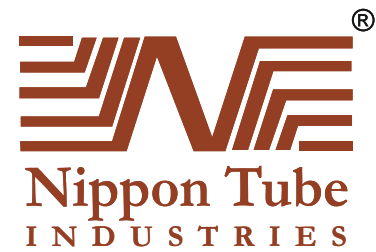


I.S.W.G.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	30	I.S.W.G.
Millimeters	4.877	4.470	4.064	3.658	3.251	2.946	2.642	2.337	2.032	1.829	1.626	1.422	1.219	1.016	0.914	0.813	0.711	0.610	0.559	0.508	0.457	0.416	0.375	0.315	Millimeters
Inches	0.192	0.176	0.160	0.144	0.128	0.116	0.104	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	0.0164	0.0148	0.0124	Inches
External Diameter In mm.	3/16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3/16	0.187
External Diameter In mm.	1/4	--	--	--	--	--	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	0.063	1/4	0.250
External Diameter In mm.	5/16	--	--	--	--	--	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	0.080	5/16	0.313
External Diameter In mm.	3/8	--	--	--	--	--	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	3/8	0.375
External Diameter In mm.	7/16	--	--	--	--	--	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	7/16	0.438
External Diameter In mm.	1/2	12.700	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	1/2	0.500
External Diameter In mm.	9/16	14.288	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	9/16	0.563
External Diameter In mm.	5/8	15.875	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	5/8	0.625
External Diameter In mm.	11/16	17.462	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	11/16	0.688
External Diameter In mm.	3/4	19.050	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	3/4	0.750
External Diameter In mm.	13/16	20.638	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	13/16	0.813
External Diameter In mm.	7/8	22.225	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	7/8	0.875
External Diameter In mm.	15/16	23.812	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	15/16	0.938
External Diameter In mm.	1	25.400	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	1	1.000
External Diameter In mm.	1-1/8	28.575	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	1-1/8	1.125
External Diameter In mm.	1-1/4	31.750	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	1-1/4	1.250
External Diameter In mm.	1-3/8	34.925	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	1-3/8	1.375
External Diameter In mm.	1-1/2	38.100	4.522	4.245	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	1-1/2	1.500
External Diameter In mm.	1-5/8	41.275	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	1-5/8	1.625
External Diameter In mm.	1-3/4	44.450	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	1-3/4	1.750
External Diameter In mm.	1-7/8	47.625	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	1-7/8	1.875
External Diameter In mm.	2	50.800	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	2	2.000
External Diameter In mm.	2-1/8	53.975	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	2-1/8	2.125
External Diameter In mm.	2-1/4	57.150	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	2-1/4	2.250
External Diameter In mm.	2-3/8	60.325	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	2-3/8	2.375
External Diameter In mm.	2-1/2	63.500	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	2-1/2	2.500
External Diameter In mm.	1.327	1.116	0.922	0.747	0.590	0.485	0.389	0.305	0.230	0.187	0.148	0.113	0.083	0.057	0.047	0.037	0.028	0.021	0.017	0.015	0.012	0.010	0.008	0.006	

To calculate the weight when internal diameter is given, add figure at the bottom of column to the corresponding figure for the weight of external diameter of size required.

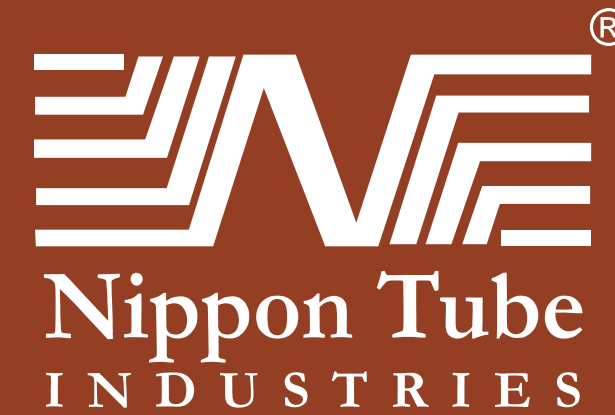
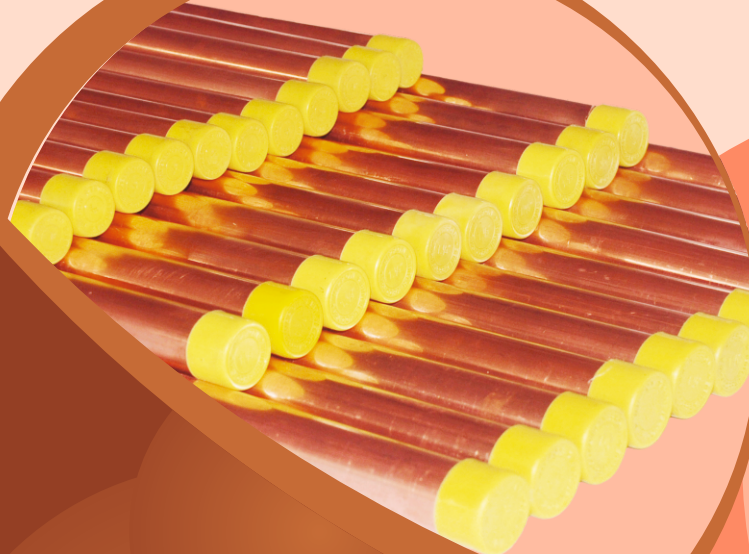


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Nippon Tube® INDUSTRIES

Nippon Tube established in the year 1988 is of the leading manufacturer of Copper pipes in India. Nippon Tube Products seamless copper tubes are made as per BS, EN, ASTM, JIS, IS.

We offer a spectrum of Copper & Copper base alloy products which are manufactured using premium quality raw materials with the best manufacturing techniques following series of stringent quality controlled measure and **eddy current tested**.

Our Products have varied application in industries such as Air conditioning & Refrigeration, Plumbing, Waterlines, Medical Gas, Instrumentation, Electrical Defence, Gen. Engineering, Oil & Gas, Desalination Plants. Nippon produces Copper pipe alloys products as per National & International Standards based on customers specification.

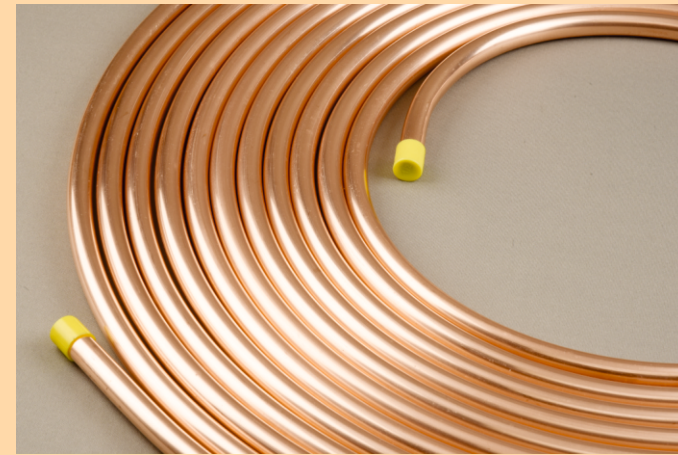
We are fully committed to continuous improvement as a strategic approach to achieve these quality objectives.



An ISO 9001:2008 Certified Company

Nippon Copper Tubes you can trust

ACR COPPER TUBE



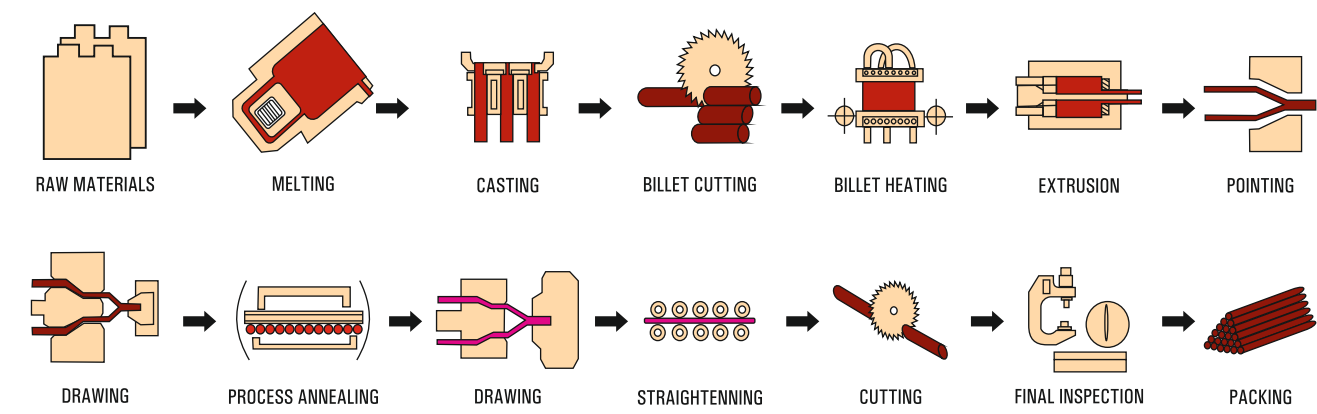
Nippon ACR Copper Tubes & Coils are Bright Annealed having uniform grain size, controlled hardness, elongation & tensile strength. Tube can easily bend & brazed. Our tubes are good heat exchanger, leakproof, reliable & long lasting for following specifications

- ASTM B68
- ASTM B280
- JIS H 3300
- IS 2501
- ASTM B75
- ASTM B88
- EN 1057 / BS 2871
- Clients Specification

PRODUCT APPLICATIONS

- Architecture
- Automotive
- Electrical
- Plumbing
- Defence
- Visi Coolers
- Water Service Lines
- Fuel Gas
- Industrial
- Marine
- HVAC, Air Cond. & Ref
- Medical Gas Pipeline
- Machined Products
- Telecom
- Engineering
- Transportation
- RAC, VRF & VRV Units
- Compressors

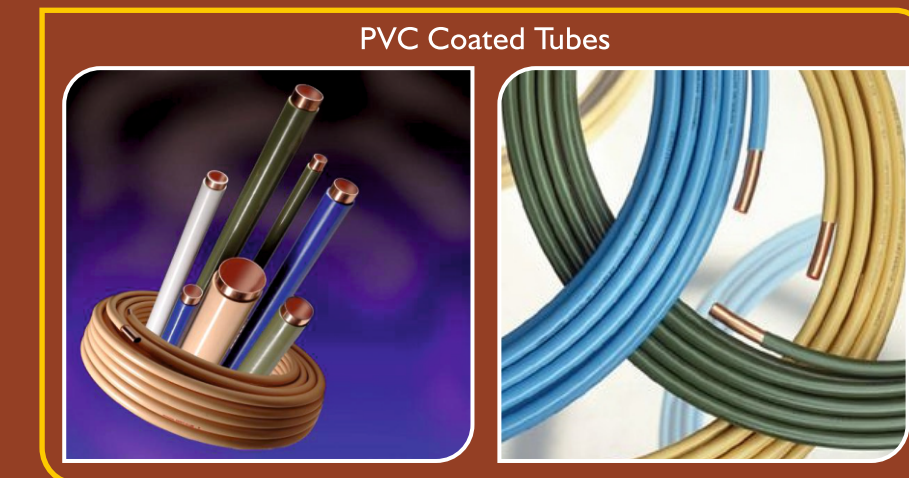
MANUFACTURING PROCESS



Technical specification of Copper Tubes

Standard	JIS H3300	ASTM B-68/B75	BS 2871 Part3	EN12451	IS2501	BS2871 Part2	IS2501
	Symbol	C1220	C12200	C106	Cu-DHP	DHP IS 191 Part VIII	C 101
Cu	99.90 min.	99.90 min.	99.85 min.	99.90 min.	99.8 min.	99.90 min.**	99.90 min.**
Sn	-	-	-	-	0.01 Max.	-	-
Pb	-	-	0.01 Max.	-	0.01 Max.	0.005 Max.	0.005 Max.
Ni	-	-	-	-	0.10 Max.	-	-
Fe	-	-	0.03 Max.	-	0.03 Max.	-	-
As	-	-	0.05 Max.	-	0.05 Max.	-	-
P	.015-.040	.015-.040	.013-.050	.015-.040	.015-.040	-	-
Total impurities Max.	-	-	0.06*	-	0.06	0.03*	0.03*
Condition	O/OL 1/2H H	050 060	M 1/2H O	R290 H100	O HD	O D	O D
Yield strength N/mm ²	-	-	-	250 Min	-	-	-
Tensile N/mm ²	205 Min. 245-325 315 Min.	210 Min.	-	290 Min. -	205 Min. 280 Min.	200-205 Min. 270 Min.	205 Min. 280 Min.
Elongation %	40% Min. -	40% Min.	-	50% Min. -	40% Min.	40% Min.	40% Min. -
Hardness HV5	50/55+ -	-	105 Min. 80-100 60 Max.	- 100 Min.	-	60 Max. 100 Min.	-
Grain size mm (75X)	.025-.06 0.040 Max	.015-.040 .040 Min.	- 0.05 Max.	-	0.025-0.060	-	0.025-0.050 -

*Excluding Silver, Arsenic, Nickel & Phosphorus. ** Electrolytic Grade Copper. + HRF Hardness



Our Products are available in :

- CFC Free Refrigerants with₂ low residue i.e. 0.1mg/dm
- Suitable for R 134a, 410a & 407c
- Defect Free Bright Annealed Tubes
- All Tested

CHARACTERISTICS :

A commercially pure copper that has been deoxidized with phosphorus in such a manner as to leave a high residual phosphorus content which is not readily susceptible to hydrogen embrittlement. It has good thermal conductivity. ETP refers to Electrolytic Tough Pitch Copper without any elements (other than oxygen) present in significant amount. It has good electrical and thermal conductivity also excellent capacity for being cold worked and hot formed. It is suitable for soldering and brazing but oxyacetylene welding is not recommend for it.

GUIDE TO THE SELECTION OF TUBE MATERIAL :

- a) Dissolved salts less than 500 ppm.
 - b) Chloride less than 10 ppm.
 - c) H₂S or Ammonia nil.
 - d) Organic fats nil.
 - e) Suspended solids less than 5 ppm.
- Permissible average velocity of water 0.8-1 meters/sec.

