





Dear Sir,

It would be our pleasure to introduce our company, M/S. HARIOM METAL & TUBES, an ISO 9001 - 2015 Certified Company one of the leading Manufacturer and supplier of ACR/DHP Grade COPPER TUBES, CAPILLARY TUBES & FITTINGS For Air- conditionings & Refrigerators, Plumbing and Medical Gas distribution applications.

We are supplying tubes according to client's specification, meeting International standards including ASTM, JIS, BS-EN and IS Codes.

Our strengths are total commitment towards maintaining and fulfilling stringent Quality standards, highly innovative, extremely competitive pricing and the shortest lead times, which gives us all confidence in putting up a request for getting associated with your esteemed organization as one of the APPROVED Supplier of COPPER TUBES, CAPILLARY TUBES & FITTINGS.

It would be our proud privilege to get associated with your reputed organization and work together for the rapid progress and success of our respective businesses by sharing our common goal and vision on total commitment towards quality consistency and reliability.

We are approved in Daikin VRV system for copper tubes, ETA Engineering for suction and discharge tubing and Voltas Limited for Inter Connection tubing.

We are also supplying so many component manufactures of LG, SAMSUNG, GODREJ and HITACHI for Air conditioner and Refrigerator. towards Quality has earned us the recognition as one of the most reliable Manufacturer & suppliers of COPPER TUBES, CAPILLARY TUBES & FITTINGS in India.

We would also be very happy to provide the support for any new product development activities from our highly innovative team and explore the possibility of expanding our business horizon.

As we are very much interested to do business with you on a long term basis, we request you to please enlist our name in your approved vender list and send us your valued purchase inquiries from time to time so as to enable us to quote our most competitive rates and terms. If there are any formalities for registration please send us your necessary forms.



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COPPER TUBE FOR VRV SYSTEM (SOFT) WEIGHT CHART AS PER JIS H - 3300 STANDARD

Sr. No.	Soft Copper Tubes - Size	Length	Weight Per Mtr.	Weight per ft	Weight per 50' in kgs	Nos. Per Box, Bundle
1	1/4" (6.4mm) x 21 swg (0.8mm)	50'	0.127	0.039	1.950	20
2	3/8" (9.5mm) x 21 swg (0.8mm)	50'	0.199	0.061	3.050	12
3	1/2" (12.7mm) x 21 swg (0.8mm)	50'	0.275	0.084	4.150	8
4	5/8" (15.9mm) x 19 swg (0.99mm)	50'	0.420	0.128	6.450	6
5	3/4" (19.1mm) x 19 swg (0.99mm)	50'	0.510	0.155	7.850	5

HARIOM METAL & TUBES 6.4 MM X 0.8 MM

Hologram On Both End, Printing On Every One Mtr. Length & Both End Caps With Logo And Covered Green Bag

COPPER TUBE FOR VRV SYSTEM (½ HARD) WEIGHT CHART AS PER JIS-H3300

Sr. No.	Soft Copper Tubes - Size	Length	Weight Per Mtr.	Weight per ft	Weight per 10' in kgs	Nos. Per Box, Bundle
1	1/4" (6.4mm) x 21 swg (0.8mm)	10'	0.127	0.039	0.386	100
2	3/8" (9.5mm) x 21 swg (0.8mm)	10'	0.199	0.061	0.607	60
3	1/2" (12.7mm) x 21 swg (0.8mm)	10'	0.275	0.084	0.829	50
4	5/8" (15.9mm) x 19 swg (0.99mm)	10'	0.420	0.128	1.296	30
5	3/4" (19.1mm) x 21 swg (0.8mm)	10'	0.420	0.128	1.271	25
6	7/8" (22.2mm) x 21 swg (0.8mm)	10'	0.490	0.149	1.494	20
7	1.0" (25.4mm) x 20 swg (0.88mm)	10'	0.600	0.183	1.866	18
8	1.1/8" (28.6mm) x 19 swg (0.99mm)	10'	0.787	0.240	2.400	16
9	1.1/4" (31.8mm) x 18.5 swg (1.1mm)	10'	0.950	0.290	2.869	14
10	1.3/8" (34.9mm) x 18 swg (1.21mm)	10'	1.150	0.351	3.521	10
11	1.1/2" (38.1mm) x 17.5 swg (1.3mm)	10'	1.340	0.408	4.085	8
12	1.5/8" (41.3mm) x 17 swg (1.43mm)	10'	1.600	0.488	4.860	8



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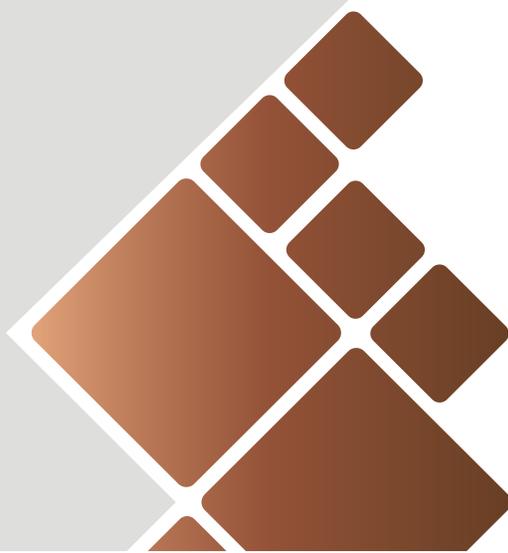
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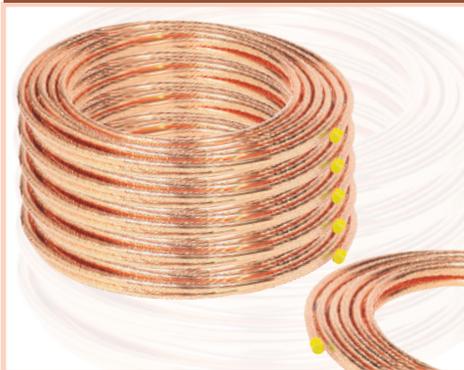
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Copper Pancake Coil



Copper Straight Tube



Copper Fittings



NON VRV (SOFT) WEIGHT CHART

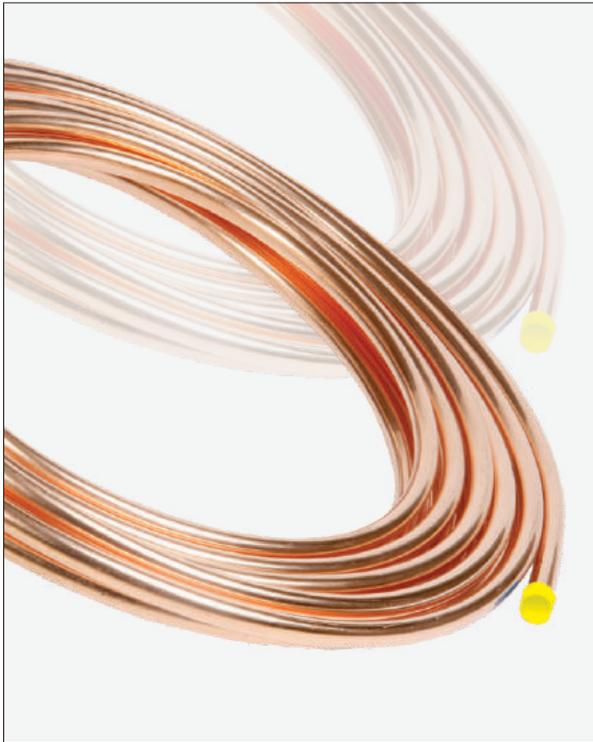
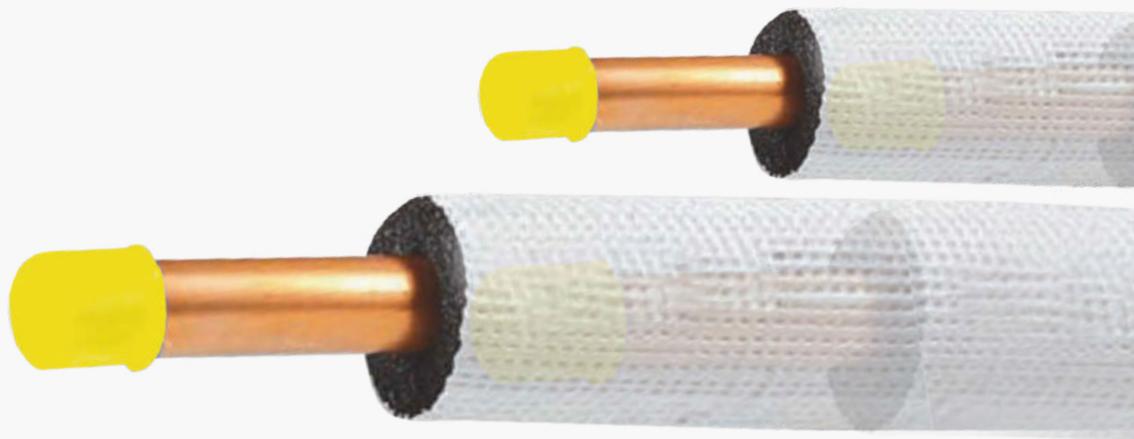
Sr.No.	Copper Tubes Coil	Weight per Coil kg.	No of Pic / Box
1	1/4" (6.35mm) x 24 g (0.55mm)	1.450 kg.	20 Nos
2	3/8" (9.52mm) x 24 g (0.55mm)	2.200 kg.	15 Nos
3	5/16" (7.94mm) x 24 g (0.55mm)	1.800 kg.	20 Nos
4	1/2" (12.7mm) x 23 g (0.60mm)	3.200 kg.	10 Nos
5	5/8" (15.88mm) x 23 g (0.60mm)	4.300 kg.	8 Nos
6	3/4" (19.05mm) x 21.5 g (0.75mm)	6.000 kg.	6 Nos

NON VRV (HARD) WEIGHT CHART

As Per Customer Requirement

COPPER FITTINGS VRV / VRF (18 Swg.) WEIGHT CHART

Size	Elbow	Nos. Per kg	Coupling	Nos. Per Kg
1/4"	0.010	100	0.005	200
3/8"	0.012	83	0.006	167
1/2"	0.017	59	0.010	100
5/8"	0.028	36	0.013	77
3/4"	0.031	32	0.016	63
7/8"	0.038	26	0.025	40
1"	0.047	21	0.030	33
1-1/8"	0.053	19	0.038	26
1-1/4"	0.070	14	0.044	23
1-3/8"	0.090	11	0.050	20
1-1/2"	0.090	11	0.060	17
1-5/8"	0.114	9	0.070	14



Copper Pancake Coil

Bright Annealed inside mirror finish
As per international and national standards
ASTM/JIS/BIS/IS

**Range : 4mm to 19mm diameter 15.24 meter long
in single & double layer coil.**

Copper Straight Tube

Producing vast range of copper straight tubes.

As per international and national standards
ASTM/JIS/BIS/IS

**Range : 4mm to 100mm diameter up to 16' ft long
in Hard, Half Hard, & Quarter Hard & 10' ft long in
Soft Copper Tubes.**



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Insulated Copper Tube

We will also providing insulated copper tubes as per customer requirement.

As per international and national standards ASTM/JIS/BIS/IS

Range : 4mm to 19mm

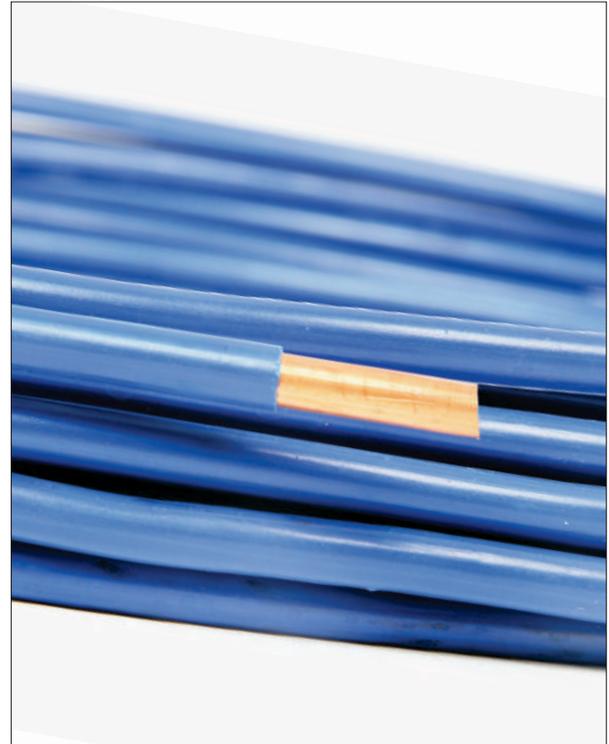
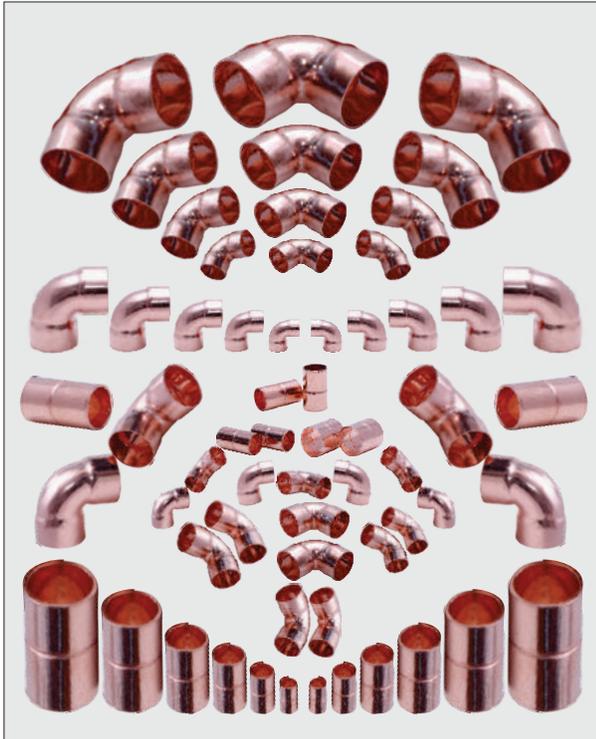


Copper Capillary Tube

We will also providing copper capillary tubes for air-conditioning & refrigeration purpose.

As per international and national standards ASTM/JIS/BIS/IS

Range : 0.5mm to 2.28mm



Copper Fittings

A variety copper fittings uses in domestic and commercial application range for Air Conditioning, Refrigeration, Heating, Medical, Plumbing line, Gas line, Heat Exchanger etc.

Range :

Coupling 6.35 mm to 41mm ,

Elbow 6.35mm to 41 mm,

Tee 6.35mm to 41 mm ,

Reducer 6.35mm to 41 mm,

Also we can develop copper fittings as per client requirement or drawing.

Copper Pvc Coting

Producing Pvc coated copper tubes for CNG/LPG & Auto kit.

As per international and national standards ASTM/JIS/BIS/IS

Range : 6mm to 19mm



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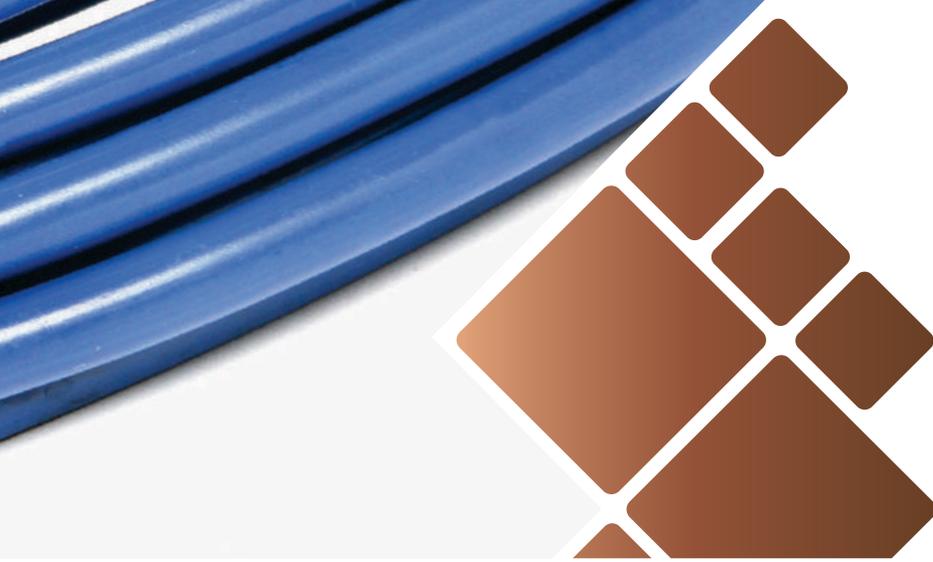
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Testing Facilities



Eddy Current Machine



Hardness Tester



Chemical Laboratory

Approved Source



(Approved)



(RoHS Certificate)



Tensile Machine



Hydro Testing Machine

Quality Assurance Plan

Sr.No	Process	Check Point	Measuring Instruments	Quantam to be checked
1	Mother Tube Inspection	Dimensions	Micro Meter	Random Sampling
		Chemical Composition	Spectro Meter	Randomly by our supplier.
		Appearance	Visual Inspection	100%
2	Drawing Process	Dimensions	Mircro Meter	Random Sampling
		Surface	Visual Inspection	100%
3	Straightening / coiling	Dimensions	Mircro Meter	Random Sampling
		Straightness	Visual Inspection & Measurement	Random Sampling
4	Eddy Current Test	Surface & Internal Defects	Eddy Current Testing Equipment	100%
5	Finish Cutting	Length	Mesuring Tape	100%
6	Pre-Inspection	Dimensions	Deburring Tools	100%
		Straightness	Micro Meter	100%
			Measuring Tape	100%
7	Annealing	Tempreature	Thermo Couple	Batch Wise
8	Dimensional Check	Outer Diameter. Wall Thickness	Micro Meter	100%
		Length, Straightness	Measuring Tape	100%
9	Visual Inspection	Surface	Visual	100%
10	Mechanical Properties Test	Expansion Test	UTM	Random Sampling
		Flattering Test	UTM	Random Sampling
		Hardness Strength Test	UTM	Random Sampling
		Tensile Strength Test	UTM	Random Sampling
		Marking & Packing	Customer's Requirement	100%



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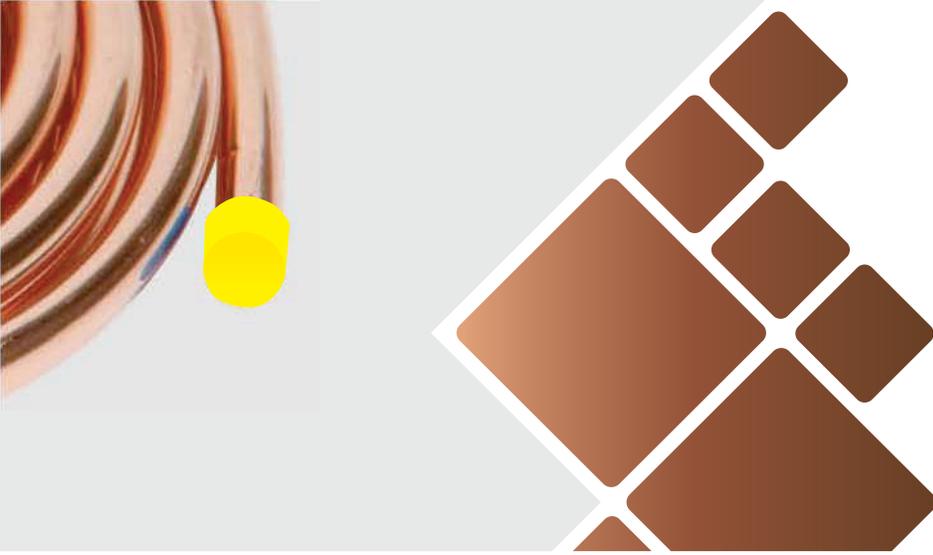
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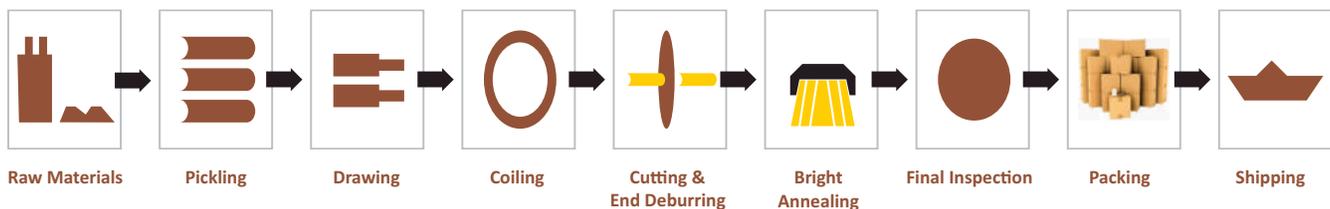
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Technical Specification

Standard	Jis H3300	ASTM B68	BS 2871 PART 3	IS 2501
UNS NO.	C 1220	C 12200	C 106	DHP IS 191 Part VIII
Cu	99.9 mim	99.9 min	99.85 min	99.9 min
Fe	-	-	0.03	0.03
P	0.015 - 0.040	0.015 - 0.040	0.050	0.015 - 0.010
Temper Condition	O ½	050 - 060	M 1/2 H O	OD
Tensile N/MM11	206 min HH	-	-	-
	245 - 324			22kg /mm 2 min
	314 max			28 min kg/mm2
Elongation 0%	40% min	-	-	40%
Hardness Hv5	105 min	105 min	105 min	
	80 - 100	80 - 100	80 - 100	100 max
	60 max	60 max	60 max	60 max
Grain Size Min (75x)	0.25 - 0.06	0.015 - 0.040	0.05 max	-
	-	0.040 min	-	-

Process Flowchart





Mechanical Property Requirements of Drawn Temper and Annealed Temper Copper Tube

Temper Designation		Outside Diameter of Major Distance Between Outside Parallel Surfaces .In	Wall Thickness Inch.	Vickers Hardness		Average Grain Size, mm	Tensile Strength Ksi
Standard	Former			Scale	Hardness		
H55	Light Drawn (Quarter Hard)	All	All	5kg	80 - 100		36 - 47
H58	Drawn (Half Hard)	All	All	5kg	90 - 110		36 min
H80	Hard Drawn	Up to 4	0.020 to 0.250. inch	5kg	110 mm		45 min
O60	Soft Annealed	All	0.020 to 0.250 inch	5kg	60 max	0.040 min	30 min

Why us

- An ISO 9001 -2015 Certified Company.
- Bright Annealed Inside Mirror Finish Copper Tubes.
- Eddy Current Tested Copper Tubes as per Customer Requirement.
- RoHS Compliant & Eco Friendly Copper Tubes.
- 99.9% Minimum Copper, 0.015 to 0.040% Phosphorus – DHP grade copper Alloy as per ASTM/JIS/EN/BIS Specification.
- Chemical Composition Tested.
- Mechanically Tested (Tensile, Elongation, Vickers Hardness, Floating Mandrill Technique).
- CFC Free Gases (R410a, R134a, R404, R22, R32) compatible.
- Residue Level Below 0.038gm/m².



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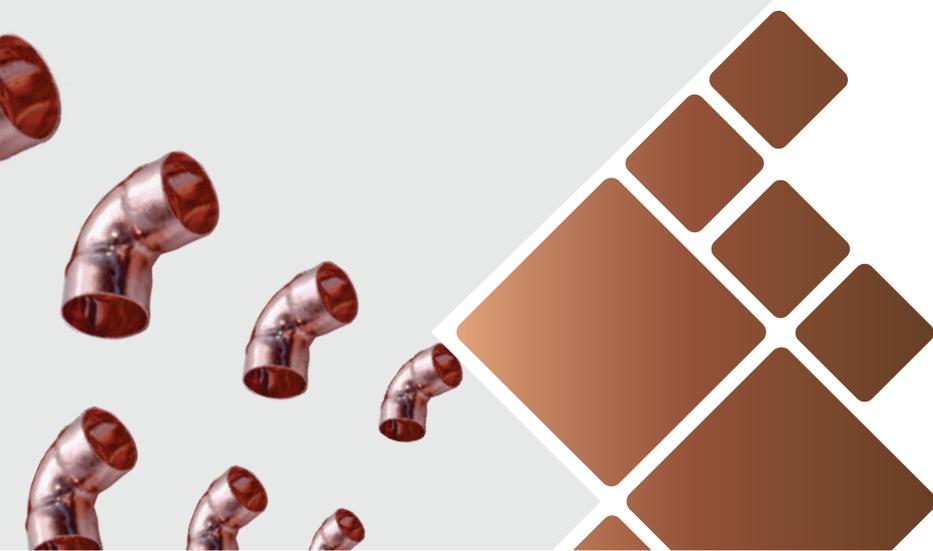
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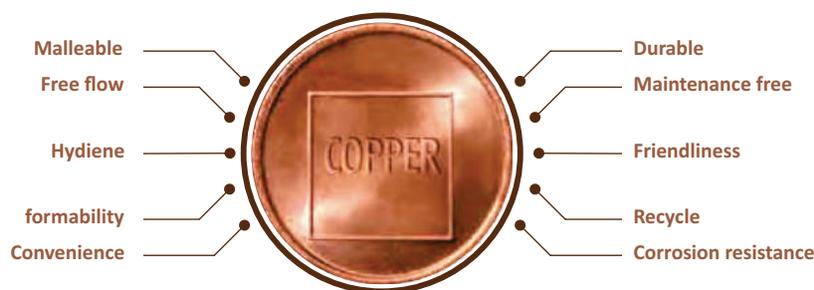
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I.S.W.G.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	I.S.W.G.				
Milimeters	4.877	4.47	4.064	3.658	3.251	2.946	2.642	2.337	2.032	1.829	1.626	1.422	1.219	1.016	0.914	0.813	0.711	0.61	0.559	0.508	0.457	0.416	Milimeters				
Inches	0.192	0.176	0.160	0.144	0.128	0.116	0.104	0.092	0.080	0.072	0.064	0.056	0.048	0.040	0.036	0.032	0.028	0.024	0.022	0.020	0.018	0.016	Inches				
Weight in Kilogram per meter																											
External Diameter																							External Diameter				
In	mm																						In	mm			
3/16"	4.76																	0.098	0.089	0.08	0.07	0.07	0.06	0.06	0.05	3/16"	0.187
1/4"	6.35							0.273	0.262	0.245	0.231	0.214	0.196	0.175	0.151	0.139	0.126	0.112	0.098	0.090	0.083	0.076	0.069	0.069	1/4"	0.250	
5/16"	7.94							0.390	0.365	0.335	0.312	0.286	0.259	0.229	0.196	0.179	0.162	0.143	0.125	0.115	0.106	0.096	0.088	0.088	5/16"	0.313	
3/8"	9.52		0.631	0.619	0.599	0.569	0.541	0.507	0.469	0.425	0.393	0.358	0.322	0.283	0.241	0.220	0.198	0.175	0.152	0.140	0.128	0.116	0.106	0.106	3/8"	0.375	
7/16"	11.10		0.829	0.799	0.761	0.713	0.671	0.624	0.572	0.515	0.474	0.430	0.385	0.337	0.286	0.260	0.234	0.206	0.179	0.165	0.151	0.137	0.125	0.125	7/16"	0.438	
1/2"	12.70	1.065	0.027	0.979	0.923	0.857	0.802	0.742	0.676	0.605	0.555	0.501	0.448	0.391	0.331	0.301	0.270	0.238	0.206	0.189	0.173	0.157	0.144	0.144	1/2"	0.500	
9/16"	14.29	1.281	1.225	1.160	1.085	1.001	0.933	0.859	0.779	0.695	0.636	0.574	0.511	0.445	0.376	0.341	0.306	0.269	0.233	0.214	0.196	0.177	0.162	0.162	9/16"	0.563	
5/8"	15.88	1.497	1.423	1.340	1.247	1.145	1.063	0.976	0.883	0.785	0.717	0.646	0.574	0.499	0.421	0.382	0.342	0.301	0.260	0.239	0.219	0.198	0.181	0.181	5/8"	0.625	
11/16"	17.46	1.713	1.621	1.520	1.409	1.289	1.194	1.093	0.986	0.875	0.798	0.718	0.637	0.553	0.466	0.422	0.378	0.332	0.287	0.264	0.242	0.218	0.199	0.199	11/16"	0.688	
3/4"	19.05	1.929	1.819	1.700	1.571	1.354	1.324	1.210	1.090	0.965	0.879	0.790	0.700	0.607	0.511	0.463	0.414	0.364	0.314	0.288	0.264	0.238	0.218	0.218	3/4"	0.750	
13/16"	20.64	2.145	2.017	1.880	1.733	1.578	1.455	1.327	1.193	1.055	0.960	0.863	0.763	0.661	0.556	0.503	0.450	0.395	0.341	0.313	0.287	0.259	0.236	0.236	13/16"	0.813	
7/8"	22.23	2.361	2.215	2.060	1.895	1.722	1.585	1.444	1.297	1.145	1.041	0.935	0.826	0.715	0.601	0.544	0.486	0.427	0.368	0.338	0.310	0.279	0.255	0.255	7/8"	0.875	
15/16"	23.81	2.577	2.413	2.240	2.057	1.866	1.716	1.561	1.401	1.235	1.122	1.007	0.889	0.769	0.646	0.584	0.522	0.459	0.395	0.363	0.332	0.299	0.273	0.273	15/16"	0.938	
1"	25.40	2.793	2.611	2.420	2.219	2.010	1.846	1.678	1.504	1.325	1.203	1.079	0.952	0.823	0.691	0.625	0.558	0.490	0.422	0.387	0.355	0.320	0.292	0.292	1"	1.000	
1.1/8"	28.58	3.225	3.007	2.780	2.543	2.298	2.107	1.912	1.711	1.505	1.365	1.223	1.078	0.931	0.781	0.706	0.630	0.553	0.476	0.437	0.400	0.361	0.329	0.329	1.1/8"	1.125	
1.1/4"	31.75	3.657	3.403	3.140	2.868	2.586	2.368	2.146	1.918	1.685	1.527	1.367	1.204	1.039	0.871	0.787	0.702	0.616	0.530	0.486	0.445	0.401	0.366	0.366	1.1/4"	1.250	
1.3/8"	34.93	4.090	3.799	3.500	3.192	2.874	2.630	2.380	2.125	1.865	1.689	1.511	1.330	1.147	0.961	0.868	0.774	0.679	0.584	0.536	0.490	0.442	0.403	0.403	1.3/8"	1.375	
1.1/2"	38.10	4.522	3.245	3.860	3.516	3.162	2.891	2.614	2.332	2.045	1.851	1.655	1.456	1.255	1.051	0.949	0.846	0.742	0.638	0.585	0.536	0.483	0.440	0.440	1.1/2"	1.500	
1.5/8"	41.28	4.954	4.592	4.220	3.840	3.450	3.152	2.848	2.539	2.225	2.013	1.799	1.582	1.363	1.142	1.030	0.918	0.805	0.692	0.635	0.581	0.525	0.477	0.477	1.5/8"	1.625	
1.3/4"	44.45	5.386	4.988	4.580	4.164	3.738	3.413	3.082	2.746	2.405	2.175	1.943	1.708	1.471	1.232	1.111	0.990	0.868	0.746	0.684	0.626	0.564	0.515	0.515	1.3/4"	1.750	
1.7/8"	47.63	5.818	5.384	4.941	4.488	4.026	3.674	3.316	2.953	2.586	2.337	2.087	1.834	1.579	1.322	1.192	1.062	0.931	0.800	0.734	0.671	0.605	0.552	0.552	1.7/8"	1.875	
2"	50.80	6.250	5.780	5.301	4.812	4.314	3.935	3.550	3.161	2.766	2.499	2.231	1.960	1.687	1.412	1.273	1.134	0.994	0.854	0.784	0.717	0.646	0.589	0.589	2"	2.000	
2.1/8"	53.98	6.682	6.176	5.661	5.136	4.602	4.196	3.784	3.368	2.946	2.661	2.375	2.086	1.795	1.502	1.354	1.206	1.057	0.908	0.833	0.762	0.687	0.626	0.626	2.1/8"	2.125	
2.1/4"	57.15	7.114	6.572	6.021	5.460	4.890	4.457	4.018	3.575	3.126	2.823	2.519	2.212	1.903	1.592	1.435	1.278	1.120	0.962	0.883	0.807	0.727	0.663	0.663	2.1/4"	2.250	
2.3/8"	60.33	7.547	6.968	6.381	5.784	5.179	4.718	4.252	3.782	3.306	2.986	2.663	2.338	2.011	1.682	1.516	1.350	1.183	1.016	0.932	0.852	0.768	0.700	0.700	2.3/8"	2.375	
2.1/2"	63.50	7.979	7.364	6.741	6.108	5.467	4.979	4.487	3.989	3.486	3.148	2.807	2.464	2.119	1.772	1.597	1.422	1.246	1.070	0.982	0.898	0.809	0.737	0.737	2.1/2"	2.500	





FR PVC SINGLE CORE AND MULTICORE FLEXIBLE SHEATHED CABLES TECHNICAL DATA

- AS per is 694: 2010 02 category
- Specific insulation resistance :> 36.7mohm.km
- RoHS compliance: RoHS2 acc. to 2011/65/EU
also complies to low voltage directive 2014/35/EU
- Rated voltage : up to & including 1100v ac / 1500dc
- Test voltage : 3kv (ac)
- Temperature range : -20° to 70° C

APPLICATION

- Lighting
- Suitable for single phase AC/DC & 3 phase systems.
- Engineering application machine
- Switchgears
- Domestic application.

PRODUCT MAKEUP

- IS 8130 class 2/5 Electrolytic Grade, O2, free bare
Tin coated finely bunched Cu wires conductor
- Type A PVC insulation as per IS 5831:1984
- Laying up/assembling in round
- Type ST1 PVC sheath as per IS831:1984 (black or grey)

COLOUR CODING

- 2 core: Red & Black
- 3 core: Red, Black, Green, or Red, Black, Yellow / Green
- 4 core: Red, Yellow, Blue, Green or Red, Yellow, Blue & Yellow / Green
- 5 core: Red, Yellow, Blue, Black, Grey
- 6C & Above: same color cores, with nos. printed.

PRODUCT FEATURES

- Suitable for up and including (-20° to 70° C) continuous temperature applications.
- Flame retardant IEC 60332-1/IS 694
- Good resistance to UV, most of chemicals, alkalis, solvent, abrasion
- Available in all major colors
- Standard coil length 90 meters
- Bending radius : 4 x D
- Suitable for Outdoor use.



Lead Free



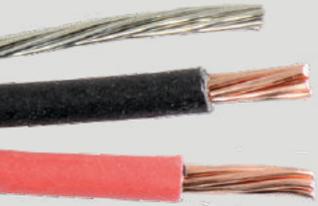
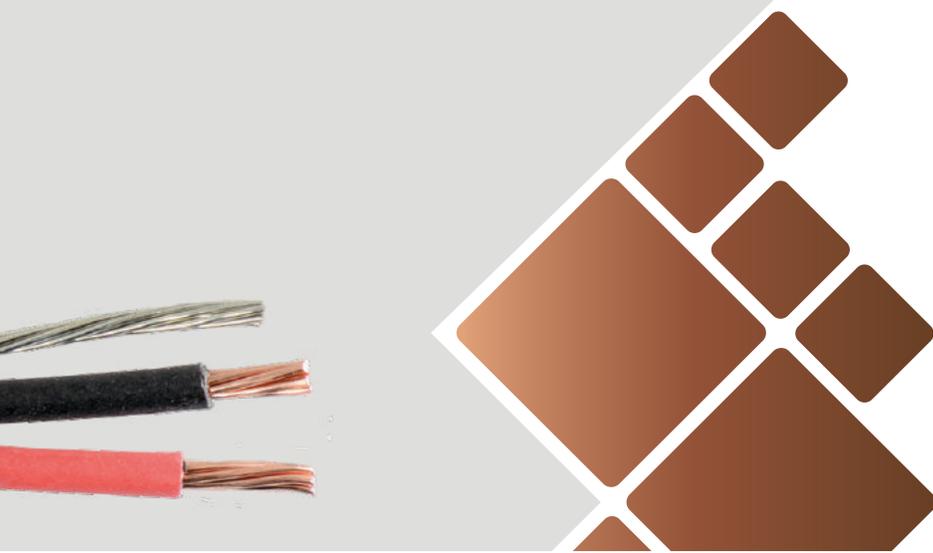
Eco Friendly



Recycling



Make In India



FR PVC / LDPE INSULATED, TWISTED PAIR, SHIELDED, PVC SHEATHED COMMUNICATION CABLE, 300V

APPLICATION

1. Air Conditioning
2. Communication Cable for VRV / VRF System.
3. Automation
4. Engineering
5. Signaling

PRODUCT MAKEUP

1. Bunched Copper
2. Type A PVC / LDPE Insulated
3. Twisted Pair
4. Shielded (Cu, Braided / Al, Mylar Type)
5. PVC Shielded FR / FRLS

PRODUCT FEATURES

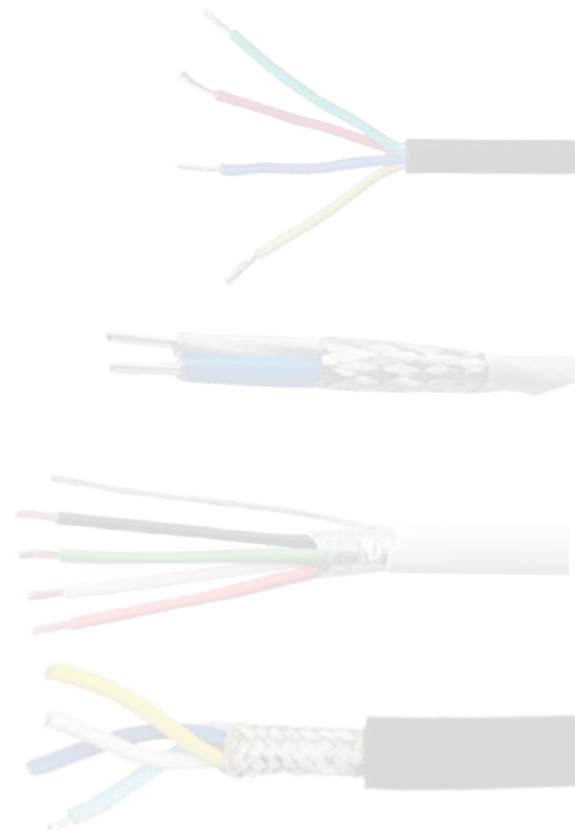
1. Suitable For Up To And Including (-20° To 70°c)
2. Flame Retardant
3. Uv Resistance Outdoor Use
4. Low Noise Reduction
5. Low Interference.

COLOR CODING

1. 2 core - Red & Black (1 Pair)
2. 4 core - Red, Yellow, Blue & Black (2 Pair)
3. Outer Color Black (Or Customer Specified)

APPLICATION STANDARD / REFERENCE STANDARD

1. IS - 8130
2. IS - 5831
3. BS 5308 P-L & LL
4. IEC - 60227,
5. EN - 50525





Hariom

METAL & TUBES

Mfg. of Copper Tubes

An ISO 9001 -2015
Certified Company

Reg. Office & Works:

Plot No. 287/6 to 12, B-2, Hariom Compound,
G.I.D.C., Umbergaon, Dist.- Valsad (Gujarat).
Phone: 0260 - 2564087 / 93764 90496 / 84690 29126

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