



PRODUCT CATALOGUE • 2016

HH Cold Rolling & Tube Mills (Pvt) Ltd.

Manufacturers of cold roll coils, MS and CR steel pipes, tubes, profiles and cold drawn wire.

ISO 9001 • BS EN 10255 • ASTM A53 • HHCOLDROLLING.COM.PK

HH Cold Rolling & Tube Mills (Pvt) Ltd manufactures cold roll coils, MS and CR steel pipes, tubes, profiles and cold drawn wire. The works — Unit 1 — stand at 16-KM Lahore–Sheikhupura Road in District Sheikhupura, with Unit 2 and the head office on Ring Road, near Khokhar Road in Badami Bagh, Lahore. The company sits at the upstream end of the group: where the others start with coil, we make it.

Cold rolling gives control over the three properties that decide how a finished tube behaves — gauge tolerance, surface finish and how the strip forms under load. Setting those in-house rather than accepting a supplier's band is what allows us to guarantee shape on the finished section: roundness on round tube, square edges on square and rectangular.

The tube range follows the group specification. Mild steel pipe is produced in Schedule 10, 20, 40 and 80 to ASTM A53 in Grade A and Grade B. Hot-dipped galvanized pipe is made to BS EN 10255:2004 in Grades L, M and H, threaded to BS EN 10226:2004. Scaffolding tube is manufactured to BS EN 39:2001 in both Type 1 and Type 2 wall thicknesses.

Beyond tube, we roll-form open sections to standard shapes and to customer drawings, draw mild steel wire from 2 to 24 SWG. All of it traces back to the same inspected coil stock.

Material is exported against a range of national and international standards. Where a project calls for a specification outside our normal range — JIS, DIN, EN, BS, ISO or PS — we manufacture against it on enquiry, and confirm what we can certify to in writing before the order is placed.

Certification

- ISO 9001
- BS EN 10255
- ASTM A53

MS Pipe (Mild Steel Black Pipe)

Schedule 10, 20, 40 and 80 to ASTM A53, Grade A and Grade B

Our mild steel pipe is produced on fully automatic imported plant from high-grade prime steel coil, and is drawn on for everything from fire-fighting mains to high-pressure steam lines. Every length is hydro-tested before it leaves the mill.

The range runs from 1/2" through 16" nominal bore in Schedule 10, 20, 40 and 80, and is available in both Grade A and Grade B to ASTM A53. Wall thickness runs to 12 mm, which is the ceiling the mill rolls to; heavier sections are supplied against order. Straightness, wall thickness, weight and length are all held to the standard, and mill test certificates are issued with every consignment.

Where a project calls for a specification other than ASTM — JIS, DIN, EN, BS, ISO or PS — we manufacture against it on enquiry.

Applications

- Fire fighting
- Water distribution lines
- High pressure lines
- Steam lines (boiler tubes, heat exchange tubes)
- Hot and chilled water lines
- Chemical liquid lines
- Gas and oil projects



SIZE RANGE

1/2" to 16" dia, wall to 12 mm

GRADES

Grade A, Grade B

STANDARDS

ASTM A53, JIS, DIN, BS EN, ISO, PS

Salient features

- Hydro-tested as standard
- Schedule 10, 20, 40 and 80
- Grade A and Grade B to ASTM A53
- Manufactured on fully automatic imported plant
- Mill test certificate with every consignment

Supply and packing

- Plain end, bevelled or threaded
- Black or varnished finish
- Single random 6 m; double random to order
- Hexagonal bundles, steel strapped and tagged
- Bundle sizes to suit container or truck

MS Pipe — Schedule 40 dimensions **ASTM A53**

NOMINAL SIZE IN	OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT	
	IN	MM	IN	MM	LB/FT	KG/M
1/8	0.405	10.3	0.068	1.73	0.24	0.37
1/4	0.540	13.7	0.088	2.24	0.42	0.63
1/2	0.840	21.3	0.109	2.77	0.85	1.27
3/4	1.050	26.7	0.113	2.87	1.13	1.69
1	1.315	33.4	0.133	3.38	1.68	2.50
1 1/4	1.660	42.2	0.140	3.56	2.27	3.39
1 1/2	1.900	48.3	0.145	3.68	2.72	4.05
2	2.375	60.3	0.154	3.91	3.65	5.44
2 1/2	2.875	73.0	0.203	5.16	5.79	8.63
3	3.500	88.9	0.216	5.49	7.58	11.29
3 1/2	4.000	101.6	0.226	5.74	9.11	13.57
4	4.500	114.3	0.237	6.02	10.79	16.07
5	5.563	141.3	0.258	6.55	14.62	21.77
6	6.625	168.3	0.280	7.11	18.97	28.26
8	8.625	219.1	0.322	8.18	28.55	42.55
10	10.750	273.0	0.365	9.27	40.48	60.31
12	12.750	323.8	0.406	10.31	53.52	79.73
14	14	355.6	0.437	11.13	63.44	94.55
16	16	406.4	0.500	12.70	82.77	123.30

Schedule 10, 20 and 80 available to the same standard, Grade A and Grade B. Wall thickness runs to 12 mm, which is what sets the top of this table — heavier walls are supplied against order.

Precision ERW Round Tube — mass in kg/m BS 6323 Pt 1 & 5, BS 1717, ASTM A513, JIS G3445 STKM

OUTSIDE DIA MM	WALL THICKNESS — MASS IN KG/M						
	0.8	1.0	1.2	1.6	2.0	2.6	3.2
12.70	0.235	0.289	0.340	—	—	—	—
15.90	0.298	0.367	0.435	—	—	—	—
19.05	0.360	0.445	0.528	0.689	—	—	—
22.20	0.422	0.523	0.621	0.813	0.996	—	—
25.40	0.485	0.602	0.716	0.939	1.154	—	—
31.80	0.612	0.760	0.906	1.192	1.470	1.872	—
38.10	0.736	0.915	1.092	1.440	1.780	2.276	2.754
44.50	0.862	1.073	1.281	1.693	2.096	2.686	3.259
50.80	0.986	1.228	1.468	1.941	2.407	3.090	3.756
63.50	1.237	1.541	1.844	2.442	3.033	3.905	4.758
76.20	1.487	1.854	2.219	2.943	3.660	4.719	5.761

Light-wall mechanical and general-engineering tube, quoted on outside diameter. Heavier walls at each diameter are covered by the Schedule 40 chart on the MS Pipe page.

Galvanized Iron (GI) Pipe

Hot-dipped galvanized to BS EN 10255:2004 in Grades L, M and H

Hot-dipped galvanized iron pipe manufactured in accordance with BS and ASTM standards. We hold attention on each stage of the process — manufacturing, galvanizing and finishing — with quality control and inspection at every step.

The range covers Grade L, Grade M and Grade H to BS EN 10255:2004 (formerly BS 1387:1985) — Grade L from 15 to 100 mm, Grade M from 15 to 150 mm and Grade H from 40 to 150 mm nominal bore. Threading is cut to BS EN 10226:2004.

GI pipe is our most-specified product for potable water: the zinc coating carries it well past the service life of black pipe in the same duty, and it will hold hydro pressure up to 50 bar.

Applications

- Drinking water supply networks
- Domestic plumbing risers and mains
- Irrigation and tube-well lines
- Fire-fighting reticulation
- Low-pressure gas distribution
- Structural and fencing work



SIZE RANGE

15 mm to 150 mm (1/2" to 6")

GRADES

Grade L, Grade M, Grade H

STANDARDS

BS EN 10255:2004, BS EN 10226:2004, ASTM A53, ISO 9001

Salient features

- Ideal for drinking water
- Bears hydro pressure up to 50 bar
- Certified to ISO 9001
- Environment friendly
- Durable and corrosion resistant

Supply and packing

- Plain end or screwed and socketed
- Socket and plastic cap fitted where ordered
- Standard length 6 m
- Hexagonal bundles, steel strapped and tagged
- Threads protected in transit

GI Pipe — Grade "L" BS EN 10255:2004 (formerly "L" of BS 1387:1985)

NOMINAL DIA		OUTSIDE DIAMETER		WALL THICKNESS MM	BLACK PIPE WEIGHT KG/M
MM	IN	MAX MM	MIN MM		
15	1/2"	21.40	21.00	2.00	0.95
20	3/4"	26.90	26.40	2.30	1.38
25	1"	33.80	33.20	2.60	1.98
32	1 1/4"	42.50	41.90	2.60	2.54
40	1 1/2"	48.50	47.80	2.90	3.23
50	2"	60.20	59.60	2.90	4.08
65	2 1/2"	76.00	75.20	3.20	5.71
80	3"	88.70	87.90	3.20	6.72
100	4"	113.90	113.00	3.60	9.75

GI Pipe — Grade "M" BS EN 10255:2004 (formerly "M" of BS 1387:1985)

NOMINAL DIA		OUTSIDE DIAMETER		WALL THICKNESS MM	BLACK PIPE WEIGHT KG/M
MM	IN	MAX MM	MIN MM		
15	1/2"	21.80	21.00	2.60	1.21
20	3/4"	27.30	26.50	2.60	1.56
25	1"	34.20	33.30	3.20	2.41
32	1 1/4"	42.90	42.00	3.20	3.10
40	1 1/2"	48.80	47.90	3.20	3.56
50	2"	60.80	59.70	3.60	5.03
65	2 1/2"	76.60	75.30	3.60	6.42
80	3"	89.50	88.00	4.00	8.36
100	4"	115.00	113.10	4.50	12.16
125	5"	140.80	138.50	5.00	16.60
150	6"	166.50	163.90	5.00	19.75

GI Pipe — Grade "H" BS EN 10255:2004 (formerly "H" of BS 1387:1985)

NOMINAL DIA		OUTSIDE DIAMETER		WALL THICKNESS MM	BLACK PIPE WEIGHT KG/M
MM	IN	MAX MM	MIN MM		
40	1 1/2"	48.80	47.90	4.0	4.37
50	2"	60.80	59.70	4.5	6.19
65	2 1/2"	76.60	75.30	4.5	7.93
80	3"	89.50	88.00	5.0	10.30
100	4"	115.00	113.10	5.4	14.50
125	5"	140.80	138.50	5.4	17.88
150	6"	166.50	163.90	5.4	21.27

Galvanized iron pipe to ASTM A-53 Sch 40 also available, subject to enquiry.

Cold Rolled Steel Tubing

Round, square, oval and elliptical tube in 0.6 mm to 2.0 mm wall

Cold rolled tube is the light-wall end of the range: thin, clean-surfaced and dimensionally tight, made for work that is formed after it leaves us rather than simply installed.

It is rolled in five section shapes — round, square, rectangular, oval and elliptical — from 0.60 mm to 2.00 mm wall. The surface is finished to take chrome plating directly, and the material is selected so it bends and draws without splitting at the weld.

Round tube runs to BS 1717:1983, BS EN 10305-3:2010 and EN 10296-1:2003; square and rectangular to BS EN 10305-5:2010. Oval and elliptical are made to our own standard, there being no published one for them. The works is certified to ISO 9001, ISO 14001 and ISO 45001 and CE marked, and every bundle carries a guaranteed tube count.

Applications

- Automotive and motorcycle components
- Bicycle frames and fittings
- Transformer manufacture
- Fans, furniture and tent frames
- Chrome-plated and formed parts



SIZE RANGE

9 mm to 75.9 mm round; 0.60 mm to 2.00 mm wall

STANDARDS

BS 1717, BS EN 10305-3, BS EN 10305-5, EN 10296-1, ISO 9001, ISO 14001, ISO 45001, CE

Salient features

- Five section shapes
- Wall from 0.6 mm to 2.0 mm
- Surface finished for chrome plating
- Suited to bending and drawing
- Guaranteed tube count per bundle

Supply and packing

- Bundled with the count guaranteed
- Cut to length on order
- Plain or oiled
- Strapped and tagged per bundle

CR round tube — weight by wall thickness BS 1717:1983, BS EN 10305-3:2010 & EN 10296-1:2003 (formerly BS 6323-5:1982)

OD mm	PER BUNDLE	WALL THICKNESS (mm)						
		0.6	0.7	0.9	1.0	1.2	1.6	2.0
9.00	394	0.124	0.143	0.180	—	0.231	—	—
10.00	351	0.140	0.161	0.202	—	0.260	—	—
12.70	271	0.179	0.207	0.262	0.289	0.340	—	—
15.90	271	0.226	0.262	0.333	0.367	0.435	0.564	0.686
16.00	200	—	—	—	—	—	—	0.691
17.50	271	—	—	—	—	0.482	0.627	0.765
19.05	271	0.273	0.317	0.403	0.445	0.528	0.689	0.841
20.60	271	—	—	—	—	—	0.750	0.917
22.00	217	—	—	—	—	—	0.805	—
22.20	217	—	0.371	0.473	—	0.621	0.813	0.996
23.80	169	—	—	—	—	—	0.876	—
25.40	217	0.367	0.426	0.544	0.602	0.716	0.939	1.154
28.60	169	—	—	0.615	0.681	0.811	1.065	—
30.00	169	—	—	0.646	—	0.852	1.121	—
31.80	169	—	0.537	0.686	0.760	0.906	1.192	1.470
35.00	127	—	—	—	—	1.000	1.318	—
38.10	91	—	—	0.826	—	1.092	1.440	—
42.20	61	—	—	0.917	—	1.213	1.602	—
48.10	61	—	—	1.048	—	1.388	1.835	—
60.30	61	—	—	1.318	—	1.749	—	—
63.50	61	—	—	—	—	1.844	2.442	—
73.02	37	—	—	—	—	2.125	2.818	—
75.90	37	—	—	—	—	2.211	2.932	—

Outside diameter in mm, figures in kilograms per metre. A dash means that wall is not rolled in that diameter.

CR square tube — weight by wall thickness BS EN 10305-5:2010 (formerly BS 6323-5:1982)

SIZE mm	PER BUNDLE	WALL THICKNESS (mm)						
		0.60	0.70	0.80	0.90	1.00	1.20	1.60
10 × 10	225	0.179	0.207	0.235	0.262	0.289	—	—
12 × 12	225	0.226	0.262	0.298	0.333	0.367	0.435	0.564
15 × 15	225	0.273	0.317	0.360	0.403	0.445	0.528	0.689
20 × 20	225	0.367	0.426	0.485	0.544	0.602	0.716	0.939
25 × 25	144	—	0.537	0.612	0.686	0.760	0.906	1.192
30 × 30	100	—	0.646	0.736	0.826	0.915	1.092	1.440
38 × 38	100	—	—	0.933	1.048	1.162	1.388	1.835
50 × 50	100	—	—	1.240	1.390	—	1.844	2.442

Section size in mm, figures in kilograms per metre. A dash means that wall is not rolled in that size.

CR rectangular tube — weight by wall thickness BS EN 10305-5:2010 (formerly BS 6323-5:1982)

SIZE MM	PER BUNDLE	WALL THICKNESS (MM)						
		0.60	0.70	0.80	0.90	1.00	1.20	1.60
10 × 20	294	—	0.317	0.360	0.403	0.445	0.528	—
12 × 38	200	—	0.537	0.612	0.686	0.760	0.906	—
15 × 30	150	—	—	—	0.615	—	0.811	—
20 × 40	150	—	0.646	0.736	0.826	0.915	1.092	1.440
25 × 40	150	—	—	—	—	—	1.213	1.602
25 × 50	96	—	—	0.933	1.048	1.162	1.388	1.835
30 × 50	96	—	—	—	1.048	—	—	—
30 × 60	117	—	—	1.109	1.245	1.381	1.651	2.186
40 × 80	70	—	—	1.482	1.665	1.847	2.211	2.932

Section size in mm, figures in kilograms per metre. A dash means that wall is not rolled in that size.

CR oval tube — weight by wall thickness Conforming to IIL standard

SIZE MM	PER BUNDLE	WALL THICKNESS (MM)			
		0.90	1.20	1.60	2.00
16 × 30	200	0.544	0.716	—	—
16 × 40	200	—	0.906	1.192	1.470
30 × 50	100	—	1.213	1.602	1.983

Section size in mm, figures in kilograms per metre.

CR elliptical tube — weight by wall thickness Conforming to IIL standard

SIZE MM	PER BUNDLE	WALL THICKNESS (MM)		
		0.90	1.20	1.60
13 × 23	200	0.403	0.528	0.689
19 × 42	200	0.686	0.906	—
24 × 56	100	—	1.213	—

Section size in mm, figures in kilograms per metre.

04 Scaffolding Tubes

Type 1 and Type 2 to BS EN 39:2001 — safety first

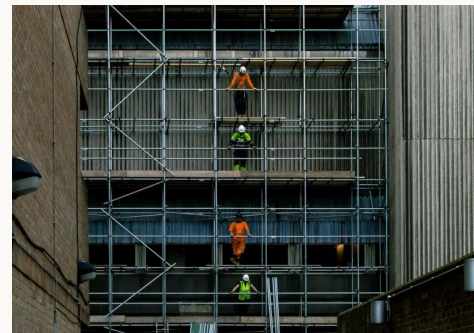
Steel scaffolding tube has completely replaced timber and bamboo on site, for the obvious reasons: load carrying capacity and strength. Ours are used for supporting workers, materials, tools and tackle through construction, alteration, demolition and maintenance work.

Because it is workers standing on this material, we manufacture it only from prime quality high-strength steel and certify it to BS EN 39:2001. Both light (Type 1, 3.0 mm) and heavy (Type 2, 4.0 mm) tube are stocked.

Lengths are cut to a client's requirement on request, and the tube pairs with standard drop-forged and pressed couplers.

Applications

- Construction site access scaffolds
- Industrial repair and maintenance
- Petrochemical plant shutdowns
- Infrastructure projects
- Support platforms and formwork
- Demolition works



SIZE RANGE

1 1/2" nominal, lengths to order

GRADES

Type 1 — 3.0 mm wall, Type 2 — 4.0 mm wall

STANDARDS

BS EN 39:2001

Salient features

- Can hold heavy loads
- Longer life span
- Available in various grades, thicknesses and lengths
- Excellent durability
- Strong and robust in construction
- Certified to international standard
- Best quality at affordable price

Supply and packing

- Plain end, cut square
- Standard 6 m; other lengths to order
- Black or hot-dip galvanized
- Bundled, steel strapped and tagged

Scaffolding Tubes — Type 1 and Type 2 BS EN 39:2001

TYPE	NOMINAL DIA IN	OUTSIDE DIAMETER		WALL THICKNESS MM	BLACK PIPE WEIGHT KG/M
		MAX MM	MIN MM		
Type 1	1 1/2"	48.3	47.8	3.0	3.33
Type 2	1 1/2"	48.3	47.8	4.0	4.37

Available in various lengths, subject to enquiry.

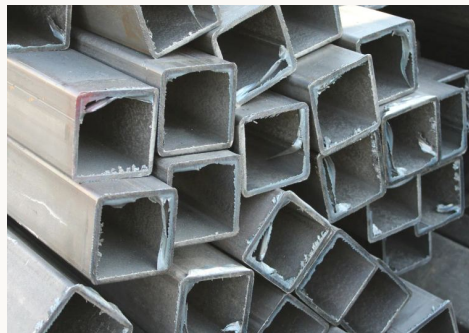
We manufacture hot rolled and cold rolled ERW rectangular and square hollow steel tube and conduit, used widely in furniture, buildings, steel houses and the construction industry generally.

The properties come from the input: we use high-grade prime, soft mild steel coil, imported from established suppliers. That is what lets us guarantee shape — roundness on round tube, square edges on square and rectangular sections — and what makes the material behave predictably when it is bent or drawn.

The range is exported against a variety of national and international standards, and special sizes in square and rectangular tube are made to order.

Applications

- Structural steel framing
- Furniture manufacture
- Steel houses and prefabricated buildings
- Grilles, gates and railings
- Conduit
- General fabrication



SIZE RANGE

Standard and special sizes to order

STANDARDS

ASTM A500 Gr. A/B, EN 10219, BS 6323 Pt 1 & 5, IS 4923, ISO 9001

Salient features

- Environment friendly
- Certified to ISO 9001
- Exported to other countries
- Cold formed from prime soft mild steel coil
- Ideal for bending and drawing
- Shape guarantee: roundness on round tube, square edges on square and rectangular tube

Supply and packing

- Plain end, cut to length
- Standard 6 m; other lengths to order
- Oiled or bare
- Square bundles, steel strapped and tagged

Square Hollow Section — mass in kg/m ASTM A500 Gr. A/B, EN 10219, BS 6323, IS 4923

SIZE MM	WALL THICKNESS — MASS IN KG/M					
	1.2	1.6	2.0	2.5	3.0	4.0
20 × 20	0.689	0.890	1.076	1.289	—	—
25 × 25	0.877	1.141	1.390	1.682	1.951	—
30 × 30	1.066	1.392	1.704	2.074	2.422	—
38 × 38	1.367	1.794	2.207	2.702	3.175	4.054
40 × 40	1.443	1.895	2.332	2.859	3.364	4.306
50 × 50	1.819	2.397	2.960	3.644	4.306	5.562
60 × 60	2.196	2.899	3.588	4.429	5.248	6.818
75 × 75	2.761	3.653	4.530	5.607	6.661	8.702
80 × 80	2.950	3.904	4.844	5.999	7.132	9.330
100 × 100	3.703	4.909	6.100	7.569	9.016	11.842

Outer corner radius taken as 1.5 × wall, the cold-formed convention. Sizes outside this range are rolled to order — confirm the die set with the sales office before specifying.

Rectangular Hollow Section — mass in kg/m ASTM A500 Gr. A/B, EN 10219, BS 6323, IS 4923

SIZE MM	WALL THICKNESS — MASS IN KG/M					
	1.2	1.6	2.0	2.5	3.0	4.0
20 × 40	1.066	1.392	1.704	2.074	—	—
25 × 50	1.348	1.769	2.175	2.663	3.128	—
30 × 60	1.631	2.146	2.646	3.252	3.835	—
38 × 76	2.083	2.749	3.400	4.194	4.965	6.441
40 × 80	2.196	2.899	3.588	4.429	5.248	6.818
50 × 100	2.761	3.653	4.530	5.607	6.661	8.702
60 × 120	3.327	4.407	5.472	6.784	8.074	10.586

Same basis as the square chart: corner radius 1.5 × wall. Sizes are quoted depth × width; other combinations are rolled to order.

06 High, Medium & Low Pressure Boiler Tubes

Tube for steam, heat transfer and pressure duty

Boiler tube carries steam and hot water under pressure, so the two things that matter are wall consistency and what the weld does when the tube is cycled hot and cold. Both are set on the mill, not corrected afterwards.

The tube is produced across high, medium and low pressure duties. Which duty applies is a function of working pressure and temperature at the installation, so the grade and wall are agreed at order rather than picked from a shelf.

The catalogue does not publish a size chart for this line. Sizes, wall thicknesses and the governing grade are confirmed by the sales office against your specification, and mill certificates are issued on request.

Applications

- Steam lines
- Heat exchange tubes
- High pressure lines
- Hot and chill water lines
- Power generation



SIZE RANGE

Sizes and wall thicknesses to enquiry

GRADES

ERW-320 / CEW-320, ERW-360 / CEW-360

STANDARDS

ASTM A178 Gr. A, ASTM A214, BS 3059 Pt 1 & 2, JIS G3461 STB 35, ISO 9001

Salient features

- High, medium and low pressure duties
- Hydro tested before despatch
- Consistent wall thickness
- Made on fully automatic imported plant
- Mill certificates on request

Supply and packing

- Plain end, cut square and deburred
- Lengths to order
- End caps fitted where ordered
- Bundled, steel strapped and tagged

07 API 5L Line Pipe

PSL 1 and PSL 2, Grade B through X60, for oil, gas and water transmission

Line pipe is held to a different standard from general pipe because of what it carries and the pressure it carries it at. API 5L governs the chemistry, the mechanical properties, the weld and the test regime, and the monogram may only be applied by a mill licensed by the American Petroleum Institute to do so.

We manufacture in both product specification levels. PSL 1 is the standard level for water and general transmission duty. PSL 2 carries the same strength floors but adds tighter chemistry limits, guaranteed impact toughness, mandatory non-destructive inspection and stricter documentation — it is what most oil and gas projects specify.

Grades run from Grade B up to X60. The X-number is the specified minimum yield strength in ksi, so X60 pipe is guaranteed to 60,200 psi minimum yield. The full strength table is below.

The certified size range is set by the licence scope rather than by the mill alone, so confirm the sizes and wall thicknesses on your project against our current certificate before specifying.

Applications

- Oil and gas transmission
- Gas distribution networks
- Water transmission mains
- Petroleum product lines
- Refinery and terminal piping
- Casing and general pressure duty



SIZE RANGE

Certified range per licence scope — confirm with sales

GRADES

PSL 1, PSL 2, Gr. B, X42, X46, X52, X56, X60

STANDARDS

API 5L, ISO 3183, ASTM A53, BS EN, ISO 9001

Salient features

- Manufactured under API 5L licence
- PSL 1 and PSL 2
- Grade B through X60
- High frequency ERW weld
- Hydrostatically tested on every length
- Mill test certificate per heat

Supply and packing

- Plain end, bevelled or threaded
- Bare, varnished or coated to order
- Single random 6 m; double random to order
- Bevel protectors and end caps where ordered
- Bundled, steel strapped and heat-numbered

API 5L grades — specified minimum strength API 5L / ISO 3183, PSL 1 and PSL 2

GRADE	MIN YIELD STRENGTH		MIN TENSILE STRENGTH	
	MPA	PSI	MPA	PSI
Gr. B	245	35,500	415	60,200
X42	290	42,100	415	60,200
X46	320	46,400	435	63,100
X52	360	52,200	460	66,700
X56	390	56,600	490	71,100
X60	415	60,200	520	75,400

Grade designations are the specified minimum yield strength in ksi. PSL 2 carries the same strength floors as PSL 1 plus tighter chemistry limits, guaranteed impact toughness and mandatory non-destructive inspection — specify which level the project requires.

Conduit runs off the same ERW line as the hollow section, from the same prime soft mild steel coil. What separates it is the finish and the tolerance on the bore, because conduit is pulled through rather than built into.

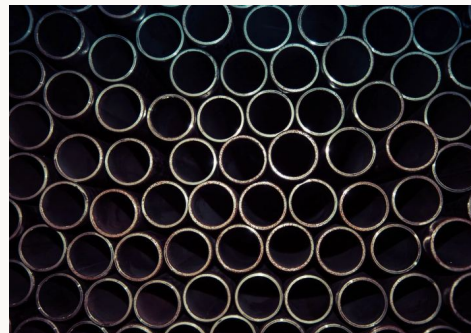
It is used where a tube has to carry something or hold a light load rather than take structure — cable and wiring runs, furniture frames, steel housing and general building work. The catalogue does not publish a size chart for conduit itself; standard and special sections are made to order, and the section, gauge and length are agreed at order.

The same line rolls the LTZD profiles: L, T, Z and D sections in 0.70 mm to 1.20 mm, made for fabricating doors, windows, gates and railings. They were developed for low-cost housing, where a steel frame replaces a timber one — which saves both the wood and the water that curing timber needs. They suit residential, industrial, commercial and warehouse work, and come in a range of surface finishes.

The shape code carries the nominal size, so L-40 and T-48 are separate families rather than points on one scale. Every thickness is listed on its own line below with its running weight, its bundle count and its bundle weight, along with the A, B, C and D dimensions a fabricator sets the jig to.

Applications

- Electrical and cable runs
- Door and window frames
- Gates and railings
- Low-cost and prefabricated housing
- Furniture frames
- Buildings, steel houses and warehouses
- General fabrication



SIZE RANGE

Conduit to order; LTZD profiles 0.70 mm to 1.20 mm

STANDARDS

BS 4568, BS EN 61386, IS 9537 Pt 1 & 2, ASTM A500, ISO 9001, ISO 14001, ISO 45001, CE

Salient features

- Hot rolled and cold rolled ERW
- L, T, Z and D profile sections
- LTZD thickness 0.70 mm to 1.20 mm
- Available in all surface finishes
- Guaranteed section count per bundle
- Standard and special sizes, cut to length

Supply and packing

- Plain end or threaded with coupler
- Standard 3 m and 6 m
- Black, galvanized or painted
- LTZD bundled to a guaranteed count
- Bundled and strapped

Steel conduit — sizes and wall thickness BS 4568-1 Class 3 and IS 9537 (Part 2)

NOMINAL SIZE MM	OUTSIDE DIA MM	WALL THICKNESS (MM)		KG/M
		BS 4568 CL. 3	IS 9537 PT 2	
16	16.0	1.40	—	0.504
20	20.0	1.60	1.40 – 1.60	0.726
25	25.0	1.60	1.40 – 1.80	0.923
32	32.0	1.60	1.40 – 1.80	1.200
40	40.0	—	1.60 – 2.20	1.515
50	50.0	—	1.60 – 2.20	1.910

Outside diameter is the nominal size; BS 4568 holds it to ±0.3 mm and IS 9537 applies a minus-only tolerance. BS 4568 conduit is supplied in 3.75 m lengths threaded to ISO metric form at both ends. Class 4 is the same size range hot-dip galvanized rather than pre-galvanized. Weights are nominal, at 7.85 g/cm³.

LTZD profiles — sections, weights and bundle counts **Manufactured under ISO 9001, ISO 14001 and ISO 45001;**
CE marked

SHAPE	THICKNESS MM	PER BUNDLE	WEIGHT		DIMENSIONS (MM)			
			KG/M	KG/BUNDLE	A	B	C	D
L-40	0.7	210	0.678	794	38	13	26.5	25
L-40	0.8	210	0.773	906	38	13	26.5	25
L-40	0.9	210	0.868	1017	38	13	26.5	25
L-48	0.7	143	0.818	653	48.5	13	26.5	35.5
L-55	0.7	100	0.937	523	52	15	34	37
L-55	0.8	100	1.069	597	52	15	34	37
L-55	0.9	100	1.201	670	52	15	34	37
T-48	0.7	150	0.818	685	50	13	26	24
T-48	0.8	150	0.933	781	50	13	26	24
T-48	0.9	150	1.048	877	50	13	26	24
T-60	0.7	100	1.029	574	61	15	34	31
T-60	0.8	100	1.174	655	61	15	34	31
T-60	0.9	100	1.318	735	61	15	34	31
D-60	0.7	60	1.029	356	51.5	51.7	51.7	12.7
D-60	0.9	60	1.318	456	51.5	51.7	51.7	12.7
D-60	1.2	60	1.749	604	51.5	51.7	51.7	12.7
Z-48	0.7	150	0.818	685	50	13	26.5	24
Z-48	0.8	150	0.933	781	50	13	26.5	24
Z-48	0.9	150	1.048	877	50	13	26.5	24
Z-60	0.7	100	1.029	574	61	15	34	31
Z-60	0.8	100	1.174	655	61	15	34	31
Z-60	0.9	100	1.318	735	61	15	34	31

One line per thickness, as published — a shape is not one product but one per gauge, and the bundle weight moves with it. A, B, C and D are section dimensions in mm.

09 Sheet Profiles — MS, GI & PPGI

Plain, galvanized and colour-coated sheet, flat or roll-formed

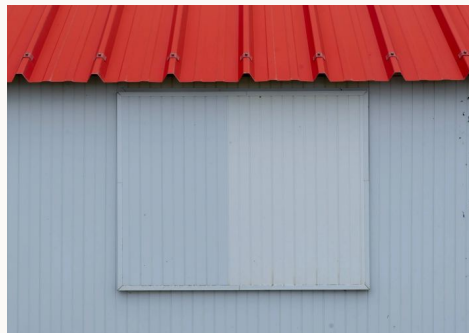
Three materials, one line. Plain mild steel sheet where the surface will be painted or hidden; hot-dip galvanized where it has to stand weather bare; and pre-painted galvanized — PPGI — where the finish is the finish, delivered in colour and needing nothing on site.

All three start as coil and are cut to length or fed straight into the roll-former. Flat sheet leaves as 4×8 ft as standard, with 1250 × 2500 and 1500 × 3000 mm cut to order. Profiled sheet is rolled to any length the transport will take, which is what removes end laps from a long roof run.

Two things decide what a sheet actually costs you, and neither is the headline thickness. On galvanized, it is the zinc: ASTM A653 and EN 10346 both define the ordered thickness as INCLUDING the coating, so a 0.50 mm G90 sheet is carrying about 0.46 mm of steel. On profiled sheet, it is cover width rather than overall width — the difference is lap you pay for and do not cover with. Both are set out in the charts below.

Applications

- Roofing sheets and wall cladding
- Door and window frames
- Heavy duty shelving and racking
- Machine guarding and frames
- Electrical cabinets and enclosures
- Storage tanks and bins
- Shipping container panels
- Industrial sheds and warehouses
- Ducting and ventilation
- Partitions, false ceilings and trunking
- Furniture and white goods pressings
- General fabrication and pressing



SIZE RANGE

0.12 mm to 20 mm, widths to 1500 mm

GRADES

MS — CS Type B, DC01, SPCC, S235JR, GI — DX51D+Z, SGCC, CS Type B, PPGI — CGCC, DX51D+Z, S220GD

STANDARDS

ASTM A1011 / A1008, ASTM A653/A653M, EN 10346, EN 10169, JIS G3302, JIS G3312, IS 277, ISO 9001

Salient features

- Plain, galvanized and colour-coated from one line
- Zinc from Z40 to Z275, quoted total both faces
- PPGI in polyester, SMP, HDP and PVDF to RAL colours
- Corrugated, trapezoidal, IBR and tile profiles
- Profiled sheet rolled to any length in one piece
- Coil or cut length, slit to width on order

Supply and packing

- Coil or cut length
- Profiled sheet rolled to any length in one piece
- Coil inside diameter 508 mm
- Interleaved and edge-protected
- Strapped on timber bearers

MS Sheet — thickness and weight ASTM A1011 / A1008, JIS G3131 / G3141, EN 10025-2 / EN 10130

THICKNESS MM	GAUGE SWG	WEIGHT	
		KG/M ²	KG PER 4×8 FT SHEET
0.50	25	3.93	11.66
0.60	23	4.71	14.00
0.80	21	6.28	18.66
1.00	19	7.85	23.33
1.20	18	9.42	28.00
1.50	17	11.78	34.99
2.00	14	15.70	46.66
2.50	12	19.63	58.32
3.00	11	23.55	69.99
4.00	8	31.40	93.32
5.00	6	39.25	116.65
6.00	4	47.10	139.98
8.00		62.80	186.64
10.00		78.50	233.29
12.00		94.20	279.95
14.00		109.90	326.61
16.00		125.60	373.27
18.00		141.30	419.93
20.00		157.00	466.59

Thickness 0.50 mm to 20 mm: cold rolled 0.50 mm to 3.00 mm, hot rolled 1.5 mm and heavier. Weights are for plain uncoated steel. Sheet weight is for a 4×8 ft (1219 × 2438 mm) sheet — pro-rata for 1250 × 2500 mm or 1500 × 3000 mm.

GI Sheet — thickness and weight **ASTM A653/A653M, EN 10346, JIS G3302, IS 277**

THICKNESS MM	GAUGE SWG	WEIGHT	
		KG/M ²	KG PER 4×8 FT SHEET
0.12	40	0.94	2.80
0.16	38	1.26	3.73
0.20	36	1.57	4.67
0.25	33	1.96	5.83
0.30	31	2.36	7.00
0.40	27	3.14	9.33
0.50	25	3.93	11.66
0.60	23	4.71	14.00
0.80	21	6.28	18.66
1.00	19	7.85	23.33
1.20	18	9.42	28.00
1.50	17	11.78	34.99
2.00	14	15.70	46.66

Weights are BASE STEEL only. Note that ASTM A653 and EN 10346 both define the ordered thickness as INCLUDING the zinc — a 0.50 mm G90 sheet carries about 0.46 mm of steel. Order to ASTM A653 Supplementary Requirement S1 if you need the thickness to mean base metal. Zinc adds its own coating mass on top: Z275 = 275 g/m² = 0.275 kg/m² across both faces.

PPGI Sheet — thickness and weight **EN 10169, ASTM A755/A755M, JIS G3312, IS 14246**

THICKNESS MM	GAUGE SWG	WEIGHT	
		KG/M ²	KG PER 4×8 FT SHEET
0.12	40	0.94	2.80
0.16	38	1.26	3.73
0.20	36	1.57	4.67
0.25	33	1.96	5.83
0.30	31	2.36	7.00
0.35	29	2.75	8.17
0.40	27	3.14	9.33
0.45	26	3.53	10.50
0.50	25	3.93	11.66
0.60	23	4.71	14.00
0.80	21	6.28	18.66
1.00	19	7.85	23.33

Weights are base metal thickness (BMT), excluding zinc and paint. Total coated thickness (TCT) runs 0.04–0.09 mm above BMT once the zinc and the paint system are counted — always confirm which basis a quotation is written on.

Roll-formed profiles — cover and rib Profiles to the mill’s own die set

PROFILE	WIDTH		RIB DEPTH MM	RIB PITCH MM
	COVER MM	OVERALL MM		
Corrugated 76/18	762	914	18	76
Trapezoidal 25/210	840	900	25	210
Trapezoidal 30/200	1000	1060	30	200
IBR 37/171	686	762	37	171
Trapezoidal 45/250	1000	1070	45	250
Tile profile 28/200	1000	1090	28	200

Order on COVER width, never overall width. Cover is what one sheet actually covers once side-lapped; the difference is the lap you are paying for but not covering with. Corrugated cover assumes a two-corrugation side lap, which is what high-wind and monsoon exposure calls for — a one-corrugation lap gains about 76 mm of cover and loses weather resistance.

Cold drawn mild steel wire, drawn down from our own rod and coil stock across the full commercial range: 7.01 mm at 2 SWG through to 0.56 mm at 24 SWG. Drawing is done in successive passes rather than one, which is what holds the diameter along the length of the coil instead of only at the ends.

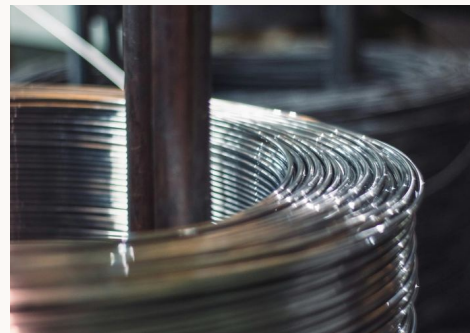
Three tempers come off the same line. Hard drawn wire keeps the strength the drawing puts into it and goes to welded mesh, nails, fasteners and light springs. Annealed wire is softened afterwards — this is the black binding wire that ties reinforcement on site, soft enough to twist by hand and hold. Galvanized wire is drawn then zinc coated, for fencing, tying and anything that lives outdoors.

The gauge decides the job. The heavy end, 2 to 8 SWG, is drawn for mesh, fencing and wire rope core; the middle, 10 to 16 SWG, for nails, fasteners and light mesh; the fine end, 18 to 24 SWG, for binding, tying and stitching wire. Every gauge in between is drawn — the table below lists all twenty-three.

Wire is ordered by gauge but made to a diameter, so the millimetre governs and the gauge is the shorthand. Coils are supplied to weight, and the running weight in the table converts between the two: at 18 SWG a kilogram is 109 metres, at 2 SWG it is barely three.

Applications

- Binding wire for reinforcement
- Welded mesh and wire fencing
- Nail and fastener manufacture
- Chain link and chicken mesh
- Light springs and clips
- Wire rope core
- Baling, tying and stitching wire
- General fabrication



SIZE RANGE

**2 SWG to 24 SWG (7.01 mm – 0.56 mm),
23 gauges**

STANDARDS

**ASTM A510/A510M, ISO 16120, BS 1052,
ISO 9001**

Salient features

- Twenty-three gauges, 2 to 24 SWG
- Hard drawn, annealed or galvanized
- Drawn in successive passes for gauge consistency
- Consistent diameter along the coil
- Tensile agreed at order
- Coil weight to requirement

Supply and packing

- Coils to requirement, typically 50–500 kg
- Hard drawn, annealed or galvanized
- Plain, oiled or waxed
- Strapped and tagged per coil
- Mill certificate on request

Cold drawn wire — gauge, diameter and running weight ASTM A510/A510M, ISO 16120, BS 1052

GAUGE SWG	DIAMETER MM	RUNNING WEIGHT	
		KG PER 100 M	M PER KG
2	7.01	30.30	3.3
3	6.40	25.26	4.0
4	5.89	21.41	4.7
6	4.88	14.66	6.8
8	4.06	10.18	9.8
10	3.25	6.52	15.3
12	2.64	4.30	23.2
14	2.03	2.55	39.3
16	1.63	1.63	61.3
18	1.22	0.92	109.2
20	0.91	0.52	194.2
22	0.71	0.31	320.8
24	0.56	0.19	519.1

Gauge numbers are Standard Wire Gauge and are trade shorthand, not a tolerance — order on the millimetre. Running weights are nominal, calculated at 7.85 g/cm³; the coil is supplied to weight, so length per coil follows from the gauge.

11 Highway Guard Rails

W-beam and thrie-beam crash barrier to AASHTO M180

Guard rail is roll-formed from the same coil stock as the tube range and hot-dip galvanized after forming, so the cut edges and bolt slots are covered rather than left bare.

Both profiles are made: W-beam, the two-corrugation section that carries most highway runs, and thrie-beam, the three-corrugation section used where a higher containment level is specified or where the barrier fronts a bridge parapet. Each is rolled in 2.67 mm and 3.43 mm.

Panels lap one corrugation at every splice, so a 4.32 m panel covers 4.00 m of run — order on effective length, not on panel length, or a job comes up short. Posts, spacer blocks, bolts and end terminals are supplied with the beam so a run arrives complete.

Applications

- Motorway and highway barriers
- Bridge approaches and parapets
- Median and verge protection
- Industrial site roads
- Car park and access road edges



SIZE RANGE

W-beam and thrie-beam, 2.67 mm and 3.43 mm

STANDARDS

AASHTO M180, ASTM A123, ISO 9001

Salient features

- W-beam and thrie-beam sections
- Hot-dip galvanized after forming
- Class A and Class B zinc coating
- Posts, blocks and fixings supplied with the beam
- Punched to standard splice pattern

Supply and packing

- Panels 4.32 m and 3.81 m overall
- Sigma and C posts
- Spacer blocks, bolts and end terminals
- Stacked and strapped per lift

Guard rail beam — sections and running weight AASHTO M180, hot-dip galvanized to ASTM A123

SECTION	THICKNESS		SECTION (MM)		KG/M
	MM	GAUGE	DEPTH	EFFECTIVE WIDTH	
W-beam	2.67	12	83	312	10.12
W-beam	3.43	10	83	312	13.01
Thrie-beam	2.67	12	83	508	15.17
Thrie-beam	3.43	10	83	508	19.49

Class A carries 550 g/m² of zinc, Class B 1000 g/m², both measured over the two surfaces. Running weights are calculated from the developed width of the section.

Guard rail panels and posts AASHTO M180

ITEM	DIMENSIONS		NOTES
	SIZE	EFFECTIVE LENGTH (M)	
W-beam panel	4.32 m overall	4.00	Standard run panel, 8 bolt slots
W-beam panel	3.81 m overall	3.50	Short panel for tighter post spacing
Sigma post	130 × 65 mm	—	1.8 m to 2.2 m driven length
C post	120 × 55 mm	—	Alternative to sigma where specified
Spacer block	To post section	—	Sets the beam off the post face

Panels lap one corrugation at each splice, so the effective length is shorter than the panel itself. Post spacing is set by the containment level the road authority specifies.

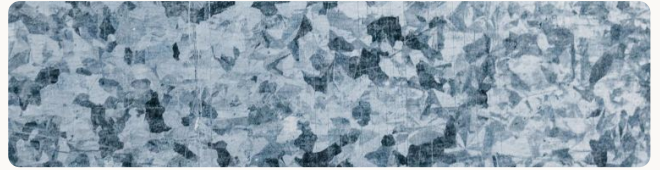
In-House Testing

Every rig on site, so a consignment is proved and released in the same week it is rolled



Hydrostatic test

Every length is put under water pressure and held, to prove the weld and the body against leakage. The rig runs to 3000 psi, and pipe is tested to whatever pressure its specification calls for — BS EN, ASTM or API.



Galvanizing test

Zinc goes on by hot dip, and the coating is proved in house rather than taken on trust: copper sulphate for adherence and uniformity, and coating mass by weight, both to the BS EN and ASTM methods.



Bend test

Applied to tube up to DN 50 on our own bend rig, to BS EN and ASTM. Bending a tube through an angle is what shows whether the weld line will open under working stress.



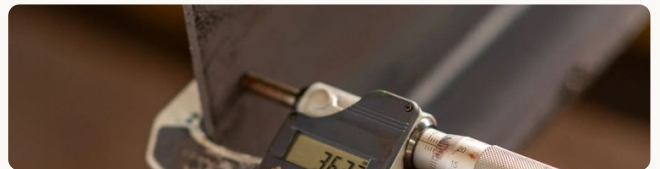
Flattening test

The counterpart above DN 50: the tube is flattened between platens on the flattening machine until the walls meet, and the weld either holds or it does not. Done to BS EN, ASTM and API.



Non-destructive weld inspection

The weld seam of every length of ERW pipe NPS 2 and larger passes an online non-destructive electric test as it leaves the mill, so the seam is inspected on each length rather than on a sample from the batch.



Dimensional and lux

Diameter, wall and straightness are taken with calipers and micrometers through the run. A lux meter checks light levels at each inspection station — a dimensional check is only as good as the light it is made under.



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