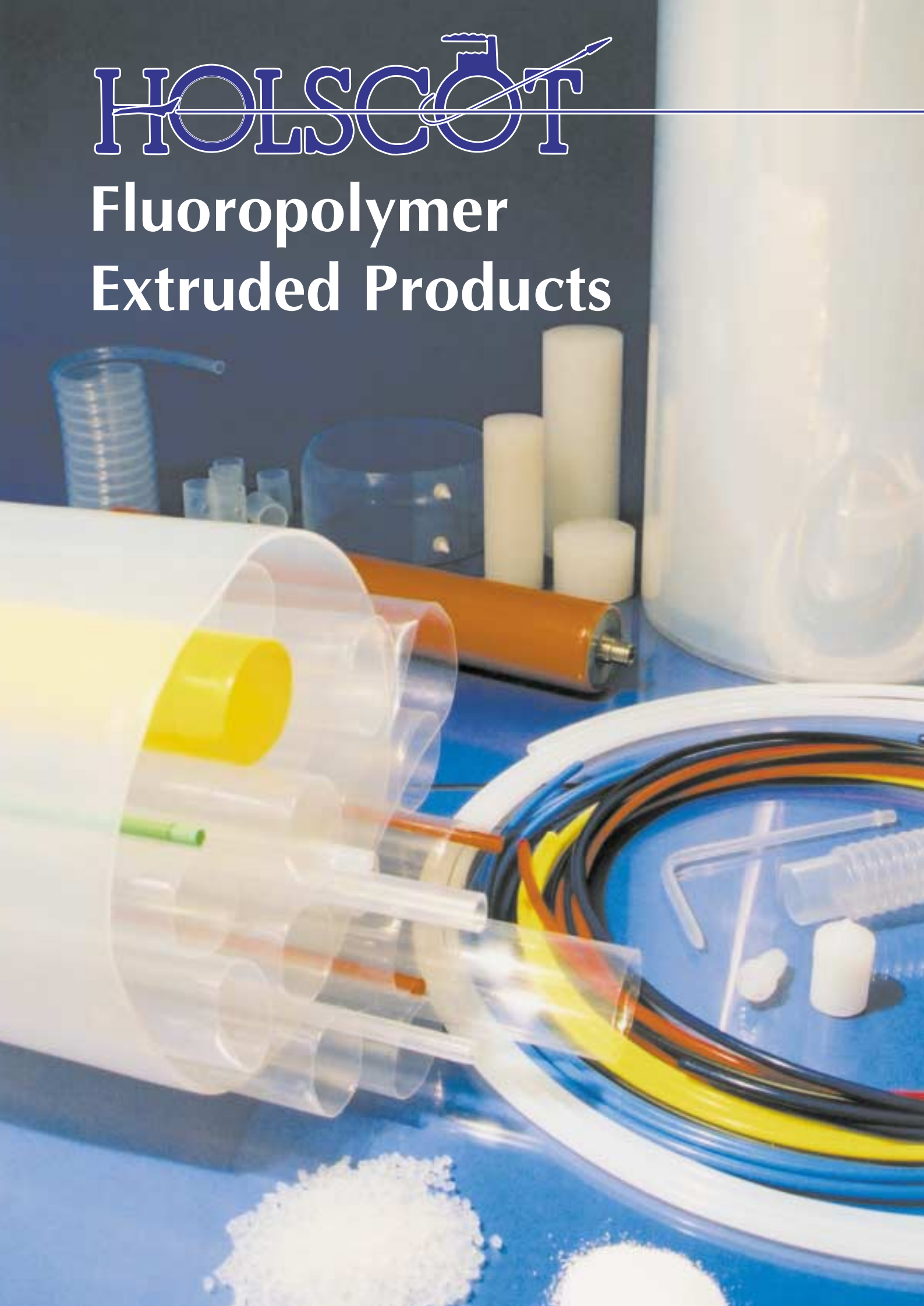
HOLSCOT

Fluoropolymer Extruded Products



HOLSCOT

RANGE OF PRODUCTS

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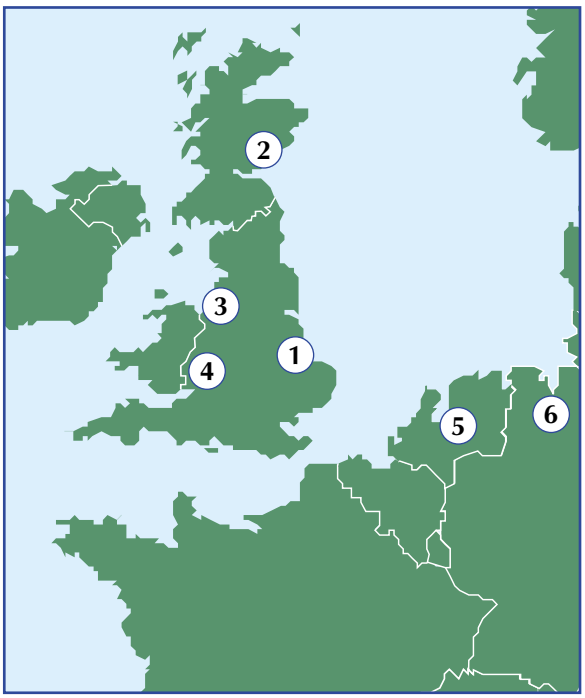
HOLSCOT

ABOUT OUR GROUP

Holscot was established in 1970 to investigate the potential of the then new melt processable fluoroplastics, specifically FEP and PFA. We quickly developed skills in manipulating these materials including welding, thermoforming, etching and bonding techniques, which were, and are, in the forefront of fluoroplastic technology. In an effort to become less reliant on others, we made the decision to install state of the art extrusion facilities which have been consistently improved and augmented over the years such that we now have the capability to extrude the most extensive range of melt processable fluoroplastics in Europe.



SERVICE

Holscot takes particular pride in its level of service. With complete in house control of manufacturing, we are able to respond quickly with standard products and custom applications. It is our commitment to respond to enquiries within 48 hours of receipt for standard products.

QUALITY

nqa. ISO 9001 Registered
Certificate No. 4742

Our quality system has been thoroughly tested by major companies like Rolls Royce, British Aerospace and the Ministry of Defence. We are proud that we are registered to ISO 9001.

GROUP

We have 6 members in the Holscot Group:-

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FLUOROPLASTIC MATERIALS

It is our policy to be involved only with the ever growing family of fluoroplastic materials. Their properties are so wide ranging that their benefits can be enjoyed by a huge diversity of industries and applications.

We use only top quality resins from manufacturers such as DuPont, Daikin, Dyneon and Solvay Solexis.

PTFE (Polytetrafluorethylene)

PTFE is the most chemically resistant plastic known to man. Inert to virtually all chemicals, it also has excellent thermal and electrical insulation properties. Perhaps its most commonly known property is its non-stick capability. It is stable in temperatures up to 260°c and is non-flammable. It cannot be processed by conventional or plastic processing techniques which is the major reason why the melt processable fluoroplastics were developed.

PFA (Perfluoroalkoxy)

The melt processable material which most closely resembles PTFE in terms of stability at high temperatures. It has a very high purity which makes it most suitable for applications such as semi-conductor processing. Being a thermoplastic it can be extruded. It has, for instance, 100 times the flex life of other fluoroplastics which makes it most suitable for high flexing applications.

FEP (Fluorinated Ethylene Propylene Polymer)

A more economically priced polymer than PFA which possesses very similar properties to PTFE and PFA in terms of chemical resistance, unsurpassed non-stick capabilities and excellent dielectric properties, although its temperature resistance is limited to 200°c only. The most commonly used material for roller cover applications, having an excellent heat activated elastic memory. Being unaffected by UV light and allowing over 97% of UV light transmission makes FEP the ideal choice as a protective shatter resistant covering for UV lamps.

ETFE (Ethylene Tetrafluoroethylene)

Significantly tougher than the other fluoroplastics, its ability to withstand bending without kinking makes it an ideal choice for flexible tubing applications. Its chemical resistance is on a par with the other fluoroplastics but its mechanical strength makes it a better choice for abrasive situations.

In thin guages, ETFE is an excellent choice for lightweight roof structures.

NEW MATERIALS

As new fluoroplastic polymers are developed with new characteristics and properties to benefit new appications, Holscot is happy to add them to our range.

For example, Solvay Solexis' new formulation of PFA – earlier known as MFA – offers better surface smoothness, high values of transmittance both in the visible and the UV region.

The Teflon* G range of polymers from DuPont offers the flexibility to adjust the properties of the fluoroplastic to suit the requirements of individual applications.

ALL FLUOROPLASTICS

- Have excellent temperature stability
- Are resistant to chemical attack
- Have unsurpassed non-stick capabilities
- Have excellent dielectric properties
- Are UV stable
- Will not burn

PFA TUBING

PFA's property of non-contamination, makes it the material of choice where high purity is of importance. Indeed, special high purity PFA granules can be used for applications such as those found in the semi conductor industry. With 100 times the flex life of FEP, PFA is an appropriate polymer for applications where the tube will be consistently flexed.

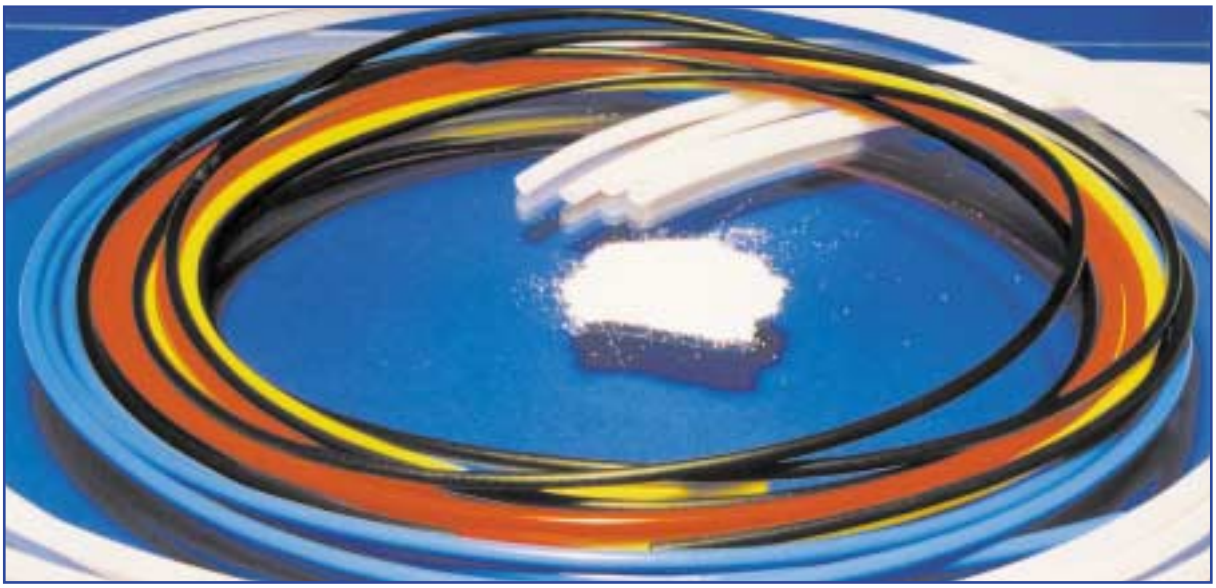
The range of tubing available encompasses diameters as small as 1mm up to a massive 400mm diameter – the largest extruded PFA tube made in Europe.

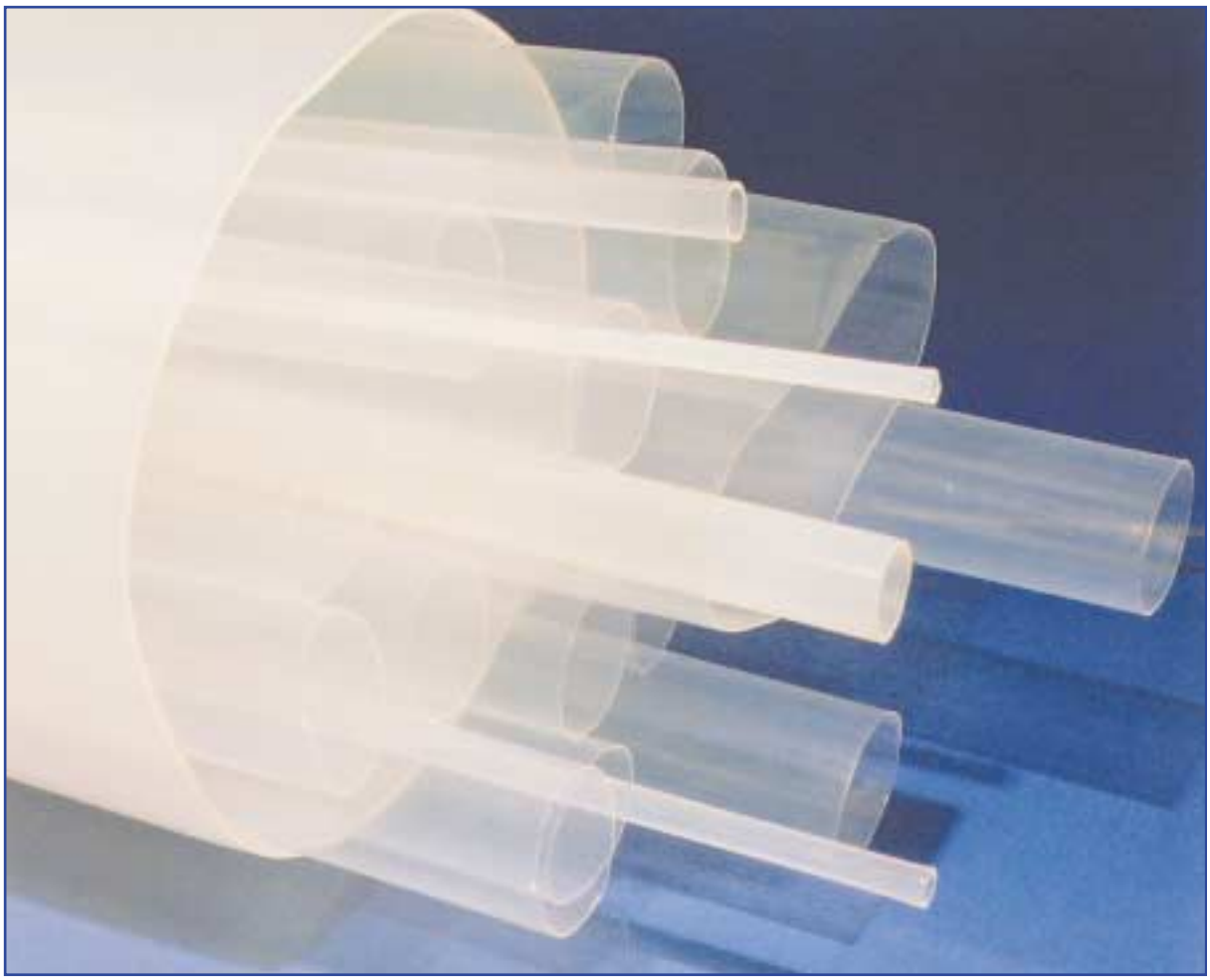
Wall thickness can be as small as 50 microns and as large as 3mm.

PTFE TUBING

PTFE is the most commonly recognised fluoroplastic and its use is widespread. Holscot's extrusion capabilities encompass a wide range of sizes extending from standard American Wire Guage sizes through to large diameter heavy walled tubing, including extruded liners for standard sized pipe work.

Pigmentation is an option as well as fillers provide enhanced qualities.





FEP TUBING

Our most commonly used melt processable fluoroplastic, FEP possesses virtually all the properties of PTFE but can be manufactured by the extrusion process.

Our exclusive range of tubing includes bore sizes of 1mm up to the largest extruded FEP tube in Europe at 400mm diameter.

Wall thickness can be as low as 50 microns and as thick as 3mm.

The properties of FEP are so varied that it can be used in a huge number of different applications. Non-stick capabilities facilitate the transmission of viscose materials; the inertness of the product is of importance when used as a hose lining, the ability to withstand UV light makes it the ideal shatterproof cover for UV lights; its chemical resistance and clarity come into play when used as a sight glass.

Options available: Pigmented tubing can be provided.

ETFE (TEFZEL*) TUBING

ETFE (TEFZEL*) TUBING

For tougher applications where there is a possibility of abrasion, ETFE tubing offers the best solution.

In addition, ETFE extruded tube is resistant to kinking and is therefore ideal where the tubing will be flexed such as in umbilicals for offshore use or breathing apparatus.

In this context, a Holscot speciality is the production of long continuous lengths of ETFE tubing, up to 1 kilometer in length.

FLEXIBLE CONDUIT IN FEP OR PFA

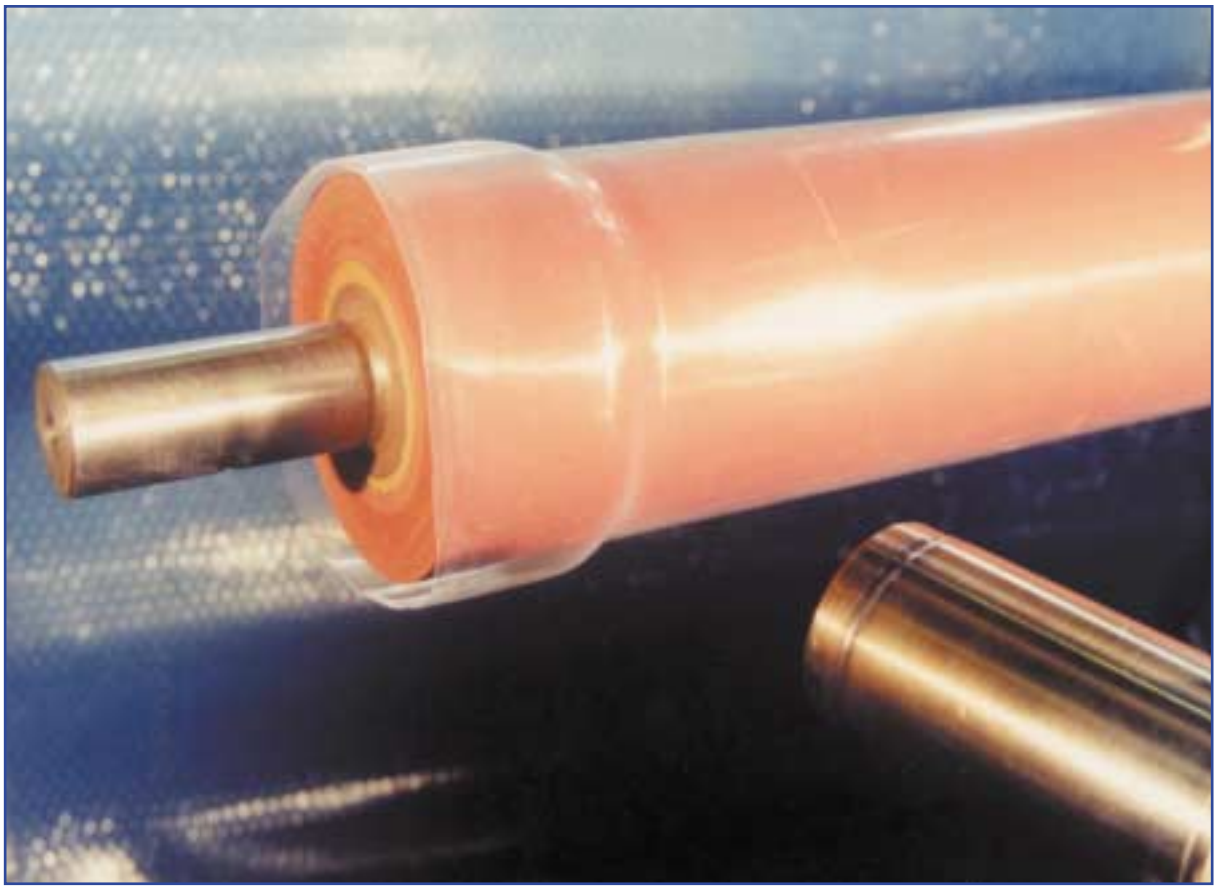
Where flexibility is important, Holscot convoluted tubing offers the inertness and electrical insulation properties of a fluoroplastic tube in a form which can be flexed and coiled without kinking.

Ideal as ductwork and cable sheathing, the tubing can be made in FEP, PFA or Teflon* G. Pigments can be incorporated and conductive resins can be used.

CONVOLUTED TUBING

FEP AND PFA HEAT SHRINKABLE TUBING

Holscot's range of heat shrinkable sleeves provide the ultimate non-stick surface for rollers of any diameter.



The Holscot range of heat shrinkable sleeves encompasses sizes from 12mm to 400mm as a seamless sleeve. Easily installed using a hot air gun, the most widespread use is as a non-stick surface for rollers in such industries as the paper, printing and textile industries.

Standard thickness is nominal 0.5mm, but other thicknesses form 0.25 – 1.5mm can be produced to order.

For applications where the operating temperature is higher and/or the surface is flexed, PFA is the preferred material.

Custom applications are a Holscot speciality. Pigmented sleeves are available for volume applications.

Holscot Range of Seamless Heat Shrinkable Sleeves in FEP 12mm-380mm

Nominal Diameter mm	Nominal Diameter inches	Will Fit mm	Diameters inches	Minimum Expanded Diameter mm	Minimum Expanded Diameter inches
12	1/2″	12 to 15	0.47″ to 0.59″	17	0.67″
19	3/4″	16 to 22	0.63″ to 0.87″	23	0.9″
25	1″	23 to 28	0.9″ to 1.1″	30	1.18″
32	1.25″	29 to 36	1.2″ to 1.4″	38	1.5″
38	1.5″	37 to 43	1.45″ to 1.7″	45	1.77″
51	2″	44 to 53	1.75″ to 2.1″	55	2.16″
64	2.5″	54 to 66	2.12″ to 2.6″	71	2.8″
76	3″	67 to 79	2.64″ to 3.1″	83	3.3″
89	3.5″	80 to 89	3.15″ to 3.5″	96	3.8″
102	4″	90 to 109	3.6″ to 4.3″	114	4.5″
127	5″	110 to 132	4.33″ to 5.2″	137	5.4″
152	6″	133 to 157	5.23″ to 6.2″	162	6.4″
178	7″	158 to 178	6.22″ to 7.0″	183	7.2″
203	8″	179 to 211	7.05″ to 8.3″	216	8.5″
229	9″	212 to 234	8.35″ to 9.2″	241	9.5″
267	10.5″	235 to 269	9.25″ to 10.6″	279	11″
305	12″	270 to 307	10.63″ to 12.1″	325	12.8″
380	15″	308 to 401	12.13″ to 15.8″	411	16.2″

Holscot Range of Seamless Heat Shrinkable Sleeves in PFA 32mm-380mm

Nominal Diameter mm	Nominal Diameter inches	Will Fit mm	Diameters inches	Minimum Expanded Diameter mm	Minimum Expanded Diameter inches
32	1.25″	29 to 36	1.2″ to 2.4″	38	1.5″
38	1.5″	37 to 43	1.45″ to 1.7″	45	1.77″
51	2″	44 to 53	1.75″ to 2.1″	55	2.16″
64	2.5″	54 to 70	2.12″ to 2.7″	71	2.8″
76	3″	71 to 84	2.8″ to 3.3″	89	3.5″
89	3.5″	85 to 98	3.35″ to 3.9″	101	4″
102	4″	99 to 118	3.93″ to 4.6″	122	4.8″
127	5″	119 to 140	4.7″ to 5.5″	145	5.7″
152	6″	141 to 157	5.55″ to 6.2″	162	6.4″
178	7″	158 to 178	6.22″ to 7.0″	183	7.2″
203	8″	179 to 211	7.05″ to 8.3″	216	8.5″
229	9″	212 to 234	8.35″ to 9.2″	241	9.5″
267	10.5″	235 to 269	9.25″ to 10.6″	279	11″
305	12″	270 to 307	10.63″ to 12.1″	325	12.8″
380	15″	308 to 401	12.13″ to 15.8″	411	16.2″

Standard Lengths – Sleeves must be ordered in standard lengths

32mm – 127 mm diameter available in lengths

0.9m 1.2m 1.5m 1.8m 2.1m 2.4m 3.0m 3.7m 4.3m 4.9m 5.5m 6.1m

(3′ 4′ 5′ 6′ 7′ 8′ 10′ 12′ 14′ 16′ 18′ 20′)

152mm and upwards available in lengths

6.7m 7.3m 7.9m 8.5m 9.1m

(22′ 24′ 26′ 28′ 30′)

HOLSCOT

These Roller Sleeves are specifically designed and developed by our engineers to improve the performance of rubber and silicone rollers used in high specification printers and photocopiers.

The use of Holscot FEP and PFA sleeves extends roller life and reduces wear. The non-stick surface offers improved image resolution and better paperhandling. The covered rollers can be specified as original equipment supply (OEM) or used in the replacement after-sales market.

The range of sleeves encompasses thicknesses from 100 microns to 0.5mm. Both "as extruded" and heat shrinkable sleeves are available for all sizes of rollers.

A choice of two types of internal etching is offered to provide a bondable surface. Both etching processes are carried out in-house. The sleeves are specifically designed for use on rollers covered with various silicone and EPDM rubbers in a variety of durometers.

The sleeves can be ground and polished after application to meet customers' specific requirements. This facility is especially useful in the refurbishment market.

Since all the production facilities are available in-house, custom developed roller covers are a Holscot speciality. Different gauges, materials and etching methods can be varied to meet the particular needs of OEM manufacturers and refurbishers alike.

SHATTER RESISTANT LAMP COVERS

UV LIGHT COVERS

FEP allows 97% of UV light to be transmitted through it. Furthermore, it is completely unaffected by exposure to UV. These factors influenced the choice of FEP as the most appropriate material to be used as a shatterproof cover for UV lamps used in insect killing apparatus and water treatment.

Sleeves can be supplied and fitted to standard size straight lamps as well as circular lights, U-shaped lamps and bulbs.

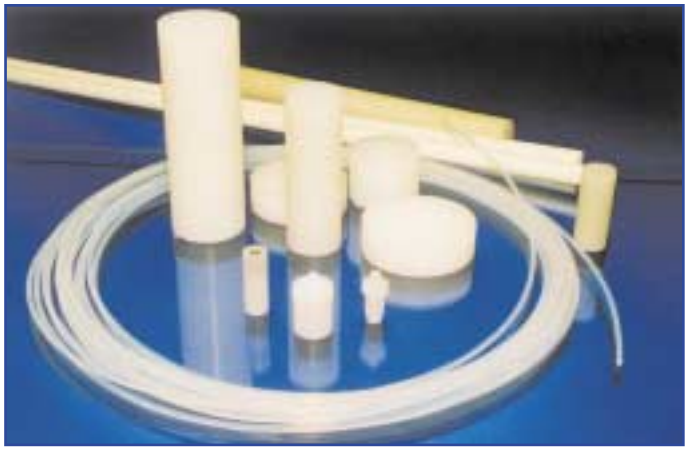
FLUOROSAFE LAMP COVERS

As legislation comes into force to dictate that fluorescent lighting in high risk areas such as food preparation and public access areas must be protected, there is a necessity for shatter resistant covers on fluorescent tubes. Holscot's Fluorosafe Shatter Resistant covers are made in high molecular weight fluoroplastic material which is unaffected by UV or heat and will outlast the longest lasting lamps. We can supply the sleeves for self-fitting or cover free issue bulbs.

For export markets, Holscot can supply complete installation lines to allow the covering of large quantities of lamps in situ even for companies without any prior knowledge or experience of working with fluoroplastics.

FLUOROSAFE LAMP COVERS

PFA AND FEP ROD



PFA AND FEP ROD

Augmenting our range of tube products, we offer solid rod in FEP, PFA and ETFE. Smaller sizes are commonly used as welding rod whilst the larger diameter can be machined to produce finished components.

CUSTOM APPLICATIONS

Holscot is constantly in discussion with the major raw material suppliers to research new materials. We are always happy to consider custom extrusions in any of the other fluoroplastics including ECTFE, PVDF and THV.

In a major new development, we are now able to select specially produced materials with enhanced individual properties for particular applications.

HOLSCOT TECHNOLOGY

Holscot's unparalleled skills in working with these materials enables us to manipulate them to produce the answer to your problems, such as self-supporting assemblies in FEP, PFA or PTFE, for example, tanks and troughs. A field in which we have carried out pioneering work has been in gas and fuel bags.

WELDING

In its early years, Holscot based its technology on an exclusive machine welding technique designed to produce a weld which was virtually imperceptible. Over the years we have continued to enhance the equipment to improve the weld.

In addition we use hand welding techniques using welding rod and capping strips.

THERMOFORMING

Vacuum forming, tube flaring and coiling.

ETCHING

We have two etching processes – sodium naphthalene and sodium ammonia to provide surfaces onto which adhesives can bond.

Holscot can supply adhesives for specific applications.

CUSTOM APPLICATIONS

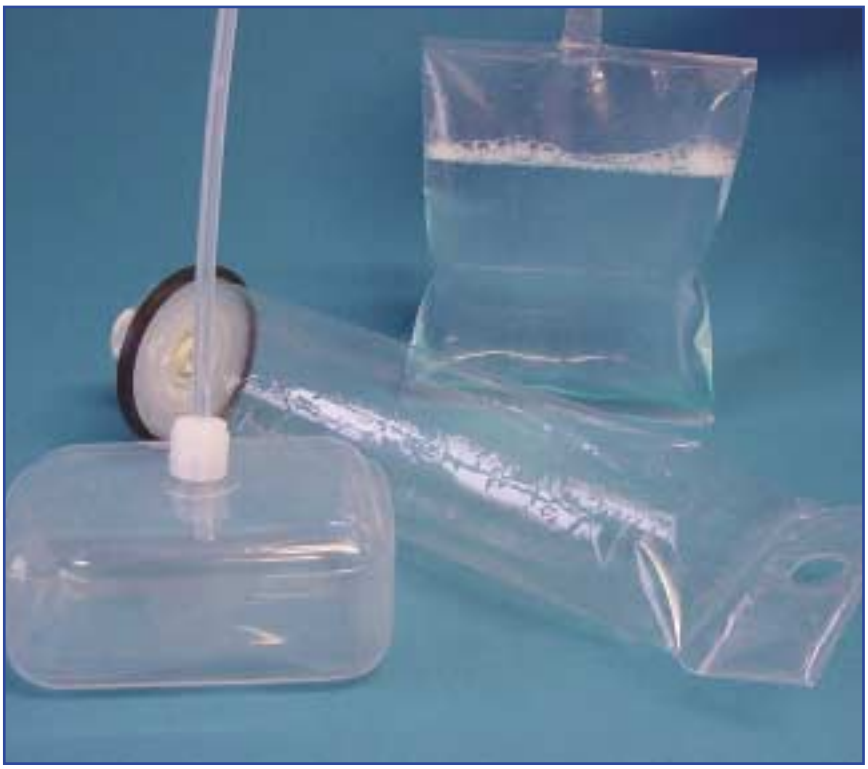
FLANGE SHIELDS

FLANGE SHIELDS

Holscot's range of Flange Shields offers protection to operators in the event of a Flange leak.

Made from 100% FEP material, the shields are resistant to chemical attack. They are quickly and easily fitted and, being transparent, they allow visibility to check for leaks.

They are heat-shrinkable so can be fitted snugly to the flange rim. The design allows access to the bolts for re-tightening during service.



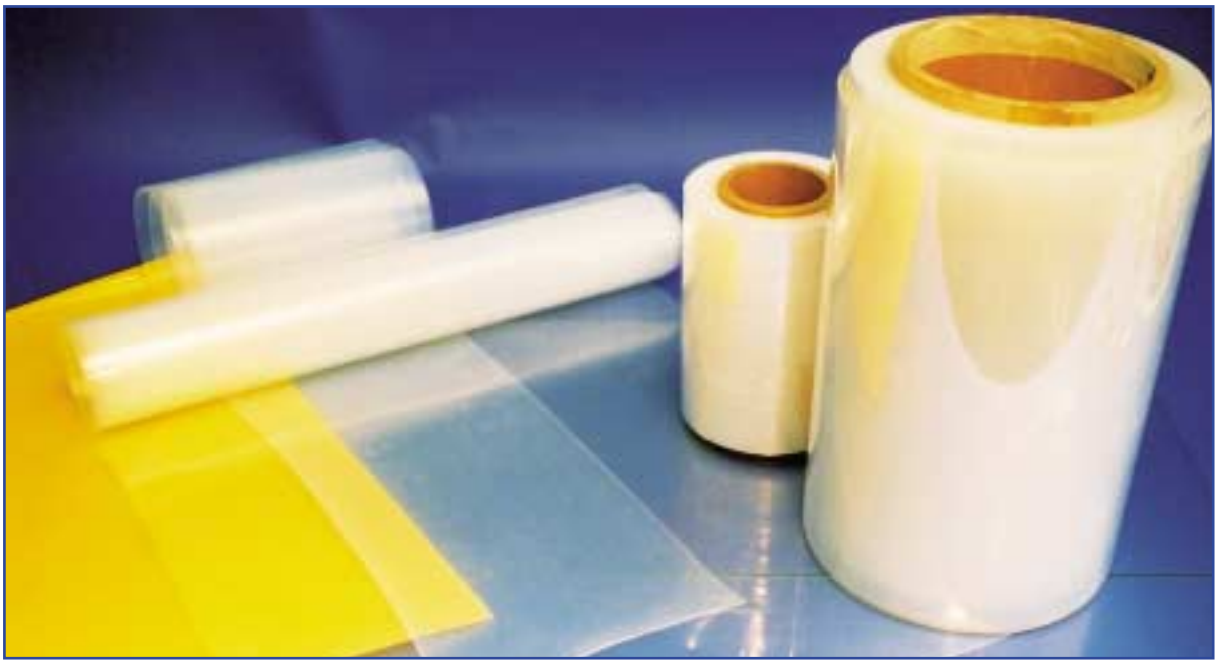
GAS SAMPLING BAGS

Holscot's ability to weld and vacuum form FEP and PFA enables us to fabricate sampling bags for analysis of gas and liquids without the risk of contamination.

The inertness of the Fluoroplastic material ensure analysis results are 100% accurate.

Custom fabrication using materials specified by customer, other wall thicknesses, connections and configurations are a Holscot speciality.

GAS SAMPLING BAGS



FILM/SHEET

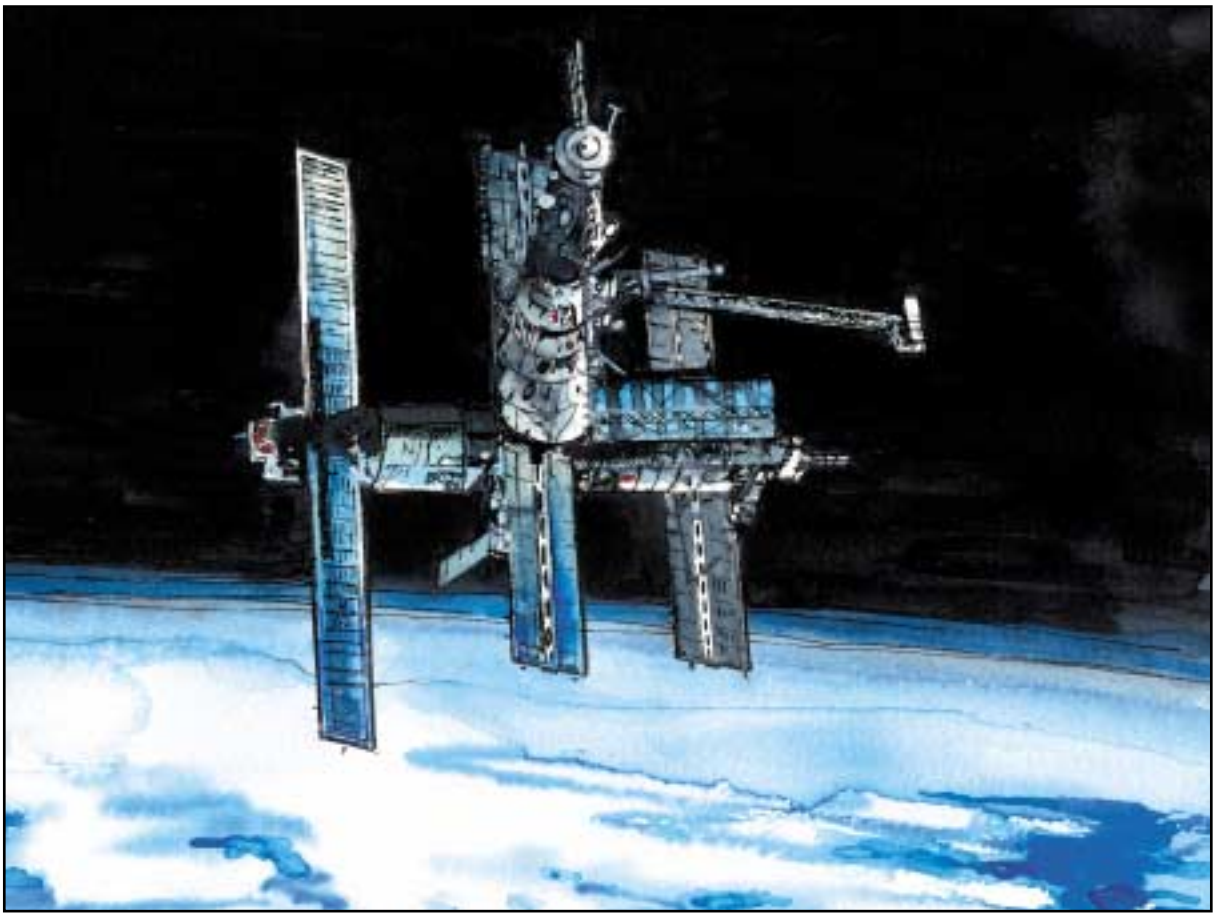
A comprehensive range of FEP and PFA film/sheet can be supplied. Thicknesses extend from 0.1mm to 2.4mm in FEP and PFA.

Glass-backed material can be provided for use in lining applications to steel or over-wrapped with GRP.

We offer etching facilities to provide bondable surfaces.

STANDARD SPECIFICATIONS OF FEP FILM

	Thickness	Size and Weight per roll			
Code No.	mm	inches	Width (mm)	Length (m)	Weight (kg) (Approx)
NF0025	0.025	0.001	1150 or 1220	200 or 183	13
NF0050	0.050	0.002	1150 or 1220	200 or 183	25
NF0100	0.1	0.004	1150	100	25
NF0250	0.25	0.010	1250	80	50
NF0500	0.5	0.020	1250	40	50
NF0500H	0.5	0.020	900 or 1100	55 or 50	50
NF1000	1	0.040	1250	20	50
NF1000H	1	0.040	900 or 1100	28 or 23	50
NF1500	1.5	0.060	1250	25	100
NF1500H	1.5	0.060	900 or 1100	34 or 27	100
NF2400	2.4	0.090	1250	15	100
NF2400H	2.4	0.090	900 or 1100	20 or 17	100
NF 1500 Glass Backed	1.5 (2.3 overall)	0.060	1150	20	100
NF 2400 Glass Backed	2.4 (3.5 overall)	0.090	1150	15	100



DEVELOPMENT PROJECTS

Holscot takes pride in its ability to identify and develop new product areas within the fluoroplastics fields. We have worked on several high profile projects, including fuel and supply tanks for Near Space applications and corrosion resistant tubing for the Sea Bed.

We are particularly experienced in collaboration with major Contractors such as the Ministry of Defence, British Aerospace, Rolls Royce and Astrium to develop high-tech solutions to their most difficult fluid handling problems.

PLUNKETT AWARD

Holscot is particularly proud of being a two time winner of the prestigious Plunkett Award given by DuPont de Nemours for Innovations.

Our first award was in recognition of the work we have carried out in developing self supporting fuel tanks manufactured in FEP.

Our second was awarded for our work in the development of a coating fused by Laser.

LASER COATING

The need for an on site applied non stick coating which required no heat curing, prompted a project to investigate on site spraying and curing by laser.

A consortium of companies led by Holscot pooled their extensive knowledge from various fields and gave rise to a system which provided a laser fused coating in PTFE/PFA and FEP.

Test cylinders are currently in service and results are encouraging. Light weight structures can be coated without exposing them to 400°c.

Extruded Tubing in FEP, PFA, ETFE, MFA and PTFE

Heat Shrinkable Sleeving in FEP and PFA

Shatter Resistant Covers for UV and Fluorescent Lamps

Custom Sleeving for Reprographic Applications

Flexible Conduit Tubing in Fluoroplastics

Specialised Fabrication Techniques in Fluoroplastics

FEP and PFA Sheet and Film

Development Projects in Fluoroplastics

Gas Sampling Bags

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