

VERDER

Tubing for Peristaltic Pumps

The Verder Advantage

Verder Peristaltic pumps, following the standards applied by Verder, use the highest possible grade of peristaltic pump tubing. The performance of a peristaltic pump is very often judged upon the durability of the tube used, therefore a high quality, correctly sized tube is critical. The following are the standard tubes used and carried as stock.

Verder places great emphasis on tube wall thickness and a number of tubes offered use an extremely thick wall to enhance durability and the handling of viscous fluids, as well as improving suction lift.

TUBE MATERIALS

Silicone A translucent medical/food grade tubing which is odorless, non-toxic, and has FDA and USP Class VI approvals. It is autoclavable and has a temperature range up to 220°C. Used in most general applications.

Verderprene First choice when long tube life is required. This is an opaque thermo-plastic rubber with unmatched wear resistance. It is derived from Santoprene which is a product of Monsanto Corporation. This material has FDA food grade approval, and has been further enhanced to meet the requirements and approval standards of USP Class VI criteria for medical bio-compatibility.

Viton A black, shiny, synthetic rubber with resistance to concentrated acids, solvents, ozone, radiation and temperatures up to 200° C. Viton is expensive, and while it has excellent chemical compatibility, Viton is not renowned for durability and will have a limited service life.

Tygon This tube has excellent chemical resistance, handles virtually any inorganic chemical, and is one of the family of non-toxic tubes. Tygon has a clear finish and is available in a limited size range.

Prothane II A transparent blue polyester polyurethane tubing which is resistant to ozone, diesel fuel, kerosene, motor oil, mild solvents, aromatic hydrocarbons, petrol and concentrated acid and alkaline solutions. Temperature range is -40 to 182°C

OCLUSION (SQUEEZE SETTING)

By stringent control of manufacturing tolerances Autoclude is able to utilize the most cost effective fixed roller system with occlusion factory set and no adjustment necessary.

TUBE SIZES

| Silicone I.D. & Wall (mm) | Autoprene I.D. & Wall (mm) | Viton I.D. & Wall (mm) | Tygon I.D. & Wall (mm) | Prothane II I.D. & Wall (mm) |
|---------------------------------|----------------------------------|------------------------------|------------------------------|------------------------------------|
| 1.6 x 1.6 | 1.6 x 1.6 | 3.2 x 1.6 | 3.2 x 1.6 | 3.2 x 1.6 |
| 3.2 x 1.6 | 1.8 x 3.2 | 5.0 x 1.6 | 4.8 x 1.6 | 4.8 x 1.6 |
| 4.0 x 1.6 | 3.2 x 1.6 | 6.0 x 2.0 | 6.3 x 3.2 | 6.3 x 3.2 |
| 5.0 x 1.6 | 4.0 x 1.6 | 8.0 x 2.4 | 9.5 x 3.2 | 12.7 x 3.2 |
| 6.3 x 1.6 | 4.8 x 1.6 | 9.5 x 3.2 | 12.7 x 3.2 | |
| 6.3 x 2.4 | 6.3 x 2.4 | 12.7 x 3.2 | | |
| 6.3 x 3.2 | 6.0 x 3.2 | | | |
| 8.0 x 1.6 | 8.0 x 2.4 | | | |
| 8.0 x 2.4 | 8.0 x 3.2 | | | |
| 8.0 x 3.2 | 9.5 x 3.2 | | | |
| 9.5 x 3.2 | 12.7 x 3.2 | | | |
| 12.7 x 3.2 | 16.0 x 4.8 | | | |
| 14.5 x 4.5 | 19.0 x 4.8 | | | |
| 16.0 x 3.2 | | | | |
| 16.0 x 4.8 | | | | |

TUBE STANDARDS

Medical/food quality

USA Food & Drug Administration (FDA) Listings under
21 CFR 177 2600

United States Pharmacopoeia (USP) XXI Class VI Approval for bio-compatibility.

USA National Sanitation Foundation (NSF) Listed under Standard No. F51 for use in food equipment (Autoprene only).

National Water Council approval under NWRC No. 8703067 (Silicone only)

CONSIDER

- 1) Thin wall or medium wall thickness tubes perform excellent service in a variety of applications.
- 2) Thick wall tubing has even better suction lift and discharge pressure performance and is ideal for use when pumping viscous liquids to enable the tube to recover original shape quickly.
- 3) Silicone and Autoprene should be considered first as they are the most cost effective materials.
- 4) Largest tube size and lowest gearbox speed will give the longest tube life

TUBE LIFE

Tube life will be affected by factors such as temperature, back pressure, pump speed, and chemical compatibility of the tube carrying a pumped medium. Some suggestions to optimize tube life are:

- 1) Minimize suction lift
- 2) Minimize back pressure by eliminating unnecessary restrictions in outlet tube.
- 3) Consider larger bore tubing on discharge side to reduce pulsation.
- 4) Try to keep temperatures low.
- 5) Lower gearbox speeds result in longer tube life. Halve the speed, approx. double the tube life.
- 6) Prolonged dry running will reduce tube life.
- 7) Pump tubing will not last forever. Anticipate tube life and establish a maintenance schedule for tube replacement.