



Comparison Between HR Strip & Patra

TOPIC	PATRA	HR COIL
Manufacturing process	Patra rolled by ORDINARY mill.	HR Strip Rolled by Tandem Mill 'HRC'. In HRC there are additional facilities available for improving quality of HR strip, restructure etc.
Raw Material Quality	Manufacturing from Ingot or Commercial Grade MATERIALS.	Manufacturing from Slabs, Blooms & Billets which are manufactured by Iron Ore.
Chemical Composition	There is no control on the chemical composition due to mixing of variety of low grade materials.	Homogeneous Chemical Composition.
Surface Finish	Rough Surface which lowers the finished product quality.	Enhanced surface finish ensuring high quality.
Thickness Consistency & width variation	Lot of variation due to manual setting.	No variation due to HRC system, and better HSM technology.
Length	No provision for cutting of strip & therefore Patra is rolled with length of approximately 30 meter.	Due to superior technology of HRC, Maximum length can be derived.
Physical Properties	Physical Properties are not matched with the applications, because of non-homogeneous nature of chemical compositions & poor manufacturing process.	Because of high technological steel making marks, wide range of applications are covered.

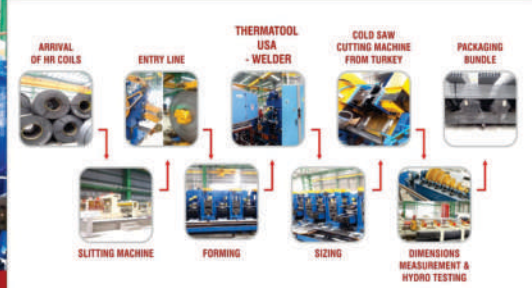
Behind the scenes - Our Competent team

- Backed by seasoned experts in the field of Production, Research, Quality and Marketing, Jyoti HRC 100 is constantly infused with new quotient of performance.
- Serving the customer for the best outcome and cementing relationships form the foundation of our Team.

Delivering expectations since 2001 and still towering higher

Madhav KRG Group began its Journey in 2001 and since then we have not looked back. Working in harmony and tandem for widening the scope of our progress, our brand JYOTI has grown in a multi dimensional manner. With each passing year, we learned more and fulfilled more dreams. Today we are still at a junction where the cross roads lead to better ways of garnering knowledge and performance. The future is amongst us and we just have to realise the same.

Process Flow Chart for Pipes & Tubes



Madhav KRG Limited

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Talwara Road, Mandi Gobindgarh,
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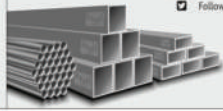
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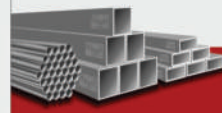
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Manufacturing Quality,
Fulfilling Dreams,
Nurturing Accomplishments

JYOTI
BHAROSE KI TAAKAT
HRC 100
PIPES & TUBES





From the Director's Desk

Madhav KRIG Group has an in depth insight into delivering and executing top of the line Quality. Our core ideologies and principles are nested on a thought process of providing exceptional product standards. Be it technology, be it network or be it customer orientation, our brand **JYOTI** has proven itself in all aspects. After touching new pinnacles of success in TMT Steel with **JYOTI Tempcore Rebars**, recently we have forayed into the arena of **ERW PIPES & TUBES**, christening our brand in this segment as **JYOTI HRC 100**. Certainly when it comes to adopting global standards and creating world class products, Madhav KRIG Group always goes a step further. This has been acclaimed by our **20 years old legacy of eminence**.

Vision

Enabling Infrastructure, accelerating Growth.

Our Moto

Spreading the Joy of Giving.

Quality Policy

Continuously striving to exceed customer expectations through technological Upgradations by involving competent people and effective Quality Management System.

Mission

Innovation & Technology: By setting new benchmarks in current Status quo of Industry in respective category.

Customer Delight: By delivering substantial value for money in terms of Products and Services with cheerfulness.

Employees Augmentation: By nurturing abilities and enriching capabilities through compassion, Mentoring and Belongingness.

Preserving Relations: By valuing 'Win-Win' relationships with Stake Holders and Business Associates for longer term.

Sustainable Future: By giving back more than what we took from Society, Environment and Country at large.

Core Values

Integrity: Steering business fairly with honesty and transparency.

Excellence: Consistently strive to achieve the optimum potential and productivity in all over operations.

Patriotism: Generate economic value for the nation and ensure compliance with law of the land.

Empowerment: Empowering by making our individuals responsible.

Humility: Respect and value people to sustain human dignity.

Unity: Building Cohesive & Strong relations by encouraging open and transparent communication within the company.



JYOTI
BHAROSE KI TAAKAT
HRC 100
PIPES & TUBES

Fully Geared
for Tomorrow's
Challenges

The Brand, The Promise – JYOTI

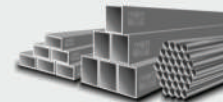
Over the years our Brand JYOTI has witnessed tremendous exponential Changes. Each change with just one objective, to further better the Quality. We are a Quality enabled organisation and thereby focus has always been on further enhancement of the Quality. Delivering the promises to the customers & Channel Partners has always been our tradition. Today our flagship Brand JYOTI stands tall only because of the reason that our Trust is visible and we fully deliver what is expected from us. This is certainly a matter of pride for us.



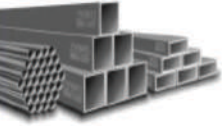
JYOTI HRC 100 ERW Pipes & Tubes - The Product

JYOTI HRC 100 ERW Pipes & Tubes are manufactured by using **ONLY HOT ROLLED COILS**. This gives a leading edge to our product over ordinary Patra Pipes available extensively.

- ✓ Certified duly by Bureau of Indian Standards (ISI)
 - World class infrastructure exists in our state of the art plant, which boasts of a massive **2 Lac Tonnes annual production** capacity with **100% PRODUCTION BY HOT ROLLED COILS**.
 - Pipes manufacturing Technology has been enabled by world acclaimed **SEUTHE, Germany**.
 - First in the Industry to implement Electric Welding Technology at our Plant, which comes from **THERMATOOL USA**.
 - Cutting perfection achieved by **Saw Cutting Machine from ERW Tech, Turkey**.
- ✓ With a large production capacity, meeting and delivering demand & supply expectations is done with ease.
- ✓ Presence of an In-house Research & Testing facility ensures each JYOTI HRC 100 Product conforms to stringent Quality norms.



FRONT



STEEL TUBES, TUBULARS AND OTHER WROUGHT STEEL FITTINGS

Conforming to IS:1239(Part-1) 2004

Nominal Bore (N.B.)		Outside Diameter		Class	Wall Thickness		Nominal Weight				Meters/Ton		
mm	Inch	Minimum	Maximum		(L, M & H)	mm	SWG	PE.	S & S	PE.	S & S	mm	kg
15	(1/2")	21.0	21.4	L	2.00	14	0.947	0.956	1056	1046			
		21.0	21.8	M	2.60	12	1.21	1.22	826	820			
		21.0	21.8	H	3.20	10	1.44	1.45	694	690			
20	(3/4")	26.4	26.9	L	2.30	13	1.38	1.39	725	719			
		26.5	27.3	M	2.60	12	1.56	1.57	641	637			
		26.5	27.3	H	3.20	10	1.87	1.88	535	532			
25	(1")	33.2	33.8	L	2.60	12	1.98	2.00	505	500			
		33.3	34.2	M	3.20	10	2.41	2.43	415	412			
		33.3	34.2	H	4.00	8	2.93	2.95	341	339			
32	(1 1/4")	41.9	42.5	L	2.60	12	2.54	2.57	394	389			
		42.0	42.9	M	3.20	10	3.10	3.13	323	319			
		42.0	42.9	H	4.00	8	3.79	3.82	264	262			
40	(1 1/2")	47.8	48.4	L	2.90	11	3.23	3.27	310	306			
		47.9	48.8	M	3.20	10	3.56	3.60	281	278			
		47.9	48.8	H	4.00	8	4.37	4.41	229	227			
50	(2")	59.6	60.2	L	2.90	11	4.08	4.15	245	241			
		59.7	60.8	M	3.60	9	5.03	5.10	199	196			
		59.7	60.8	H	4.50	7	6.19	6.26	162	160			
65	(2 1/2")	75.2	76.0	L	3.20	10	5.71	5.83	175	172			
		75.3	76.6	M	3.60	9	6.42	6.54	156	153			
		75.3	76.6	H	4.50	7	7.93	8.05	126	124			
80	(3")	87.9	88.7	L	3.20	10	6.72	6.89	149	145			
		88.0	89.5	M	4.00	8	8.36	8.53	120	117			
		88.0	89.5	H	4.80	6	9.90	10.10	101	99			
100	(4")	113.0	113.9	L	3.60	9	9.75	10.00	103	100			
		113.1	115.0	M	4.50	7	12.20	12.50	82	80			
		113.1	115.0	H	5.40	5	14.50	14.80	69	68			
125	(5")	138.5	140.8	M	4.80	6	15.90	16.40	83	81			
		138.5	140.8	H	5.40	5	17.90	18.40	56	54			
150	(6")	163.9	166.5	M	4.80	6	18.90	19.50	53	51			
		163.9	166.5	H	5.40	5	21.30	21.90	47	46			

BACK

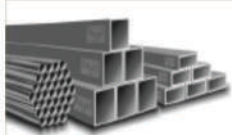
PHYSICAL PROPERTIES & TOLERANCES



Thickness				
Light Tubes	:	+ not limited -8%		For quantities per load of 10 ton Min.: ± 7.5% (Medium & Heavy series)
Medium & Heavy Tubes	:	+ not limited -10%		Chemical Composition As per IS-10748:2004.
Weight				Physical Properties
Single Tube (Light series)	:	+ 10% , -8%		Tensile strength : Min. 320MPa
Single Tube (Medium & Heavy Series)	:	± 10%		Elongation (%age) : 12% Min. (For, ≤ 25mm NB) 20% Min. (For, > 25mm NB)
For quantities per load of 10 ton Min.: + 7.5% , -5% (Light series)				Hydro Test Pressure : 5MPa (Min)



FRONT



JYOTI

BHAROSE KI TAAKAT

HRC 100

PIPES & TUBES

STEEL TUBES FOR STRUCTURAL PURPOSE

Conforming to IS : 1161-2014

Nominal Size (NB)		Outside Diameter (OD) mm	Thickness (T)		Black Tubes	Plain End
mm	Inch		mm	SWG	Kg/Meter	Meter/Ten
15	(½")	21.30	2.0	14	0.95	1050
			2.6	12	1.20	833
			3.2	10	1.43	699
20	(¾")	26.90	2.3	13	1.40	714
			2.6	12	1.56	641
			3.2	10	1.87	535
25	(1")	33.70	2.6	12	1.99	503
			3.2	10	2.41	415
			4.0	8	2.93	341
32	(1¼")	42.40	2.6	12	2.55	392
			3.2	10	3.09	324
			4.0	8	3.79	264
40	(1½")	48.30	2.9	11	3.25	308
			3.2	10	3.56	281
			4.0	8	4.37	229
50	(2")	60.30	2.9	11	4.11	243
			3.6	9	5.03	199
			4.5	7	6.19	162
65	(2½")	76.10	2.9	10	5.24	191
			3.6	9	6.44	155
			4.5	7	7.95	126
80	(3")	88.90	3.2	10	6.76	148
			4.0	8	8.38	119
			4.8	6	9.96	100
100	(4")	114.30	3.6	9	9.83	102
			4.5	7	12.19	82
			5.4	5	14.50	69
125	(5")	139.70	4.5	7	15.00	67
			4.8	6	15.97	63
			5.4	5	17.89	56
150	(6")	165.10	4.5	7	17.82	56
			4.8	5	18.98	53
			5.4	5	21.27	47
175	(7")	193.70	4.8	6	22.36	45
			5.4	5	25.08	40
			5.9	4	27.33	37

BACK

Chemical Properties

As per IS-10748:2004 (Gr-1 to Gr-5).

Physical Properties & Tolerances

Grade	T.S. (MPa) (Min.)	Y.S. (MPa) (Min.)	Elong. (%) (Min.)
YSt 210	330	210	20
YSt 240	410	240	17
YSt 310	450	310	14
YSt 355	490	355	10

Note: Elongation percentage for tubes upto and including 25mm NB bore for all grades shall be 12 minimum.

Tolerances :

Weight :		
Single tube	:	±10%
For 10 tonne lots	:	±7.5%

Outside diameter:

Upto and including 48.3mm	:	+0.4, -0.8mm
Over 48.3mm	:	±1%

Thickness

For all sizes	:	±10%
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HRC 100

PIPES & TUBES



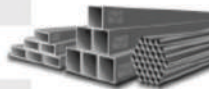
FRONT

STEEL TUBES FOR MECHANICAL AND GENERAL ENGINEERING PURPOSES

Conforming to IS-3601:2006

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HRC 100
PIPES & TUBES

Outside Diameter mm	Thickness mm	Mass Kg/m	Area of cross Section cm ²	Moment of Inertia cm ⁴	Modulus of Sections cm ³	Radius of Gyration cm
21.3	1.8	0.866	1.10	0.53	0.50	0.69
	2.0	0.952	1.21	0.57	0.54	0.69
	2.6	1.20	1.53	0.68	0.64	0.67
	3.2	1.43	1.82	0.77	0.72	0.65
26.9	1.8	1.11	1.42	1.12	0.83	0.89
	2.0	1.23	1.56	1.22	0.91	0.88
	2.3	1.40	1.78	1.36	1.01	0.87
	2.6	1.56	1.98	1.48	1.10	0.86
33.7	2.0	1.56	1.99	2.51	1.49	1.12
	2.3	1.78	2.27	2.81	1.67	1.11
	2.6	1.99	2.54	3.09	1.84	1.10
	3.2	2.41	3.07	3.60	2.14	1.08
42.4	2.3	2.27	2.90	5.85	2.76	1.42
	2.6	2.55	3.25	6.46	3.05	1.41
	3.2	3.09	3.94	7.62	3.59	1.39
	3.6	3.44	4.39	8.33	3.93	1.38
48.3	2.3	2.61	3.32	8.90	3.64	1.63
	2.6	2.93	3.73	9.77	4.05	1.62
	2.9	3.25	4.14	10.70	4.43	1.61
	3.2	3.56	4.53	11.59	4.80	1.60
60.3	2.6	3.97	5.05	12.69	5.25	1.59
	3.2	4.37	5.57	13.77	5.70	1.57
	3.6	4.75	6.08	14.82	6.16	1.56
	4.0	5.11	6.57	15.85	6.61	1.55
76.1	2.3	5.24	6.00	40.57	10.95	2.60
	2.6	5.75	6.67	44.74	11.76	2.59
	3.2	6.44	7.33	48.78	12.80	2.58
	3.6	7.11	8.20	54.01	14.20	2.57
88.9	2.6	7.95	10.10	65.12	17.10	2.54
	3.0	8.77	11.16	70.87	18.63	2.52
	3.6	10.10	12.80	82.00	21.00	2.50
	4.0	11.50	14.65	90.00	23.00	2.48
101.6	2.9	6.15	7.83	72.47	16.30	3.04
	3.2	6.76	8.62	79.21	17.80	3.03
	4.0	8.38	10.70	96.34	21.70	3.00
	4.5	9.38	11.90	106.00	23.50	2.97
114.3	3.6	10.30	13.20	116.40	25.20	2.97
	4.0	11.10	14.80	123.80	27.80	2.97
	4.5	12.20	16.50	134.00	30.00	2.95
	5.0	13.40	18.30	145.00	32.00	2.95
139.7	3.6	16.80	21.20	315.00	55.10	3.83
	4.0	18.70	23.80	356.36	61.02	4.81
	4.5	20.70	26.50	392.57	66.20	4.80
	5.0	22.80	29.40	437.20	70.90	4.78
165.1	4.5	19.10	24.50	480.50	68.80	4.77
	5.0	21.20	27.10	514.50	73.70	4.75
	5.5	23.30	29.60	548.00	78.00	4.73
	6.0	25.50	32.30	581.00	81.00	4.70
193.7	4.5	27.30	34.80	654.00	90.00	5.68
	5.0	29.60	37.70	700.00	97.00	5.66
	5.5	31.90	40.70	746.00	103.00	5.65
	6.0	34.30	43.80	792.00	109.00	5.64



BACK

PHYSICAL PROPERTIES

Tube Designation	T.S. (Min.) (MPa)	Y.S. (Min.) (MPa)	Elongation % (Min.)	
			Less than or equal to 33.7mm OD	More than OD 33.7 mm
WT 210	330	210	12	20
WT 240	410	240	10	15
WT 310	450	310	6	10

MANUFACTURING TOLERANCES

S.No.	Over (mm)	Up to and Including (mm)	Tolerance on Outer Dia
1	-	25.4	±0.15
2	25.4	51.0	±0.18
3	51.0	63.5	±0.25
4	63.5	76.1	±0.25
5	76.1	88.9	±0.31
6	88.9	101.6	±0.36
7	101.6	114.3	±0.43
8	114.3	152.4	±0.58
9	152.4	168.3	±0.65
10	168.3	-	±0.75

Note:

- 1) Any OD & Thickness not covered in this table may be supplied as per customer requirement (Clause No. -10) of IS 3601:2006.
- 2) The Tolerance of thickness excluding the weld shall be ± 10%

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HRC 100
PIPES & TUBES



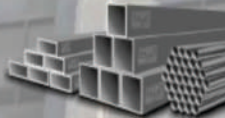
FRONT

HOLLOW STEEL SECTIONS FOR STRUCTURAL USE SQUARE HOLLOW SECTION (SHS)

Conforming to IS-4623:2017

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HRC 100
PIPES & TUBES

SHS mm	THICKNESS mm	UNIT WEIGHT	
		Kg/Meter	Meter/Ton
15 X 15	1.80	0.68	1471
	2.00	0.74	1351
	2.30	0.81	1235
19 X 19	2.00	0.99	1010
	2.60	1.20	833
	2.90	1.30	769
25 X 25	2.00	1.36	735
	2.60	1.69	592
	3.20	1.98	505
30 X 30	2.00	1.68	595
	2.30	1.89	529
	2.60	2.10	476
32 X 32	2.60	2.49	402
	2.60	2.26	442
	2.90	2.48	403
38 X 38	2.60	2.69	372
	2.00	2.18	459
	2.60	2.75	364
40 X 40	2.90	3.03	330
	3.20	3.29	304
	2.00	2.31	433
50 X 50	2.60	2.92	342
	3.20	3.49	287
	3.50	3.76	266
60 X 60	2.60	3.73	268
	3.20	4.50	222
	3.50	4.86	206
72 X 72	2.60	4.55	220
	3.20	5.50	182
	4.00	6.71	149
72 X 72	4.50	7.43	135
	3.20	6.71	149
	4.00	8.22	122
	5.00	10.01	100



BACK

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BHAROSE KI TAAKAT
HRC 100
PIPES & TUBES

SHS mm	THICKNESS mm	UNIT WEIGHT	
		Kg/Meter	Meter/Ton
80 X 80	2.90	6.85	146
	3.20	7.51	133
	4.00	9.22	108
	4.50	10.26	97
91.5 X 91.5	3.60	9.67	103
	4.50	11.88	84
	4.80	12.60	79
100 X 100	4.00	11.73	85
	5.00	14.41	69
	6.00	16.98	59
113.5 X 113.5	4.50	14.99	67
	4.80	15.92	63
	5.40	17.74	56
	6.00	19.53	51
125 X 125	4.50	16.62	60
	5.00	18.33	55
	6.00	21.69	46
132 X 132	4.50	17.61	57
	4.80	18.71	53
	5.40	20.88	48
	6.00	23.01	43
150 X 150	4.00	18.01	56
	5.00	22.26	45
	6.00	26.40	38

Note - The size & thickness other than those given in table may be supplied by mutual agreement b/w supplier and purchaser.

TENSILE PROPERTIES

Grade	Y.S. (MPa) (Min.)	T.S. (MPa) (Min.)	Elongation (%)	
			For Size < 25.4mm	For Size > 25.4mm
YSI 210	210	330	12	20
YSI 240	240	410	10	15
YSI 310	310	450	8	10
YSI 355	355	490	8	10

