

Tungum Tubing

A Brief History and Applications

- Invented by Sydney Tungay in 1918 with the intention to create a copper-based alloy which when polished, and subsequently lacquered, would not look like common brass but rather like 22ct. gold.
- It was used to manufacture art-deco architectural items, costume jewelry, compact cases, cigarette cases and other similar items.
- A Tungum cigarette case was accidentally crushed underneath a heavy motor car but, even under this weight, the case's rounded edges had not collapsed or cracked. A corner of the case was removed and an examination revealed an excellent and uniform grain structure. Further mechanical test indicated desirable mechanical properties.
- Subsequently the material was drawn into tubing for application in the Vickers Wellington bomber for hydraulic and breathing air service. Tungum tubing was used in front line RAF aircraft for another 25 years until the UK began purchasing American made military aircraft.
- The British Navy has and continues to use Tungum tubing in mine sweepers (because of its extremely low magnetic signature), in turret gun hydraulic systems and other pneumatic systems because of its corrosion and fatigue resistance qualities.
- The British Army has used Tungum tubing in virtually every major vehicle for the last 50 years for hydraulic systems associated with hydrostatic drives, gun loading and braking systems. There is no more arduous service than a tracked fighting vehicle.
- The Swedish built Bofors guns (anti-aircraft) have a long history of Tungum tubing use including their latest design, a 155mm field gun.

- Industrial gas industry uses Tungum tubing in medium to high pressure applications. Due to the cryogenic and non-sparking properties of Tungum tubing, it is used for the storage and distribution of oxygen, nitrogen, hydrogen, helium, heliox, argon, carbon dioxide, etc. in both gaseous and liquid states. Tungum tubing is vastly superior to stainless steel for safety reasons in high pressure oxygen systems. Lloyds Register will not allow stainless steel tubing to be used on oxygen lines but permits the use of Tungum tubing.
- Commercial diving industry has a long history with Tungum tubing in saturation systems, diving bells, gas handling systems, hydraulic systems, and diver's water-heating systems.
- Pulp and paper industry uses Tungum tubing for hydraulic systems due to its resistance to hypo-chlorites used in the bleaching process.
- Crane and hydraulic hoist manufactures of equipment used in and around salt-laden marine environments use Tungum tubing in their hydraulic systems.
- Offshore oil and gas industry has a 25-30 year history of using Tungum tubing to solve the corrosion problems of 316 stainless steel tubing in marine environments all over the world. Tungum tubing was recently specified by a major oil/gas producer in the Gulf of Mexico for all non-process systems up to 5000psi.