

Superior Quality,
Reliable Performance



UNIFLOW®
C O P P E R T U B E S

we don't promise, we deliver



PROVEN | TRUSTED | RELIABLE | DURABLE

Uniflow Copper Tubes (UCT) entered the copper tube industry in 2007 with a factory based in Chennai. Initial operations involved manufacturing copper tubes for the HVAC&R industry in and around the Chennai region. Receiving positive feedback from the market for our products, the supplies soon started to expand all over the southern regions of India. Currently, UCT has the product line catering to all industries requiring copper tubes and operates in markets across Tamilnadu, Karnataka, Andhra Pradesh, Telangana, Kerala, Andaman and Pondicherry. Uniflow also exports its tubes to neighbouring countries like Sri Lanka and Maldives.

UCT has always strived to improve the quality and workmanship of its products. This has been achieved by combining the extensive technical knowledge with stringent in-house quality control and testing methods. Over the years, UCT has received several approvals and accolades from some of the major OEMs and top consultants in the industry, thereby establishing itself as one of the largest copper tubes manufacturer in South India.

UCT is an ISO 9001:2015 certified company, demonstrating its ability to provide products and services that meet statutory and regulatory requirements. The company aims to enhance customer satisfaction through a continuously improving QMS and assurance of conformity. It prides itself at providing unrivalled customer service to its clientele.

Commitment to quality:

UCT is also an ISO 14001:2015 certified company, practising processes keeping in mind their environmental impact and putting in place systems that aid recycling and reducing wastes, which in-turn reduces cost and improves efficiency within the organisation.

In addition, UCT also holds a RoHS compliance certificate, which restricts the use of certain hazardous substances. The substances banned under RoHS are lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (CrVI), polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE). These restricted materials are hazardous to the environment and are dangerous in terms of occupational exposure during manufacturing or disposal.

The tubes are manufactured to stringent Indian and International standards, and are suitable for different applications such as air conditioning, refrigeration, plumbing, medical gas and general engineering.

The tubes are manufactured to meet the exact mechanical and chemical properties as specified by standards such as ASTM B280/ ASTM B68/ ASTM B75/ JIS H3300/ IS 2501, ensuring that the tube does not fail due to leakage or fatigue. Tubes manufactured are continuously tested for defects by Eddy current test units as per ASTM E243.



HVAC&R



PLUMBING



SOLAR PANELS



MEDICAL GAS

At every stage of the production process, samples are tested to ensure product quality:

Incoming raw material is analysed to ensure it meets the required standard and the sample copper is checked for chemical content.

The extruded shell concentricity and dimensional checks are carried out.

Further dimensional checks are adopted at every step of the drawing process through to the final product.

Every finished length of copper tube is tested to guarantee tube soundness.

Finally finished tube samples are taken to carry mechanical tests (chemical analysis, tensile strength, hardness, elongation and eddy current).

Cleanliness and Appearance:

UCT implements a QAP (quality assurance plan) to ensure that the highest quality tubes reach the customers. Tubes manufactured are continuously tested for defects by eddy current test units. ACR copper coils and pipes are dehydrated, degreased and capped to maintain the internal cleanliness of the tubes. The residue levels are kept below 0.038g/m^2 as specified by the ASTM standards. Both the inside and outside surface diameters will be clean and bright with the finish being smooth and free from slivers, scale, open grains and major metal defects or inclusions.

UCT's VRF/VRV range copper tubes are suitable for high-pressure refrigerants such as R410A and R32, which are ozone friendly refrigerants. These tubes are identified and protected with pink caps embossed with Uniflow logo to designate they are "high pressure refrigerant tubes". R410A for example has a 60% higher operating pressure than R22 and requires a thicker wall tube and significantly stronger copper fittings. The tube is also identified with ink marking along its length stating the brand name, conforming standard and size.



ACR Hard Drawn Straight Lengths - VRF/VRV Range

O.D. in inches	O.D. in mm	WT in inches	WT in mm	Weight (kg) per foot	Weight (kg) per metre	Rated Internal working pressure at 150°F (65°C)	
						psi	bar
3/8"	9.53	0.031	0.8	0.059	0.194	1742	120
1/2"	12.7	0.031	0.8	0.081	0.266	1304	90
5/8"	15.88	0.039	1	0.125	0.41	1304	90
3/4"	19.05	0.031	0.8	0.124	0.407	868	60
3/4"	19.05	0.039	1	0.156	0.512	1086	75
7/8"	22.22	0.031	0.8	0.145	0.476	744	51
7/8"	22.22	0.039	1	0.187	0.613	930	64
1"	25.4	0.035	0.88	0.18	0.59	716	50
1"	25.4	0.039	1	0.213	0.699	814	56
1-1/8"	28.58	0.039	1	0.234	0.768	723	50
1-1/4"	31.75	0.043	1.1	0.288	0.945	716	50
1-3/8"	34.93	0.048	1.21	0.351	1.151	716	50
1-1/2"	38.1	0.052	1.32	0.417	1.368	716	50
1-5/8"	41.28	0.056	1.43	0.488	1.601	716	50
1-3/4"	44.45	0.061	1.55	0.574	1.883	720	50
2-1/8"	53.98	0.07	1.78	0.793	2.601	681	47

GENERAL SPECIFICATIONS:

Quality	:	UNIFLOW ACR tubing is manufactured to consistently meet the demands of the air-conditioning VRF/VRV industry, and is compatible with all refrigerants including R410A
Cleanliness	:	Bore quality meets the 0.038g/m ² ASTM B280 specified limit
Material	:	C12200, Cu 99.9% min, P 0.015 - 0.040%
Mechanical Properties	:	Tensile Strength: 290 MPa (min) Elongation: 3% Hardness: >100 HV
Temper	:	Hard Drawn
Packaging	:	Bore internally cleaned and capped
Bending	:	Not suitable for bending
Length	:	Manufactured in 10ft lengths, other lengths available on request



ACR Soft Annealed Pancake Coils - VRF/VRV Range

O.D. in inches	O.D. in mm	WT in inches	WT in mm	Weight (kg) per foot	Weight (kg) per metre	Rated Internal working pressure at 150°F (65°C)	
						psi	bar
1/4"	6.35	0.032	0.8	0.038	0.125	1319	91
3/8"	9.53	0.032	0.8	0.059	0.194	876	60
1/2"	12.7	0.032	0.8	0.081	0.266	656	45
5/8"	15.88	0.04	1	0.126	0.413	656	45
3/4"	19.05	0.04	1	0.156	0.512	546	38

GENERAL SPECIFICATIONS:

Quality	:	UNIFLOW ACR Tubing is manufactured to consistently meet the demands of the air-conditioning VRF/VRV industry, and is compatible with all refrigerants including R410A
Cleanliness	:	Bore quality meets the 0.038g/m ² ASTM B280 specified limit
Material	:	C12200, Cu 99.9% min, P 0.015 - 0.040%
Mechanical Properties	:	Tensile Strength: 205 MPa (min) Elongation: 40% (min) Hardness: <60 HV
Temper	:	Soft Annealed
Packaging	:	Bore internally cleaned and capped, single/double layer coils
Bending	:	Suitable for bending with or without specialised tools
Length	:	Manufactured in 50ft (15.24m) rolls

PRODUCT RANGE

- Hard/half hard straight length copper tubes in lengths up to 6m: 1/4" to 2-5/8" in wall thickness as per specification
- Bright annealed pancake coils: 1/4" to 7/8" in wall thickness as per specification
- Bright annealed straight length copper tubes in lengths up to 12 ft: 1/4" to 2-5/8" in wall thickness as per specification



STANDARDS AND SPECIFICATIONS

Standard	Copper Alloy No.	Chemical Composition		Temper	Tensile Strength (MPa)	Elongation (%)	Grain Size (in mm)
		Cu%	P%				
ASTM B-68	C12200	99.9% min	0.015 - 0.040%	O60	200 min	>40%	0.040 min
				O50	200 min	>40%	0.015 - 0.040
JIS H3300	C1220	99.9% min	0.015 - 0.040%	O	205 min	>40%	0.025 - 0.060
				OL	205 min	>40%	0.040 max
				1/2H	245 - 325 min	-	-
				H	315 min	-	-
ASTM B-75	C12200	99.9% min	0.015 - 0.040%	H 58	250 min	-	-
				H 80	310 min	-	-
EN 1057	-	99.9% min	0.015 - 0.040%	R 220	220	40% min	-
				R 250	250	30% or 20%	-
				R 290	290	-	-
IS 2501	DHP IS 191 Part VIII	99.8% min	0.015 - 0.040%	O	205 min	>40%	-
				HD	280 min	-	-

- DHP grade with copper purity of 99.9% min and phosphorus purity of 0.015 - 0.040%
- Compatible with R-410A, R-407C, R-404A, R-134A, R-23 & R22 refrigerants

ACR Mechanical Properties - ASTM B280

Temper Designation		Form	Tensile Strength (min)		Vickers Hardness HV5	Elongation in 2 inches min %	Average grain size in mm
Standard	Temper		ksi	MPa			
O60	Soft Annealed	Coils	30	205	<60	40	0.040
H02	1/2 Hard	Straight Lengths	36	250	75-100	30	N/A
H58	Hard Drawn	Straight Lengths	42	290	>100	N/A	N/A



UNIFLOW®
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APPROVED BY



CERTIFICATIONS



OUR CLIENTELE





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REFRIGERANT PRESSURE-TEMPERATURE CHART

The following table is a comparison of operating pressures for the most common refrigerants and can be used for determining which copper tube size is required. This is a guide only, the refrigerant manufacturer should be consulted for more specific information.

Refrigerant	Saturated Vapour Pressures (psi)					
	-20°C	0°C	20°C	40°C	60°C	70°C
R22	21	58	117	208	337	418
R32	44	103	199	345	555	693
R134A	6	28	68	133	229	292
R404A	28	72	143	251	404	
R407C	26	68	136	239	387	481
R410A	44	102	196	339	544	671

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