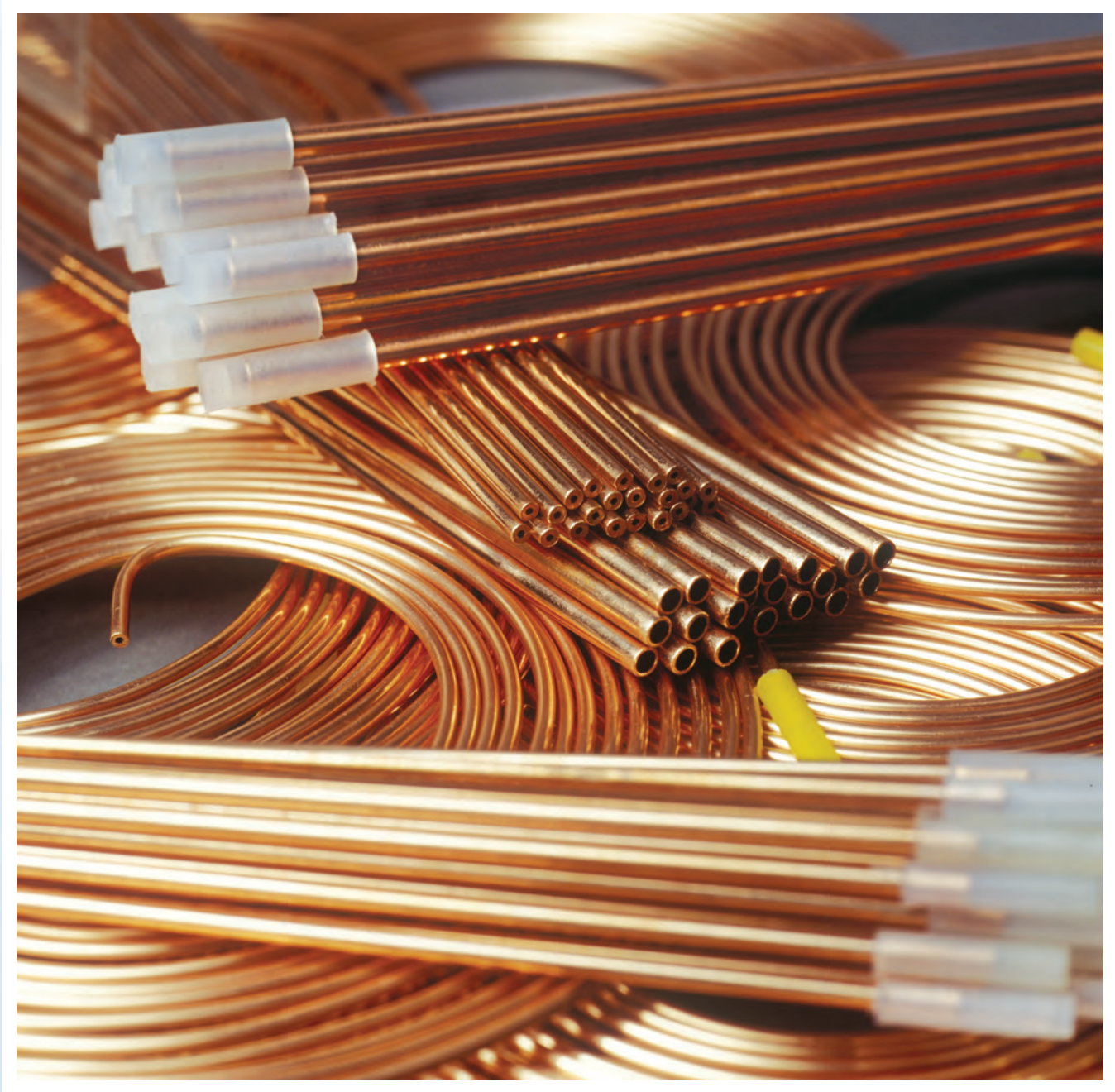


# VEINS OF REFRIGERATORS



# & AIR CONDITIONERS



ISO 9001 : 2015



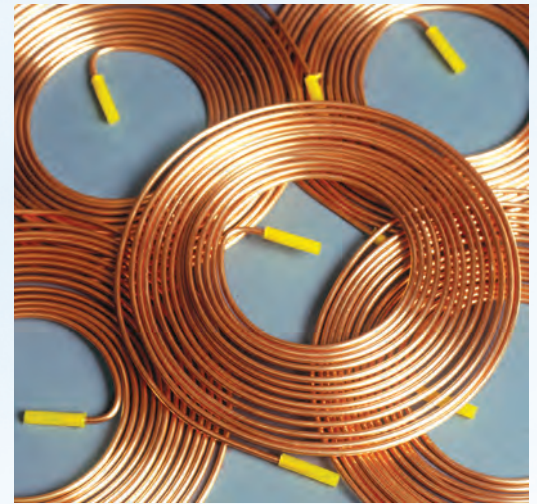
Certificate Registration  
No. 20006553 QM15

# VMPL CAPILLARY TUBING

# VMPL CAPILLARY TUBING

## FEATURES:

- SMOOTH INNER SURFACE - MIRROR FINISH
- PRESSURE DROP/FLOW TEST AS PER SPECIFICATION
- HIGHER CLEANLINESS
- SEALED AT THE ENDS
- MECHANICAL PROPERTIES AND CHEMICAL COMPOSITION AS PER ASTM
- COMPATIBLE WITH ALL REFRIGERANTS
- AVAILABLE IN STRAIGHT LENGTHS IN COILS, IN HARD & ANNEALED TEMPER
- CAPILLARY TUBES WITH STOPPER + END PINCHED



## APPLICABLE STANDARDS

No. of Standards	Title
ASTM B360	Hard - Drawn copper capillary tube for restrictor applications
ASTM B280	Seamless copper tube for air conditioning and refrigeration field service
ASTM B75	Seamless copper tube
ASTM B68	Seamless copper tube. Bright annealed.

## CHEMICAL COMPOSITION

ASTM 868, 875, 8280, 8360			Unit : %
Type	Cu	P	Name
C 10200	99.95 min	-	OF
C 12200	99.90 min	0.015-0.040	DHP

## MECHANICAL PROPERTIES - CRYSTAL GRAIN SIZE

### ASTM B68, B75, B280, B360

Standard Type of Material	Tensile Strength Ksi. (N/mm <sup>2</sup> )	Elongation Percentage %	Grain Size (mm)
B68, B75, B280 Soft Annealed	30min (210min.)	40min	0.040min.
B68, B75 Light Annealed			0.015-0.040
B75 Light Drawn	36-47 (250-325)	-	-
B75, B280 Drawn	36min (250min)	-	-
B75 Hard Drawn	45min (310min)	-	-
B360 Hard Drawn	57-75 (395-515)	-	-



# STANDARD PRODUCT DIMENSIONS AND INTERNAL RESIDUE LIMITS

Outside Diameter inch (mm)	Inside Diameter inch (mm)	Mean Wall Thickness inch (mm)	Weight id/ft.(kg/m)	Maximum Allowable Residue g/ft.(g/m)
0.072(1.83)	0.026(0.660)	0.023(0.584)	0.01373(0.0204)	0.00020(0.000656)
0.072(1.83)	0.028(0.711)	0.022(0.0558)	0.01340(0.0199)	0.00021(0.000689)
0.081(2.06)	0.031(0.787)	0.025(0.635)	0.01705(0.0254)	0.00023(0.000754)
0.081(2.06)	0.033(0.838)	0.024(0.606)	0.01666(0.0248)	0.00025(0.000820)
0.087(2.21)	0.036(0.914)	0.0255(0.648)	0.01910(0.0284)	0.00027(0.000886)
0.087(2.21)	0.039(0.991)	0.024(0.606)	0.01842(0.0239)	0.00029(0.000951)
0.093(2.36)	0.042(1.07)	0.0255(0.648)	0.02096(0.0312)	0.00032(0.00105)
0.097(2.47)	0.046(1.17)	0.025(0.648)	0.02221(0.0331)	0.00035(0.00115)
0.099(2.51)	0.049(1.24)	0.025(0.635)	0.02253(0.0335)	0.00037(0.00121)
0.106(2.69)	0.054(1.37)	0.026(0.660)	0.02533(0.0377)	0.00041(0.00134)
0.112(2.84)	0.059(1.50)	0.0265(0.673)	0.02760(0.0411)	0.00044(0.00144)
0.125(3.18)	0.064(1.63)	0.0305(0.775)	0.03511(0.0522)	0.00048(0.00157)
0.125(3.18)	0.070(1.78)	0.0275(0.698)	0.03266(0.0486)	0.00053(0.00174)
0.125(3.18)	0.075(1.91)	0.025(0.635)	0.03054(0.0454)	0.00057(0.00187)
0.145(3.68)	0.080(2.03)	0.0325(0.826)	0.04453(0.0663)	0.00060(0.00197)
0.145(3.68)	0.085(2.16)	0.030(0.762)	0.04202(0.0625)	0.00064(0.00210)
0.145(3.68)	0.090(2.29)	0.0275(0.698)	0.03963(0.0586)	0.00068(0.00223)
0.160(4.06)	0.100(2.54)	0.030(0.762)	0.04750(0.0707)	0.00075(0.00246)
0.160(4.06)	0.110(2.79)	0.025(0.635)	0.04111(0.0611)	0.00083(0.00272)
0.188(4.78)	0.120(3.03)	0.034(0.864)	0.06377(0.0949)	0.00090(0.00295)

- COPPER CAPILLARIES WITH I.D. UPTO 0.10mm ARE MANUFACTURED BY US
- TIN COATED/PVC COATED COPPER CAPILLARY CAN ALSO BE MANUFACTURED ON REQUEST

## TOLERANCE FOR THICKNESS

### ASTM B68, B75 (B251)

Thickness	Tolerance (Plus/ Minus)			Unit: in (mm)
	Below 0.017	Exceeding 0.017 and Below 0.024	Exceeding 0.024 and Below 0.034	Exceeding 0.034 and Below 0.057
Above 1/32" & Below 1/8"	0.002 (0.051)	0.003 (0.076)	0.003 (0.076)	0.003 (0.076)
Above 1/8" & Below 5/8"	0.001 (0.025)	0.002 (0.051)	0.0025 (0.064)	0.003 (0.076)

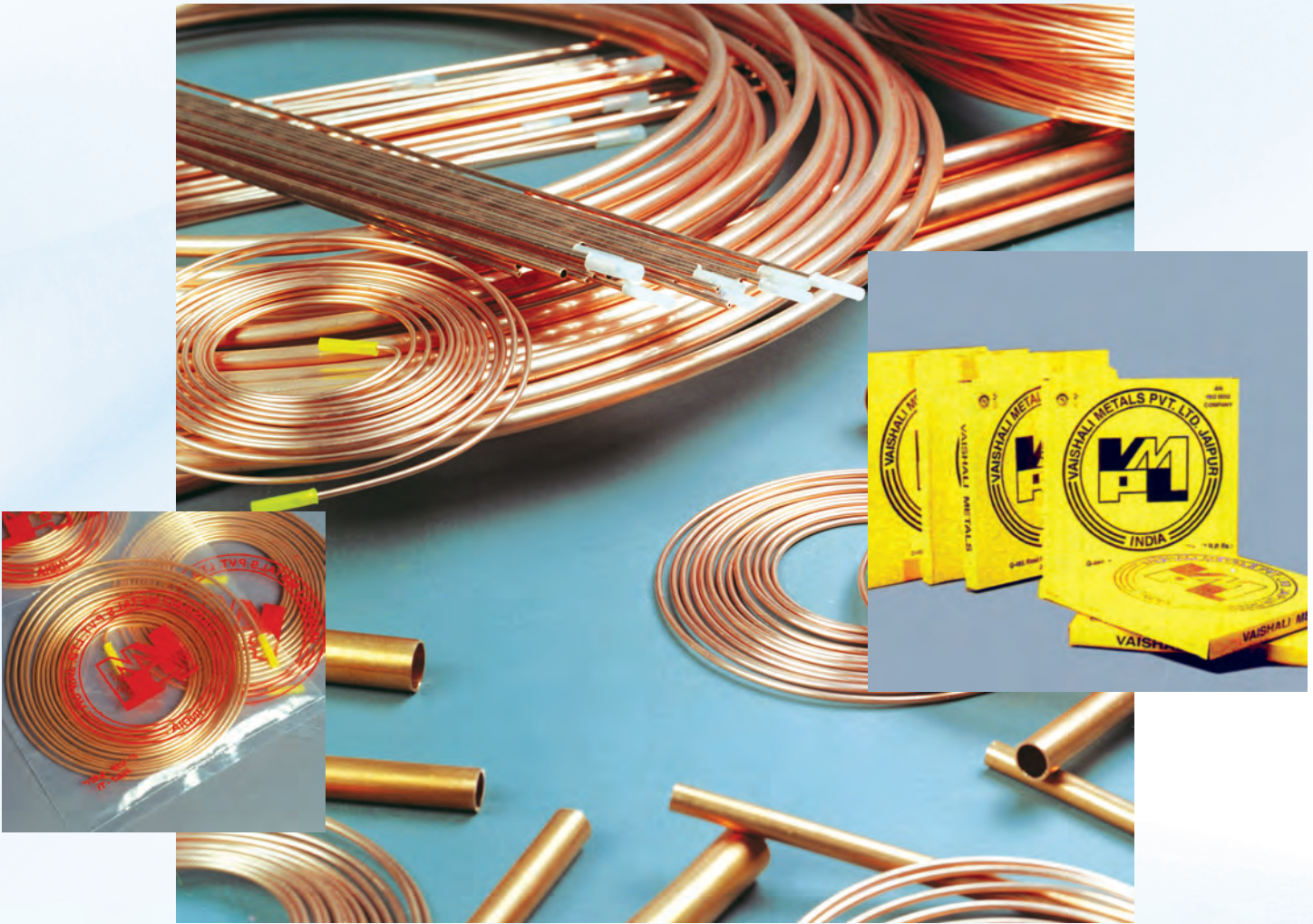
## TOLERANCE FOR MEAN DIAMETER VALUES

ASTM		Unit: in (mm)	
Standards		B360	B68, B75, B251 for Outside Dia of 5/8 or less
Tolerance (Plus/ Minus)	Outside Dia	0.002 (0.051)	0.002 (0.051)
	Inside Dia	0.001 (0.025)	0.002 (0.051)

## FIELDS OF APPLICATION:

- AIR CONDITIONING
- REFRIGERATION SYSTEMS
- THERMOSTATS
- EXPANSION VALVES
- AUTOMOBILES
- TEMPERATURE GAUGES
- MEDICAL APPLIANCES
- FIRE ALARMS





## SPECIAL FEATURES OF VMPL PRODUCT

THE FOLLOWING PHOTOGRAPHS SHOW DIFFERENCE IN THE SMOOTHNESS OF THE INTERNAL SURFACE OF THE CAPILLARY TUBE. THE DIFFERENCE IN THE SMOOTHNESS IS ASCRIBED TO DIFFERENT DRAWING TECHNIQUES



THIS SHOWS THE INNER SURFACE CONDITION OF THE CAPILLARY TUBES PRODUCED BY VMPL ADOPTING THE LATEST TECHNOLOGY



THIS SHOWS THE INNER SURFACE CONDITION ACHIEVED THROUGH CONVENTIONAL TECHNIQUES WHICH CANNOT PRODUCE SMOOTH INNER SURFACES AND DIMENSIONAL ACCURACY AS PER INTERNATIONAL STANDARDS.



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