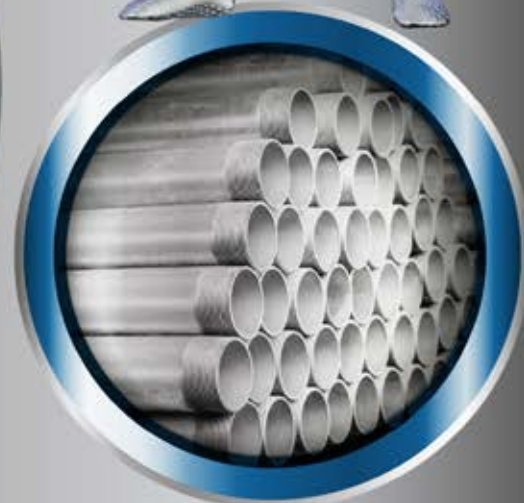


At the Core of every Construction

PRODUCT CATALOGUE





At the Core of every Construction



Airport North Rd, Embakasi
P.O. Box 44689 - 00100
Nairobi, KENYA
Email: sales@tononokasteels.com



Komarock Rd, Dandora
P.O. Box 44689 - 00100
Nairobi, KENYA
Email: sales@tononokasteels.com

CONTENTS

Products

| | Page |
|---|-----------|
| Introduction | 5 |
| Black Round Pipes | 7 |
| Galvanized Pipes (Water Pipes) | 8 |
| Rectangular Hollow Sections | 9 |
| Square Hollow Sections | 10 |
| Sheets & Plates | 11 |
| MS Plates | 12 |
| MS Chequered Plates | 12 |
| Galvanized Sheets | 12 |
| CRCA Sheets | 12 |
| Sheets and Plates | 13 |
| Open Profiles | 14 |
| Guard Rails | 15 |
| Zed Purlins | 15 |
| Open Profiles | 16 |
| Z - Sections | 16 |
| T - Sections | 16 |
| Reinforcement Steel Bars | 17 |
| TMT Bars | 18 |
| MS Round Bars | 18 |
| TMT Bar threading services | 19 |
| Fixed Length Rebars Supply and Bnding | 19 |
| Special Length Reinforcement Bars | 19 |
| Miscellaneous Steel Products | 20 |
| MS Flats | 20 |
| MS Unequal Angles | 20 |
| MS Angles | 21 |
| Joints and Beams IPE | 22 |
| Universal Columns | 22 |
| Universal Beams | 23 |
| MS Plain Channels (Cold Formed) | 24 |
| U - Channels | 24 |
| Wire Products | 25 |
| Welded Mesh and BRC | 26 |
| Nails | 26 |
| Binding Wire | 26 |
| Cut & Bend Services | 27 |
| Casing Slotting | 27 |
| Miscellaneous Steel Services | 27 |
| Galvanizing Services (for Structures, Towers and Steel Parts) | 28 |
| Pipe Flanging, Bevelling, Special Threading | 28 |
| Slot Cutting on Casing Pipes | 28 |
| Tononoka Corporate Policies | 29 |
| Notes | 30 |
| Certification | 31 |



Corporate Vision

To be the largest quality steel products manufacturer in the Region.

Corporate Mission

To manufacture construction steel products meeting the world class standards by investing in environment friendly technology and quality manpower

To import quality structural steel products from reputed manufacturers and support projects across Africa

To supply manufactured and imported products through an established distribution network, to the housing and construction sector across East and Central Africa.

INTRODUCTION

“TONONOKA” brand is synonymous to unwavering quality with commitment to world class service and customer care.

At heart, we are always ready to embrace and adopt the most modern technology to provide excellent, quality and reliable steel products at an affordable rate. As Africa opens more to economic development in trying to keep pace with the world, we are also diversifying from steel to plastic, paper and other projects.

Tononoka Group is strategically located in Nairobi, Kenya, therefore having easy access to the Mombasa Port for export and import of materials, spares and machinery. It is in close vicinity to the East African Community market, and also has easy access to countries such as Zambia, Malawi, Ethiopia, Democratic Republic of Congo, South Sudan, Rwanda, Burundi, Uganda and Tanzania where we have set operational business hubs as well as continuous supply to major projects in the areas.

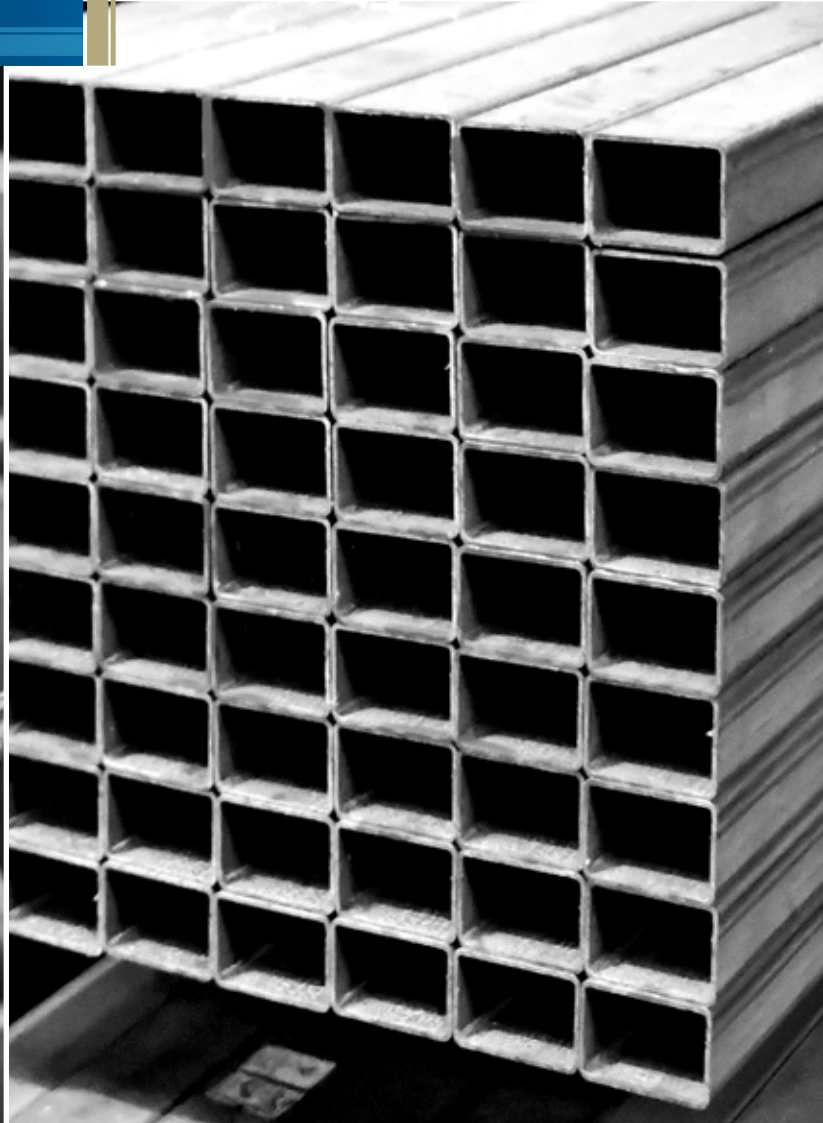
TONONOKA STEELS LTD (TSL) Incorporated in 1991, located at North Airport Road Embakasi, Nairobi is a major producer of Black and Galvanized Steel Pipes, Casing Pipes, Screen Pipes, Round, Square and Rectangular Hollow Sections, Open profiles such as Z - Purlins, Door and Window Frames, Guard Rails, Welded Mesh, BRC, Binding Wire and nails. Apart from the manufactured items, TSL stocks and supplies Seamless Pipes, Structural Steel Items such as Parallel Flanges, I Beams, H Beams, Channels, Girders, MS Angles and MS Flats, MS Plates of wider width up to 2000 mm and thickness of 75 mm (We shear and supply the plates in customized sizes to suit your exact requirements), Cold Rolled and Galvanized Sheets, Chequered Plates, Aluminum Plates, MS Rounds from 20 mm to 200 mm. We have a State of the Art galvanizing plant where we galvanize various structural steel components, fasteners and other items on a job work basis apart from regularly galvanizing pipes.

TONONOKA ROLLING MILLS LTD (TRM) Incorporated in 2005, located at Dandora, Nairobi is one of the leading producers of reinforcement steel. The major products are TMT (Thermo Mechanically Treated) Rebars. It is a self sustained rolling mill for producing long products. The manufacturing facility comprises of Electric Induction Furnaces, a Continuous Casting Machine (CCM), a Reheating Furnace (RHF) and a Bar Mill with mechanized cooling beds capable of Producing TMT bars from 8mm to 40mm conforming to KS 2712:2017 and BS 4449-2005 and equivalent. The mill is also augmented with a testing facility having equipments such as Universal Testing Machine (UTM), Spectrometer and a Chemical Analysis Laboratory.

TONONOKA GROUP employs approximately 1000 people with matching high skills and integrity. Seminars and trainings are conducted on a regular basis to upgrade and stay in touch with modern trends and practices in the industry. The group has a dedicated fleet of lorries/trailers for effective logistics support to the sales and distribution function.



HOLLOW SECTIONS



Black Round Pipes

Black pipes are made to the Kenya Bureau of Standards specification KS06-259:1998 or the equivalent British International Standard BS:1387. They can be plain or bevel ended depending on the application. These pipes are meant for the conveyance of water, compressed air and fluids. They are also used for water borehole casting pipes. They restrict the collapse of overburden soil. Slots are cut on the pipes for screening purposes depending on the application. Tononoka Steels Ltd uses the highest quality of Hot Rolled Coils (HRC) for this purpose. The HRC is slit suitably and fed into the most modern pipe rolling mills, gradually the mill shapes them from flat strips to the required circular pipe profile while the edges are prepared for high frequency welding. The bead is then cleaned for residual bead height with a carbide scraping tool online, a flying shear then cuts the pipe to the exact length required. The pipes are finally end-faced and hydro-tested on a special machine at a pressure of 50kg/cm² for 15 seconds before being dispatched.



TG - 01 Technical Specification for Black Pipes and Galvanised Pipes

| BLACK PIPES AND GALVANISED PIPES AS PER KS 06 - 259 AND BS 1387 | | | | | | | |
|---|-------|--------------|-----------------|------------------------|------------------------------|-----------------------------|--------------------------------|
| Bore | Class | Nominal Bore | Thickness in MM | Outside Diameter in MM | Weight of Black Pipe Kg / 6M | Weight of Black Pipe Kg / M | Weight of Galvanised Pipe Kg/M |
| 1/2 Inch | "A" | 15 | 2 | 21.0 | 5.71 | 0.95 | 1.04 |
| 3/4 Inch | "A" | 20 | 2.35 | 26.9 | 8.46 | 1.41 | 1.53 |
| 1 Inch | "A" | 25 | 2.65 | 33.7 | 12.60 | 2.01 | 2.19 |
| 1 1/4 Inch | "A" | 32 | 2.65 | 42.4 | 15.50 | 2.58 | 2.82 |
| 1 1/2 Inch | "A" | 40 | 2.9 | 48.3 | 19.50 | 3.25 | 3.55 |
| 2 Inch | "A" | 50 | 2.9 | 60.3 | 24.70 | 4.11 | 4.51 |
| 2 1/2 Inch | "A" | 65 | 3.25 | 76.2 | 34.80 | 5.8 | 6.39 |
| 3 Inch | "A" | 80 | 3.25 | 88.9 | 40.90 | 6.81 | 7.54 |
| 4 Inch | "A" | 100 | 3.65 | 114.3 | 59.30 | 9.89 | 11.02 |
| 1/2 Inch | "B" | 15 | 2.65 | 21.0 | 7.32 | 1.22 | 1.33 |
| 3/4 Inch | "B" | 20 | 2.65 | 26.9 | 9.48 | 1.58 | 1.72 |
| 1 Inch | "B" | 25 | 3.25 | 33.7 | 14.60 | 2.44 | 2.66 |
| 1 1/4 Inch | "B" | 32 | 3.25 | 42.4 | 18.80 | 3.14 | 3.42 |
| 1 1/2 Inch | "B" | 40 | 3.25 | 48.3 | 21.70 | 3.61 | 3.94 |
| 2 Inch | "B" | 50 | 3.65 | 60.3 | 30.60 | 5.1 | 5.58 |
| 2 1/2 Inch | "B" | 65 | 3.65 | 76.2 | 39.10 | 6.51 | 7.16 |
| 3 Inch | "B" | 80 | 4.05 | 88.9 | 50.80 | 8.47 | 9.33 |
| 4 Inch | "B" | 100 | 4.5 | 114.3 | 72.60 | 12.1 | 13.39 |
| 5 Inch | "B" | 125 | 4.85 | 139.7 | 97.20 | 16.2 | 18.04 |
| 6 Inch | "B" | 150 | 4.85 | 165.1 | 115.20 | 19.2 | 21.38 |
| 8 Inch | "B" | 200 | 5.00 | 215.3 | 156.00 | 26 | 26.9 |
| 10 inch | "B" | 250 | 4.5 | 266 | 176.34 | 29.39 | 31.33 |
| 12 inch | "B" | 300 | 4.5 | 323 | 214 | 35.67 | 37.61 |
| 1/2 Inch | "C" | 15 | 3.25 | 21.0 | 8.70 | 1.45 | 1.58 |
| 3/4 Inch | "C" | 20 | 3.25 | 26.9 | 11.40 | 1.9 | 2.06 |
| 1 Inch | "C" | 25 | 4.05 | 33.7 | 17.80 | 2.97 | 3.23 |
| 1 1/4 Inch | "C" | 32 | 4.05 | 42.4 | 23.00 | 3.84 | 4.18 |
| 1 1/2 Inch | "C" | 40 | 4.05 | 48.3 | 26.60 | 4.43 | 4.83 |
| 2 Inch | "C" | 50 | 4.5 | 60.3 | 37.00 | 6.17 | 6.74 |
| 2 1/2 Inch | "C" | 65 | 4.5 | 76.2 | 47.40 | 7.9 | 8.66 |
| 3 Inch | "C" | 80 | 4.85 | 88.9 | 60.60 | 10.1 | 11.12 |
| 4 Inch | "C" | 100 | 5.4 | 114.3 | 86.40 | 14.4 | 15.88 |
| 5 Inch | "C" | 125 | 5.4 | 139.7 | 106.80 | 17.8 | 19.76 |
| 6 Inch | "C" | 150 | 5.4 | 165.1 | 127.20 | 21.2 | 23.54 |
| 8 Inch | "C" | 200 | 6.00 | 217.3 | 186.60 | 31.1 | 32.00 |
| 10 Inch | "C" | 250 | 6.00 | 273.0 | 237.00 | 39.5 | 42.66 |

Galvanized Pipes (Water Pipes)

Galvanized pipes are manufactured to international standards as specified by the Kenya Bureau of Standards KS06-259:1998 or the equivalent British Standard BS-1387. Galvanization is a process of applying a protective zinc coating to steel or iron, to prevent rusting. It entails plain ended black pipes being dipped in tanks containing sodium metasilicate (to degrease) and hydrochloric (to remove mill scale) solution after which they are rinsed in clean running water. The rinsed pipes are then dipped in flux (zinc ammonium chloride) to facilitate the zinc coating adhesion before being immersed into a hot zinc bath. Zinc is deposited on the entire surface of the pipe and excess zinc is blown out via a hot pressurized steam. After this stage, if required, the pipes are threaded and socketed. Pipes are finally ready for dispatch.



Round Hollow Sections

Round hollow sections are made to Kenya Bureau of standards KS EAS 134:2019. Round pipes are used in furniture, electric poles, fencing, structural steel application, sleeves, rollers, and other fabrication work.

TG - 02 Technical Specification for Round Hollow Sections

| ROUND HOLLOW SECTIONS | | | | | | |
|------------------------------|-----------------------------|--|-----------------|---|--|--------------------------------|
| Outside Diameter (mm) (d) | Sheet Thickness (mm) (t) | Sectional Area (cm ²) (a) | Mass (kg/m) (w) | Moment of Inertia (cm ⁴) (I) | Modulus of section (cm ³) (z) | Radius of Gyration (cm) (r) |
| 16 | 1.0 | 0.47 | 0.37 | 0.13 | 0.17 | 0.53 |
| | 1.2 | 0.56 | 0.44 | 0.15 | 0.19 | 0.52 |
| | 1.5 | 0.68 | 0.54 | 0.18 | 0.23 | 0.52 |
| | 2.0 | 0.88 | 0.71 | 0.22 | 0.50 | 0.27 |
| 20 | 1.0 | 0.60 | 0.50 | 0.27 | 0.27 | 0.67 |
| | 1.2 | 0.71 | 0.59 | 0.31 | 0.31 | 0.67 |
| | 1.5 | 0.87 | 0.75 | 0.38 | 0.38 | 0.66 |
| 22 | 1.0 | 0.66 | 0.52 | 0.36 | 0.33 | 0.74 |
| | 1.2 | 0.78 | 0.62 | 0.43 | 0.39 | 0.74 |
| | 1.5 | 0.97 | 0.76 | 0.51 | 0.46 | 0.73 |
| 25 | 1.0 | 0.75 | 0.59 | 0.54 | 0.44 | 0.85 |
| | 1.2 | 0.90 | 0.70 | 0.64 | 0.51 | 0.84 |
| | 1.5 | 1.11 | 0.87 | 0.77 | 0.61 | 0.83 |
| 32 | 1.2 | 1.16 | 0.91 | 1.38 | 0.86 | 1.09 |
| | 1.5 | 1.44 | 1.13 | 1.68 | 1.05 | 1.08 |
| 38 | 1.2 | 1.39 | 1.12 | 2.35 | 1.24 | 1.30 |
| | 1.5 | 1.72 | 1.38 | 2.87 | 1.51 | 1.29 |
| 42 | 1.2 | 1.55 | 1.21 | 3.26 | 1.54 | 1.45 |
| | 1.5 | 1.92 | 1.54 | 3.99 | 1.89 | 1.44 |
| 48 | 1.2 | 1.77 | 1.39 | 4.91 | 2.04 | 1.66 |
| | 1.5 | 2.20 | 1.73 | 6.02 | 2.50 | 1.65 |
| 60 | 1.5 | 2.76 | 2.16 | 11.80 | 3.93 | 2.07 |
| | 2.0 | 3.64 | 2.86 | 15.34 | 5.11 | 2.50 |
| 76 | 1.5 | 3.51 | 2.77 | 24.35 | 6.41 | 2.62 |
| | 2.0 | 4.65 | 3.75 | 31.85 | 8.38 | 2.60 |
| | 2.5 | 5.77 | 4.53 | 39.02 | 10.27 | 2.56 |
| 89 | 2.0 | 5.47 | 4.29 | 51.74 | 11.63 | 3.08 |
| | 2.5 | 6.79 | 5.37 | 63.59 | 14.29 | 3.06 |

Rectangular Hollow Sections

Rectangular Hollow Sections (RHS) are made to the Kenya Bureau of Standards specification KS EAS 134:2019. They are manufactured on the tube mills using a high frequency induction welding technique. The strip is continuously seam-welded while round in shape and then gradually brought to the desired section in the sizing mill. The welded seam's strength is maximized by the cooling of each length of hollow section.

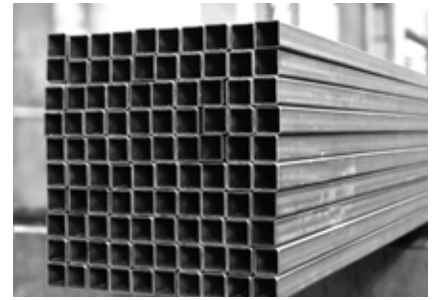


TG - 03 Technical Specification for Rectangular Hollow Sections

| RECTANGULAR HOLLOW SECTIONS | | | | | | | | | | | |
|-------------------------------|--------------------------|---------------------------------------|-----------------------|-----------------|---|---------|---|--|------|---|--------|
| Outside Diameter (B x D) (mm) | Sheet Thickness (mm) (t) | Sectional Area (cm ²) (a) | Pieces per Metric Ton | Mass (kg/m) (w) | Moment of Inertia I _x (cm ⁴) | | Moment of Inertia I _y (cm ⁴) | Radius of Gyration I _x (cm ⁴) | | Section Modulus z _x (cm ³) | |
| 40 x 20 | 1.2 | 1.38 | 154 | 1.08 | 2.87 | 2.87 | 0.95 | 1.44 | 0.83 | 1.44 | 0.96 |
| | 1.5 | 1.71 | 119 | 1.40 | 3.49 | 3.49 | 1.15 | 1.43 | 0.83 | 1.75 | 1.15 |
| | 2.0 | 2.24 | 95 | 1.76 | 4.44 | 4.44 | 1.44 | 1.14 | 0.80 | 2.22 | 1.43 |
| 40 x 25 | 1.0 | 1.29 | 165 | 1.01 | 1.35 | 1.35 | 2.81 | 1.02 | 1.47 | 1.08 | 1.40 |
| | 1.2 | 1.50 | 141 | 1.18 | 3.32 | 3.32 | 1.59 | 1.49 | 1.03 | 1.66 | 1.27 |
| | 1.5 | 1.86 | 114 | 1.46 | 4.04 | 4.04 | 1.73 | 1.47 | 1.01 | 2.02 | 1.54 |
| | 2.0 | 2.44 | 87 | 1.91 | 5.17 | 5.17 | 2.43 | 1.45 | 0.99 | 2.59 | 1.94 |
| 50 x 25 | 3.0 | 3.54 | 60 | 2.78 | 7.11 | 7.11 | 3.26 | 1.42 | 0.96 | 3.59 | 2.61 |
| | 1.0 | 1.29 | 165 | 1.15 | 1.35 | 1.35 | 2.81 | 1.02 | 1.47 | 1.08 | 1.40 |
| | 1.2 | 1.74 | 95 | 1.37 | 5.73 | 5.73 | 1.93 | 1.82 | 1.05 | 2.29 | 1.55 |
| | 1.5 | 2.15 | 99 | 1.69 | 7.00 | 7.00 | 2.43 | 1.80 | 1.04 | 2.80 | 1.87 |
| | 2.0 | 2.84 | 75 | 2.23 | 9.00 | 9.00 | 2.96 | 1.78 | 1.02 | 3.60 | 2.37 |
| 60 x 40 | 3.0 | 4.14 | 51 | 3.25 | 12.55 | 12.55 | 3.99 | 1.74 | 0.96 | 5.02 | 3.19 |
| | 1.2 | 2.34 | 91 | 1.84 | 12.12 | 12.12 | 6.43 | 2.27 | 1.66 | 4.04 | 3.24 |
| | 1.5 | 2.90 | 73 | 2.28 | 14.89 | 14.89 | 7.93 | 2.26 | 1.65 | 4.96 | 3.96 |
| | 2.0 | 3.83 | 55 | 3.01 | 19.31 | 19.31 | 10.22 | 2.24 | 1.63 | 6.43 | 5.11 |
| 75 x 50 | 3.0 | 5.64 | 38 | 4.43 | 27.38 | 27.38 | 14.31 | 2.21 | 1.59 | 9.12 | 7.10 |
| | 2.0 | 4.84 | 45 | 3.80 | 38.50 | 38.50 | 20.50 | 2.82 | 2.06 | 10.20 | 8.21 |
| | 2.5 | 6.00 | 27 | 4.71 | 47.04 | 47.04 | 24.97 | 2.80 | 2.04 | 12.54 | 9.98 |
| | 3.0 | 7.14 | 30 | 5.60 | 55.30 | 55.30 | 29.10 | 2.78 | 2.02 | 14.70 | 11.60 |
| 80 x 40 | 4.0 | 9.36 | 23 | 7.34 | 70.50 | 70.50 | 36.70 | 2.74 | 1.98 | 18.80 | 14.70 |
| | 2.0 | 4.63 | 35 | 3.64 | 38.93 | 38.93 | 13.08 | 2.90 | 1.68 | 9.73 | 6.51 |
| | 3.0 | 6.84 | 24 | 5.37 | 55.94 | 55.94 | 18.39 | 2.86 | 1.64 | 13.98 | 9.19 |
| 100 x 50 | 3.0 | 8.64 | 25 | 6.78 | 112.00 | 112.00 | 37.40 | 3.60 | 2.08 | 22.40 | 14.90 |
| | 4.0 | 11.30 | 19 | 8.92 | 144.00 | 144.00 | 47.30 | 3.56 | 2.04 | 28.80 | 18.90 |
| 125 x 75 | 3.0 | 11.64 | 18 | 9.14 | 251.74 | 251.74 | 113.68 | 4.65 | 3.13 | 40.28 | 30.32 |
| | 4.0 | 15.36 | 14 | 12.06 | 326.47 | 326.47 | 146.21 | 4.61 | 3.09 | 52.24 | 38.99 |
| | 6.0 | 22.56 | 9 | 17.71 | 463.18 | 463.18 | 203.99 | 4.53 | 3.01 | 74.11 | 54.40 |
| 150 x 50 | 3.0 | 11.60 | 18 | 9.14 | 311.00 | 311.00 | 54.00 | 5.18 | 2.15 | 41.50 | 21.60 |
| | 4.0 | 15.30 | 14 | 12.06 | 404.00 | 404.00 | 68.50 | 5.14 | 2.11 | 53.80 | 27.40 |
| | 6.0 | 22.56 | 9 | 17.71 | 574.03 | 574.03 | 93.15 | 5.04 | 2.03 | 76.54 | 37.26 |
| 150 x 100 | 3.0 | 14.64 | 15 | 11.49 | 473.00 | 473.00 | 253.00 | 5.69 | 4.16 | 63.10 | 50.70 |
| | 4.0 | 19.36 | 11 | 15.20 | 617.00 | 617.00 | 329.00 | 5.65 | 4.12 | 82.30 | 65.70 |
| | 6.0 | 28.56 | 7 | 23.30 | 885.00 | 885.00 | 466.00 | 5.57 | 4.04 | 118.00 | 93.30 |
| 200 x 50 | 3.0 | 14.64 | 12 | 11.49 | 656.00 | 656.00 | 70.60 | 6.69 | 2.20 | 65.62 | 28.25 |
| | 4.0 | 19.36 | 9 | 15.20 | 856.00 | 856.00 | 89.80 | 6.65 | 2.15 | 85.61 | 35.92 |
| | 6.0 | 28.56 | 6 | 22.42 | 1229.00 | 1229.00 | 122.40 | 6.56 | 2.07 | 122.92 | 48.95 |
| 200 x 100 | 4.0 | 23.36 | 9 | 18.34 | 1240.00 | 1240.00 | 421.00 | 7.29 | 4.24 | 124.03 | 84.15 |
| | 6.0 | 34.56 | 6 | 27.13 | 1794.00 | 1794.00 | 599.00 | 7.20 | 4.16 | 179.39 | 119.81 |

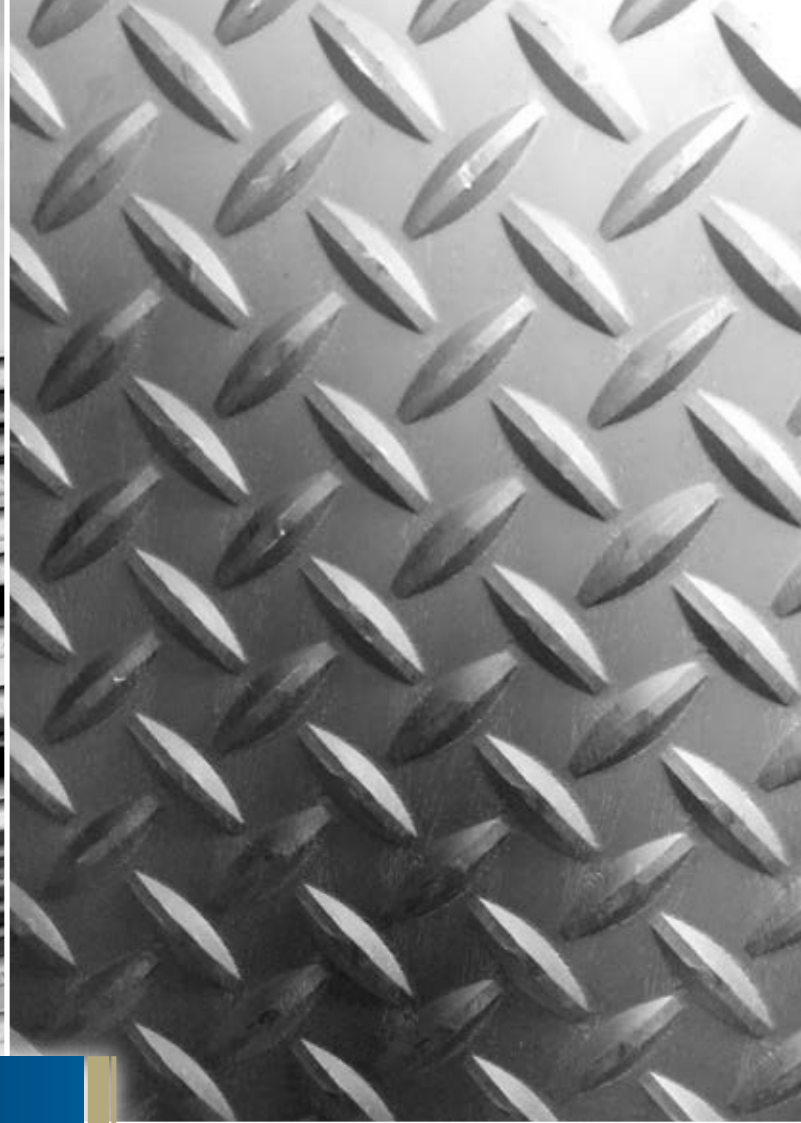
Square Hollow Sections

Square Hollow Sections (SHS) are made to the Kenya Bureau of Standards specification KS EAS 134:2019. They are used for structural purposes in the furniture industry, fabrication, the component industry, etc. The manufacturing process is similar to that of Black Round Pipes after which the pipes pass through sizing rolls and their profiles are converted into Square Hollow Sections.

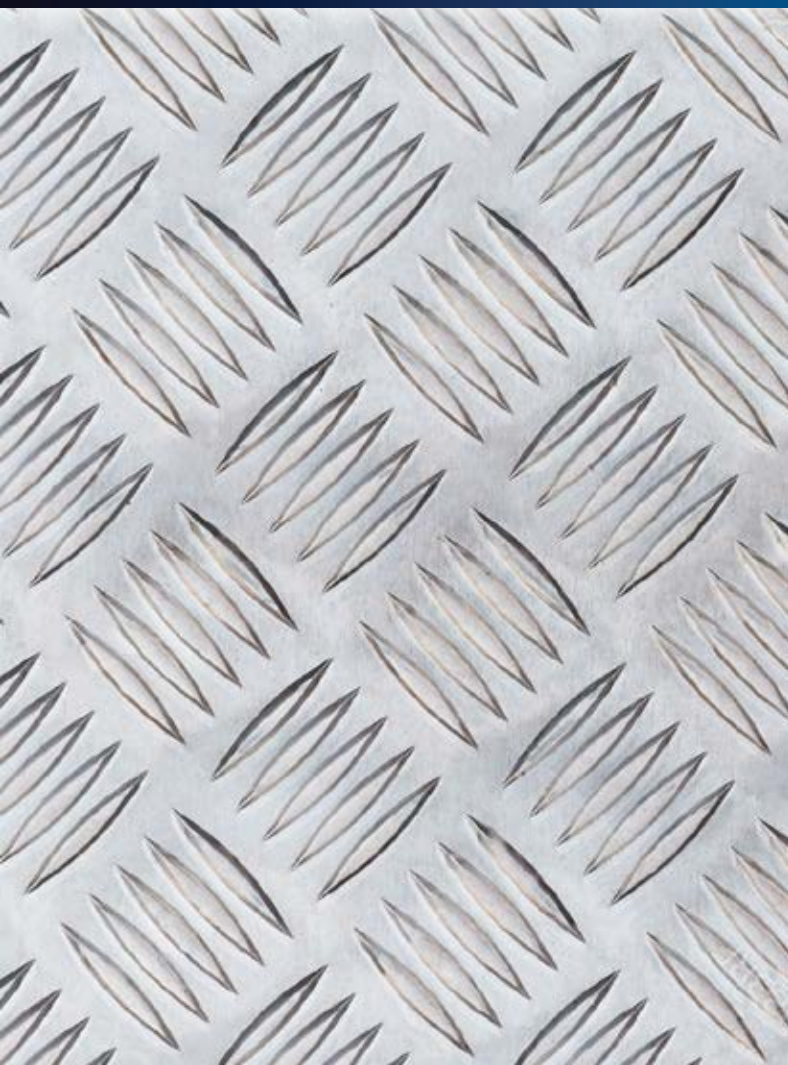


TG - 04 Technical Specification for Square Hollow Sections

| SQUARE HOLLOW SECTIONS | | | | | | | | |
|--------------------------------|---------------|--------|-----------------------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Pieces per Metric SIZE (D X B) | Thickness (t) | Weight | Pieces per Metric Ton | Sectional Area | Moment of INERTIA | | Radius of GYRATION | |
| mm | mm | Kg/Mtr | Pcs/MT | (cm ²) | I _x (cm ⁴) | I _y (cm ⁴) | I _x (cm ⁴) | I _y (cm ⁴) |
| 16 x 16 | 1.0 | 0.48 | 347 | 0.60 | 0.22 | 0.22 | 0.60 | 0.60 |
| | 1.2 | 0.56 | 298 | 0.71 | 0.26 | 0.26 | 0.60 | 0.60 |
| | 1.5 | 0.68 | 245 | 0.87 | 0.30 | 0.30 | 0.59 | 0.59 |
| 20 x 20 | 1.0 | 0.61 | 273 | 0.76 | 0.46 | 0.46 | 0.78 | 0.78 |
| | 1.2 | 0.71 | 235 | 0.90 | 0.53 | 0.53 | 0.77 | 0.77 |
| | 1.5 | 0.87 | 192 | 1.11 | 0.64 | 0.64 | 0.75 | 0.75 |
| | 2.0 | 1.13 | 147 | 1.44 | 0.79 | 0.79 | 0.73 | 0.73 |
| 25 x 25 | 1.0 | 0.80 | 208 | 0.96 | 0.92 | 0.92 | 0.98 | 0.98 |
| | 1.2 | 0.90 | 185 | 1.14 | 1.08 | 1.08 | 0.97 | 0.97 |
| | 1.5 | 1.11 | 150 | 1.41 | 1.30 | 1.30 | 0.96 | 0.96 |
| | 2.0 | 1.44 | 95 | 2.24 | 2.94 | 2.94 | 0.94 | 0.94 |
| | 3.0 | 2.07 | 81 | 2.64 | 2.17 | 2.17 | 0.90 | 0.90 |
| 30 x 30 | 1.0 | 0.93 | 179 | 1.16 | 1.63 | 1.63 | 1.17 | 1.17 |
| | 1.2 | 1.08 | 154 | 1.38 | 1.91 | 1.91 | 1.17 | 1.17 |
| | 1.5 | 1.34 | 124 | 1.71 | 2.32 | 2.32 | 1.16 | 1.16 |
| | 2.0 | 1.75 | 95 | 2.24 | 2.94 | 2.94 | 1.14 | 1.14 |
| | 3.0 | 2.54 | 66 | 3.24 | 3.99 | 3.99 | 1.11 | 1.11 |
| 40 x 40 | 1.0 | 1.19 | 140 | 1.51 | 3.95 | 3.95 | 1.61 | 1.61 |
| | 1.2 | 1.46 | 114 | 1.86 | 4.67 | 4.67 | 1.58 | 1.58 |
| | 1.5 | 1.81 | 92 | 2.31 | 5.71 | 5.71 | 1.57 | 1.57 |
| | 2.0 | 2.39 | 70 | 3.04 | 7.34 | 7.34 | 1.55 | 1.55 |
| | 3.0 | 3.48 | 48 | 4.44 | 10.20 | 10.20 | 1.51 | 1.51 |
| 50 x 50 | 1.2 | 1.84 | 91 | 2.34 | 9.30 | 9.30 | 1.99 | 1.99 |
| | 1.5 | 2.28 | 73 | 2.91 | 11.42 | 11.42 | 1.98 | 1.98 |
| | 2.0 | 3.01 | 55 | 3.84 | 14.77 | 14.77 | 1.96 | 1.96 |
| | 3.0 | 4.43 | 38 | 5.64 | 20.85 | 20.85 | 1.92 | 1.92 |
| | 4.0 | 5.78 | 29 | 7.36 | 26.15 | 26.15 | 1.88 | 1.88 |
| 60 x 60 | 3.0 | 5.37 | 31 | 6.84 | 37.14 | 37.14 | 2.33 | 2.33 |
| | 4.0 | 7.03 | 24 | 8.96 | 47.07 | 47.07 | 2.29 | 2.29 |
| 75 x 75 | 2.5 | 4.58 | 36 | 5.84 | 51.91 | 51.91 | 2.98 | 2.98 |
| | 3.0 | 6.78 | 25 | 8.64 | 74.78 | 74.78 | 2.94 | 2.94 |
| | 4.0 | 8.92 | 19 | 11.36 | 95.75 | 95.75 | 2.90 | 2.90 |
| | 6.0 | 13.00 | 13 | 16.56 | 132.40 | 132.40 | 2.83 | 2.83 |
| 100 x 100 | 3.0 | 9.14 | 18 | 11.64 | 182.71 | 182.71 | 3.91 | 3.91 |
| | 4.0 | 12.18 | 14 | 15.36 | 236.34 | 236.34 | 3.88 | 3.88 |
| | 6.0 | 17.71 | 9 | 22.56 | 333.59 | 333.59 | 3.85 | 3.85 |
| 125 x 125 | 3.0 | 11.49 | 15 | 14.64 | 363.00 | 363.00 | 3.05 | 3.05 |
| | 4.0 | 15.20 | 11 | 19.36 | 473.00 | 473.00 | 4.94 | 4.94 |
| | 6.0 | 22.42 | 7 | 28.56 | 676.00 | 676.00 | 4.90 | 4.90 |
| 150 x 150 | 4.0 | 18.34 | 9 | 23.36 | 831.00 | 831.00 | 5.92 | 5.92 |
| | 6.0 | 27.13 | 6 | 34.56 | 1196.00 | 1196.00 | 5.88 | 5.88 |
| 175 x 175 | 4.0 | 21.48 | 8 | 27.36 | 1334.00 | 1334.00 | 6.98 | 6.98 |
| | 6.0 | 31.84 | 5 | 40.56 | 1933.00 | 1933.00 | 6.90 | 6.90 |
| 200 x 200 | 4.0 | 24.62 | 7 | 31.36 | 2009.00 | 2009.00 | 8.00 | 8.00 |
| | 6.0 | 36.55 | 5 | 46.46 | 2923.35 | 2923.35 | 7.92 | 7.92 |



SHEETS & PLATES



TG - 05 Technical Specification for MS Plates

| HOT ROLLED PLATES | | |
|-----------------------|------------------|--------|
| Size in mm | Thickness (t) mm | Weight |
| 2438 x 1219 (8' x 4') | 1.0 | 23.30 |
| 2438 x 1219 (8' x 4') | 1.2 | 28.00 |
| 2438 x 1219 (8' x 4') | 1.5 | 35.00 |
| 2438 x 1219 (8' x 4') | 2.0 | 47.00 |
| 2438 x 1219 (8' x 4') | 2.5 | 58.50 |
| 2438 x 1219 (8' x 4') | 2.8 | 65.50 |
| 2438 x 1219 (8' x 4') | 3.0 | 70.00 |
| 2438 x 1219 (8' x 4') | 4.0 | 93.50 |
| 2438 x 1219 (8' x 4') | 6.0 | 140.00 |
| 2438 x 1219 (8' x 4') | 8.0 | 164.00 |
| 2438 x 1219 (8' x 4') | 10 | 234.00 |
| 2438 x 1219 (8' x 4') | 12 | 280.00 |
| 2438 x 1219 (8' x 4') | 15 | 351.00 |
| 2438 x 1219 (8' x 4') | 18 | 420.00 |
| 2438 x 1219 (8' x 4') | 20 | 468.00 |

MS Plates

Tononoka Steels Ltd shears and supplies plates from 0.8mm-100mm thickness in the dimensions 8 Feet x 4 Feet or 2438 mm x 1219 mm. MS Plates are used in canopies, metal fabrication, platforms, pedestals, structures and stands, etc. We can cut and supply customized length plates from 0.8 mm - 20 mm thickness in widths of upto 2000 mm



TG - 06 Technical Specification for MS Chequered Plates

| CHEQUERED PLATES | | |
|-----------------------|------------------|--------|
| Size in mm | Thickness (t) mm | Weight |
| 2438 x 1219 (8' x 4') | 1.6 | 40.00 |
| 2438 x 1219 (8' x 4') | 2.0 | 50.00 |
| 2438 x 1219 (8' x 4') | 2.5 | 64.00 |
| 2438 x 1219 (8' x 4') | 2.8 | 71.00 |
| 2438 x 1219 (8' x 4') | 3.0 | 76.00 |
| 2438 x 1219 (8' x 4') | 4.0 | 98.70 |
| 2438 x 1219 (8' x 4') | 4.5 | 115.00 |
| 2438 x 1219 (8' x 4') | 6.0 | 150.00 |
| 2438 x 1219 (8' x 4') | 8.0 | 200.00 |

MS Chequered Plates

Mild Steel low carbon steel plated with relief in the form of chequered patterns is helpful in fabrication where antiskid properties are required such as bus floors, walkways, platforms, etc. The patterns form the surface of the plates. They are stocked in standard dimensions of 8 Feet x 4 Feet from thicknesses of 1.6 mm - 10 mm. They can also be cut to the customer's required wider width and length.

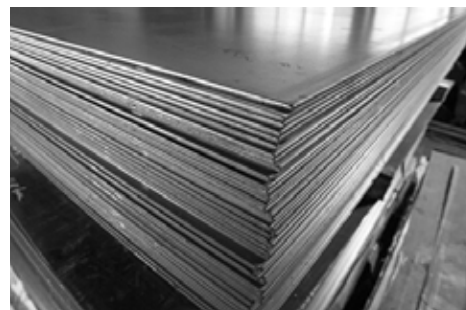


TG - 07 Technical Specification for Galvanized Sheets

| GALVANIZED SHEETS | | |
|-----------------------|------------------|--------|
| Size in mm | Thickness (t) mm | Weight |
| 2438 x 1219 (8' x 4') | 0.4 | 9.3 |
| 2438 x 1219 (8' x 4') | 0.5 | 11.7 |
| 2438 x 1219 (8' x 4') | 0.6 | 14.00 |
| 2438 x 1219 (8' x 4') | 0.8 | 18.7 |
| 2438 x 1219 (8' x 4') | 1.0 | 23.4 |
| 2438 x 1219 (8' x 4') | 1.2 | 28.70 |
| 2438 x 1219 (8' x 4') | 1.5 | 35.00 |
| 2438 x 1219 (8' x 4') | 2.0 | 47.00 |
| 2438 x 1219 (8' x 4') | 3.0 | 70.00 |

Galvanized Sheets

Steel rusts in the presence of moisture and oxygen. Galvanizing is a process of coating the surface of steel with a mixture of zinc and aluminium to prevent rusting. Galvanized Sheets are stocked in standard dimensions of 8 Feet x 4 Feet with thicknesses ranging from 0.4 mm - 3 mm. Customized lengths and wider widths can also be supplied.



TG - 08 Technical Specification for CRCA Sheets

| C.R.C.A SHEETS | | |
|-----------------------|------------------|--------|
| Size in mm | Thickness (t) mm | Weight |
| 2438 x 1219 (8' x 4') | 0.5 | 11.70 |
| 2438 x 1219 (8' x 4') | 0.6 | 14.00 |
| 2438 x 1219 (8' x 4') | 0.7 | 16.30 |
| 2438 x 1219 (8' x 4') | 0.8 | 18.74 |
| 2438 x 1219 (8' x 4') | 1.0 | 23.40 |
| 2438 x 1219 (8' x 4') | 1.2 | 28.70 |
| 2438 x 1219 (8' x 4') | 1.5 | 35.00 |
| 2438 x 1219 (8' x 4') | 2.0 | 47.00 |
| 2438 x 1219 (8' x 4') | 2.5 | 58.50 |
| 2438 x 1219 (8' x 4') | 2.8 | 65.00 |
| 2438 x 1219 (8' x 4') | 3.0 | 70.00 |

CRCA Sheets

Cold Rolled Closed Annealed Sheets (CRCA) are cut from CRCA coils and can be supplied in standard or customized sizes. CRCA sheets are soft (annealed) and have better and controlled dimensional accuracy. They are mainly used in fabrication, drawing and forming applications, components manufacture, etc. The finish of CRCA sheets is better than that of Hot Rolled Sheets and is suitable for painting or surface coating applications. These sheets can be supplied in thicknesses ranging from 0.4 mm - 5 mm.



Sheets & Plates

TG - 09 Technical Specification for Sheets & Plates

| WEIGHT OF 8'x 4' STEEL SHEETS IN KGS | | | | |
|--------------------------------------|-----------------|-----------|-------|--------|
| THICKNESS In mm | STAINLESS STEEL | ALUMINIUM | BRASS | COPPER |
| 0.4 | 9.33 | 3.23 | 10.2 | 10.7 |
| 0.5 | 11.7 | 4.03 | 12.7 | 13.3 |
| 0.6 | 14 | 4.48 | 15.3 | 16.0 |
| 0.8 | 18.7 | 6.45 | 20.4 | 21.3 |
| 1.0 | 23.3 | 8.06 | 25.5 | 26.6 |
| 1.2 | 28 | 9.68 | 30.6 | 32.0 |
| 1.5 | 35 | 12.10 | 38.2 | 39.0 |
| 2.0 | 46.7 | 16.10 | 51.0 | 53.3 |
| 2.5 | 58.3 | 20.20 | 63.7 | 66.6 |
| 2.8 | 65.3 | 22.60 | 71.4 | 74.6 |
| 3.0 | 70 | 24.20 | 76.4 | 79.9 |
| 4.0 | 93.3 | 32.30 | 102.0 | 107.0 |
| 4.5 | 105 | 36.30 | 115.0 | 120.0 |
| 6.0 | 140 | 48.40 | 153.0 | 160.0 |
| 7.0 | 164 | | | |
| 8.0 | 187 | | | |
| 9.0 | 210 | | | |
| 10.0 | 234 | | | |
| 12.0 | 280 | | | |
| 15.0 | 350 | | | |
| 18.0 | 420 | | | |
| 20.0 | 468 | | | |
| 22.0 | 514 | | | |
| 25.0 | 585 | | | |
| 30.0 | 702 | | | |
| 32.0 | 749 | | | |
| 38.0 | 887 | | | |
| 50.0 | 1170 | | | |
| 65.0 | 1515 | | | |
| 75.0 | 1750 | | | |
| 100.0 | 2335 | | | |



OPEN PROFILES

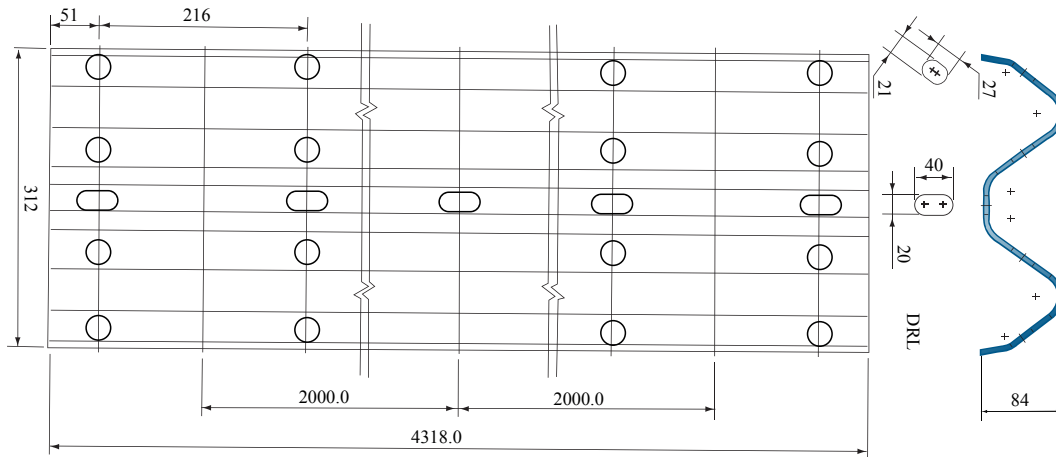


Guard Rails

TG - 10 Technical Specification for Guard Rails

| SIZE | WT/PC |
|---|-------|
| mm | Kgs |
| 314 mm x 85 mm x 3 mm x 4.320 Mtrs Length | 47.00 |

Guard Rails are provided as a safety feature on roads and highways. In the unfortunate event of vehicles losing control, the guard rails work towards limiting the damage. They are made to the British Standard BS:6579 Part 1 :1988. Hot Rolled Coils are slit in the desired width and are fed into the open profile mill. The thickness and the profile is closely monitored as per the prevailing standard.

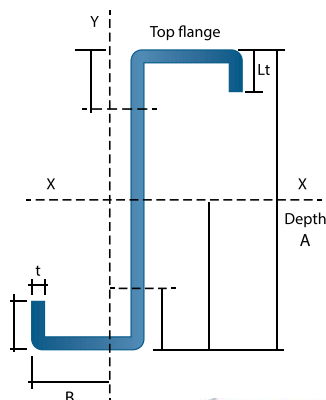


Zed Purlins

Zed Purlins are mainly used in structures. They are made to Kenya Bureau of Standards specification KS EAS 134:2019. Their main advantage is that they give high strength and reducing costs on structural steel used.

TG - 11 Technical Specification for Zed Purlins

| ZED PURLINS | | | | | | | | | | | | | | |
|-------------|---------|---------|---------|----------|----------------|-----------|-----------|------------|-----------|------------|----------|------------------------------|--------|-------|
| DIMENSIONS | | | | A cm2 | MASS W kg/m | IX cm4 | ZX cm3 | X - X AXIS | | Y - Y AXIS | | IMPERIAL INCH EQUIVALENTS | | |
| B mm | D mm | C mm | t mm | | | | | rx cm | ly cm4 | zy cm3 | ry cm | D | B | GAUGE |
| | | | | | | | | | | | | | | |
| 50.8 | 101.6 | 22.0 | 2.0 | 4.26 | 3.34 | 70.18 | 13.81 | 4.05 | 31.45 | 4.98 | 2.41 | 4" | 2" | 14 |
| 50.8 | 114.6 | 22.0 | 2.0 | 4.90 | 3.85 | 98.24 | 17.19 | 4.47 | 33.87 | 6.80 | 2.62 | 4 1/2" | 2" | 14 |
| 50.8 | 127.0 | 22.0 | 2.0 | 5.16 | 4.05 | 125.99 | 19.84 | 4.94 | 33.87 | 6.80 | 2.56 | 5" | 2" | 14 |
| 50.8 | 139.7 | 22.0 | 2.0 | 5.40 | 4.24 | 157.90 | 22.60 | 5.40 | 33.87 | 6.80 | 2.50 | 5 1/2" | 2" | 14 |
| 50.8 | 152.4 | 22.0 | 2.0 | 5.66 | 4.44 | 194.14 | 25.47 | 5.85 | 33.87 | 6.80 | 2.44 | 6" | 2" | 14 |
| 50.8 | 165.1 | 22.0 | 2.0 | 5.92 | 4.65 | 234.96 | 28.46 | 6.30 | 33.87 | 6.80 | 2.39 | 6 1/2" | 2" | 14 |
| 50.8 | 165.1 | 22.0 | 2.5 | 7.25 | 5.94 | 278.70 | 33.78 | 6.43 | 33.87 | 7.59 | 2.33 | 6 1/2" | 2" | 12 |
| 63.5 | 165.1 | 22.0 | 2.5 | 9.91 | 6.14 | 301.50 | 36.54 | 6.50 | 36.79 | 10.91 | 2.31 | 6 1/2" | 2 1/2" | 12 |
| 50.8 | 177.8 | 22.0 | 2.5 | 7.59 | 5.90 | 340.73 | 38.32 | 6.72 | 37.63 | 7.59 | 2.23 | 7" | 2" | 12 |
| 63.5 | 177.8 | 22.0 | 2.5 | 8.23 | 6.40 | 389.51 | 43.81 | 6.90 | 67.91 | 10.91 | 2.88 | 7" | 2 1/2" | 12 |
| 76.2 | 177.8 | 22.0 | 3.0 | 10.42 | 8.17 | 516.52 | 58.10 | 7.02 | 128.58 | 17.21 | 3.50 | 7" | 3" | 12 |



Open Profiles

These are cold formed using Hot Rolled Steel Strips. During rolling care is taken to ensure perfect dimensional uniformity, extremely smooth surface finish and accurately finished edges. They are used in any modern building, from low-cost housing to high-rise office complexes. The section, being of high structural strength is a better alternative to timber door frames which face deterioration issues due to weather and difficulty of installation.

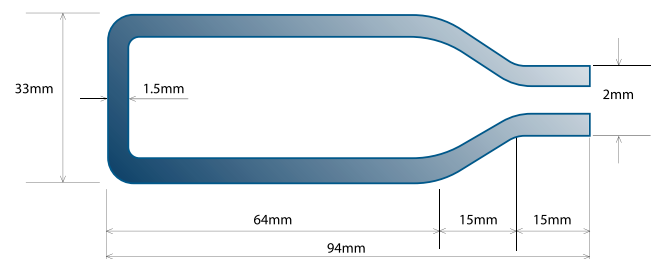
PROFILE DIMENSION AND WEIGHT OF SECTIONS

TG - 12 Technical Specification for Steel Bottle Sections

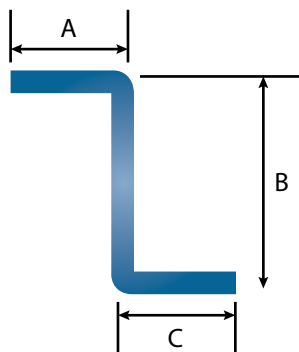
| PROFILE | SIZE (mm) | THICKNESS (mm) | WEIGHT Kg/Pc (6M) | THICKNESS (mm) | WEIGHT Kg/Pc (6M) |
|----------------|---------------|----------------|-------------------|----------------|-------------------|
| BOTTLE SECTION | 94 mm X 33 mm | 1.2 | 2.80 | 1.5 | 15.60 |

Bottle Section

These are open sections without ends being welded hence they are called open sections. Their main application and usage is in structures as building material.



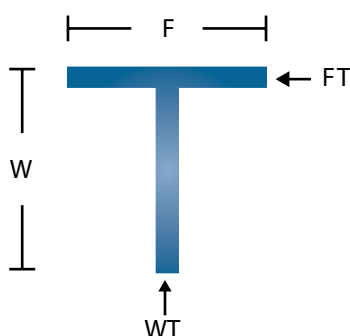
Z – Sections



TG - 13 Technical Specification for Z Sections

| SIZE | WEIGHT |
|---------------|--------|
| 20 x 20 x 3mm | 6.50 |
| 25 x 25 x 3mm | 11.10 |

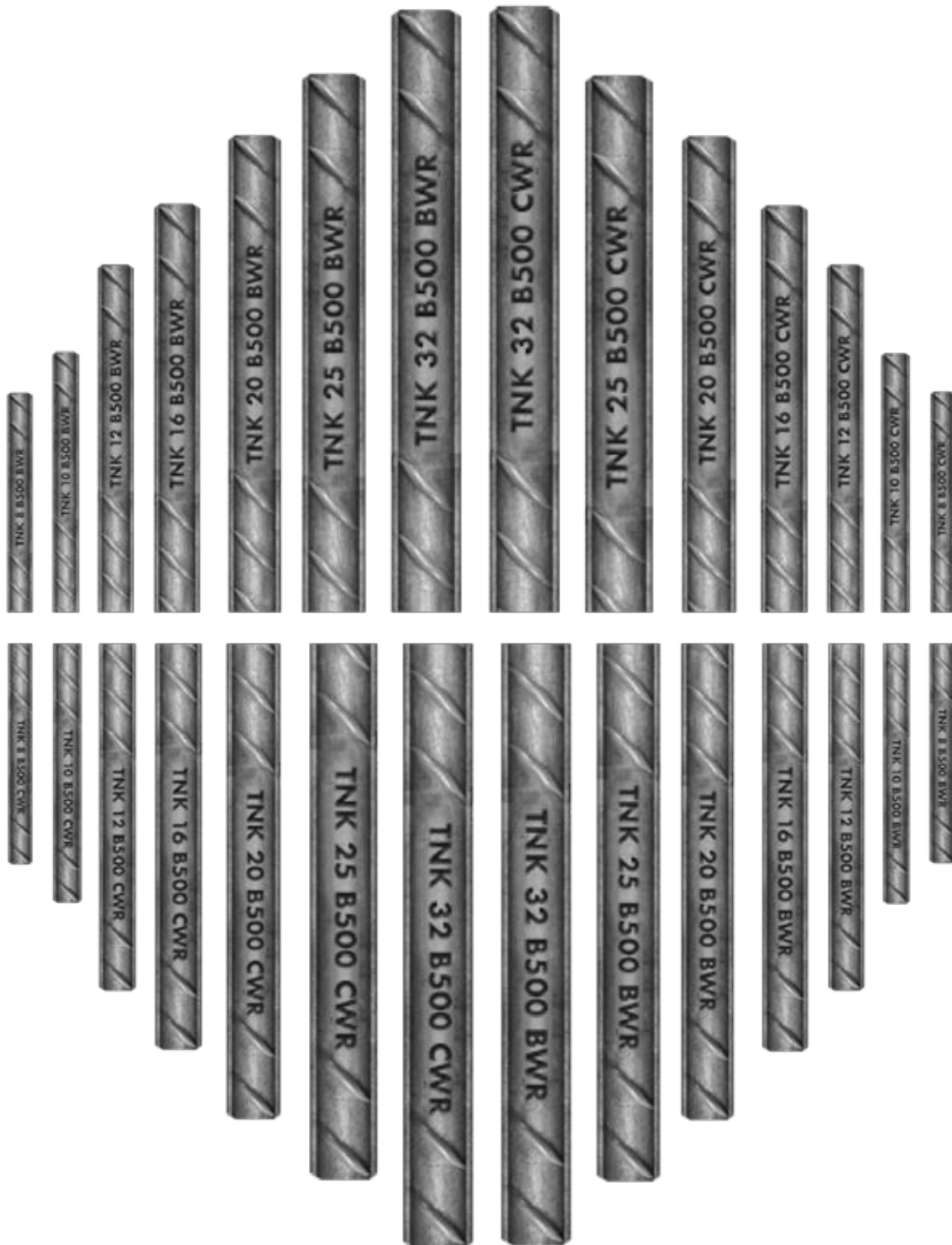
T – Sections



TG - 14 Technical Specification for T Sections

| SIZE | WEIGHT |
|---------------|--------|
| 20 x 20 x 3mm | 5.30 |
| 25 x 25 x 3mm | 6.60 |

REINFORCEMENT STEEL BARS THERMEX TECHNOLOGY



TMT Bars

Thermo Mechanically Treated Rebars are the latest type of reinforcement bars currently used in the developed and developing countries. They conform to the British Standard BS4449:2005, Kenyan Standard KS 2712:2017 and EAS 412-2:2019. Low Carbon Prime Steel Billets are carefully selected for their designated chemistry (Carbon 0.14%-0.22%, Manganese 0.65%-0.9%, Silicon 0.15%-0.25%, Phosphorus 0.05% MAX, Sulphur 0.05% MAX). These billets are charged into a pusher-type reheating furnace which heats them to 1100°C and allowed to soak the heat to the core. They get their final shape after passing through various roughing and finishing stands. The final red-hot rebars are then passed through the thermex quenching system for thermo mechanical treatment. The bar is partially quenched under controlled parameters to optimize the tensile strength and ductility properties. These quenched bars are cooled and tempered on the cooling bed. The final result is a hard martensite annular ring on the outer most surface and a soft tempered perlite core which is tough enough to absorb shock. This is a high tensile reinforcement bar of grade B500 with a minimum elongation of 14%. Their main application is in construction of dams, bridges, high-rise buildings, mega structures, Standard Gauge railway projects, affordable housing structures etc. If designed correctly, TMT rebars can give a saving of 15% in quantity and value.

The standard length of TMT bars is 12 metres. In construction, these need to be pre-cut and bent as per the engineer's specifications and drawings in order to avoid the complications and additional workload on site. Tononoka Rolling Mills Ltd can cut and supply special length bars as per the customer's requirements with a cutting tolerance of ± 50 mm.



TG - 15 Technical Specification for Thermo Mechanically Treated Bars

| THERMO MECHANICALLY TREATED BARS - TMT | | | | | |
|--|---------------------------|-----------------------|----------------------|---------------------------------------|---------------------|
| Nominal Size (MM) | Cross Sectional Area (mm) | Mass Per Meter in Kgs | Weight of 12M in Kgs | Tolerance on Mass - Plus or Minus (%) | Markings on the Bar |
| TMT Bar 8mm | 50.3 | 0.395 | 4.74 | 6 | TNK 8 B500 B/CWR |
| TMT Bar 10mm | 78.5 | 0.617 | 7.40 | 4.5 | TNK 10 B500 B/CWR |
| TMT Bar 12mm | 113 | 0.888 | 10.66 | 4.5 | TNK 12 B500 B/CWR |
| TMT Bar 14mm | 154 | 1.21 | 14.52 | 4.5 | TNK 14 B500 B/CWR |
| TMT Bar 16mm | 201 | 1.58 | 18.96 | 4.5 | TNK 16 B500 B/CWR |
| TMT Bar 18mm | 254 | 2.00 | 24.00 | 4.5 | TNK 18 B500 B/CWR |
| TMT Bar 20mm | 314 | 2.47 | 29.64 | 4.5 | TNK 20 B500 B/CWR |
| TMT Bar 22mm | 381 | 2.99 | 35.88 | 4.5 | TNK 22 B500 B/CWR |
| TMT Bar 25mm | 491 | 3.85 | 46.20 | 4.5 | TNK 25 B500 B/CWR |
| TMT Bar 28mm | 618 | 4.84 | 58.08 | 4.5 | TNK 28 B500 B/CWR |
| TMT Bar 32mm | 804 | 6.31 | 75.72 | 4.5 | TNK 32 B500 B/CWR |
| TMT Bar 36mm | 1019 | 8.00 | 96.00 | 4.5 | TNK 36 B500 B/CWR |
| TMT Bar 40mm | 1257 | 9.86 | 118.32 | 4.5 | TNK 40 B500 B/CWR |

TMT BAR MARKING ELABORATION

| TNK | Name of Manufacturer (Tononoka) |
|---------------------------------|----------------------------------|
| 8 - 10 - 12 - 16 - 20 - 25 - 32 | Size of the Bar |
| B | Reinforcement Bar |
| 500 | Minimum Yield Strength |
| B/C | B Min 1.08 for ductility |
| | C Min 1.15 for ductility |
| W | Weldable |
| R | Ribbed Bar |

TMT MECHANICAL PROPERTIES

| Grade 500 | Absolute Value of Yield Strength | Tensile / Yield Strength Ratio | Total Elongation |
|--------------|----------------------------------|--------------------------------|------------------|
| 8mm | 500 (Min) - 650 (Max) | 1.15 (Min) | 7.5 (Min) |
| 10mm to 40mm | 500 (Min) - 650 (Max) | 1.08 (Min) | 5 (Min) |

Plain Round Bars

TONONOKA Group manufactures hot rolled plain mild steel bars in accordance with the specification of Kenyan standard KS 22:2014 and East African Standard EAS 412-1:2019. The plain mild steel bars come in either round or square profile with nominal sizes ranging from 8mm – 40mm cut to straight lengths of 12mts.

The plain steel bars are mild steel manufactured to grade B300D-P and are to be used as reinforcement in nonstructural concrete.

Features of plain mild steel bars

- High fatigue resistance.
- Minimum crack width.
- High bonding strength.
- Desired flexibility

We also stock wire rods 6.5mm-10mm in coil form which can be supplied to our customer either in coil or straight length, then packed in bundles.

| ROUND BARS | |
|------------|----------------|
| SIZE (mm) | WEIGHT Kgs/12m |
| 6 | 2.50 |
| 8 | 4.74 |
| 10 | 7.39 |
| 12 | 10.66 |
| 16 | 18.95 |
| 20 | 29.59 |
| 25 | 46.25 |
| 32 | 75.76 |

TMT Bar threading services

Based on advanced technology our Rebar Threading Machine is a revolutionary machine for threading forged ends of reinforcement bars. Rebar Threading Machine is designed for the precise production of Rebar, reinforcing bar, for concrete foundations. We offer these services at affordable prices. Some of the advantages are:

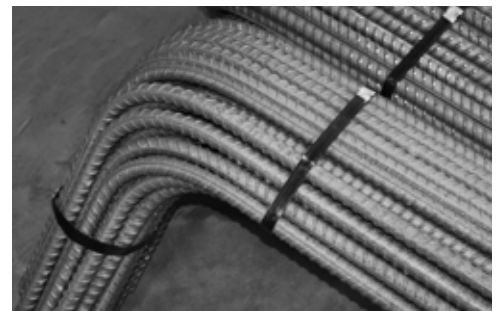
1. Provides Continuity of reinforcement bars
2. No reduction of the bar cross section area
3. Allows full ductile elongation of the TMT bar
4. Solves TMT bar congestion problems
5. Reduces steel wastage
6. Easy installation and manufactured under strict quality assurance supervision
7. Full tension splice and traceability of material original and production batch



Threaded TMT Bars offers several other benefits such as low operating cost, easy installation & maintenance, non-corrosive housing and fast operation that make it worth buying.

Fixed Length Rebars Supply and Bending

The standard length of the rebar is 12 meters. In construction these need to be pre-cut and bent as per the engineers' or designers' drawings in order to avoid the complication and additional work load on site. The Tononoka Rolling Mills can supply fixed length rebars specially cut and supplied as per orders. These cater for different types of projects. The minimum order quantity MOQ for such orders is 27 Metric Tons per size. The cutting tolerance is ± 50 mm.



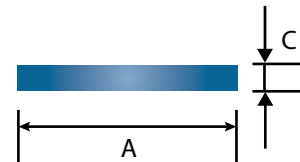
Special Length Reinforcement Bars

The standard length of rebars bars is 12 Metres. In construction, these need to be pre-cut and bent as per the engineer's specifications and drawings in order to avoid the complications and additional workload on site. Tononoka Rolling Mills Ltd can cut and supply special length bars as per the customer's requirements with a cutting tolerance of ± 50 mm. The minimum order quantity for such orders is 27 Metric Tons.

MS Flats

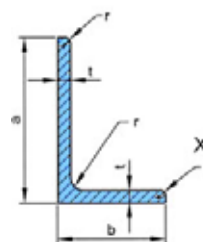
TG - 16 Technical Specification for MS Flat Bar

| BAR WEIGHT PER 6 METRE LENGTH | | | | | | | | | |
|-------------------------------|------|------|-------|-------|-------|-------|-------|-------|--------|
| Thickness (t)(mm) | 3.0 | 4.0 | 5.0 | 6.0 | 8.0 | 9.0 | 10.0 | 12.0 | 15.0 |
| Width in mm (A) | | | | | | | | | |
| 20 | 2.82 | 3.78 | | 5.64 | | | | | |
| 25 | 3.54 | 4.74 | | 7.08 | | | | | |
| 30 | 4.26 | 5.64 | | 8.46 | | | | | |
| 40 | 5.64 | 7.56 | | 11.28 | | | | | |
| 50 | 7.08 | 9.42 | 11.76 | 14.16 | 18.84 | 21.18 | | | |
| 60 | | | 14.16 | 16.98 | 22.62 | 25.44 | | | |
| 65 | | | 15.30 | 18.36 | 24.48 | 27.54 | | | |
| 70 | | | 16.50 | 19.80 | 26.40 | 29.70 | 33.00 | | |
| 75 | | | 17.64 | 21.18 | 28.26 | 31.80 | 35.34 | 42.42 | |
| 100 | | | | 28.26 | 37.68 | 42.42 | 47.10 | 56.52 | 70.80 |
| 120 | | | | 33.90 | 45.24 | 50.88 | 56.52 | 67.80 | 84.60 |
| 150 | | | | 42.42 | 56.52 | 63.60 | 70.80 | 84.60 | 102.60 |



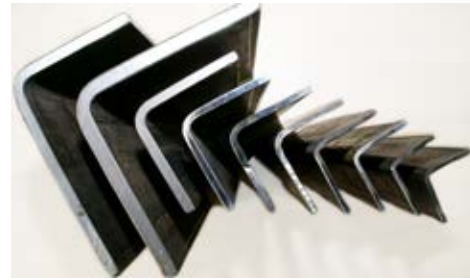
TG - 17 Technical Specification for MS Unequal Angles

| UNEQUAL ANGLES | | | | | | | | | | |
|----------------|-----------|------------|----|-----------|--------|-----|------------------|-----------------|-------------------------------|------------|
| Designation | | Leg Length | | Thickness | Radius | | Mass/Unit Length | Area of Section | Distance of Center of Gravity | |
| Size | Thickness | B | D | | Root | Toe | | | c_x (mm) | c_y (mm) |
| mm | mm | mm | mm | mm | mm | mm | kg/m | cm ² | cm | cm |
| 75 x 50 | 6 | 75 | 50 | 6 | 7 | 2.7 | 5.65 | 7.19 | 2.44 | 1.21 |
| 75 x 50 | 8 | 75 | 50 | 8 | 7 | 2.7 | 7.39 | 9.41 | 2.52 | 1.29 |
| 100 x 50 | 6 | 100 | 50 | 6 | 8 | 4 | 6.84 | 8.71 | | |
| 100 x 50 | 8 | 100 | 50 | 8 | 8 | 4 | 8.97 | 11.43 | | |
| 100 x 50 | 9 | 100 | 50 | 9 | 8 | 4 | 10.02 | 12.76 | | |
| 100 x 65 | 7 | 100 | 65 | 7 | 10 | 4.8 | 8.77 | 11.2 | 3.23 | 1.51 |
| 100 x 65 | 8 | 100 | 65 | 8 | 10 | 4.8 | 9.94 | 12.7 | 3.27 | 1.55 |
| 100 x 65 | 9 | 100 | 65 | 9 | 10 | 4.8 | 11.11 | 14.15 | | |
| 100 x 65 | 10 | 100 | 65 | 10 | 10 | 4.8 | 12.3 | 15.6 | 3.36 | 1.63 |
| 100 x 75 | 6 | 100 | 75 | 6 | 10 | 4.8 | 8.04 | 10.25 | | |
| 100 x 75 | 8 | 100 | 75 | 8 | 10 | 4.8 | 10.6 | 13.5 | 3.10 | 1.87 |
| 100 x 75 | 9 | 100 | 75 | 9 | 10 | 4.8 | 11.81 | 15.05 | | |
| 100 x 75 | 10 | 100 | 75 | 10 | 10 | 4.8 | 13.0 | 16.6 | 3.19 | 1.95 |
| 100 x 75 | 12 | 100 | 75 | 12 | 10 | 4.8 | 15.4 | 19.7 | 3.27 | 2.03 |
| 125 x 75 | 8 | 125 | 75 | 8 | 11 | 4.8 | 12.2 | 15.5 | 4.14 | 1.68 |
| 125 x 75 | 9 | 125 | 75 | 9 | 11 | 4.8 | 13.6 | 17.3 | | |
| 125 x 75 | 10 | 125 | 75 | 10 | 11 | 4.8 | 15.0 | 19.1 | 4.23 | 1.76 |
| 125 x 75 | 12 | 125 | 75 | 12 | 11 | 4.8 | 17.8 | 22.7 | 4.31 | |



MS Angles

Mild Steel Angles range in sizes 20 x 20 up to 125 x 75 with a variety of thicknesses. Structural Steel Angles are also available in sizes 120 x 120, 200 x 200 and 150 x 150. Lengths can be purchased individually or as a bundle.



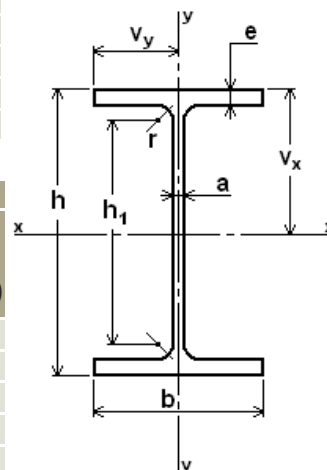
TG - 18 Technical Specification for MS Angles

| EQUAL ANGLES | | | | | | | | | | | | | | | | |
|--------------|-----------|------------|-----------|--------|-----|-------------------|-----------------|-------------------------------|----------------------|-------------|-------------|--------------------|-------------|-------------|-----------------|-------------|
| Designation | | Leg Length | Thickness | Radius | | Mass /Unit Length | Area of Section | Distance of Center of Gravity | second Moment of Are | | | Radius of Gyration | | | Elastic Modules | |
| Size | Thickness | | | Root | Toe | | | | About X - X | About U - U | About V - V | About X - X | About U - U | About V - V | About X - X | About Y - Y |
| mm | mm | mm | mm | mm | mm | kg/m | cm2 | cm | cm4 | cm4 | cm4 | cm | cm | cm | cm3 | |
| 20 x 20 | 3 | 20 | 3 | 3.5 | 2.4 | 0.88 | 1.22 | 0.66 | 0.39 | 0.61 | 0.16 | 0.59 | 0.74 | 0.38 | 0.28 | |
| 20 x 20 | 4 | 20 | 4 | 3.5 | 2.4 | 1.14 | 1.45 | 0.64 | 0.49 | 0.77 | 0.21 | 0.58 | 0.73 | 0.38 | 0.36 | |
| 25 x 25 | 3 | 25 | 3 | 3.5 | 2.4 | 1.11 | 1.42 | 0.72 | 0.8 | 1.26 | 0.33 | 0.75 | 0.94 | 0.48 | 0.45 | |
| 25 x 25 | 4 | 25 | 4 | 3.5 | 2.4 | 1.45 | 1.85 | 0.76 | 1.01 | 1.6 | 0.43 | 0.74 | 0.93 | 0.48 | 0.58 | |
| 25 x 25 | 6 | 25 | 6 | 3.5 | 2.4 | 2.08 | 2.65 | 0.84 | 1.38 | 2.15 | 0.61 | 0.72 | 0.9 | 0.48 | 0.83 | |
| 30 x 30 | 3 | 30 | 3 | 5 | 2.4 | 1.36 | 1.74 | 0.84 | 0.4 | 2.23 | 0.58 | 0.9 | 1.13 | 0.58 | 0.65 | |
| 30 x 30 | 4 | 30 | 4 | 5 | 2.4 | 1.78 | 2.27 | 0.88 | 1.8 | 2.85 | 0.75 | 0.89 | 1.12 | 0.58 | 0.85 | |
| 30 x 30 | 6 | 30 | 6 | 5 | 2.4 | 2.54 | 3.24 | 0.97 | 2.55 | | 0.89 | | | | | |
| 40 x 40 | 3 | 40 | 3 | 6 | 2.4 | 1.84 | 2.35 | 1.07 | 3.45 | 5.46 | 1.44 | 1.21 | 1.52 | 0.78 | 1.18 | |
| 40 x 40 | 4 | 40 | 4 | 6 | 2.4 | 2.42 | 3.08 | 1.12 | 4.47 | 7.09 | 1.85 | 1.21 | 1.53 | 0.78 | 1.55 | |
| 40 x 40 | 6 | 40 | 6 | 6 | 2.4 | 3.52 | 4.48 | 1.2 | 6.31 | 9.89 | 2.65 | 1.19 | 1.49 | 0.77 | 2.26 | |
| 50 x 50 | 3 | 50 | 3 | 7 | 2.4 | 2.33 | 2.96 | 1.31 | 6.86 | 10.8 | 2.88 | 1.52 | 1.91 | 0.99 | 1.86 | |
| 50 x 50 | 4 | 50 | 4 | 7 | 2.4 | 3.06 | 3.89 | 1.36 | 8.97 | 14.2 | 3.72 | 1.52 | 1.91 | 0.98 | 3.61 | |
| 50 x 50 | 6 | 50 | 6 | 7 | 2.4 | 4.47 | 5.69 | 1.45 | 12.8 | 20.4 | 5.33 | 1.5 | 1.89 | 0.97 | 3.61 | |
| 50 x 50 | 8 | 50 | 8 | 7 | 2.4 | 5.82 | 7.41 | 1.52 | 16.3 | 25.7 | 6.87 | 1.48 | 1.86 | 0.96 | 4.68 | |
| 60 x 60 | 6 | 60 | 6 | 8 | 2.4 | 5.42 | 6.91 | 1.69 | 22.8 | 36.2 | 9.43 | 1.82 | 2.29 | 1.17 | 5.29 | |
| 60 x 60 | 8 | 60 | 8 | 8 | 2.4 | 7.09 | 9.03 | 1.77 | 29.2 | 46.2 | 12.1 | 1.8 | 2.26 | 1.16 | 6.89 | |
| 60 x 60 | 10 | 60 | 10 | 8 | 2.4 | 8.69 | 11.1 | 1.85 | 34.9 | 55.1 | 14.8 | 1.78 | 2.23 | 1.16 | 8.41 | |
| 65 x 65 | 6 | 65 | 6 | 8 | 2.4 | 5.91 | 7.44 | 1.81 | 29.1 | 46.5 | 11.7 | 1.98 | 2.5 | 1.25 | 6.2 | |
| 65 x 65 | 8 | 65 | 8 | 8 | 2.4 | 7.73 | 9.76 | 1.89 | 37.4 | 59.5 | 15.3 | 1.96 | 2.47 | 1.25 | 8.1 | |
| 65 x 65 | 10 | 65 | 10 | 8 | 2.4 | 9.49 | 12 | 1.97 | 45 | 71.3 | 10.8 | 1.94 | 2.44 | 1.25 | 9.9 | |
| 70 x 70 | 6 | 70 | 6 | 9 | 2.4 | 6.38 | 8.13 | 1.93 | 36.9 | 58.5 | 15.2 | 2.13 | 2.68 | 1.37 | 7.27 | |
| 70 x 70 | 8 | 70 | 8 | 9 | 2.4 | 8.36 | 10.6 | 2.01 | 47.5 | 75.5 | 19.7 | 2.11 | 2.66 | 1.36 | 9.52 | |
| 70 x 70 | 9 | 70 | 9 | 9 | 2.4 | 9.32 | 11.88 | | | | | | | | | |
| 70 x 70 | 10 | 70 | 10 | 9 | 2.4 | 10.3 | 13.1 | 2.09 | 57.2 | 90.5 | 23.9 | 2.09 | 2.63 | 1.35 | 11.7 | |
| 75 x 75 | 6 | 75 | 6 | 9 | 2.4 | 6.85 | 8.66 | 2.06 | 45.7 | 73.1 | 18.4 | 2.3 | 2.91 | 1.46 | 8.4 | |
| 75 x 75 | 8 | 75 | 8 | 9 | 2.4 | 8.99 | 11.38 | 2.14 | 59 | 94.1 | 24 | 2.28 | 2.88 | 1.45 | 11 | |
| 75 x 75 | 10 | 75 | 10 | 9 | 2.4 | 11.06 | 14.02 | 2.22 | 71.4 | 113.3 | 29.4 | 2.26 | 2.84 | 1.45 | 13.5 | |
| 75 x 75 | 12 | 75 | 12 | 9 | 2.4 | 13.07 | 16.65 | 2.29 | 82.8 | 132.3 | 32.3 | 2.23 | 2.82 | 1.39 | 15.9 | |
| 80 x 80 | 6 | 80 | 6 | 10 | 4.8 | 7.34 | 9.35 | 2.17 | 55.8 | 88.5 | 23.1 | 2.44 | 3.08 | 1.57 | 9.57 | |
| 80 x 80 | 8 | 80 | 8 | 10 | 4.8 | 9.63 | 12.3 | 2.26 | 72.2 | 115 | 29.8 | 2.43 | 3.06 | 1.56 | 12.6 | |
| 80 x 80 | 10 | 80 | 10 | 10 | 4.8 | 11.09 | 15.1 | 2.34 | 87.5 | 139 | 36.3 | 2.41 | 3.03 | 1.55 | 15.4 | |
| 80 x 80 | 12 | 80 | 12 | 10 | 4.8 | 14 | 17.9 | 2.41 | 102 | 161 | 42.7 | 2.39 | 3 | 1.55 | 18.2 | |
| 90 x 90 | 6 | 90 | 6 | 11 | 4.8 | 8.3 | 10.6 | 2.41 | 80.3 | 127 | 33.3 | 2.76 | 3.47 | 1.78 | 12.2 | |
| 90 x 90 | 8 | 90 | 8 | 11 | 4.8 | 10.9 | 13.9 | 2.5 | 104 | 166 | 43.1 | 2.74 | 3.45 | 1.76 | 16.1 | |
| 90 x 90 | 9 | 90 | 9 | 11 | 4.8 | 12.18 | 15.5 | | | | | | | | | |
| 90 x 90 | 10 | 90 | 10 | 11 | 4.8 | 13.45 | 17.1 | 2.58 | 127 | 201 | 52.8 | 2.72 | 3.42 | 1.76 | 19.8 | |
| 90 x 90 | 12 | 90 | 12 | 11 | 4.8 | 15.9 | 20.3 | 2.66 | 148 | 234 | 62 | 2.7 | 3.4 | 1.75 | 23.3 | |
| 100 x 100 | 6 | 100 | 6 | 12 | 4.8 | 9.26 | 11.79 | | | | | | | | | |
| 100 x 100 | 8 | 100 | 8 | 12 | 4.8 | 12.2 | 15.5 | 2.74 | 145 | 230 | 59.8 | 3.06 | 3.85 | 1.96 | 19.9 | |
| 100 x 100 | 9 | 100 | 9 | 12 | 4.8 | 13.6 | 17.34 | | | | | | | | | |
| 100 x 100 | 10 | 100 | 10 | 12 | 4.8 | 15 | 19.2 | 2.82 | 177 | 280 | 72.9 | 3.04 | 3.83 | 1.95 | 24.6 | |
| 100 x 100 | 12 | 100 | 12 | 12 | 4.8 | 17.8 | 22.7 | 2.9 | 207 | 328 | 85.7 | 3.02 | 3.8 | 1.94 | 29.1 | |
| 100 x 100 | 15 | 100 | 15 | 12 | 4.8 | 21.9 | 27.9 | 3.02 | 249 | 393 | 104 | 2.98 | 3.75 | 1.93 | 35.6 | |
| 120 x 120 | 8 | 120 | 8 | 13 | 4.8 | 14.7 | 18.7 | 3.23 | 255 | 405 | 105 | 3.69 | 4.65 | 2.37 | 29.1 | |
| 120 x 120 | 9 | 120 | 9 | 13 | 4.8 | 16.46 | 20.97 | | | | | | | | | |
| 120 x 120 | 10 | 120 | 10 | 13 | 4.8 | 18.2 | 23.2 | 3.31 | 313 | 497 | 129 | 3.76 | 4.63 | 2.36 | 36 | |
| 120 x 120 | 12 | 120 | 12 | 13 | 4.8 | 21.6 | 27.5 | 3.4 | 368 | 584 | 151 | 3.65 | 4.6 | 2.35 | 42.7 | |
| 120 x 120 | 15 | 120 | 15 | 13 | 4.8 | 26.6 | 33.9 | 3.51 | 455 | 705 | 185 | 3.62 | 4.56 | 2.33 | 52.4 | |
| 150 X 150 | 10 | 150 | 10 | 16 | 4.8 | 23 | 29 | 29.3 | 403 | 624 | 991 | 4.62 | 5.82 | 2.97 | 56.9 | |
| 150 X 150 | 12 | 150 | 12 | 16 | 4.8 | 27.3 | 34.8 | 4.12 | 737 | 1170 | 303 | 4.6 | 5.8 | 2.95 | 67.7 | |
| 150 X 150 | 15 | 150 | 15 | 16 | 4.8 | 33.8 | 43 | 4.25 | 898 | 1430 | 370 | 4.57 | 5.76 | 2.93 | 83.5 | |
| 150 X 150 | 18 | 150 | 18 | 16 | 4.8 | 40 | 51 | 4.37 | 1050 | 1670 | 435 | 4.24 | 5.71 | 2.92 | 98.7 | |
| 180 X 180 | 15 | 180 | 15 | 18 | 4.8 | 40.9 | 52.1 | 4.98 | 1590 | 2520 | 653 | 5.52 | 6.96 | 3.54 | 122 | |
| 180 X 180 | 18 | 180 | 18 | 18 | 4.8 | 48.6 | 61.9 | 5.1 | 1870 | 2960 | 768 | 5.49 | 6.92 | 3.52 | 145 | |
| 180 X 180 | 20 | 180 | 20 | 18 | 4.8 | 53.7 | 68.3 | 5.18 | 2040 | 3240 | 843 | 5.47 | 6.89 | 3.51 | 159 | |
| 200 X 200 | 16 | 200 | 16 | 18 | 4.8 | 48.5 | 61.8 | 5.52 | 2340 | 3720 | 959 | 6.16 | 7.76 | 3.94 | 162 | |
| 200 X 200 | 18 | 200 | 18 | 18 | 4.8 | 54.2 | 69.1 | 5.6 | 2600 | 4130 | 1070 | 6.13 | 7.73 | 3.93 | 181 | |
| 200 X 200 | 20 | 200 | 20 | 18 | 4.8 | 59.9 | 76.3 | 5.68 | 2850 | 4530 | 1170 | 6.11 | 7.7 | 3.92 | 199 | |
| 200 X 200 | 24 | 200 | 24 | 18 | 4.8 | 71.1 | 90.6 | 5.84 | 3330 | 5280 | 1380 | 6.06 | 7.64 | 3.9 | 235 | |

TG - 19 Joints and Beams IPE

| I.P.E. SECTIONS | | | | | | |
|-----------------------|-----------|--------------------------|-----------------|----------------|-------------------------------|----------------------------------|
| Size (A x B) in mm | Mass Kg/M | Weight of 12 M in Kgs | Height in mm | Width in mm | WEB Thickness in mm (t) | FLANGE Thickness in mm (w) |
| 100 x 55 | 8.1 | 97 | 100.0 | 55.0 | 4.1 | 5.7 |
| 120 x 64 | 10.4 | 125 | 120.0 | 64.0 | 4.4 | 6.3 |
| 140 x 73 | 12.9 | 155 | 140.0 | 73.0 | 4.7 | 6.9 |
| 160 x 82 | 15.8 | 190 | 160.0 | 82.0 | 5.0 | 7.4 |
| 180 x 91 | 18.8 | 226 | 180.0 | 91.0 | 5.3 | 8.0 |
| 200 x 100 | 22.4 | 269 | 200.0 | 100.0 | 5.6 | 8.5 |

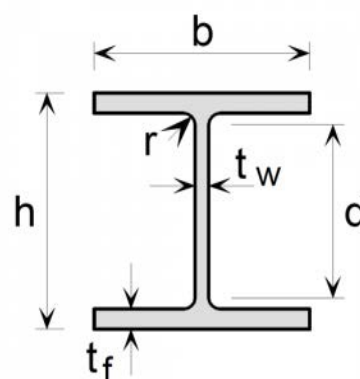
| I.P.E. AA SECTIONS | | | | | | |
|-----------------------|-----------|--------------------------|-----------------|----------------|-------------------------------|----------------------------------|
| Size (A x B) in mm | Mass Kg/M | Weight of 12 M in Kgs | Height in mm | Width in mm | WEB Thickness in mm (t) | FLANGE Thickness in mm (w) |
| 100 x 55 | 8.10 | 97 | 97.6 | 55.0 | 3.6 | 4.5 |
| 120 x 64 | 8.36 | 100 | 117.0 | 64.0 | 3.8 | 4.8 |
| 135 x 74 | 6.98 | 84 | 165.0 | 74.0 | 2.9 | 3.2 |
| 140 x 73 | 10.05 | 121 | 136.6 | 73.0 | 3.8 | 5.2 |
| 160 x 82 | 12.31 | 148 | 156.4 | 82.0 | 4.0 | 5.6 |
| 180 x 91 | 14.90 | 179 | 176.4 | 91.0 | 4.3 | 6.2 |
| 200 x 100 | 17.95 | 215 | 196.4 | 100.0 | 4.5 | 6.7 |



Universal Columns

TG - 20 Technical Specification for Universal Columns

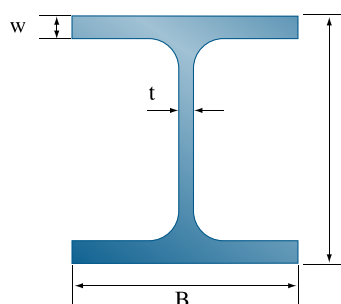
| UNIVERSAL COLUMN | | | | | | |
|-----------------------|-----------|--------------------------|-----------------|----------------|-------------------------------|----------------------------------|
| Size (A x B) in mm | Mass Kg/M | Weight of 12 M in Kgs | Height in mm | Width in mm | WEB Thickness in mm (t) | FLANGE Thickness in mm (w) |
| 152 x 152 | 23.00 | 276 | 152.4 | 152.4 | 6.1 | 6.8 |
| | 30.00 | 360 | 157.2 | 152.9 | 6.6 | 9.4 |
| | 37.00 | 444 | 161.8 | 154.4 | 8.1 | 11.5 |
| 203 x 203 | 46.10 | 553 | 203.2 | 203.2 | 7.3 | 11.0 |
| | 52.00 | 624 | 206.2 | 203.9 | 8.0 | 12.5 |
| | 60.00 | 720 | 209.6 | 205.2 | 9.3 | 14.2 |
| | 71.00 | 852 | 215.9 | 206.2 | 10.3 | 17.3 |
| | 86.10 | 1,033 | 222.3 | 208.8 | 13.0 | 20.5 |
| 254 x 254 | 73.10 | 877 | 254.2 | 254.0 | 8.6 | 14.2 |
| | 88.90 | 1,067 | 260.4 | 255.9 | 10.5 | 17.3 |
| | 107.10 | 1,285 | 266.0 | 258.3 | 13.0 | 20.5 |
| | 132.00 | 1,584 | 276.4 | 261.0 | 15.6 | 25.1 |
| | 167.00 | 2,004 | 289.1 | 264.5 | 19.2 | 31.7 |
| 305 x 305 | 97.00 | 1,164 | 307.8 | 304.8 | 9.9 | 15.4 |
| | 118.00 | 1,416 | 314.5 | 306.8 | 11.9 | 18.7 |
| | 134.00 | 1,608 | 320.5 | 308.7 | 13.8 | 21.7 |
| 356 x 368 | 158.10 | 1,897 | 327.2 | 310.6 | 15.7 | 25.0 |
| | 129.00 | 1,548 | 355.6 | 368.6 | 10.4 | 17.5 |
| 356 x 406 | 153.00 | 1,836 | 362.0 | 370.5 | 12.3 | 20.7 |
| | 235.00 | 2,820 | 381.0 | 394.8 | 18.4 | 30.2 |



Universal Beams

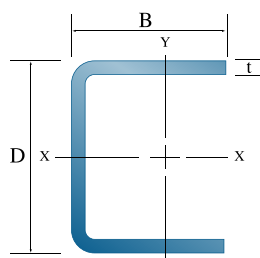
TG - 20(a) Technical Specification for Universal Beams and Wide Flange Beams

| UNIVERSAL BEAMS | | | | | | |
|--------------------|-----------|-----------------------|--------------|-------------|-------------------------|----------------------------|
| Size (A x B) in mm | Mass Kg/M | Weight of 12 M in Kgs | Height in mm | Width in mm | WEB Thickness in mm (t) | FLANGE Thickness in mm (w) |
| 203 x 133 | 25.10 | 301.00 | 203.20 | 133.40 | 5.80 | 7.80 |
| | 30.00 | 206.80 | 206.80 | 133.80 | 6.30 | 9.60 |
| 254 x 146 | 31.10 | 251.50 | 251.50 | 146.10 | 6.10 | 8.60 |
| | 37.00 | 256.00 | 256.00 | 146.40 | 6.40 | 10.90 |
| | 43.00 | 259.60 | 259.60 | 147.30 | 7.30 | 12.70 |
| 305 x 102 | 24.80 | 304.80 | 304.80 | 101.60 | 5.80 | 6.80 |
| | 28.20 | 308.90 | 308.90 | 101.90 | 6.10 | 8.90 |
| | 32.80 | 312.70 | 312.70 | 102.40 | 6.60 | 10.80 |
| 305 x 165 | 40.30 | 303.80 | 303.80 | 165.10 | 6.10 | 10.20 |
| | 46.13 | 307.10 | 307.10 | 165.70 | 6.70 | 11.80 |
| | 54.00 | 310.90 | 310.90 | 166.80 | 7.70 | 13.70 |
| 356 x 171 | 45.00 | 352.00 | 352.00 | 171.00 | 6.90 | 9.70 |
| | 51.00 | 355.60 | 355.60 | 171.50 | 7.30 | 11.50 |
| | 57.00 | 358.60 | 358.60 | 172.10 | 8.00 | 13.00 |
| | 67.10 | 364.00 | 364.00 | 173.20 | 9.10 | 15.70 |
| 406 x 140 | 39.00 | 397.30 | 397.30 | 141.80 | 6.30 | 8.60 |
| | 46.30 | 402.30 | 402.30 | 142.40 | 6.90 | 11.20 |
| 406 x 178 | 54.10 | 402.60 | 402.60 | 177.60 | 7.60 | 10.90 |
| | 60.10 | 406.40 | 406.40 | 177.80 | 7.80 | 12.80 |
| | 67.10 | 409.40 | 409.40 | 179.80 | 8.80 | 14.30 |
| | 74.20 | 412.80 | 412.80 | 179.70 | 9.70 | 16.00 |
| 457 x 191 | 67.10 | 453.60 | 453.60 | 189.90 | 8.50 | 12.70 |
| | 74.30 | 457.20 | 457.20 | 190.50 | 9.10 | 14.50 |
| | 82.00 | 460.20 | 460.20 | 191.30 | 9.90 | 16.00 |
| | 89.30 | 463.30 | 463.60 | 192.00 | 11.40 | 19.60 |
| | 98.30 | 476.40 | 467.40 | 192.80 | 11.40 | 19.60 |
| 533 x 210 | 82.20 | 528.30 | 528.30 | 208.70 | 9.60 | 13.20 |
| | 92.10 | 533.10 | 533.10 | 209.30 | 10.20 | 15.60 |
| | 101.00 | 536.70 | 536.70 | 210.10 | 10.90 | 17.40 |
| | 109.00 | 539.80 | 538.80 | 210.70 | 11.60 | 18.80 |
| | 122.00 | 544.60 | 544.60 | 211.90 | 12.80 | 21.30 |
| 610 x 229 | 101.00 | 602.60 | 602.60 | 227.60 | 10.50 | 14.80 |
| 762 x 267 | 147.00 | 754.00 | 754.00 | 265.20 | 12.80 | 17.50 |
| 763 x 267 | 173.00 | 762.20 | 762.20 | 266.70 | 14.30 | 21.60 |
| 914 x 305 | 201.00 | 903.00 | 903.00 | 303.30 | 15.10 | 20.20 |



TG - 21 Technical Specification for MS Plain Channels

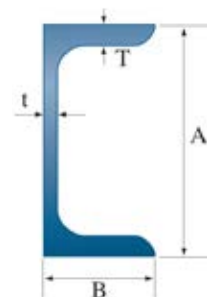
| PLAIN CHANNELS (COLD FORMED) | | | | | | | | | | |
|------------------------------|---------------|--------|--------------------|--------------------|-----------------------------------|---------------------|---------------------|-----------------------------------|-----------------------------------|-------|
| SIZE (DXB) | THICKNESS (t) | WEIGHT | SECT. AREA | MOMENT OF INERTIA | | SECTION MODULUS | | RADIUS OF GYRATION | | P |
| | | | | I _x | I _y | Z _x | Z _y | i _x | i _y | |
| mm | mm | kg/m | (cm ²) | (cm ⁴) | I _y (cm ⁴) | i _x (cm) | i _y (cm) | Z _x (cm ³) | Z _y (cm ³) | mm |
| 50 x 50 | 1.5 | 1.88 | 2.39 | 11.24 | 6.62 | 4.43 | 2.02 | 2.17 | 1.67 | 17.81 |
| | 2.0 | 2.32 | 2.96 | 13.69 | 8.16 | 5.40 | 2.50 | 2.15 | 1.66 | 18.03 |
| | 3.0 | 3.62 | 4.61 | 20.23 | 12.36 | 7.97 | 3.85 | 2.10 | 1.64 | 18.69 |
| 65 x 50 | 2.0 | 2.46 | 3.14 | 23.63 | 8.54 | 7.27 | 2.50 | 2.71 | 1.63 | 15.91 |
| | 3.0 | 3.60 | 4.59 | 33.99 | 12.41 | 10.46 | 3.68 | 2.67 | 1.61 | 16.28 |
| 75 x 50 | 2.0 | 2.62 | 3.34 | 32.62 | 8.95 | 8.70 | 2.56 | 3.09 | 1.62 | 15.04 |
| | 3.0 | 3.84 | 4.89 | 47.12 | 13.03 | 15.56 | 3.77 | 3.05 | 1.60 | 15.04 |
| 100 x 50 | 2.0 | 3.13 | 3.99 | 65.55 | 10.36 | 12.90 | 2.79 | 3.09 | 1.61 | 13.64 |
| | 3.0 | 4.91 | 6.25 | 98.93 | 15.94 | 19.69 | 4.34 | 3.05 | 1.59 | 14.20 |
| 150 x 50 | 2.0 | 3.94 | 5.02 | 169.89 | 11.69 | 22.17 | 2.93 | 5.80 | 1.52 | 11.04 |
| | 3.0 | 6.21 | 7.90 | 260.08 | 18.02 | 34.14 | 4.95 | 5.73 | 1.51 | 11.58 |

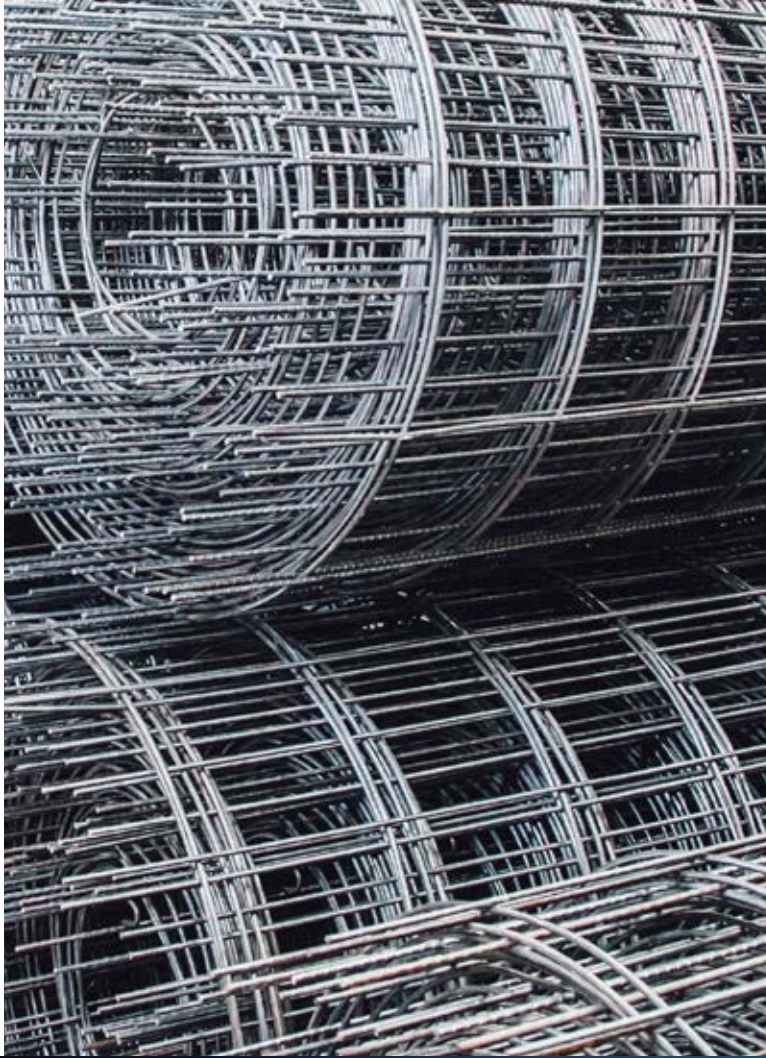


U - Channels

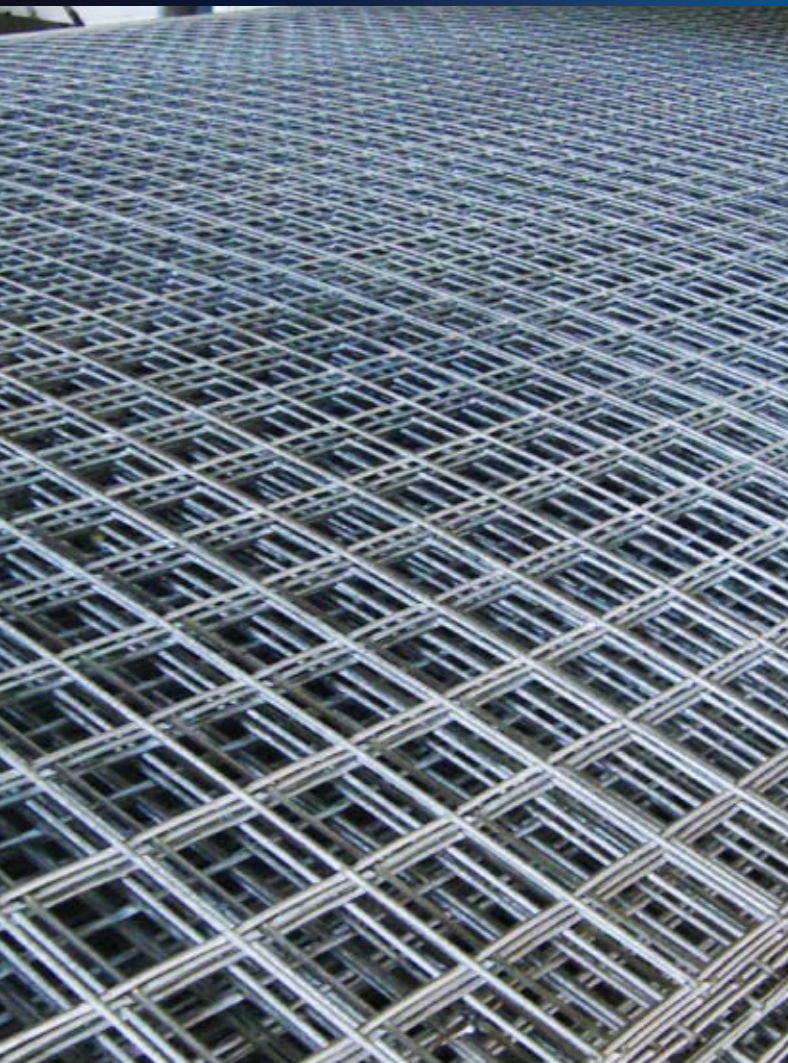
TG - 22 Technical Specification for U - Channels

| HOT ROLLED TAPERED FLANGE CHANNEL | | | | | | | | | | |
|-----------------------------------|-------|-------|---------------|------------------|-----------------|--------|------------------------------------|------------------------------------|-------------------------------------|-------------------------------------|
| Designation | Depth | Width | Thickness Web | Thickness Flange | Sectional Area | Weight | Moment of Inertia - I _x | Moment of Inertia - I _y | Section of Modulus - W _x | Section of Modulus - W _y |
| | mm | mm | mm | mm | cm ² | kg/m | cm ⁴ >> 4 | cm ⁴ >> 4 | cm ³ >> 3 | cm ³ >> 3 |
| 76 x 38 x 7 | 76.2 | 38.1 | 5.1 | 6.8 | 8.56 | 6.7 | 74 | 10.7 | 19.5 | 4.1 |
| 100 x 50 x 10 | 100.6 | 50.8 | 6.1 | 7.6 | 13.3 | 10.4 | 207 | 29.1 | 41 | 8.1 |
| 127 x 64 x 15 | 127 | 63.5 | 6.4 | 9.2 | 19 | 14.9 | 482 | 67.2 | 76 | 15.2 |
| 152 x 76 x 18 | 152.4 | 76.2 | 6.4 | 9 | 22.8 | 17.9 | 852 | 114 | 112 | 21 |
| 152 x 89 x 24 | 152.4 | 88.9 | 7.1 | 11.6 | 30.4 | 23.9 | 1168 | 216 | 153 | 35.8 |
| 178 x 76 x 21 | 177.8 | 76.2 | 6.6 | 10.3 | 26.6 | 20.8 | 1338 | 134 | 151 | 24.8 |
| 178 x 89 x 27 | 177.8 | 88.9 | 7.6 | 12.3 | 34.1 | 26.8 | 1753 | 241 | 197 | 39.3 |
| 203 x 76 x 24 | 203.2 | 76.2 | 7.1 | 11.2 | 30.4 | 23.9 | 1955 | 152 | 192 | 27.7 |
| 203 x 89 x 30 | 203.2 | 88.9 | 8.1 | 12.9 | 37.9 | 29.8 | 2492 | 265 | 245 | 42.4 |
| 229 x 76 x 26 | 228.6 | 76.2 | 7.6 | 11.2 | 33.2 | 26.1 | 2615 | 159 | 229 | 28.4 |
| 229 x 89 x 33 | 228.6 | 88.9 | 8.6 | 13.3 | 41.6 | 32.7 | 3383 | 285 | 296 | 44.8 |
| 254 x 76 x 28 | 254 | 76.2 | 8.1 | 10.9 | 35.9 | 28.2 | 3355 | 162 | 264 | 28.1 |
| 254 x 89 x 36 | 254 | 88.9 | 9.1 | 13.6 | 45.4 | 35.7 | 4445 | 302 | 350 | 46.7 |
| 305 x 102 x 46 | 304.8 | 101.6 | 10.2 | 14.8 | 58.9 | 46.2 | 8208 | 499 | 539 | 66.5 |
| 305 x 89 x 42 | 304.8 | 88.9 | 10.2 | 13.7 | 53.3 | 41.8 | 7078 | 326 | 464 | 48.6 |
| 381 x 102 x 55 | 381 | 101.1 | 10.4 | 16.3 | 70.1 | 55 | 14869 | 579 | 781 | 75.7 |
| 432 x 102 x 65 | 431.8 | 101.6 | 12.2 | 16.8 | 83.4 | 65.5 | 21373 | 627 | 990 | 80 |





WIRE PRODUCTS



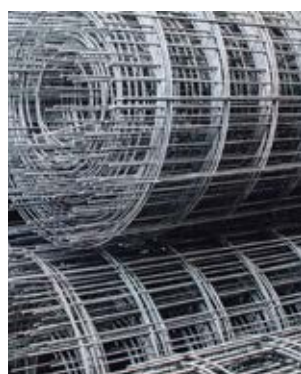
Welded Mesh and BRC

SAE 1008 grade wire of different diameters is pickled and drawn for the required wire diameter size. These drawn wires are fed into the machine as line and cross wires to make a mesh structure commonly used in reinforcement of slabs among other uses. Standard gauge and pitch Bar Reinforcement Concrete (BRC) comes in 48 metre rolls manufactured under Kenyan Standards KS 574:2017 whereas Welded Mesh comes in 8'x4' sheets manufactured under Kenyan Standards KS 2177:2017.

TG - 23 Technical Specification for Weld Mesh



| WELD MESH | | |
|------------------|-----------|-------------|
| Sizes Size | Mesh Size | WT/PC (kgs) |
| 8' x 4' x 3.0 mm | 50 x 50 | 6.5 |
| 8' x 4' x 3.0 mm | 75 x 75 | 4.1 |
| 8' x 4' x 4.0 mm | 50 x 50 | 10.5 |



TG - 24 Technical Specification for B R C

| B.R.C | | | | | | | | |
|----------|------------|-----------|---------------|---------------|---------------|-----------|-----------|---------------------------|
| Mesh Ref | Size | | | LW Pitch (mm) | CW Pitch (mm) | No. of LW | No. of CW | Nominal Mass Per Sq Meter |
| | Length (M) | Width (M) | Diameter (mm) | | | | | |
| A66 | 48.0 | 2.1 | 4.0 | 200.0 | 200.0 | 10.0 | 240.0 | 0.99 |
| A98 | 48.0 | 2.1 | 5.0 | 200.0 | 200.0 | 10.0 | 240.0 | 1.54 |
| A142 | 48.0 | 2.1 | 6.0 | 200.0 | 200.0 | 10.0 | 240.0 | 2.22 |
| A193 | 4.8 | 2.4 | 7.0 | 200.0 | 200.0 | 12.0 | 24.0 | 3.03 |
| A252 | 4.8 | 2.4 | 8.0 | 200.0 | 200.0 | 12.0 | 24.0 | 3.59 |
| A393 | 4.8 | 2.4 | 10.0 | 200.0 | 200.0 | 12.0 | 24.0 | 6.16 |

Nails

Nails are manufactured from drawn wire. The nail points are sharp and the heads clean while the shank maintains sufficient strength to withstand the hammering action. These are produced on high-speed automatic machines. Tononoka Steels Ltd stocks nails from 1.0" to 6" in size. Nails remain a vital component in the construction industry.

TG - 25 Technical Specification for Mild Steel Nails



| MILD STEEL NAILS | | | |
|------------------|--------|----------------------------|------------------|
| SIZE (Inches) | LENGTH | SHANK (WIRE) DIAMETER (mm) | STD WT/BAG (KGS) |
| 6.0 | 150 | 6.0 | 50 |
| 5.0 | 125 | 5.5 | 50 |
| 4.0 | 100 | 4.5 | 50 |
| 3.0 | 75 | 4.0 | 50 |
| 2.5 | 65 | 3.3 | 50 |
| 2.0 | 50 | 2.7 | 50 |
| 1.5 | 38 | 2.3 | 50 |
| 1.0 | 25 | 1.8 | 50 |

Binding Wire

Wire is successively drawn from 5.5mm wire rod and annealed at intermediate stages. Annealing wire is available from 1.8 mm to 4.5 mm in diameter. The Binding Wire comes in pre-packed bundles of 25 Kgs and is very soft and annealed. Binding Wire is used for tying reinforcement bars before concrete is cast. This soft nature of the binding wire enables it to twist and tie properly.





CUT & BEND SERVICES



CASINGS SLOTTING

At Tononoka, we stock and sell various trading items sourced from internationally renowned mills from across the globe. All these items conform to the highest international quality standards.

We stock among others Angles, Channels, I-Beams, H-Beams, Girders, Flat Bars, Round Bars, Bright Bars, T-Sections, Z-Sections, MS Plates, Chequered Plates, Galvanized Plates, Aluminium and SS Plates.

MISCELLANEOUS STEEL PRODUCTS AND SERVICES



Galvanizing Services (for Structures, Towers and Steel Parts)

We have a state of the art galvanizing plant for tubular goods. The dimensions of the zinc bath are 8.0 m × 0.9 m × 1.6 m enabling effective zinc coating of steel pipes. We have pickling tanks, a hot steam blowing arrangement for monitoring the consistent thickness of zinc coat, chromating tanks and a fully equipped chemical laboratory. We also provide galvanizing services for fasteners, transmission towers and parts, radio masts and its components, etc.

Pipe Flanging, Bevelling, Special Threading

Pipes can be end-faced as per customer's requirements. They can be done in 90 degrees square and 45 degrees bevel edge for welding. We also provide flanged pipes i.e. flanges welded to the pipe ends for coupling purposes. Apart from normal threads, pipes can be supplied in square threads.

Slot Cutting on Casing Pipes

Casing Pipes are most commonly used underground to protect utility lines from being damaged by mud, overburden soil and rocks. Inside the casing pipes is the main water line that supplies water up to the surface. Casing Pipes are often used with or without screened slots. These small rectangular slots help retain the mud and sand filtered water in the water pipes. The slot dimensions are 4" long and 2 mm thickness. Slots can be cut on Casing Pipes and supplied at an extra cost.



TONONOKA CORPORATE POLICIES

Corporate Values

Since its inception, Tononoka has been administered to follow its core corporate values. These values and principles guide the decision making process. They also assist in creating Tononoka's corporate culture and consequently develop Tononoka's corporate identity as a reputable organization.

What We Endeavor To Achieve

Customer satisfaction - Our customers drive our business. We continuously seek to understand our customers better and improve our practices to meet their needs. We believe in building long term relationships with our customers by contributing to their success through providing quality goods and services, flexibility, timely delivery, cost effectiveness and valuable communication.

Employee satisfaction – Our employees are our main asset. We support individual growth and encourage employee development through training, sharing ideas and providing the platform to explore and strengthen their talents while gaining experience. We encourage and reward dedication, creativity and hard work. Fairness, teamwork, good communication and working relationships at all levels is the key towards our success.

Shareholder and investor satisfaction – We strive to continuously increase our corporate value through good return on our stake holder's investments.

Innovation – We recognize that investing in innovation in both the processes and the end-products is what is required to meet the expectations of our stakeholders. Technology and expertise reduces the cost of conducting business and enhances the value of our products. We have been investing in advanced technology machinery for better quality and cost savings.

Social and environmental obligations – We are devoted to taking care of our social and environmental responsibilities. We often involve ourselves in community service activities and are keen on improving quality of life. We also understand that we need to conserve our environment and thus engage in activities such as energy saving and pollution control that reduce the negative impact of our business on the environment.

Corporate Policies

Tononoka applies common values and standards and adheres to several corporate governance policies. The policies are followed to maintain the highest standards of corporate governance in its dealing with its various stakeholders:

Quality Policy – Tononoka pledges to meet customer expectations through timely delivery of quality steel products manufactured to the highest standards, whilst complying with the requirements of relevant legislation, ISO 9001 and continually improving the effectiveness of our management system.

We aim to achieve this policy and our stated business objectives through monitoring a range of key performance indicators, which we utilise to evaluate our performance and drive continuous improvement activities throughout the company.

Health and Safety Policy – Tononoka believes that the health and safety of our stakeholders is of the utmost importance. We maintain and improve our systems to minimize health and safety hazards that are in concurrence with occupational, health and safety regulations. We ensure the availability of all resources to fully implement the health and safety policy of Tononoka. Cleanliness and good house-keeping is ensured at all times.

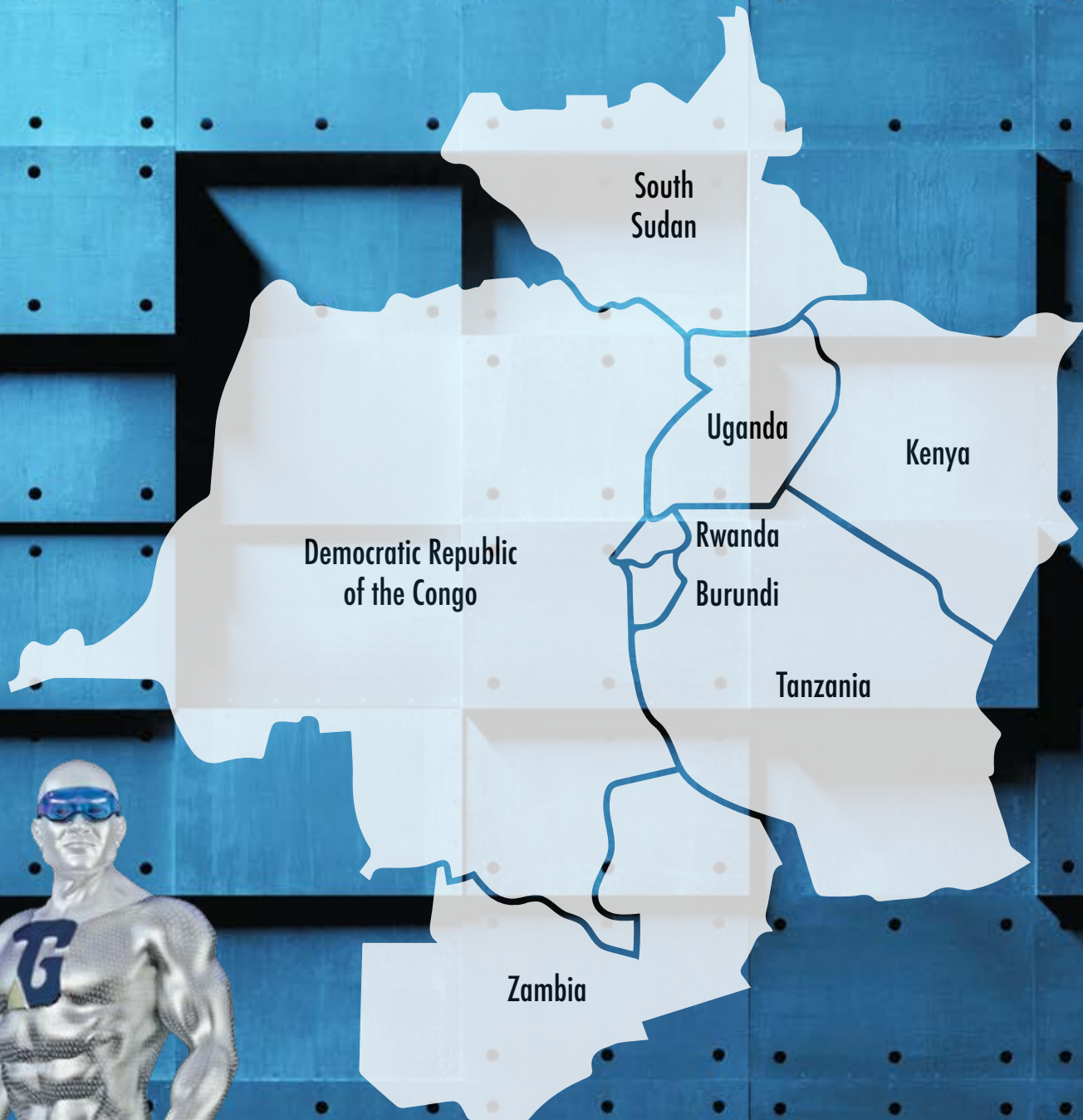
Environmental Policy – Tononoka is committed to minimizing the impact of our activities on the environment by evaluating operations and ensuring they are as efficient as possible. We comply with all environmental legal requirements and constantly evaluate the impact of the company's production activities on our surroundings. We actively promote re-usable and recycled products that are environmentally safe.

NOTES

[illegible]

CERTIFICATION





Call Chuma today on our hotlines for all your steel requirements
0721 470 960 • 0721 470 852

