

# PTFE CONDUIT



## Applications

Our flexible helically formed PTFE Conduit is widely used in the Aerospace and Automotive industries for cable harnessing. It is also used for fluid transfer, abrasion protection and thermal insulation. It is ideal for use in areas where there are hazardous chemicals and extreme temperatures.

## Size Range

We produce a variety of different types of conduit with bore sizes from 1.5mm to 38mm. Our standard size range is based on the Panavia specifications and consists of:

- GT01 - Light Wall
- GT02 - Standard Wall (Shallow Convolutions)
- GT03 - Standard Wall
- GT04 - Standard Wall (Shallow Convolutions)
- GTCRS - Crush Resistant

## Smooth Bore Conduit

Innovations in conduit design have led to the development of a range of Smooth Bore Conduit which has virtually no internal convolutions allowing easier insertion of cables.

**This product is patented worldwide.**

The standard range

- SBC - Smooth Bore (-70°C to +260°C) Available in bore sizes from 6.8mm to 19.8mm.

Or for a personalised service made to your own size specification;

- GTSBC - Custom Smooth Bore (-70°C to +100°C) Available in bore sizes from 1mm.



## Colour Range

Smooth Bore is available in natural, all other conduit is black, other colours from our standard colour range are available on request.

## Packaging

Supplied in random lengths on reels or in coils as appropriate. Cut lengths are available along with other services such as cuffed or plugged ends. If you have any special packaging requirements please contact our sales team.

## Applicable Standards

PAN 6627, PAN 6628

## Material Data Sheet

Temperature Resistance -70°C to +260°C	PTFE is extremely stable at high temperatures, and can be used continuously at 260°C. Although it is stable at high temperatures, its mechanical properties decrease with increasing temperature. PTFE is one of the few polymers that retain a measure of toughness and strength even at cryogenic temperatures. It has been used safely in outer space at temperatures approaching absolute zero.			
Chemical Resistance	PTFE is virtually inert to all chemicals. The only materials known to react with PTFE are: <ul style="list-style-type: none"> <li>• Elemental alkali metals (molten or in solution)</li> <li>• Finely divided metal powders (only when ignited)</li> <li>• Finely divided mixtures of bronze powder and molybdenum disulphide (at or above the melting point of PTFE)</li> <li>• Fluorine</li> <li>• Chlorine trifluoride</li> <li>• 80% NaOH or KOH solutions (above 300°C)</li> </ul> It is resistant to fuming sulphuric and nitric acids, aggressive peroxides, amines, antioxidants (as used in high temperature oils), and methanol (as used in fuel).			
Solvent Resistance	Organic solvents do not attack or dissolve PTFE, although some permeation may occur as a result of both absorption and diffusion. Obviously, the void content of a finished part will affect permeability significantly. PTFE contains no extractables which can leach out and interact unfavourably with adjacent materials.			
Weathering	PTFE is extremely hydrophobic, and sheds water almost totally. PTFE is also virtually unaffected by oxygen, ozone and visible or UV light. It shows no ageing since no plasticisers, antioxidants or other additives are used during its processing.			
Water Absorption	Max 0.01%			
Flammability	PTFE is essentially non-flammable. It will sustain combustion only in an environment containing >95% oxygen. The flash point is 530°C. It has a UL rating of 94 V-O. Due to its high melt viscosity, PTFE does not drip when heated over its melt point. This provides an additional safety margin in case of fire.			
Friction & Anti-Stick Properties	PTFE has an extremely low coefficient of friction. The lowest values are obtained under conditions of high pressure and low velocity. Unfilled PTFE wears relatively fast, and is unfit for dynamic bearing applications. Due to its very low surface energy PTFE has excellent anti-stick properties, preventing the build up of sediment or carbon.			
Electrical Properties	PTFE has unique electrical properties; a very low dielectric constant and dissipation factor, excellent dielectric strength, and a very high volume and surface resistivity. The safe working voltage for smooth bore tubing is approximately 40 kV/mm.			
	Dielectric Strength	40 - 80 kV/mm (Safe Figure 40 kV/mm)	ASTM D149	
	Volume Resistivity	10 <sup>18</sup> Ω <sub>m</sub>	ASTM D257	
	Surface Resistance	10 <sup>17</sup> Ω	ASTM D257	
Mechanical Properties	Tensile Strength	Longitudinal Transverse	33 N/mm <sup>2</sup> 31 N/mm <sup>2</sup>	DIN 53455 ASTM D1457-81
	Elongation at Break	Longitudinal Transverse	350% 610%	DIN 53455 ASTM D1457-81
	Density		2.15 g/cm <sup>3</sup>	ASTM D1457-81
	Shrinkage	Longitudinal Transverse	11% 15%	
	Thermal Properties	Service Temperature Range	-70°C to +260°C	
	Melting Range	320°C to 340°C		
	Thermal Conductivity	0.25-0.50W / m.K	DTA DIN 52612	