REQUIREMENT.

# TECHNICAL SPECIFICATION

## FOR SWAGED POLES IS : 2713 - OF SP-410 & SP-540

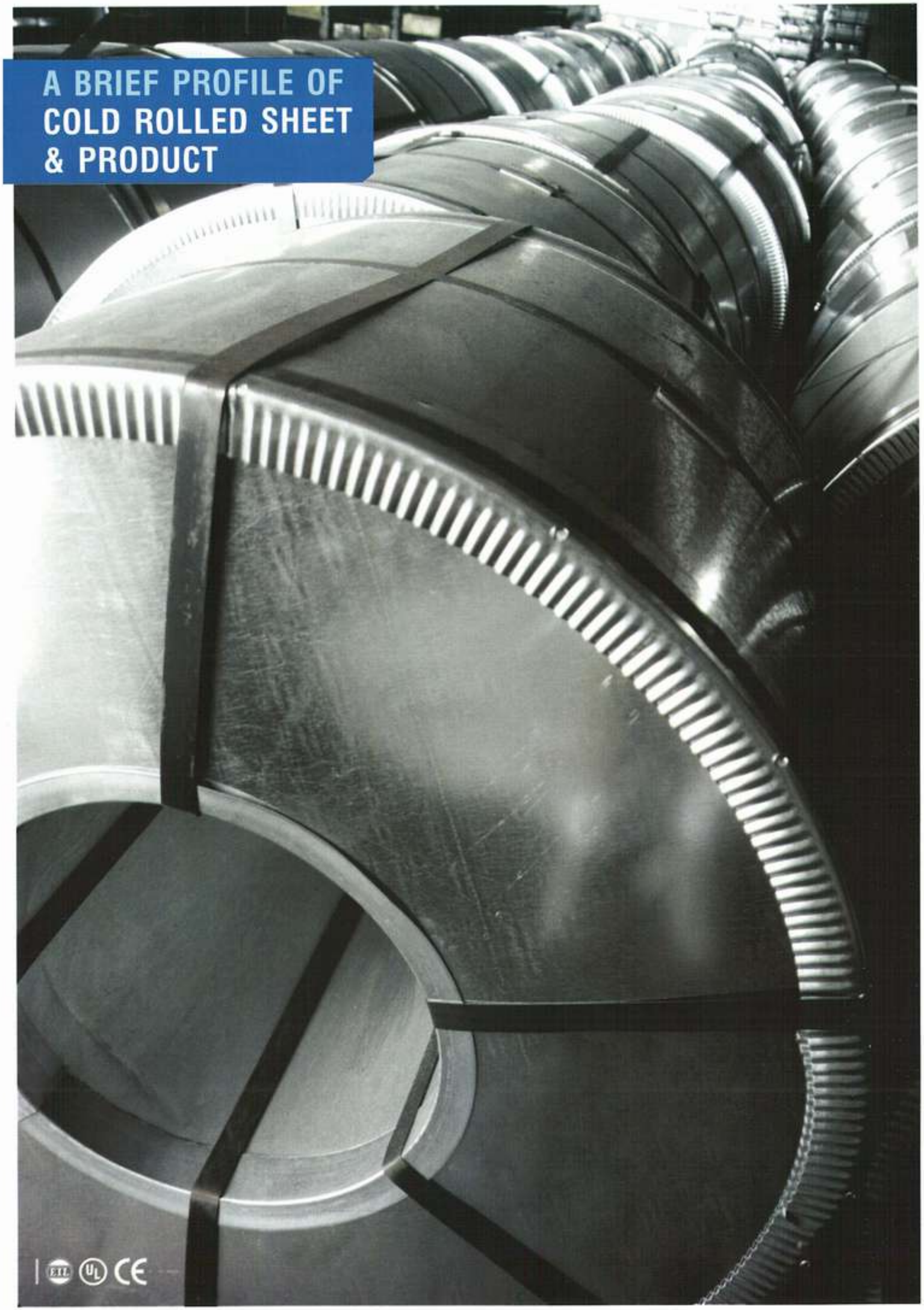
| Desig-nation | Over All Length L | Planting Depth | Load Applied from Top at a Distance of | Height above ground H | Length of Sections | | |
|---|---|---|---|---|---|---|---|
| | | | | | Bottom h3 | Middle h2 | Top h1 |
| (1) (m) | (2) (m) | (3) (m) | (4) (m) | (5) (m) | (6) (m) | (7) (m) | (8) (m) |
| 410SP-1 | 7.00 | 1.25 | 0.30 | 5.75 | 4.00 | 1.50 | 1.50 |
| 410SP-2 | 7.00 | 1.25 | 0.30 | 5.75 | 4.00 | 1.50 | 1.50 |
| 410SP-3 | 7.00 | 1.25 | 0.30 | 5.75 | 4.00 | 1.50 | 1.50 |
| 410SP-4 | 7.50 | 1.25 | 0.30 | 6.25 | 4.50 | 1.50 | 1.50 |
| 410SP-5 | 7.50 | 1.25 | 0.30 | 6.25 | 4.50 | 1.50 | 1.50 |
| 410SP-6 | 7.50 | 1.25 | 0.30 | 6.25 | 4.50 | 1.50 | 1.50 |
| 410SP-7 | 7.50 | 1.25 | 0.30 | 6.25 | 4.50 | 1.50 | 1.50 |
| 410SP-8 | 7.50 | 1.25 | 0.30 | 6.25 | 4.50 | 1.50 | 1.50 |
| 410SP-9 | 7.50 | 1.25 | 0.30 | 6.25 | 4.50 | 1.50 | 1.50 |
| 410SP-10 | 8.00 | 1.25 | 0.30 | 6.50 | 4.50 | 1.75 | 1.75 |
| 410SP-11 | 8.00 | 1.25 | 0.30 | 6.50 | 4.50 | 1.75 | 1.75 |
| 410SP-12 | 8.00 | 1.50 | 0.30 | 6.50 | 4.50 | 1.75 | 1.75 |
| 410SP-13 | 8.00 | 1.50 | 0.30 | 6.50 | 4.50 | 1.75 | 1.75 |
| 410SP-14 | 8.00 | 1.50 | 0.30 | 6.50 | 4.50 | 1.75 | 1.75 |
| 410SP-15 | 8.00 | 1.50 | 0.30 | 6.50 | 4.50 | 1.75 | 1.75 |
| 410SP-16 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-17 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-18 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-19 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-20 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-21 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-22 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-23 | 8.50 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-24 | 9.00 | 1.50 | 0.30 | 7.00 | 5.00 | 1.75 | 1.75 |
| 410SP-25 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-26 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-27 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-28 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-29 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-30 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-31 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-32 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-33 | 9.00 | 1.50 | 0.30 | 7.50 | 5.00 | 2.00 | 2.00 |
| 410SP-34 | 9.50 | 1.80 | 0.60 | 7.70 | 5.00 | 2.25 | 2.25 |
| 410SP-35 | 9.50 | 1.80 | 0.60 | 7.70 | 5.00 | 2.25 | 2.25 |
| 410SP-36 | 9.50 | 1.80 | 0.60 | 7.70 | 5.00 | 2.25 | 2.25 |
| 410SP-37 | 9.50 | 1.80 | 0.60 | 7.70 | 5.00 | 2.25 | 2.25 |
| 410SP-38 | 9.50 | 1.80 | 0.60 | 7.70 | 5.00 | 2.25 | 2.25 |

| Outside Diameter and Thickness of Sections | | | Approx. Weight of Pole | Breaking Load | Crippling Load | Working Load | | Load for Permanent Set not Exceeding 13 mm | Load for Temporary Deflection of 157.5 mm |
|---|---|---|---|---|---|---|---|---|---|
| Bottom h3 | Middle h2 | Top h1 | | | | Col 14 2 | Col 13 2.5 | | |
| (9) (mm) | (10) (mm) | (11) (mm) | (12) (kg) | (13) (kg) | (14) N(kg) | (15) N(kg) | (16) (Nkg) | (17) N(kg) | (18) N(kg) |
| 114.3 x 3.65 | 88.9 x 3.25 | 76.1 x 3.25 | 62 | 2570 (262) | 1820 (186) | 912(93) | 1030 (105) | 1245 (127) | 785 (80) |
| 114.3 x 4.50 | 88.9 x 4.05 | 76.1x3.25 | 73 | 3100 (316) | 2240 (224) | 1100 (112) | 1240 (126) | 1510 (154) | 941 (96) |
| 114.3 x 5.40 | 88.9 x 4.85 | 76.1x3.25 | 85 | 3630 (370) | 2580 (263) | 1280 (131) | 1450 (148) | 1760 (180) | 1090 (111) |
| 224.3 x 3.65 | 88.9 x 3.25 | 76.1x3.25 | 67 | 2350 (240) | 1670 (170) | 1320 (135) | 941 (96) | 1150 (117) | 627 (64) |
| 114.3 x 4.50 | 88.9 x 4.05 | 76.1x3.25 | 79 | 2760 (281) | 1960 (200) | 981 (100) | 1100 (112) | 1340 (137) | 745 (76) |
| 114.3 x 5.40 | 88.9 x 4.85 | 76.1x3.25 | 93 | 3320 (339) | 2360 (241) | 1180 (120) | 1330 (136) | 1620 (165) | 873 (89) |
| 139.7 x 4.50 | 114.3 x 3.65 | 88.9x3.25 | 97 | 4330 (442) | 3080 (314) | 1540 (157) | 1740 (177) | 2110 (215) | 1400 (143) |
| 139.7 x 4.85 | 114.3 x 3.65 | 88.9x3.25 | 103 | 4630 (472) | 3280 (335) | 1650 (168) | 1850 (189) | 2250 (229) | 1480 (151) |
| 139.7 x 5.40 | 114.3 x 3.65 | 88.9x3.25 | 110 | 5100 (520) | 3620 (369) | 1810 (185) | 2040 (208) | 2480 (253) | 1600 (163) |
| 114.3 x 3.65 | 88.9 x 3.25 | 76.1x3.25 | 70 | 2260 (230) | 1600 (163) | 804 (82) | 902 (92) | 1110 (112) | 520 (53) |
| 114.3 x 4.50 | 88.9 x 4.05 | 76.1x3.25 | 83 | 2730 (278) | 1930 (197) | 971 (99) | 1090 (111) | 1320 (135) | 618 (63) |
| 114.3 x 5.40 | 88.9 x 4.85 | 76.1x3.25 | 97 | 3190 (325) | 2270 (231) | 1130 (115) | 1270 (130) | 1550 (158) | 725 (74) |
| 139.7 x 4.50 | 114.3 x 3.65 | 88.9x3.25 | 101 | 4160 (424) | 2950 (301) | 1480 (151) | 1670 (170) | 2020 (206) | 1180 (120) |
| 139.7 x 4.85 | 114.3 x 4.50 | 88.9x3.25 | 111 | 4440 (453) | 3160 (322) | 1580 (161) | 1770 (181) | 2160 (220) | 1280 (131) |
| 139.7 x 5.40 | 114.3 x 4.50 | 88.9x3.25 | 119 | 4890 (499) | 3470 (354) | 1740 (177) | 1960 (200) | 2380 (243) | 1380 (140) |
| 114.3 x 3.65 | 88.9 x 3.25 | 76.1x3.25 | 75 | 2090 (213) | 1480 (151) | 745 (76) | 834 (85) | 1020 (104) | 432 (44) |
| 114.3 x 4.50 | 88.9 x 4.05 | 76.1x3.25 | 89 | 2520 (257 | 1790 (182) | 893 (91) | 1010 (103) | 1230 (125) | 510 (52) |
| 114.3 x 4.40 | 88.9 x 4.85 | 76.1x3.25 | 104 | 2950 (301) | 2100 (214) | 1050 (107) | 1180 (120) | 1430 (146) | 598 (61) |
| 139.7 x 4.50 | 114.3 x 3.65 | 88.9x3.25 | 109 | 3844 (392) | 2730 (278) | 1360 (139) | 1540 (157) | 1800(191) | 961 (98) |
| 139.7 x 4.85 | 114.3 x 3.65 | 88.9x3.25 | 115 | 5110 (419) | 2910 (297) | 1460 (140) | 1650 (168) | 2000 (204) | 1010 (103) |
| 139.7 x 5.40 | 114.3 x 4.50 | 88.9x3.25 | 129 | 4530 (462) | 3220 (328) | 1620 (164) | 1810 (185) | 2210 (225) | 1130 (115) |
| 165.1 x 4.50 | 139.7 x 4.50 | 114.3 x 3.65 | 141 | 5450 (5556) | 3870 (395) | 1930 (197) | 2180 (222) | 2650 (270) | 1730 (176) |
| 165.1 x 4.85 | 139.7 x 4.50 | 114.3 x 3.61 | 148 | 5840 (596) | 4150 (423) | 2080 (212) | 2330 (238) | 2840 (290) | 1820 (186) |
| 165.1 x 5.40 | 139.7 x 4.50 | 114.3 x 3.65 | 158 | 6450 (658) | 4580 (467) | 2340 (234) | 2579 (263) | 3140 (320) | 1970 (201) |
| 114.3 x 3.65 | 88.9 x 3.25 | 76.1x3.25 | 78 | 1940 (198) | 1380 (141) | 686 (70) | 775 (79) | 941 (96) | 333 (34) |
| 114.3 x 4.50 | 88.9 x 4.05 | 76.1x3.25 | 92 | 2340 (239) | 1670 (170) | 834 (85) | 941 (96) | 1140 (116) | 402 (41) |
| 114.3 x 5.40 | 88.9 x 4.85 | 76.1x3.25 | 108 | 2750 (280) | 1950 (199) | 971 (99) | 1100 (112) | 1330 (136) | 461 (47) |
| 139.7 x 4.50 | 114.3 x 3.65 | 88.9x3.25 | 113 | 3580 (365) | 2540 (259) | 1270 (130) | 1430 (146) | 1740 (177) | 745 (76) |
| 139.7 x 4.85 | 114.3 x 4.50 | 88.9x3.25 | 125 | 3820 (390) | 2728 (277) | 1350 (138) | 1530 (156) | 1860 (190) | 814 (83) |
| 139.7 x 5.40 | 114.3 x 4.50 | 88.9x3.25 | 133 | 4220 (430) | 2990 (305) | 1500 (153) | 1690 (172) | 2050 (209) | 882 (90) |
| 165.1 x 4.50 | 139.7 x 4.50 | 114.3 x 3.65 | 147 | 5070 (517) | 3600 (367) | 1800 (184) | 2030 (207) | 2460 (251) | 1360 (139) |
| 165.1 x 4.85 | 139.7 x 4.50 | 114.3 x 3.65 | 154 | 5430 (554) | 3850 (393) | 1930 (197) | 2180 (222) | 2640 (269) | 1430 (146) |
| 165.1 x 5.40 | 139.7 x 4.50 | 114.3 x 3.65 | 164 | 6000 (612) | 4270 (435) | 2130 (217) | 2410 (245) | 2910 (297) | 1540 (157) |
| 139.7 x 4.50 | 114.3 x 4.50 | 88.9 x 3.25 | 122 | 3630 (370) | 2580 (263) | 1280 (131) | 1450 (148) | 1760 (180) | 745 (76) |
| 139.7 x 4.85 | 114.3 x 4.50 | 88.9 x 3.25 | 129 | 3880 (396) | 2760 (281) | 1390 (142) | 1550 (158) | 1880 (192) | 784 (80) |
| 139.7 x 5.40 | 114.3 x 4.50 | 88.9 x 3.25 | 137 | 4280 (436) | 3040 (310) | 1520 (155) | 1710 (174) | 2080 (212) | 833 (85) |
| 165.1 x 4.50 | 139.7 x 4.50 | 114.3 x 3.65 | 153 | 5150 (525) | 3660 (373) | 1820 (186) | 2060 (210) | 2500 (255) | 1300 (133) |
| 165.1 x 4.85 | 139.7 x 4.50 | 114.3 x 3.65 | 160 | 5510 (562) | 3910 (399) | 1960 (200) | 2210 (225) | 2680 (273) | 1370 (140) |

| Desig-nation | Over All Length L | Planting Depth | Load Applied from Top at a Distance of | Height above ground H | Length of Sections | | |
|---|---|---|---|---|---|---|---|
| | | | | | Bottom h3 | Middle h2 | Top h1 |
| (1) (m) | (2) (m) | (3) (m) | (4) (m) | (5) (m) | (6) (m) | (7) (m) | (8) (m) |
| 410SP-39 | 9.50 | 1.80 | 0.60 | 7.70 | 5.00 | 2.25 | 2.25 |
| 410SP-40 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-41 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-42 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-43 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-44 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-45 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-46 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-47 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-48 | 10.00 | 1.80 | 0.60 | 8.20 | 5.20 | 2.40 | 2.40 |
| 410SP-49 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-50 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-51 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-52 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-53 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-54 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-55 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-56 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-57 | 11.00 | 1.80 | 0.60 | 9.20 | 5.60 | 2.70 | 2.70 |
| 410SP-58 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-59 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-60 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-61 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-62 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-63 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-64 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-65 | 12.00 | 2.00 | 0.60 | 10.00 | 5.80 | 3.10 | 3.10 |
| 410SP-66 | 12.00 | 2.00 | 0.60 | 11.00 | 5.80 | 3.10 | 3.10 |
| 410SP-67 | 13.00 | 2.00 | 0.60 | 11.00 | 5.80 | 3.60 | 3.60 |
| 410SP-68 | 13.00 | 2.00 | 0.60 | 11.00 | 5.80 | 3.60 | 3.60 |
| 410SP-69 | 13.00 | 2.00 | 0.60 | 11.00 | 5.80 | 3.60 | 3.60 |
| 410SP-70 | 13.00 | 2.00 | 0.60 | 11.00 | 5.80 | 3.60 | 3.60 |
| 410SP-71 | 13.00 | 2.00 | 0.60 | 11.00 | 5.80 | 3.60 | 3.60 |
| 410SP-72 | 13.00 | 2.00 | 0.60 | 11.00 | 5.80 | 3.60 | 3.60 |
| 410SP-73 | 14.50 | 2.00 | 0.60 | 12.50 | 6.50 | 4.00 | 4.00 |
| 410SP-74 | 14.50 | 2.00 | 0.60 | 12.50 | 6.50 | 4.00 | 4.00 |
| 410SP-75 | 14.50 | 2.00 | 0.60 | 12.50 | 6.50 | 4.00 | 4.00 |
| 410SP-76 | 14.50 | 2.00 | 0.60 | 12.50 | 6.50 | 4.00 | 4.00 |
| 410SP-77 | 16.00 | 2.30 | 0.60 | 13.70 | 7.00 | 4.50 | 4.50 |
| 410SP-78 | 16.00 | 2.30 | 0.60 | 13.70 | 7.00 | 4.50 | 4.50 |
| 410SP-79 | 16.00 | 2.30 | 0.60 | 13.70 | 7.00 | 4.50 | 4.50 |
| 410SP-80 | 16.00 | 2.30 | 0.60 | 13.70 | 7.00 | 4.50 | 4.50 |

| Outside Diameter and Thickness of Sections | | | Approx. Weight of Pole | Breaking Load | Crippling Load | Working Load | | Load for Permanent Set not Exceeding 13 mm | Load for Temporary Deflection of 157.5 mm |
|---|---|---|---|---|---|---|---|---|---|
| Bottom h3 | Middle h2 | Top h1 | | | | Col 14 2 | Col 13 2.5 | | |
| (9) (mm) | (10) (mm) | (11) (mm) | (12) (kg) | (13) (kg) | (14) N(kg) | (15) N(kg) | (16) (Nkg) | (17) N(kg) | (18) N(kg) |
| 165.1 x 5.40 | 139.7 x 4.50 | 114.3 x 3.65 | 170 | 6090 (621) | 4320 (441) | 2160 (220) | 2430 (248) | 2960 (302) | 1480 (151) |
| 139.7 x 4.50 | 114.3 x 4.50 | 88.9 x 3.25 | 128 | 3390 (346) | 2410 (246) | 1210 (123) | 1350 (138) | 1650 (168) | 608 (62) |
| 139.7 x 4.85 | 114.3 x 4.50 | 88.9 x 3.25 | 135 | 3630 (370) | 2580 (263) | 1280 (131) | 1450 (148) | 1760 (180) | 637 (65) |
| 139.7 x 5.40 | 114.3 x 4.50 | 88.9 x 3.25 | 144 | 3990 (407) | 2830 (289) | 1410 (144) | 1600 (163) | 1940 (198) | 677 (69) |
| 165.1 x 4.50 | 139.7 x 4.50 | 114.3 x 3.65 | 160 | 4810(490) | 3410 (348) | 1710 (174) | 1920 (196) | 2330 (238) | 1060 (108) |
| 165.1 x 4.85 | 139.7 x 4.50 | 114.3 x 3.65 | 168 | 5150 (525) | 3660 (373) | 1820 (186) | 2060 (210) | 2500 (255) | 1120 (114) |
| 165.1 x 5.40 | 139.7 x 4.50 | 114.3 x 3.65 | 178 | 5690 (580) | 4040 (412) | 2020 (206) | 2280 (232) | 2760 (282) | 1200 (122) |
| 193.7 x 4.85 | 165.1 x 4.50 | 139.7 x 4.50 | 208 | 7210 (735) | 5120 (522) | 2560 (261) | 2880 (294) | 3500 (357) | 1850 (189) |
| 193.7 x 5.40 | 165.1 x 4.50 | 139.7 x 4.50 | 221 | 7910 (807) | 5620 (573) | 2800 (286) | 3170 (323) | 3840 (392) | 1990 (203) |
| 193.7 x 5.90 | 165.1 x 4.50 | 139.7 x 4.50 | 233 | 8620 (879) | 6120 (624) | 3060 (312) | 3450 (352) | 4190 (427) | 2110 (215) |
| 139.7 x 4.50 | 114.3 x 4.50 | 88.9 x 3.25 | 140 | 3000 (306) | 2130 (217) | 1070 (109) | 1200 (122) | 1460 (149) | 412 (42) |
| 139.7 x 4.85 | 114.3 x 4.50 | 88.9 x 3.25 | 147 | 3210 (327) | 2280 (232) | 1140 (116) | 1280 (131) | 1560 (159) | 431 (44) |
| 139.7 x 5.40 | 114.3 x 5.40 | 88.9 x 3.25 | 164 | 3530 (360) | 2510 (256) | 1260 (128) | 1410 (144) | 1720 (175) | 480 (49) |
| 165.1 x 4.50 | 139.7 x 4.50 | 114.3 x 3.65 | 175 | 4250 (433) | 3010 (307) | 1510 (154) | 1700 (173) | 2060 (210) | 726 (74) |
| 165.1 x 4.85 | 139.7 x 4.50 | 114.3 x 3.65 | 183 | 4550 (464) | 3230 (329) | 1620 (165) | 1820 (186) | 2220 (226) | 765 (78) |
| 165.1 x 5.40 | 139.7 x 4.50 | 114.3 x 3.65 | 194 | 5030 (513) | 3570 (364) | 1780 (182) | 2010 (205) | 2440 (249) | 814 (83) |
| 193.7 x 4.85 | 165.1 x 4.50 | 139.7 x 4.50 | 227 | 6370 (650) | 4530 (462) | 2260 (231) | 2550 (260) | 3100 (316) | 1270 (130) |
| 193.7 x 5.40 | 165.1 x 4.50 | 139.7 x 4.50 | 241 | 6990 (713) | 4820 (502) | 2480 (253) | 2790 (285) | 3400 (347) | 1370 (140) |
| 193.7 x 5.90 | 165.1 x 4.85 | 139.7 x 4.50 | 256 | 7620 (777) | 5410 (552) | 2710 (276) | 3050 (311) | 3710 (378) | 1470 (150) |
| 165.1 x 4.50 | 139.7 x 4.50 | 114.3 x 3.65 | 186 | 3880 (396) | 2760 (281) | 1380 (141) | 1550 (158) | 1880 (192) | 539 (55) |
| 165.1 x 4.85 | 139.7 x 4.50 | 114.3 x 3.65 | 197 | 4160 (424) | 2950 (301) | 1480 (151) | 1670 (170) | 2020 (206) | 569 (58) |
| 165.1 x 5.40 | 139.7 x 4.50 | 114.3 x 3.65 | 208 | 4600 (469) | 3270 (333) | 1630 (166) | 1840 (188) | 2240 (228) | 598 (61) |
| 193.7 x 4.85 | 165.1 x 4.50 | 139.7 x 4.50 | 245 | 5820 (594) | 4140 (422) | 2070 (211) | 2330 (238) | 2830 (289) | 951 (97) |
| 193.7 x 5.40 | 165.1 x 4.50 | 139.7 x 4.50 | 259 | 6390 (652) | 4540 (463) | 2270 (231) | 2560 (261) | 3110 (317) | 1010 (103) |
| 193.7 x 5.90 | 165.1 x 4.85 | 139.7 x 4.50 | 277 | 6960 (710) | 4940 (504) | 2470 (252) | 2709(284) | 3390 (345) | 1090 (111) |
| 219.1 x 4.85 | 193.7 x 4.85 | 165.1 x 4.50 | 292 | 7490 (764) | 5320 (542) | 2660 (271) | 3000 (306) | 3640 (371) | 1460(140) |
| 219.1 x 5.60 | 193.7 x 4.85 | 165.1 x 4.50 | 313 | 8530 (871) | 6060(618) | 3030 (309) | 3410 (348) | 4150 (423) | 1610 (164) |
| 219.1 x 5.90 | 193.7 x 4.85 | 165.1 x 4.50 | 322 | 8980 (916) | 6370 (560) | 3190 (325) | 3590 (366) | 4360 (445) | 1660 (169) |
| 193.7 x 4.85 | 165.1 x 4.50 | 139.7 x 4.50 | 261 | 5270 (590) | 3740 (381) | 1870 (191) | 2110 (215) | 2560 (261) | 677 (69) |
| 193.7 x 5.40 | 165.1 x 4.85 | 139.7 x 4.50 | 281 | 5790 (590) | 4110 (419) | 2050 (209) | 2310 (236) | 2810 (287) | 735 (75) |
| 193.7 x 5.90 | 165.1 x 5.40 | 139.7 x 4.50 | 302 | 6300 (642) | 4470 (456) | 2240 (228) | 2520 (257) | 3060 (312) | 794 (81) |
| 219.1 x 1.85 | 193.7 x 4.85 | 165.1 x 4.50 | 312 | 6780 (691) | 6820 (491) | 2400 (245) | 2710 (276) | 3300 (336) | 1060 (108) |
| 219.1 x 5.60 | 193.7 x 4.85 | 165.1 x 4.50 | 333 | 7720 (787) | 5480 (559) | 2740 (279) | 3090 (315) | 3750 (382) | 1160 (118) |
| 219.1 x 5.90 | 193.7 x 4.85 | 165.1 x 4.50 | 343 | 8120 (828) | 5770 (588) | 2880 (294) | 3250 (331) | 3940 (402) | 1190 (121) |
| 193.7 x 5.40 | 165.1 x 4.85 | 139.7 x 4.50 | 312 | 5050 (515) | 3590 (366) | 1790 (183) | 2020(206) | 2450 (250) | 500 (51) |
| 193.7 x 5.90 | 165.1 x 5.40 | 139.7 x 4.50 | 336 | 5500 (561) | 3900 (561) | 1950 (199) | 2200 (224) | 2680 (273) | 539 (55) |
| 219.1 x 5.60 | 193.7 x 4.85 | 165.1 x 4.50 | 370 | 6750 (688) | 4790 (488) | 2390 (244) | 2700 (275) | 3780 (334) | 775 (79) |
| 219.1 x 5.90 | 193.7 x 4.85 | 165.1 x 4.50 | 380 | 7100 (724) | 5040 (514) | 2520 (257) | 2840 (290) | 3450 (352) | 794 (81) |
| 193.7 x 5.40 | 165.1 x 4.85 | 139.7 x 4.50 | 341 | 4590 (468) | 3260 (332) | 1630 (166) | 1830 (187) | 2230 (227) | 363 (37) |
| 193.7 x 5.90 | 165.1 x 5.40 | 139.7 x 4.50 | 367 | 5000 (510) | 3550 (362) | 1780 (181) | 2000 (204) | 2430 (248) | 392 (40) |
| 219.1 x 5.60 | 193.7 x 4.85 | 165.1 x 4.50 | 405 | 6130 (625) | 4350 (444) | 2180 (222) | 2450 (250) | 2980 (304) | 569 (58) |
| 219.1 x 5.90 | 193.7 x 4.85 | 165.1 x 4.50 | 416 | 6440 (657) | 4570 (466) | 2280 (233) | 2580 (263) | 3130 (319) | 568 (60) |

# A BRIEF PROFILE OF COLD ROLLED SHEET & PRODUCT



## Cold Rolled steel (CR) Strips / Coils

with the growing demand of cold rolled strips and sheets, Gaurang has started manufacturing CR coils and strips in year 2003 with annual capacity of 1 lac MT annum in various sizes and thickness.

On line stringent quality checks ensure the tolerances and dimension for sophisticated applications

CR production plant consists of 4 HI and cold rolling mils along with bell furnaces, Skin pass, slitting, cut to length and testing facilities.

## Products Range

- CRCA strips with low carbon
- Medium carbon steel
- High strength low alloy steel
- Semi Processed unalloyed electrical
- Hot rolled oiled & picketed steel

**CR Strips** : Mild Steel in drawing. Deep drawing, Extra deep drawing grades medium and high carbon, SAE 1020, if steel, High Tensile steel (SPC-370-440)

Specifications : IS 513, BS 1449, JIS G3141, IS 7226 and equivalent, SPCC, SPCD, SPCE

Strip Width : 12mm to 1120mm

Strip Thickness :0.3mm to 3.2mm

Coil Weight : 2-17 kg/mm width

Coils Diameter : Internal 400mm & 500mm External 1700mm (max)

Cut to Length Sheet:Length 350mm width 40mm to 1250mm thickness 0.40mm to 3.2mm

Surface Finish : Bright suitable for most purpose & recommended for electro plating with light mat-surface is suitable for deep drawing and for painting. bright finish, dull finish, matt finish

**CR**

Surface Finish : Most of the applications are covered with this surface roughness to have trouble free

Bright/Polished : Deep drawing and lacquering operations. matt finish

- Semi processed unalloyed electrical
- Hot rolled oiled & & picketed steel

## Manufacturing Process

The manufacturing processes utilizes the latest technology for producing high quality cold rolled steel coils and sheets. H.R. coils are procured from interpreted steel plants eg. sail. TATA and ISPAT etc to ensure the desired raw materials standard to meet stringent quality.

**HR Slitter :** The pull through HR slitting line slits the rough edges of the HR coils

**Pickling :** in semi continuous line surface ferrous scale of HR coils is removed with the usage of warm Hydrochloric Acid. Coil is subsequently rinsed with cold and hot water. The access water on the strips is dried at hot air blower.

**Cold Rolling :** 4 Hi Rolling Mill

The Pickled HR coils are cold rolled to required thickness in several passes. Mills are equipped with all facilities to ensure-Closure dimensional Tolerances, shape and size

**Annealing :** To attain required properties for formability, cold rolled coils are annealed in protective (non-oxidizing) nitrogen atmosphere furnaces are equipped with all required auto controls.

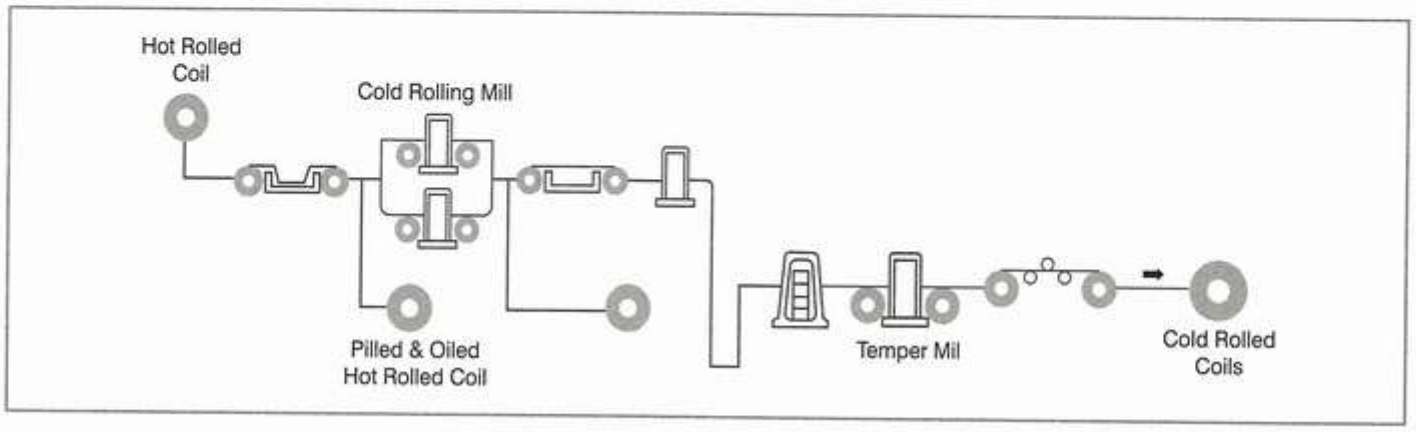
**Skin Pass :** Skin passing of cold rolled steel coils is carried out to • Remove stretcher strain • Obtain desired finish such as mat or bright achieve flatness

**CR Slitters :** By the precision slitting machines coils are slit to the required width / to cater to the diversified need of customers.

**Cut to Length :** Coils are cut into sheets as per customer requirements.

**Oiling :** The coils / sheets are first covered by polyethene sheet. These are covered by hessian and sheet metal packaging as per customers requirement. These are tied with steel straps to avoid any damage in handling, transportation and storage.

**Packing** : The coils / sheets are first covered by polyethene sheet. These are covered by Hessian and sheet metal packaging as per customers requirement. These are tied with steel straps to avoid any damage in handling, transportation and storage.



**Applications & Specification**

Customized cold rolled steel sheets and strips are used for the follows applications:

- AC & Refrigerator Industry
- Washing Machines
- Electrical Parts
- Electronic Parts
- Automobile Industry
- Steel Furniture industry
- Fabrication & Engineering

## COLD ROLLED CLOSED ANNELED

### International Standards

| Grade | Specifications | - | - | - | - | - |
|---|---|---|---|---|---|---|
| - | 15513 | JIS G3141 | BS1449 | DIN 1623 | ASTM* | EN 10130 |
| Drawing Quality | D | SPCD | CR3 | St 12.13 | CQ | FEP03 |
| Deep Drawing Quality | DD | SPCE | CR2 | St. 14 | DQ | FEP03 |
| Extra Deep Drawing Quality | EDD | SPCEN | CR1 | - | EDDQ | FEP04 |
| Extra Deep Drawing Quality | - | - | - | - | - | FEP05 |
| Super Extra Deep Drawing Quality (if Grade) | - | - | - | - | - | FEP06 |

High tensile grades available as per customers specification on mutual agreement ASTM = A366/A366M /A619WA620 / A620M

| Designation | Elongation% Min thickness range (mm) Tensile Strength | | | | Test Price |
|---|---|---|---|---|---|
| - | - | 0.40 to 0.60 excl | 0.60 to 1.0 excl | 1.0 to 1.6 excl | - |
| SPCC | (34) | (36) | (37) | (38) | No. 5in |
| SPCD | (36) | (38) | (39) | 40 | Rolling |
| SPCE | 18 | 40 | 41 | 42 | Direction |

Note
1. The tensile test value does not usually apply to SPCC
2. For those less then 0.60mm in thickness the tens on test shall generally be omitted

| Designation | Erichsen Values for Thickness (mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| - | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 |
| SPCC | 7.2 | 7.8 | 8.4 | 8.8 | 9.1 | 9.4 | 9.6 | 10.0 | 10.3 | 10.5 |
| SPCD | 7.6 | 8.2 | 8.8 | 9.2 | 9.5 | 9.8 | 10.0 | 10.4 | 10.7 | 10.9 |
| SPCE | 8.0 | 8.6 | 9.2 | 9.6 | 9.9 | 10.2 | 10.4 | 10.8 | 11.1 | 11.3 |

Note
1. For the intermediate nominal thickness of 0.4mm or more and 1.6mm or less which are not listed in this table, the value shall be obtained by the method of interposition and rounded off at one place of decimal.

SHALL APPLY TO THE AVERAGE OF THE VALUES OF 3 PIECES

| Thickness Tolerance | Width under 600 | 630 to 1,000 excl. | 1,000 to 1,250 excl. | 1,250 to 1,600 excl. | 1,600 to and over |
|---|---|---|---|---|---|
| Thickness | | | | | |
| 0.30 to 0.40 excl | ±0.04 | ±0.04 | ±0.04 | - | - |
| 0.40 to 0.60 excl | ±0.05 | ±0.05 | ±0.05 | ±0.06 | - |
| 0.60 to 0.80 excl | ±0.06 | ±0.06 | ±0.06 | ±0.07 | ±0.08 |
| 0.80 to 1.00 excl | ±0.07 | ±0.07 | ±0.08 | ±0.09 | ±0.10 |
| 1.00 to 1.25 excl | ±0.08 | ±0.08 | ±0.09 | ±0.10 | ±0.12 |
| 1.25 to 1.60 excl | ±0.09 | ±0.10 | ±0.11 | ±0.12 | ±0.14 |
| 1.60 to 2.00 excl | ±0.10 | ±0.11 | ±0.12 | ±0.14 | ±0.16 |

BS 1449 PART 1 CARBON STEEL PLATES, SHEET & STRIP

| Chemical Composition Grade | Chemical Composition, % Max | | | | Classification |
|---|---|---|---|---|---|
| - | C | Mn | P | S | - |
| CR 4 | 0.12 | 0.60 | 0.050 | 0.050 | Drawing Quality |
| CR 3 | 0.10 | 0.50 | 0.040 | 0.040 | Deep Drawing Quality |
| CR 2 | 0.08 | 0.45 | 0.030 | 0.035 | Extra Deep Drawing Quality |
| CR 1 | 0.08 | 0.45 | 0.025 | 0.030 | - |

MECHANICAL PROPERTIES

| Grade | Yield Strength | Tensile Strength | Original | Gauge Length | Lo | Bend Mandrel Diameter |
|---|---|---|---|---|---|---|
| - | N/mm2min | N/mm2min | 50 mm | 80 mm | 200 mm | 180 bend |
| CR4 | (140) | (280) | - | - | - | Contact |
| CR3 | (140) | (280) | (34) | (32) | (25) | Contact |
| CR2 | 140 | 280 | 36 | (34) | 27 | Contact |
| CR1 | 140 | 280 | 38 | (36) | 29 | Contact |

Note

1. Tensile properties given in brackets are for guidance only and are not mandatory unless specially agreed at the time of ordering Tensile test result is not normally requested for grade CR3and
2 For material less then 1.00mm thick, the percentage elongation is reduced by 1 for each 0.25mm reduction in thickness.
3 in case of this specification the agreement between the manufacturer and the customer is prior to ordering
4 *t thickness of material

DIN 1623 PART 1 COLD ROLLED SHEET AND STRIPS FOR COLD FORMING

| | Chemical Composition, % Max | | | Mechanical Properties | | | Hardness Max | |
|---|---|---|---|---|---|---|---|---|
| Steel Grade | % C | % P | % S | Tensile Strength n/mm² | Yield Strength N/mm2 max | Elongation% min | HRB | HR30T |
| St12 | 0.10 | - | - | 270-410 | 280 | 28 | 65 | 60 |
| St13 | 0.10 | - | - | 270-370 | 240 | 34 | 55 | 53 |
| St14 | 0.08 | - | - | 270-350 | 210 | 38 | 50 | 50 |

Gaurang SAMRIDHI

# GALVANISED COILS

GAURANG PRODUCTS PVT. LTD. produces world-class galvanized steel products in its galvanizing. The products offer excellent properties such as corrosion resistance, good service life, excellent surface finish, and close dimensional tolerances.

## Benefits

- Excellent surface finish for superior paintability
- Consistency in quality

## Applications

- Construction: Steel framing, false ceilings, sandwich panels, ducting, decking, purlin, HVAC applications
- While Goods: Refrigerators, deep freezers, washing machines, air coolers
- Automotive: Auto internal components, bus bodies
- Furniture: Office equipment
- Containers: Grain silos, drum & barrels
- Crash Guards / Hand Rails

## Features

- Uniform zinc coating in the range of 120-600 GSM
- Spangles: Zero/Regular/Minimised/Suppressed
- With and without tension leveling
- Passivation: Chromatid (Hexavalent /Trivalent)
- Oiling: 100-1,000 GSM
- Winding: Controlled/Staggered (+/-5 to+/-15mm)
- Coil Id: 508/610mm

## Supply condition

- Coil / Slits / Sheet for

## Dimensions

GAL COIL:

Thickness: 0.20-1.6mm

Widh: 600-1,350mm

GAL SHEET FORM:

Thickness: 0.5-1.6mm

Widh: 600-1,350mm

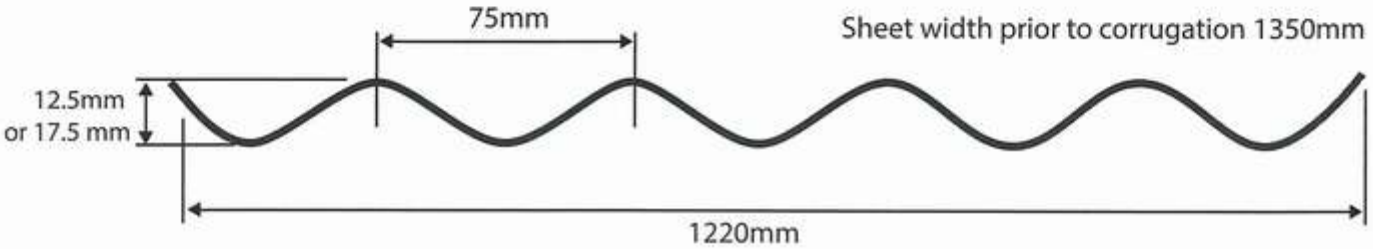
Length: 1000mm to 3,500mm

www.gaurang.co.in

## APPLICATIONS:

- Industrial Roofing
- Domestic Roofing
- Cladding and Siding
- Barricading
- Building Accessories
- Sliding Shutter

Our products go through stringent quality tests to ensure the highest longevity and consistency in the industry.




## TECHNICAL SPECIFICATIONS

### Samridhi Corrugated Sheets

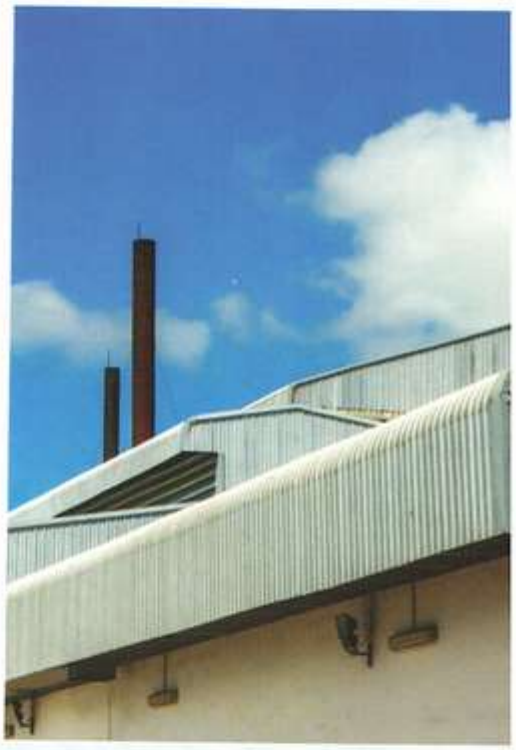
| | |
|---|---|
| Thickness (mm) | 0.14 – 1.0 |
| Width Before Corrugation (mm) | 750 – 1350 |
| Width After Corrugation (mm) | 660 – 1220 |
| Weight (MT) | 4 MT (max) |
| Length (mm) | 1800 – 5180 |
| Coating GSM | 90-300 |
| Surface Finish | Bright finish with regular spangles |
| Surface Treatment | Cr(VI) / (Cr(III) / Chrome-Free / AFP |
| Standards | IS 277 / JIS G3302 / ASTM A526 |

Gaurang SAMRIDHI

**Samridhi is Gaurang** flagship brand of superior quality **GALVANIZED** Corrugated (GC) Steel Sheets. The brand's motto is to touch lives of millions with it's steel products & provide utmost protection to the common man's aspirations, dream & future. More value at less cost is **Samridhi Proposition.**

## FEATURES:

- Extended Life
- Superior zinc adhesion and surface finish
- Prolonged Corrosion Resistance
- All Weatherproof
- Easy to Install and Maintenance Free
- Environment Friendly
- Excellent Thermal Efficiency
- High Tensile Strength
- Uniform Zinc Coating
- Perfect Overlapping



## OUR ADVANCED ZINC COATING TECHNOLOGY:

We offer our products in a variety of zinc GSM coatings as per the customer requirement. The advanced production process allows for enhanced zinc adhesion and excellent surface finish.

With a focus on producing the best quality of products, Manaksia Coated Metals & Industries Ltd. is accredited with the ISO 9001:2015, ISO 14001:2015, and OHSAS 18001:2007 certifications and is ISI approved.

Galvanized Corrugated Sheets can lead to substantial cost savings! We supply Sinusoidal Sheets as per customer requirements.