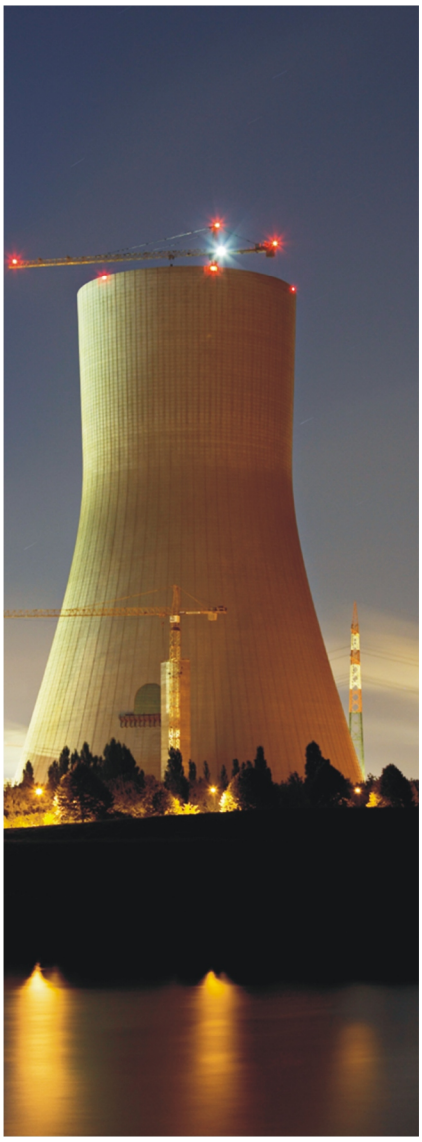
APOLLON
STEEL INC.

" Steel Solutions For
A Better Industry "



Technical Guide

Version 1.0.2

PIPE • TUBE • FITTING • FLANGE • SHEET • PLATE • STRUCTURAL • SHAFT

Company Profile

APOLLON STEEL INC.

APOLLON STEEL INC. is a vital part of the Steel & Metal industry in India. Being Importer, Exporter, Mill Representative & Stockiest, we provide a wide range of Industrial Raw Material to a demanding National & international market.

APOLLON STEEL INC. is a sizeable and well-established company having the experience of over more than 45 years in this industry. We have been serving customer in a wide range of industries, which includes Ship Building, Precision Engineering, Construction, Chemical, Fertilizer, Paper, Defense, Power Plants, and Oil & Gas etc. We value for a single piece of a requirement to large turnkey project & give "MAXIMUM" service to all.

We are approved suppliers to various government department & Public sectors all over the country & regularly supplying to them for a long time. We have got ready stock of the above items in various sizes as per National / International Standards & Specification & the same shall be supplied as per your requirements at very reasonable rates.

Quality Policy

"We at **APOLLON STEEL INC.** Importer, Exporter, Mill Representative & Stockiest, of Stainless Steel, Carbon Steel, Alloy Steel, Nickel Alloy, Copper, Cupro Nickel, Monel in the form of Pipes, Tubes, Pipe Fittings, Flanges, Sheets, Plates & Rods are committed to increase our market share by satisfying our customers requirements through offering products at Best Prices, on timely Delivery and Better Support. We shall Continually Improve in knowing our customer needs and Proactively acting on things required to satisfy the same."

The quality assurance system assures every product to go through the following Quality systems.

- **Material Control System**
- **Process Control System**
- **Machining & Dimensional Control**
- **Certification & Supplementary Test**
- **Finishing & Marking**

Industries We Serve

Naval / Offshore / Ship Building

Oil Refinery / Petrochemical

Power Plant

Oil & Gas Industry

Chemical Industry

Pharmaceutical Industry

Dairy / Food Industry

Steel Plant

Third Party Inspection

We can arrange any Third Party inspection agency like ABS, IRS, RITES, RINA, SGS, LRIS, BVIS, IBR, TUV, DNV, MECON, MDL etc. Please find attached herewith our Detail Product List & Valuable Client List.

ABS | IRS Department of the Treasury Internal Revenue Service | RITES THE INFRASTRUCTURE PEOPLE | RINA 1861 | SGS | Lloyd's Register | BUREAU VERITAS | TÜV INDIA

DNV DET NORSKE VERITAS | मेकान ISO 9001:2000 Company | मदल md | ई.आई.एल | Larsen & Toubro Ltd. | TATA TATA Project | पी डी आई एल PDIL | I.B.R.

APOLLON STEEL INC.

PIPES & TUBES (IBR & NON IBR)

Stainless Steel : ASTM A312 / A213/ A249 / A269 / GR. TP 304/ 304L/ 304H/ 316/ 316L/ 317/317L/ 321/ 310/ 347/ 904L etc.
Carbon Steel : ASTM A53 GR. B/ A106 GR. B/ API 5L GRADE B/ API 5L GR.X42/46/52/56/60/65/70/ A333 GR. 3/ GR. 6 IS1239 Part I, IS3589, Gr. 330 / 410 etc.
Alloy Steel : ASTM A335 / A 213 GR. P1/ P5/ P9/ P11/ P22/ P91 etc.
Others : Monel, Nickel, Inconel, Hastalloy, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, Zinc, Lead, etc.
Types : Round , Square, Rectangular.
Size : 1/2"NB - 24" NB. (Seamless) & upto 100" NB (ERW / SAW)
Wall Thickness : Sch. 5S to Sch. XXS or heavier on request, A, B, C, Class.

LINE PIPES

Size : (Seamless): ½" NB - 24" NB

Size : (SAW, LSAW, HSAW, EFW, ERW): 4"NB-100"NB

Wall Thickness : Schedule 20 - Schedule XXS (heavier on request) up to 250 mm Thk.

Grade : API 5L Gr. A / B / X42 / X46 / X52 / X56 / X60 / X65 / X70 / X80 IN PSL1 & PSL2 With NACE MR 0175

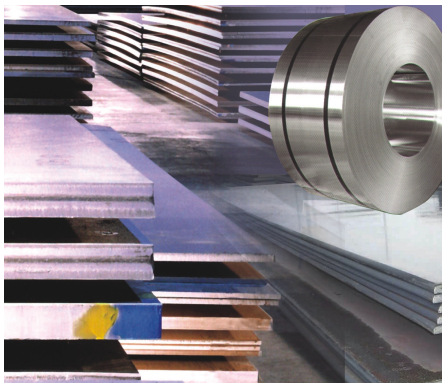
OCTG PIPES

API 5CT, Casing, Tubing and Conductor
Size Range : 1.660" – 20"
Seamless / ERW
Grades : J-55, K-55, N-80, L-80, L-80HC, 13CR, 22CR, 25CR, P-110, P-110HC, Q-125 as well as Sour Service.
API and Premium Connections, Pup Joints and Cross-Overs.
ID / OD Coated, Poly and Epoxy

API 5D / API Spec. 7, and API RP7G, Drill Pipe
Size Range : 3 1/2"- 5 1/2", and Heavy Weight
Grades : All

BUTT-WELDED, FORGED FITTINGS & FLANGES

Pipe Fittings such as Elbows, Tees, Cross, Reducers, Caps, Return Bends, Couplings, Stub Ends, Bushing, Pipe Caps, Pipe Plugs, Hex Plug, Sockolet, Weldolet, Threadolet, O' Lets, Dairy Bends, Nipples, Adapters, Plugs, Unions, Nipolets, As Per Customers Specific Drawing.
Flanges like Slip On, Blind, Weld Neck, Socket Weld, Lap Joint, Spectacles, RTJ, Flange as per Drawings etc.
Stainless Steel : ASTM A403 / A182 WP / F304 / 304L / 304H / 316 /316L / 317L / 321 / 347H / 904L etc.
Carbon Steel : ASTM A234 WPB / A420 / A350 WPL6 / LF2 / ASTM A105N / A694-F42 /46 / 52 / 56 / 60 / 65 / 70 etc.
Alloys Steel : ASTM A234 / A182 WP / F1 / F5 / F9 / F11 / F12 / F22 / F23 / F53 / F91 / F92 etc.
Other : Monel, Nickel, Inconel, Hastalloy, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, Zinc, Lead, etc.



SHEET, PLATE, RODS, SHAFTS & STRUCTURAL

Stainless Steel : ASTM A 182 / A240 TP 304 / 304L / 304H / 316 / 316L / 317 / 317L / 321 / 310 / 347 / 904L ETC.

Carbon Steel : A515 Gr. 60/70, A 516 Gr. 60/70, IS 2062 / A36 / AH36, Ship Building Plate etc.

Alloy Steel : ASTM A 182 / 387F / P1 / P5 / P9 / P11 / P22 / P91 & etc.

High Strength : SAILHARD, Corton, Hardox, Dilidur 400v, Dillimax 690 / 690A / SAILMA etc.

Other : Monel, Nickel, Inconel, Hastalloy, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead etc.

Types : Sheet, Plates, Strips, Round Bars, Wires, Channel, I Beam, H Beam, Shafts, Rail, etc

Drawing Based Fittings and Fabrication as per clients requirements All our Products are as per the National & International Standards

C.S / A.S. / S.S PIPE AND TUBES SCHEDULE DIMENSIONS, WALL THICKNESS, WT./MTR. (KG)

		ANSI B 36.10 / ASME B 36.10 (2004)																										ANSI B 36.19 / ASME B 36.19 (2004)							
Nominal Pipe	Outside Dia-	Schedule 10		Schedule 20		Schedule 30		Schedule STD		Schedule 40		Schedule 60		Schedule XS		Schedule 80		Schedule 100		Schedule 120		Schedule 140		Schedule 160		Schedule XXS		Schedule 5S		Schedule 10S		Schedule 40S		Schedule 80S	
Size	meter	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
1/4"	13.7							2.24	0.63	2.24	0.63			3.02	0.80	3.02	0.80													1.65	0.50	2.24	0.64	3.02	0.81
3/8"	17.1							2.31	0.84	2.31	0.84			3.20	1.10	3.20	1.10													1.65	0.64	2.31	0.86	3.20	1.12
½"	21.3							2.77	1.27	2.77	1.27			3.73	1.62	3.73	1.62							4.78	1.95	7.47	2.55	1.65	0.81	2.11	1.02	2.77	1.29	3.73	1.65
3/4"	26.7							2.87	1.69	2.87	1.69			3.91	2.20	3.91	2.20							5.56	2.90	7.82	3.64	1.65	1.03	2.11	1.30	2.87	1.71	3.91	2.23
1"	33.4							3.38	2.50	3.38	2.50			4.55	3.24	4.55	3.24							6.35	4.24	9.09	5.45	1.65	1.31	2.77	2.13	3.38	2.54	4.55	3.29
1 1/4"	42.2							3.56	3.39	3.56	3.39			4.85	4.47	4.85	4.47							6.35	5.61	9.70	7.77	1.65	1.68	2.77	2.73	3.56	3.44	4.85	4.53
1 ½""	48.3							3.68	4.05	3.68	4.05			5.08	5.41	5.08	5.41							7.14	7.25	10.15	9.55	1.65	1.93	2.77	3.16	3.68	4.11	5.08	5.49
2"	60.3							3.91	5.44	3.91	5.44			5.54	7.48	5.54	7.48							8.74	11.11	11.07	13.44	1.65	2.42	2.77	3.99	3.91	5.52	5.54	7.60
2 ½"	73.0							5.16	8.63	5.16	8.63			7.01	11.41	7.01	11.41							9.53	14.92	14.02	20.39	2.11	3.75	3.05	5.35	5.16	8.77	7.01	11.59
3"	88.9							5.49	11.29	5.49	11.29			7.62	15.27	7.62	15.27							11.13	21.35	15.24	27.68	2.11	4.59	3.05	6.56	5.49	11.47	7.62	15.51
3 ½"	101.6							5.74	13.57	5.74	13.57			8.08	18.63	8.08	18.63											2.11	5.26	3.05	7.53	5.74	13.78	8.08	18.92
4"	114.3							6.02	16.08	6.02	16.07			8.56	22.32	8.56	22.32			11.13	28.32			13.49	33.54	17.12	41.03	2.11	5.93	3.05	8.50	6.02	16.32	8.56	22.67
5"	141.3							6.55	21.77	6.55	21.77			9.53	30.97	9.53	30.97			12.70	40.28			15.88	49.12	19.05	57.43	2.77	9.61	3.40	11.74	6.55	22.10	9.53	31.44
6"	168.3							7.11	28.26	7.11	28.26			10.97	42.56	10.97	42.56			14.27	54.21			18.26	67.57	21.95	79.22	2.77	11.48	3.40	14.04	7.11	28.70	10.97	43.22
8"	219.1			6.35	33.32	7.04	36.82	8.18	42.55	8.18	42.55	10.31	53.09	12.70	64.64	12.70	64.64	15.09	75.92	18.26	90.44	20.62	100.93	23.01	111.27	22.23	107.93	2.77	14.9	3.80	20.12	8.18	43.20	12.70	65.64
10"	273.0			6.35	41.76	7.80	51.01	9.27	60.29	9.27	60.31	12.70	81.50	12.70	81.53	15.09	95.98	18.26	114.71	21.44	133.01	25.40	155.10	28.58	172.27	25.40	155.10	3.40	22.95	4.19	28.20	9.27	61.22	12.70	82.78
12"	323.8			6.35	49.71	8.38	65.19	9.53	73.86	10.31	79.71	14.27	108.93	12.70	97.44	17.48	132.05	21.44	159.87	25.40	186.92	28.58	208.08	33.32	238.69	25.40	186.92	3.96	31.71	4.57	36.53	9.53	74.94	12.70	98.96
14"	355.6	6.35	54.69	7.92	67.91	9.53	81.33	9.53	81.33	11.13	94.55	15.09	126.72	12.70	107.40	19.05	158.11	23.83	194.98	27.79	224.66	31.75	253.58	35.71	281.72			3.96	34.87	4.78	41.99	9.53	82.50	12.70	109.05
16"	406.4	6.35	62.65	7.92	77.83	9.53	93.27	9.53	93.27	12.70	123.31	16.66	160.13	12.70	123.30	21.44	203.54	26.19	245.57	30.96	286.66	36.53	333.21	40.49	365.38			4.19	42.20	4.78	48.07	9.53	94.61	12.70	125.20
18"	457.2	6.35	70.57	7.92	87.71	11.13	122.38	9.53	105.17	14.27	155.81	19.05	205.75	12.70	139.16	23.83	254.57	29.36	309.64	34.93	363.58	39.67	408.28	45.24	459.39			4.19	47.53	4.78	54.15	9.53	106.83	12.70	141.35
20"	508.0	6.35	78.56	9.53	117.15	12.70	155.13	9.53	117.15	15.09	183.43	20.62	247.84	12.70	155.13	26.19	311.19	32.54	381.55	38.10	441.52	44.45	508.15	50.01	564.85			4.78	60.23	5.54	69.70	9.53	118.95	12.70	157.51
22"	558.8	6.35	86.55	9.53	129.14	12.70	171.10	9.53	129.14			22.23	294.27	12.70	171.10	28.58	373.85	34.93	451.45	41.28	527.05	47.63	600.67	53.90	672.30			4.78	66.31	5.54	76.75	9.53	131.07	12.70	173.66
24"	609.6	6.35	94.53	9.53	141.12	14.27	209.65	9.53	141.12	17.48	255.43	24.61	355.28	12.70	187.07	30.96	442.11	38.89	547.74	46.02	640.07	52.37	720.19	59.54	808.27			5.54	83.80	6.35	95.92	9.53	143.20	12.70	189.82
26"	660.4	7.92	127.36	12.70	202.74			9.53	152.88					12.70	202.74																	9.53	155.22	12.70	205.85
28"	711.2	7.92	137.32	12.70	218.71	15.88	272.23	9.53	164.86					12.70	218.71																	9.53	167.39	12.70	222.06
30"	762.0	7.92	147.29	12.70	234.68	15.88	292.20	9.53	176.85					12.70	234.68													6.35	120.15	7.92	149.55	9.53	179.56	12.70	238.28
32"	812.8	7.92	157.25	12.70	250.65	15.88	312.17	9.53	188.83	17.48	342.94			12.70	250.65																	9.53	191.73	12.70	254.50
34"	863.6	7.92	167.21	12.70	266.63	15.88	332.14	9.53	200.82	17.48	364.92			12.70	266.63																	9.53	203.90	12.70	270.72
36"	914.4	7.92	176.97	12.70	282.29	15.88	351.73	9.53	212.57	19.05	420.45			12.70	282.29																	9.53	215.83	12.70	286.62

Formula :

Weight of Steel Pipes & Tubes : OD(mm) - W.T.(mm) x W.T.(mm) 0.02466 = kg per meter Feet = meter ÷ 3.281 All Dimension are in Kilograms & Meters

DIMENSION CHART FOR PIPES & TUBES

APOLLON STEELING C.

SELECTION OF MATERIAL

STAINLESS STEELS

Common Description	ASTM Specification						UNS Design Grade	CHEMICAL ANALYSIS NOMINAL								NOMINAL MECHANICAL PROPERTIES		
	Plate	Pipe	Fittings	Flanges / Forgings	Cast Valves	Tubes		C ≤	Si ≤	Mn ≤	Cr	Mo	Ni	Cu	Others	Tensile min Mpa	Yield point RP 0.2 min Mpa	Elongation in 2 or 4D min, %
18.8	A240	A312	A403	A182	A351	A269	304	0.08	1.00	2.00	18.0-20.0	-	8.0-0.5	-	-	515	205	28-40
18.8	A240	A312	A403	A182	-	A269	304 L	0.035	1.00	2.00	18.0-20.0	-	8.0-12.0	-	-	485	170	28-40
18.8	A240	A312	A403	A182	-	A271	304 H	0.04-0.10	1.00	2.00	18.0-20.0	-	8.0-10.0	-	-	515	205	28-40
310	A240	A312	A403	A182	A351	A213	310	0.25	1.50	2.00	24.0-26.0	-	19.0-22.0	-	-	515	205	28-40
310S	A240	-	-	-	-	A213	310 S	0.08	1.50	2.00	24.0-26.0	-	19.0-22.0	-	-	515	205	28-40
18-10	A240	A312	A403	A182	A351	A269	316	0.08	1.00	2.00	16.0-18.0	2.00-3.00	10.0-14.0	-	-	485	205	28-35
18-10	A240	A312	A403	A182	-	A269	316L	0.035	1.00	2.00	16.0-18.0	2.00-3.00	10.0-14.0	-	-	515	170	28-40
18-10	A240	A312	A403	A182	-	A271	316 H	0.04-0.10	1.00	2.00	16.0-18.0	2.00-3.00	10.0-14.0	-	-	515	205	28-40
316Ti	A240	-	-	-	-	-	316 Ti	0.08	1.00	2.00	16.0-18.0	2.00-3.00	10.0-14.0	-	Ti 5X(C+N) min-0.70 max	515	205	28-40
317	A240	A312	A403	A182	-	A269	317	0.08	1.00	2.00	18.0-20.0	3.00-4.00	11.0-15.0	-	-	515	205	28-35
18-10 Ti	A240	A312	A403	A182	-	A269	321	0.08	1.00	2.00	17.0-19.0	-	9.0-12.0	-	Ti 5 X C min	515	205	28.40
18-10Ti	A240	A312	A403	A182	-	A271	321 H	0.04-0.10	1.00	2.00	17.0-20.0	-	9.0-12.0	-	Ti 4XC - 0.60	515	205	28-40
18-10Cb	A240	A312	A403	A182	A351	A269	347	0.08	1.00	2.00	17.0-19.0	-	9.0-13.0	-	Cb 10x C min	515	205	28-40
Duplex	A240	A790	A815	A182	-	A789	S 31803	0.03	1.00	2.00	21.0-23.0	2.50-3.50	4.5-6.5	-	N 0.08 - 0.20	620	450	25
6 Mo	A240	A312	A403	A182	-	A269	S 31254	0.02	0.80	1.00	19.5-20.5	6.00-6.50	17.5-18.5	0.5-1.0	N 0.08 - 0.22	650	300	28-35
Super Duplex	A240	A790	A815	A182	-	A789	S32750	0.03	0.80	1.20	24.0-26.0	3.00-5.00	6.0-8.0	0.50	N 0.24-0.32	800	550	15
Super Duplex	A240	A790	A815	A182	-	A789	S32760	0.05	1.00	1.00	24.0-26.0	3.00-4.00	6.0-8.0	0.50	N 0.20-0.30	750(895max)	550	25
410	A240	A268	A815	A182	-	A268	410	0.15	0.75	1.00	11.5-13.5	-	0.50	-	W 0.50-1.00	415	215	25

ALLOY STEELS

Common Description	ASTM Specification						UNS Design Grade	CHEMICAL ANALYSIS NOMINAL								NOMINAL MECHANICAL PROPERTIES		
	Plate	Pipe	Fittings	Flanges / Forgings	Cast Valves	Tubes		C ≤	Si ≤	Mn ≤	Cr	Mo	Ni	Cu	Others	Tensile min Mpa	Yield point RP 0.2 min Mpa	Elongation in 2 or 4D min, %
31/4 Ni	A203	A333	A420	A350	-	A334	-	0.19	0.18-0.37	0.31-0.64	-	-	3.18-3.82	-	-	415	240	30
1 Cr-1/2 Mo	A387	A335	A234	A182	-	A213	12	0.15	< 0.50	0.3-0.61	0.8-1.25	0.44-0.65	-	-	-	415	205	30
1 1/4Cr-1/2Mo	A387	A335	A234	A182	A217	A213	11	0.15	0.5-1.0	0.3-0.6	1.0-1.5	0.44-0.65	-	-	-	415	205	30
2 1/4Cr-1Mo	A387	A335	A234	A182	A217	A213	22	0.15	< 0.50	0.3-0.6	1.9-2.6	0.87-1.13	-	-	-	415	205	30
5 Cr-1/2Mo	A387	A335	A234	A182	A217	A213	5	0.15	< 0.50	0.3-0.6	4.0-6.0	0.45-0.65	-	-	-	415	205	30
9 Cr-1Mo	A387	A335	A234	A182	A217	A213	9	0.15	0.25-1.0	0.3-0.6	8.0-10.0	0.91-1.10	-	-	-	415	205	30

NICKEL ALLOYS

Common Description	ASTM Specification						UNS Design Grade	CHEMICAL ANALYSIS NOMINAL								NOMINAL MECHANICAL PROPERTIES		
	Plate	Pipe	Fittings	Flanges / Forgings	Cast Valves	Tubes		C ≤	Si ≤	Mn ≤	Cr	Mo	Ni	Cu	Others	Tensile min Mpa	Yield point RP 0.2 min Mpa	Elongation in 2 or 4D min, %
Nickel 200	B162	B161/B-725	B366	B160	-	B161/B163	N02200	0.15	0.35	0.35	-	-	99.0 min	0.25	Fe 0.40	380-550	80.415	10-40
Monel 400	B127	B165	B366	B164/B564	-	B163/B165	N04400	0.3	0.50	2.00	-	-	63.0 min	28-34	Fe2.50 max S 0.024	485-690	195-620	2-35
Monel K500	-	-	-	-	-	-	N05500	0.25	0.50	1.50	-	-	63.0-70.0	bal	Al 2.5-3.5, Fe, 2.0 Max S 0.01 max, Ti 0.35-0.85	880	590	15
Inconel 600	B168	B167/B517	B366	B166/B564	-	B163/B516	N06600	0.15	0.50	1.0	14.0-17.0	-	72.0 min	0.50	Fe 6.0-10.0, S 0.015 max	515-825	170-825	7-35
Inconel 601	-	-	-	-	-	-	N06601	0.10	0.50	1.00	21.0-25.0	-	58.0-63.0	1.00	Al 1.0-1.7, Fe rem	600	240	30
Inconel 800H	B409	B407/515	B366	B408/B564	-	B163/B407/ B515	N08810	0.05-0.1	1.00	1.50	19.0-23.0	-	30.0-35.0	0.75	Al 0.15-0.6, Ti 0.15-0.6 Fe 39.5 min, 50.015 max	450	170	30
Incoloy 825	B424	B423/B705	B366	B425/B564	-	B163/B704	N08825	0.05	0.50	1.00	19.5-23.5	-	38.0-46.0	1.5-3	Al 02 max, Ti 0.6-1.2 Fe 22.0 min, S 0.03 min	586	241	30
Hastelloy C276	B575	B619/B622	B366	B574	-	B622/B626	N10276	0.01	0.08	1.00	14.5-16.5	15.0-17.0	rem	-	Fe 4.0-7.0,W3.0-4.5 Co 2.5 max, V 0.35 max	690	283	40
Hastelloy B2	B333	B619/B622	B366	0.335	-	B622/B626	N10665	0.02	0.10	1.00	1.0 max	26.0-30.0	rem	-	Fe 2.0 max, Co 1.0 max	760	352	40
904L	B625	B677/B673	B366	B649	-	B677	N08904	0.02	1.00	2.00	19.0-23.0	4.5-5.0	23.0-28.0	1.0-2.0		490	220	35

Inconel, Incolloy, Hastelloy and Monel are Registered Trade Names

APOLLON STEEL INC.

ALLOY, CARBON, MILD STEEL SHEET / PLATES

ASTM	Grade	Chemical requirements percent (%)										Mechanical requirements						
		C max	Mn max	P max	S max	Si max	Ni	Cr.	Mo	Cu	Others	Tensile Strength mini-MPa(Ksi)		Yeild Strength mini-MPa(Ksi)		Elong mini %	Hardness Brinell Max HB	Hardness Rockwell Max HB
A240	304	0.08	2.00	0.045	0.030	0.75	8.00 - 11.0	18.0 - 20.0				515 (75)		205(30)		40	202	92
	304L	0.035	2.00	0.045	0.030	0.75	8.00 - 11.0	18.0 - 20.0				485-(70)		170-(25)		40	183	88
	310S	0.08	2.00	0.045	0.030	0.75	19.0 - 22.0	24.0 - 26.0				515- (75)		205-(30)		40	217	95
	316	0.08	2.00	0.045	0.030	0.75	10.0 - 14.0	16.0 - 18.0	2.00-3.00			515-(75)		205-(30)		40	217	95
	316L	0.035	2.00	0.045	0.030	0.75	10.0 - 14.0	16.0 - 18.0	2.00-3.00			485-(70)		170-(25)		40	217	95
	317L	0.035	2.00	0.045	0.030	0.75	11.0 - 15.0	18.0 - 20.0	3.00-4.00									
	321	0.08	2.00	0.045	0.030	0.75	9.00 - 12.0	17.0 - 19.0			5C < Ti < 0.70	515-(75)		205-(30)		40	217	95
	347	0.08	2.00	0.045	0.030	0.75	9.00 - 13.0	17.0 - 19.0			10C < Nb+Ta < 1.10	515-(75)		205-(30)		40	202	92
A 387 Class1 Class2												Class 1	Class 2	Class 1	Class 2			
	2	0.21	0.55-0.80	0.035	0.040	0.15-0.30		0.50-0.80	0.45-0.60			380-550	486-620	230	310	22	max201HB	max92HRB
	5	0.15	0.30-0.60	0.040	0.030	0.050		4.00-6.00	0.45-0.65			415-585	515-690	205	310	18	max202HB	max92HRB
	7	0.15	0.30-0.60	0.030	0.030	1.00		6.00-8.00	0.45-0.65			415-585	515-690	205	310	18	max217HB	max95HRB
	9	0.15	0.30-0.60	0.030	0.030	1.00		8.00-10.0	0.90-1.10			415-585	515-690	205	310	18	max217HB	max95HRB
	11	0.17	0.40-0.65	0.035	0.040	0.50-0.80		1.00-1.50	0.45-0.65			415-585	515-690	240	310	22	max217HB	max95HRB
	12	0.17	0.40-0.65	0.035	0.040	0.15-0.30		0.80-1.15	0.45-0.60			380-550	515-690	230	275	22	max217HB	max95HRB
	21	0.15	0.30-0.60	0.035	0.035	0.50		2.75-3.25	0.90-1.10			415-585	515-690	205	310	18	max201HB	max92HRB
	22	0.15	0.30-0.60	0.035	0.035	0.50		2.00-2.50	0.90-1.10			415-585	515-690	205	310	18	max201HB	max92HRB
A 515	55	0.22	0.90	0.035	0.04	0.15-0.30						380-515(55-75)		205(30)		27		
	60	0.27	0.90	0.035	0.04	0.15-0.30						415-550(60-80)		220(32)		25		
	65	0.31	0.90	0.035	0.04	0.15-0.30						450-585(65-85)		240(35)		23		
	70	0.33	0.90	0.035	0.04	0.15-0.30						485-620(70-90)		260(38)		21		
A 516	55	0.20	0.60-1.20	0.035	0.04	0.15-0.30						380-515(55-75)		205(30)		27		
	60	0.23	0.85-1.20	0.035	0.04	0.15-0.30						415-550(60-80)		220(32)		25		
	65	0.26	0.85-1.20	0.035	0.04	0.15-0.30						450-585(65-85)		240(35)		23		
	70	0.28	0.85-1.20	0.035	0.04	0.15-0.30						485-620(70-90)		260(38)		21		
A 537	Class 1	0.24	0.70-1.35	0.035	0.040	0.15-0.50	0.25 max	0.25 max	0.08 max	0.35		485-620(70-90)		345(50)		22		
	Class 2	0.24	0.70-1.35	0.035	0.040	0.15-0.50	0.25 max	0.25 max	0.08 max	0.35		550-690(80-100)		415(60)		22		

IS-2062-92 STEEL FOR GENERAL STRUCTURAL PURPOSES

Gr.	Designation	% Chemical Composition						Tensile strength (Min) Kg/mm2	Yield Strength (Min) Mpa			%El.in gauge length 56°So	Bend Test	Std.test Piece charpy V Notch Impact Energy Joule min
		C max	MN max	S max	P max	Si max	C. E. max		<20 min	<20-40 min	>40 min			
A	FE410 WA	0.23	15	0.050	0.050	-	0.42	41.8	250	240	230	23	3t	-
B	FE410 WB	0.22	15	0.045	0.045	0.40	0.41	41.8	250	250	230	23	t<25mm	2t for 27 3t for t>25mm
C	FE410 WC	0.20	15	0.040	0.040	0.40	0.36	41.8	250	250	230	23	2t	27

Formula - Weight of Stainless Steel Sheets/Plates = Length (mm) x Width (mm) x Thickness (mm) x 7.86 = Kg./Sheet.

IS-2002-62 STEEL PLATES FOR BOILERS

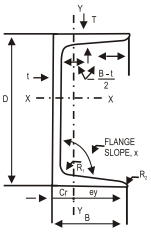
Chemical Composition					Tensile Test		Elongation	
Designation	C max	Si max	P max	S max	Tensile strength Mpa	Yield Strength Mpa	Test Piece	%min
IS 2002-1	0.18	0.10-0.35	0.040	0.040	362-442	540	5.65√So 4√So	26 30
IS 2002-2A	0.20	0.10-0.35	0.050	0.050	412-491	491	5.60√So 4√So	20 29
IS 2002-2B	0.22	0.10-0.35	0.050	0.050	510-608	491	5.65√So 4√So	20 24

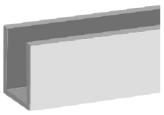
APOLLON STEELING.

APOLLON STEEL INC.

DIMENSIONS & WEIGHT FOR STEEL, BEAM, CHANNEL & ANGLE SECTIONS AS PER IS 808:1999

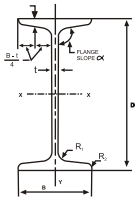
CHANNELS SECTIONS



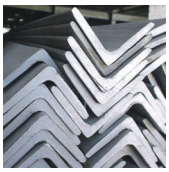


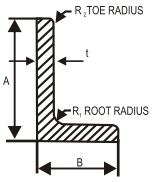
DESIGNATION	SIZE	WEIGHT KG/M
ISMC 75	75 X 40 X 4.8	7.14
ISMC 100	100 X 50 X 5.0	9.56
ISMC 125	125 X 65 X 5.3	13.1
ISMC 150	150 X 75 X 5.7	16.8
ISMC 175	175 X 75 X 6.0	19.6
ISMC 200	200 X 75 X 6.2	22.3
ISMC 225	225 X 80 X 6.5	26.1
ISMC 250	250 X 80 X 7.2	30.6
ISMC 300	300 X 90 X 7.8	36.3
ISMC 350	350 X 100 X 8.3	42.7
ISMC 400	400 X 100 X 8.8	50.1

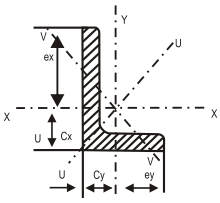
BEAMS SECTIONS



DESIGNATION	SIZE	WEIGHT KG/M
ISMB 100	100 X 50 X 4.7	8.90
ISMB 125	125 X 70 X 5.0	13.3
ISMB 150	150 X 75 X 5.0	15.0
ISMB 175	175 X 85 X 5.8	19.6
ISMB 200	200 X 100 X 5.7	24.2
ISMB 225	225 X 110 X 6.5	31.1
ISMB 250	250 X 125 X 6.9	37.3
ISMB 300	300 X 140 X 7.7	46.0
ISMB 350	350 X 140 X 8.1	52.4
ISMB 400	400 X 140 X 8.9	61.5
ISMB 450	450 X 150 X 9.4	72.4
ISMB 500	500 X 180 X 10.2	86.9
ISMB 550	550 X 190 X 11.2	104
ISMB 600	600 X 210 X 12.0	123







EQUAL ANGLES

Size in mm	Weight Kg/M
Angles (equal)	
50 x 50 x 6	4.5
65 X 65 X 6	5.8
65 X 65 X 8	7.7
65 X 65 X 10	9.4
75 X 75 X 6	6.8
75 X 75 X 8	8.9
75 X 75 X 10	11.0
80 X 80 X 6	7.3
80 X 80 X 8	9.6
80 X 80 X 10	11.8
90 X 90 X 6	8.2
90 X 90 X 8	10.8
90 X 90 X 10	13.4
100 X 100 X 8	12.1
100 X 100 X 10	14.9
100 X 100 X 12	17.7
110 X 110 X 10	16.6
110 X 110 X 12	19.7
130 X 130 X 10	19.7
130 X 130 X 12	23.5
150 X 150 X 16	35.8
150 X 150 X 20	44.1
200 X 200 X 16	48.5
200 X 200 X 20	60.0

UNEQUAL ANGLES

Sides in	Thickness					Weight in Kg per meter					
mm	3	4	5	6	8	10	12	15	16	18	20
Equivalent 20 x 20 mm	0.9	1.1									
25 x 25 mm	1.1	1.4	1.8								
30 x 30 mm	1.4	1.8	2.2								
35 x 35 mm	1.6	2.1	2.6	3.0							
40 x 40 mm	1.8	2.4	3.0	3.5							
45 x 45 mm	2.1	2.7	3.4	4.0							
50 x 50 mm	2.3	3.0	3.8	4.5							
55 x 55 mm		3.3	4.1	4.9	6.4	7.9					
60 x 60 mm		3.70	4.5	5.4	7.0	8.6					
65 x 65 mm		4.0	4.9	5.8	7.7	9.4					
70 x 70 mm			5.3	6.3	8.3	10.2					
75 x 75 mm			5.7	6.8	8.9	11.0					
45 x 30 mm	1.7	2.2	2.8	3.3							
75 x 50 mm			4.7	5.6	7.4	9.0					
90 x 60 mm				6.8	8.9	11.0	13.0				
100 x 75 mm				8.0	10.5	13.0	15.4				
125 x 75 mm				9.2	12.1	14.9					
125 x 95 mm				10.1	13.4	16.5	19.6				
150 x 75 mm					13.7	17.0	20.2				
150 x 115 mm					16.3	20.1	34.0	31.4	31.4		
200 X 100 mm						22.9	27.3		35.8		
200 X 150 mm						26.9	32.1		42.2		52.0

FORMULA OF CALCULATING WEIGHT

- **Weight of Stainless Steel Pipe / Carbon Steel Pipes & Tubes**
  O.D. (mm) - W. T. (mm) X W. T. (mm) X 0.02466 = KG / MTR
- **Weight of Stainless Steel Sheets**
  Length (mtr) X Width (mtr) X Thk. (mm) X 8 = KG / SHEET
- **Weight of Carbon Steel Sheets**
  Length (mtr) X Width (mtr) X Thk. (mm) X 7.85 = KG / SHEET
- **Weight of Stainless Steel Circle & Blanks**
  O.D. (mm) - O.D. (mm) X Thk. (mm) /160/1000 = KG / PCS
- **Weight of Stainless Steel Rounds**
  Dia. (mm) X Dia. (mm) X 0.00623 = KG / MTR
- **Weight of Stainless Steel Hexagonal Rods**
  Dia. (mm) X Dia. (mm) X 0.00679 = KG / MTR
- **Weight of Stainless Steel Square Rods**
  Dia. (mm) X Dia. (mm) X 0.00787 = KG / MTR
- **Weight of Copper Pipes**
  O.D. (mm) - W. T. (mm) X W. T. (mm) X 0.0285 = KG / MTR
- **Weight of Aluminium Pipes**
  O.D. (mm) - W. T. (mm) X W. T. (mm) X 0.0082 = KG / MTR
- **Weight of Aluminium Sheets**
  Length (mtr) X Width (mtr) X Thk. (mm) X 2.66 = KG / SHEET
- **Weight of Lead Pipes**
  O.D. (mm) - W. T. (mm) X W. T. (mm) X 0.0345 = KG / MTR
- **Weight of Lead Sheets**
  Length (mtr) X Width (mtr) X Thk. (mm) X 11.2 = KG / SHEET
- **Sheet Width Reqd. for Rolled & Welded Pipes**
  O.D. (mm) - W. T. (mm) X W. T. (mm) X 0.0345 = KG / MTR
- **Weight for Square / Rectangle Pipes**
  Length from 4 Angle (OD) / 3.14 - Thk. (mm) x Thk. (mm) x 0.00756 = KG / PER FEET

IMPORTER & STOCKIEST OF INDUSTRIAL RAW MATERIALS

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