Swagelok Southern Africa

SWAGELOK BRIGHT ANNEALED TUBING

RELIABLE, HIGH PRESSURE, ANTI-CORROSIVE

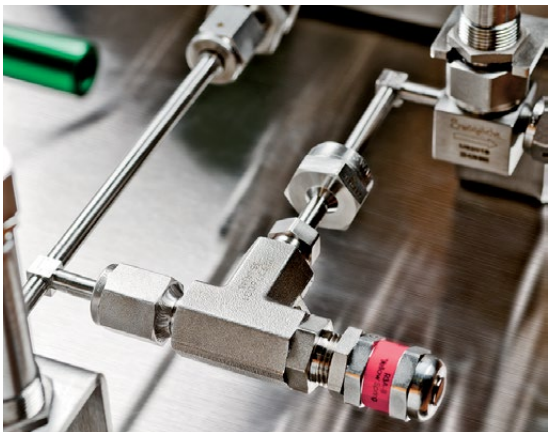
Tubing forms an integral part of many fluid and gas installations. It allows for better use of space, offers flexibility in confined areas and diverse bending and welding possibilities. It is cost-effective and easier to maintain than traditional piping solutions.

However, not all tubing is manufactured to the same specifications. Some of the low priced ranges available in the market use the lower scale of ASTM A269 requirements for the Ni, Mo and Cr content in 316 stainless steel tubing. Swagelok tubing is manufactured at the higher values of this standard to provide high quality, dependable, bright annealed tubing.

BRIGHT ANNEALED TUBING

Bright annealed tubing has higher corrosion resistance and better sealing performance. The final heat treatment or annealing process is performed in a vacuum or controlled atmosphere containing Hydrogen, which keeps oxidation to a minimum. The surface remains relatively bright and the thin oxide layer needed to enhance corrosion resistance remains intact. The tubing is not “pickled” after annealing as this process is not necessary. Bright annealed tubing has a smoother surface, which imbues the component with better resistance to pitting corrosion. It also provides a better sealing surface when tube fittings, which seal on the outside diameter, are used for connections.

Bright annealed tubing sets the industry standard with its high chemical composition, corrosion resistance and superior sealing surface, making it an ideal product for all industries especially in chloride (sea water) and other corrosive environments. It is widely used in the Oil & Gas, Chemical, Power Plants, Pulp and Paper and other industries.



SWAGELOK ANNEALED TUBING PRODUCT HIGHLIGHTS

PREN VALUES

316L stainless steel, 904L and 6Moly alloys

Higher anti corrosion properties due to the above average Chrome, Nickel, Molybdenum and Nitrogen content. PREN (Pitting Resistance Equivalent Number) value:

- 316L PREN Value +-27
- 904L PREN Value +-35
- 6Moly Alloys e.g. Alloy 254 PREN Value +-43

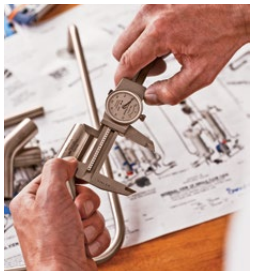
VALUE

High quality product

We always supply bright annealed tubing manufactured to stringent quality specifications

Certification

- Guaranteed quality
- Full certification supplied with each length of tubing.



QUALITY

Traceability - clear markings on individual products

Assurance of top grade materials used and an integral part of our overall quality system

Visually attractive

Professional finish

Resistance to pitting and crevice corrosion

Longer installed product life in Chloride (Salt water) conditions.

CORROSION / SEALING SURFACE

Annealing process

Annealing is done in protected Hydrogen atmosphere; oxidation is reduced to a minimum. Passive oxide layer not removed, as with the pickling process.

Provides a smoother surface area which enhances the tube fitting sealing performance.

RELIABLE

Above ASTM industry standard

Higher Ni and Cr content exceeds industry standards

Reduced leaks

Fewer operational down time

Seamless Supply Chain

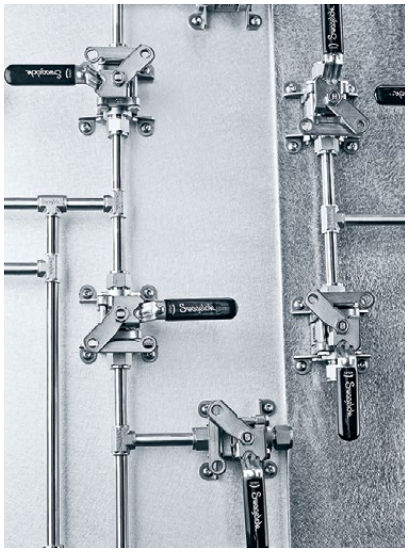
Wide global distribution network. Swagelok Southern Africa now keeps inventory of various sizes in stock.

PRESSURE

Stainless Steel: up to 60000 PSI (4134 Bar)
904L: up to 10200 PSI / 703 Bar
Alloy 254: up to 10200 PSI / 703 Bar

Low, Medium (Swagelok® FK Series 20000 PSI)
High Pressure (Cone & Thread 60000 PSI)

Can be used with Standard Swagelok Tube Fittings.



TEMPERATURE

Stainless Steel: up to 649°C
904L: up to 550°C
Alloy 254: up to 700°C

Wide application use

DIFFERENCES AND BENEFITS
OF BRIGHT ANNEALED SWAGELOK TUBING VS PICKLED TUBING

BRIGHT ANNEALED SWAGELOK TUBING

- Use of highest quality material available
- Above industry standard (ASTM)
- High PREN values
- Material fully traceable
- Smooth, bright, scale free surface – better resistance to pitting corrosion
- High pressure and temperature ranges
- Increased key chemical elements (Cr, Ni and Mo) for high mechanical strength, superior corrosion resistance and longer lifecycles

PICKLED TUBING

- Can be less corrosion resistant
- Possible tube fitting leakage due to rougher surface finish
- Generally, we have noticed lower quality tubing in the local market leading to lower product performance

Pickled tubing is annealed in an open furnace where atmospheric oxygen causes scaling of the heat treated material. Standard specifications require that tubing must be delivered with a scale free surface. In order to remove the scaling, the usual procedure is pickling in a bath of diluted Nitric and Hydrofluoric acid after which tubes are passivated in an alkaline solution. The pickling process removes the hard scale from the tube surface yet, at the same time, the surface is automatically chemically attacked, which damages the corrosion protective oxide layer. The surface finish area is also rougher than bright annealed tubing.

SURFACE FINISH

Final manufacturing process:

Bright Annealed: 0.04 to 0.24 Ra (µm)

Pickled: 0.9 to 1.4 Ra (µm)

Swagelok®

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LEVEL 4 CONTRIBUTOR TO B-BBEE STATUS
WITH 25% BLACK FEMALE OWNERSHIP

bsi. ISO 9001 Quality Management
FM 650385

SWAGELOK® QUALITY SYSTEM