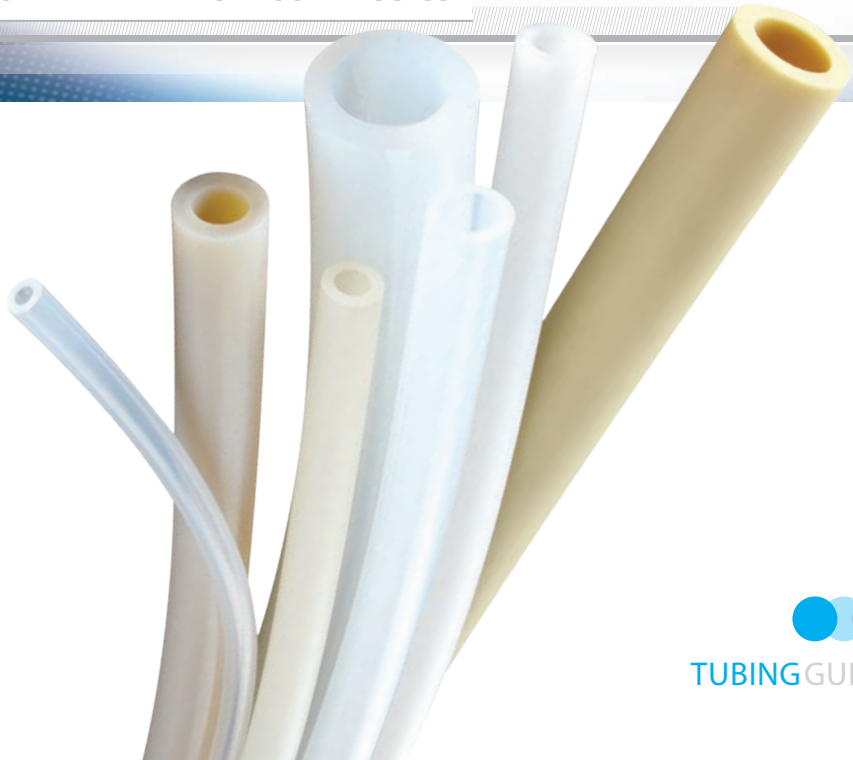


THE PERFECT TUBING

FOR EVERY PART OF YOUR PROCESS



TUBING GUIDE

Choosing the right tube

The best way to select a tube is to decide which materials are chemically suitable, and best meet the physical demands of your application.

For maximum tube life

Use a large-bore tube at low speed

For maximum flow rate

Use the largest tube at maximum speed

For maximum accuracy

Use a small bore tube at high speed

Tubing performance and selection

Watson-Marlow are the only peristaltic pump manufacturer to make their own tubing. The characteristics of the pump, including suction lift, pressure, life, flow rate and efficiency are all largely determined by the tubing.

The results of using tubing from other suppliers are unpredictable. If you have any question about tube performance or the selection of tubing for a new application, we will always be pleased to give you the best possible advice. Full technical datasheets are available for each material in this brochure. The datasheet will also provide full part codes for ordering.

Checking with an immersion test

Request a tube sample card if you would like to check chemical compatibility with any tubing material.

Chemical compatibility

Chemical compatibility tables are available at www.wmtubing.com and from any Watson-Marlow distributor

Validation packs

Comprehensive validation packs are available for Pumpsil, PureWeld XL, Bioprene and STA-PURE PCS.





Biopharm

Pumpsil®

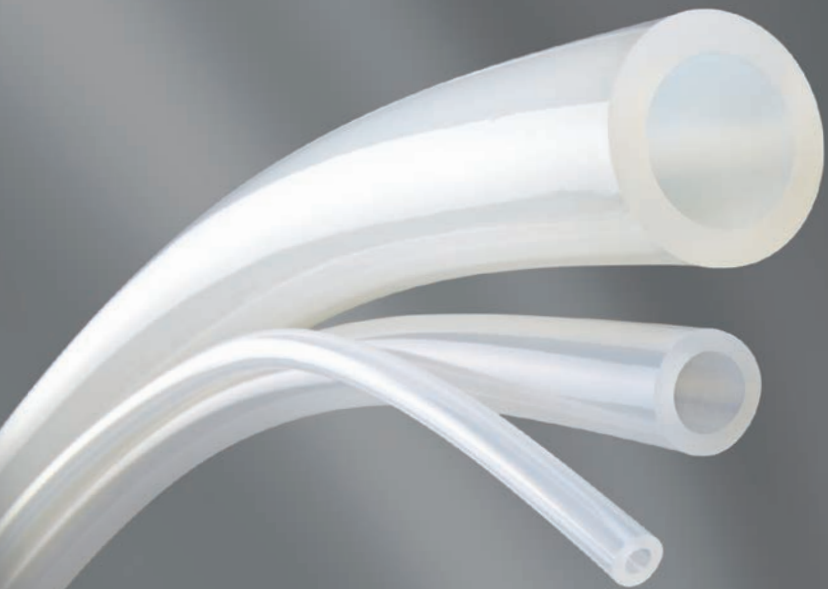
PureWeld® XL

Bioprene®

GORE® STA-PURE Series PCS

GORE® STA-PURE Series PFL

Pumpsil®



Single-use biopharm tubing as well as for accurate metering, transfer and filtration duties. Absolute traceability with laser-etched part number, lot number and use-by date. Fully documented biocompatibility and comprehensive validation pack.

Pumpsil Typical Characteristics

- **Colour/transparency** Translucent
- **Spallation** Low
- **Certification** USP Class VI, FDA regulations 21 CFR 177.2600 for food contact. Eur.Ph. 6.5: 3.1.9
- **Sterilisation methods** Gamma, autoclave, EtO
- **Operating temperature** -20C to 80C

Sizes

Available in 30 different bore sizes, five wall thicknesses and three coil lengths including bulk reels. See material datasheet for full range and ordering information.

PureWeld[®] XL



This pure thermoplastic elastomer can be welded and heat-sealed, allowing complete fluid paths to be assembled in minutes without connectors. PureWeld XL is a high quality peristaltic pump tube which exhibits very low internal spallation and is animal-derived component free (ADCF).

Fully documented biocompatibility and comprehensive validation pack.

PureWeld XL Typical Characteristics

- | | |
|--------------------------------|--|
| ▪ Colour/transparency | Opaque |
| ▪ Spallation | Very low |
| ▪ Certification | USP Class VI, raw material meets FDA regulations 21 CFR 177.1810 for food contact. USP<85>, USP<661>, USP<788> |
| ▪ Sterilisation methods | Gamma, autoclave, EtO |
| ▪ Operating temperature | -20C to 80C |

Sizes

Available in 13 different bore sizes, and four wall thicknesses. See material datasheet for full range and ordering information.

Bioprene®



Bioprene tubing is USP Class VI and FDA compliant and suitable for biopharmaceutical and food applications. Bioprene's long peristaltic life ensures process security, reducing risks in critical cGMP applications. Bioprene demonstrates broad chemical compatibility.

Fully documented biocompatibility and comprehensive validation pack, including FDA Drug Master File.

Bioprene Typical Characteristics

- | | |
|--------------------------------|--|
| ▪ Colour/transparency | Beige/opaque |
| ▪ Spallation | Low |
| ▪ Certification | USP Class VI, FDA regulations 21 CFR 177.2600 for contact with aqueous food and NSF listed |
| ▪ Sterilisation methods | Gamma, autoclave, EtO, CIP, SIP |
| ▪ Operating temperature | 5C to 80C |

Sizes

Available in 15 different bore sizes, five wall thicknesses and three coil lengths including bulk reels and LoadSure elements. See material datasheet for full range and ordering information.

GORE® STA-PURE Series PCS



PTFE-reinforced silicone tubing which provides long term performance with repeatable accuracy, vital in pharmaceuticals and other high technology industries. Suitable for pressures up to 7 bar (100 psi), GORE STA-PURE PCS provides the longest available tube life with virtually no spallation.

Fully documented biocompatibility and comprehensive validation pack.

STA-PURE Series PCS Typical Characteristics

- | | |
|-------------------------|---------------------|
| ▪ Colour/transparency | Off-white/opaque |
| ▪ Spallation | Very low |
| ▪ Certification | USP Class VI |
| ▪ Sterilisation methods | Autoclave, CIP, SIP |
| ▪ Operating temperature | -20C to 80C |

Sizes

Available in 20 different bore sizes, three wall thicknesses and three element lengths. See material datasheet for full range and ordering information.

GORE® STA-PURE Series PFL



PTFE-reinforced fluoroelastomer tubing which handles nearly all aggressive chemicals, including organic solvents such as methyl ethyl ketone, toluene and acetone.

With 50 times longer life than other fluoroelastomers and pressures up to 4 bar.

STA-PURE Series PFL Typical Characteristics

- | | |
|--------------------------------|---------------------------|
| ▪ Colour/transparency | Off-white/opaque |
| ▪ Spallation | Very low |
| ▪ Certification | USP Class VI, ISO 10993-1 |
| ▪ Sterilisation methods | Autoclave, CIP, SIP |
| ▪ Operating temperature | -20C to 80C |

Sizes

Available in 20 different bore sizes, three wall thicknesses and three element lengths. See material datasheet for full range and ordering information.

Hygienic LoadSure tubing elements



When you need a pump with positive connection points and error-free tubing loading, choose Watson-Marlow LoadSure tube elements.

520 series pumps

LoadSure tube elements are available as high pressure up to 7 bar, medium pressure up to 4 bar and low pressure up to 2 bar. All elements use Tri-clamp style PVDF connectors. The element connectors are colour coded to match the correct pumphead. Element materials include Bioprene and STA-PURE PCS for high pressure, Bioprene, STA-PURE PCS and STA-PURE PFL for medium pressure, Bioprene, STA-PURE PCS and STA-PURE PFL and Pumpsil for low pressure.

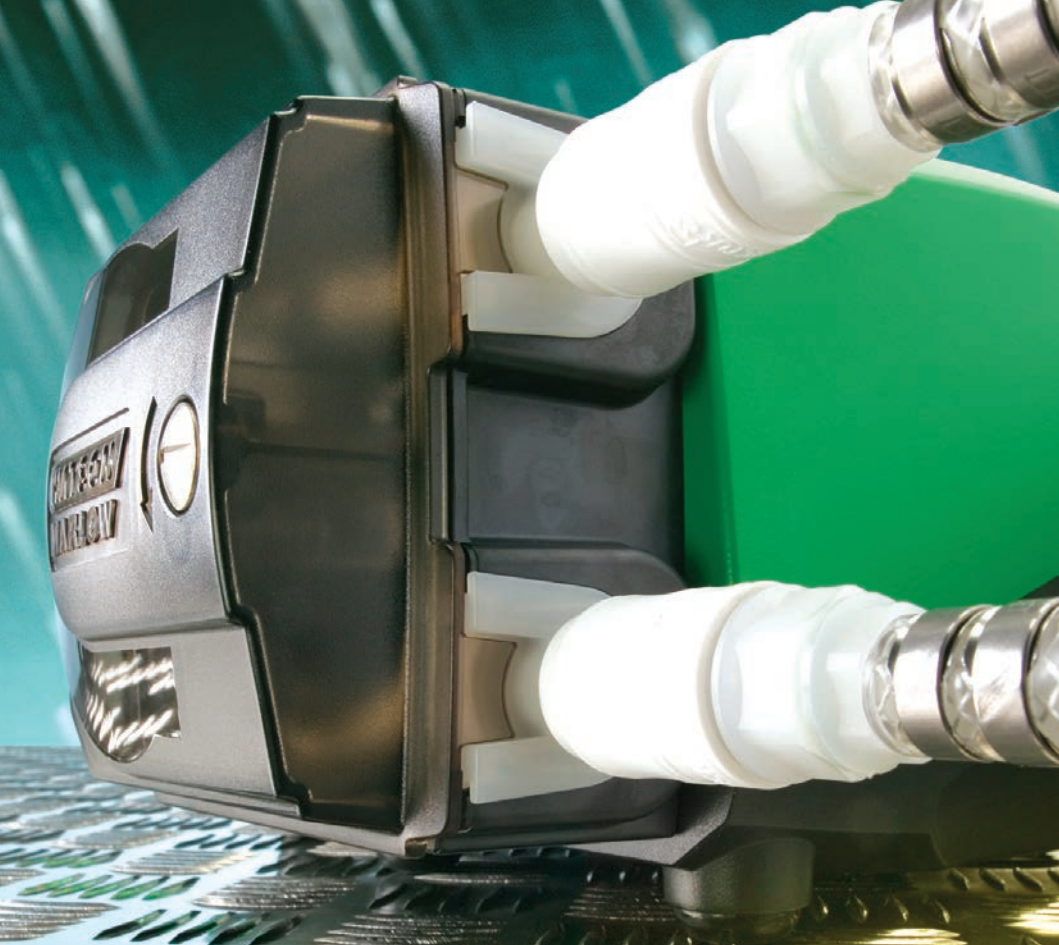
620 series pumps

LoadSure tube elements are available in two bore sizes of 12mm and 17mm and for medium pressures up to 4 bar or low pressure up to 2 bar. All elements use Tri-clamp style connectors. Element materials include Bioprene and STA-PURE PCS for medium pressure and Bioprene, Pumpsil and STA-PURE PFL for low pressure.

720 series pumps

LoadSure tube elements are available in four bore sizes of 12.7mm, 15.9mm, 19.0mm and 25.4mm, for pressures up to 2 bar and use Tri-clamp style connectors. Element materials include Bioprene, Pumpsil and STA-PURE PCS.

Consult Watson-Marlow for options on installation and interfacing pipework and fittings.



Industrial

Marprene
GORE® Style 400
Neoprene

Marprene



A long life thermoplastic elastomer with resistance to a wide range of chemicals. Marprene is highly resistant to oxidising agents such as ozone, peroxides and sodium hypochlorite.

Marprene Typical Characteristics

- **Colour/transparency** Beige/opaque
- **Spallation** Fair
- **Standards** FDA regulations 21 CFR 177.2600 for contact with aqueous food.
- **Operating temperature** 5C to 80C

Sizes

Available in thirty different bore sizes, five wall thicknesses and three coil lengths, including bulk reels which provide cost savings. Also suitable in Loadsure elements. See material datasheet for full range and ordering information.

GORE® Style 400



PTFE-reinforced Viton tubing resistant to strong concentrated acids such as nitric and sulphuric and aromatic hydrocarbons such as toluene and xylene. Exceptional reliability with tube life 50 times that of extruded Viton or Fluorel. Pumping up to 4 bar.

Style 400 Typical Characteristics

- **Colour/transparency** Off-white/opaque
- **Spallation** Very Low
- **Operating temperature** 0C to 80C

Sizes

Available in seven different bore sizes, three wall thicknesses and three element lengths. See material datasheet for full range and ordering information.

Neoprene



Neoprene offers good performance with abrasive slurries in industrial applications. Good suction and pressure capabilities.

Neoprene Typical Characteristics

- Colour Black
- Operating temperature 0C to 80C

Sizes

Available in 18 different bore sizes, three different wall thicknesses and two coil lengths. See material datasheet for full range and ordering information.

Industrial LoadSure tubing elements



When you need a pump with positive connection points and error-free tubing loading, choose Watson-Marlow LoadSure tube elements.

520 series pumps

LoadSure tube elements are available as high pressure up to 7 bar, medium pressure up to 4 bar and low pressure up to 2 bar. All elements use quick-release PVDF connectors. The element connectors are colour coded to match the correct pumphead. Element materials include STA-PURE PCS for high pressure, Marprene and GORE Style 400 for low, medium and high pressure, STA-PURE PFL for low and medium pressure, Pumpsil and Neoprene for low pressure.

620 series pumps

LoadSure tube elements are available in two bore sizes of 12mm and 17mm and for medium pressures up to 4 bar or low pressure up to 2 bar. All elements use industrial PVDF Cam & Groove connectors. Element materials include Marprene for medium pressure and Marprene, Pumpsil and Neoprene for low pressure.

720 series pumps

LoadSure tube elements are available in four bore sizes of 12.7mm, 15.9mm, 19.0mm and 25.4mm, for pressures up to 2 bar and use industrial PVDF Cam & Groove connectors. Element materials include Marprene, Pumpsil and Neoprene.

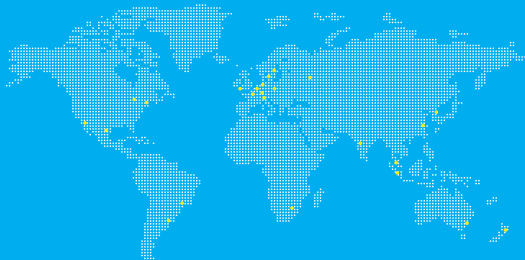


Watson-Marlow Pumps Group

A Spirax-Sarco Engineering Company

Watson-Marlow Pumps Group has six world-class factories supported by direct sales operations in 23 countries and distributors in more than 50 countries. For contact details visit our website:

wmpg.com



wmtubing.com

The information in this document is believed to be correct, but Watson-Marlow Pumps Group accepts no liability for any errors it contains, and reserves the right to alter specifications without notice. **WARNING:** These products are not designed for use in, and should not be used for, patient-connected applications. Watson-Marlow, Pumpsil, PureWeld, LoadSure, LaserTraceability, Bioprene and Marprene are registered trademarks of Watson-Marlow Limited. STA-PURE PCS and STA-PURE PFL and Style 400 are trademarks of WL Gore & Associates Inc.

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