ALLOY 400 TUBING

This nickel-copper chemistry features a high intensity single-phase solid solution metallurgical structure. Alloy 400 has greater corrosion resistance than nickel under reducing conditions and is more resistant than copper under oxidizing conditions. This grade has been widely used in applications requiring strong resistance to corrosive environments featuring acids, alkalies and high temperature steam. It is all but immune to the stress corrosion cracking (SCC) induced by chlorides and most freshwater conditions. A very tough material (as measured by impact testing) Alloy 400 has excellent mechanical properties in sub-zero conditions. It does not undergo a ductile-to-brittle transformation even when cooled to the temperature of liquid hydrogen. On the opposite side of the temperature range, Alloy 400 performs well in temperatures up to 1000° F.

PRODUCTION SPECIFICATIONS

ASTM B163/ASME SB163,
ASTM B165, NACE MR0175

MECHANICAL PROPERTIES

Yield Strength 0.2% Offset	28 KSI min.
Tensile Strength	70 KSI min.
Elongation (min. 2in.)	35%

DIMENSIONAL TOLERANCES

OD	OD Tolerance	Wall Tolerance
1/8"-3/16" Tubes	+.003"/-.000"	+/- 10%
1/4"-<1/2" Tubes	+.004"/-.000"	+/- 10%
1/8"-5/8" Tubes	+.005"/-.000"	+/- 15%
1/8"-<3/4" Tubes	+.0075"/-.0075"	+/- 10%

SIZE RANGE

Outside Diameter (OD)	Wall Thickness
1/8" - 3/4"	.035" - .065"

Cold Finished and Bright Annealed Tube

ALLOY 400 (UNS NO4400)
CHEMICAL COMPOSITION % (MAX.)

Cu	Copper	28.0 - 34.0
Ni	Nickel	63.0 (min.)
C	Carbon	0.3
Fe	Iron	2.5
Mn	Manganese	2.0
Si	Silicon	0.05
S	Sulfur	0.024

OD	Wall	ID	PSI
1/8" (.1250")	.035	.055	35,280
1/4" (.2500")	.035	.180	17,640
	.049	.152	24,696
3/8" (.3750")	.035	.305	11,760
	.049	.277	16,464
	.065	.245	21,840
1/2" (.5000")	.035	.430	8,820
	.049	.402	12,348
	.065	.370	16,380
5/8" (.6250)	.065	.495	13,104
3/4" (.7500")	.049	.652	8,232
	.065	.620	10,920

All Pressure Ratings are approximate and for illustration purposes only. Values are not Guaranteed or Warranted.

TYPICAL APPLICATIONS

Equipment in Sulfuric Acid Environments
Chemical Processing - Organic/Inorganic Chlorides
Sour Gas Well Environments
Pulp & Paper Production - Digesters & Bleach Plants
Waste Treatment - Evaporators
Pollution Control - Sulfur Compounds in Flue Gas

FABRICATION

Alloy 400 can be satisfactorily fabricated, welded and joined by standard methodologies and rates of production. Usually, subsequent thermal treatment to effect re-balancing of the alloy is not required. Contact PAC Stainless for detailed fabrication and welding information.