



THE HOLSCOT GROUP OF COMPANIES **GROUP PROFILE**

Holscot Industrial Linings was formed in 1970, with a specific brief to explore the potential of the newly available melt processable fluoroplastics.

The original fluoroplastic material PTFE, had been created many years before and was widely in use for a variety of applications. Its major drawback, however, was that it was not able to be welded, nor thermoformed. For this reason, derivatives were created which were true thermoplastic co-polymers of PTFE. They were melt processable; i.e. - in their molten state they could be extruded into tube and sheet products which themselves could be manipulated under temperature or welded when molten.

All these materials; PTFE, FEP and latterly PFA, were created initially by Du Pont de Nemours and carried the Teflon trade name. The first of the melt processable materials to be made commercially available was FEP and it was this material on which Holscot centred its initial activities.

The Early Years

Holscot was set up by a Dutchman and a Scotsman ("Hol" "Scot"). Its first premises were established in a disused school in the centre of Grantham, in the centre of England. There a small team of skilled and creative engineers set about investigating the potential of these new and exciting materials which had only just come onto the market.

The first market which Holscot targeted was the market for Teflon* roller covers. The principle involved is to provide the ultimate non-stick surface to rollers of any diameter including large diameter drying cylinders. Industries such as the paper industry, the printing industry, converting and textiles all suffer the effects of build up of sticky substances such as adhesive, coatings, size, latex or inks which contaminate the end product, cause expensive downtime whilst the rollers are cleaned and have a detrimental effect on the rollers themselves. The Teflon* sleeves are heat shrunk onto virtually any kind of roller (steel, rubber, aluminium etc.) to counteract this problem.

For the smaller range of diameters, the sleeves are seamless extrusions, which are expanded and given a heat shrinkable memory. In the early years Holscot imported these from other suppliers initially in the form of heat shrinkable sleeving. Once the techniques and equipment were put in place to expand the sleeves in house, the "as extruded" tubing was bought in.

For the larger sizes of rollers, including drying cylinders, the sleeves are made into a sleeve by welding flat sheet into a tube. This necessitated the development of high quality welding techniques. In addition, these welding techniques needed to be portable to enable the fitting of the sleeves to drying cylinders whilst they were still in the machine.

Development of Technology

The welding techniques that have to be used for such an application have to produce a joint that is barely perceptible to the touch; otherwise the seam could leave an imprint on the product. Holscot's activities in the first few years were therefore spent developing and perfecting the techniques to be able to provide such a weld.

In tandem with this, Holscot also experimented with other techniques such as vacuum forming and chemical etching to provide bondable surfaces. These techniques led to an involvement in the aerospace market where complete structures such as fuel tanks for liquid fired rocket systems were constructed from FEP film.

The etching process is the only way to provide a bondable surface to Fluoropolymers and Holscot has two processes – the sodium naphthalene process for FEP and PFA and the sodium ammonia process for PFA. These can also be used on other Fluoropolymers.

With this mix of products and manufacturing techniques, Holscot rapidly became a known and respected supplier to the UK market, particularly the Paper and Aerospace industries. In addition, a network of distributors was established, mainly in Mainland Europe, marketing the finished Teflon* sleeves.

New Products - New Markets

As time went by other fluoroplastic materials became available and with them other markets. PVDF and much later Halar ECTFE were developed, both of which exhibited excellent chemical resistance. FEP, which was even better than PVDF and Halar as far as chemical resistance is concerned, was joined by PFA which had all the same properties of FEP but better resistance to high temperature and high flex applications. With this range of materials the lining of equipment exposed to corrosive chemicals became possible.

Initially the equipment could only be loose lined. The only method of bonding these materials to steelwork was a chemical etching which had a fairly low temperature threshold. However, with even this limitation there was a significant market for such items as lined pipework, dip pipes and storage vessels and columns.

Subsequently, versions of these fluoroplastics were created with fabric backings that enabled them to be bonded to steelwork. Thus items of chemical plant which were subjected to vacuum conditions and even high temperatures could be protected from attack by corrosive liquids.

Over the years Holscot built up a customer base including the most renowned chemical and pharmaceutical firms, such as ICI, Boots, Albright and Wilson, SCM Chemicals etc. The lining techniques have been refined and improved and this has consequently extended the life spans of lined equipment.

Major projects in the Chemical field encouraged the expansion of the company which led Holscot to move from its original location in the heart of Grantham to larger premises on the outskirts, which themselves were subsequently expanded.

In subsequent years, the fabric backed materials started to become overwrapped with GRP to manufacture vessels. This design was the ultimate solution for higher temperature applications due to the compatibility of the expansion rates of the two materials. Holscot was at the forefront of developing this concept and constructed the first FEP/GRP vessel in the UK.

In House Extrusion

Having put in place its expansion facility and in an effort to become more self reliant, Holscot took the decision to set up in extrusion of FEP and PFA tubing, in order to avoid the practice of importing tubing from abroad. Holscot had to develop much of the machinery themselves and overcome considerable technical difficulties.

This expansion in facilities necessitated a move to larger premises and, in 1987, Holscot relocated to a substantially bigger unit which allowed the business to continue to grow.

Over the years, Holscot has refined and augmented the equipment, with the aims of extending the range, improving the quality of the end product, increasing productivity and adding new products.

Holscot is now capable of extruding FEP and PFA tubing in diameters from 2 mm through to 400 mm. This facility is believed to be unique in Europe. Holscot can produce custom extrusions with minimum runs as short as one hundred meters.

Holscot's range of seamless heat shrinkable sleeves has increased as larger (and smaller) diameters and a variety of wall thicknesses are attempted and conquered through a continuing programme of development and improvement of the extrusion facility.

Shatter Resistant Lamps

One of the most prolific uses for FEP in recent years is as a protective coating for UV lamps used for insect killing and liquid purification. Its ability to allow 97% of the UV to be transmitted and its resistance to high temperatures make FEP an ideal choice for long lasting lamps. Holscot supplies, and in most cases fits, hundreds of thousands of these sleeves each year. As well as straight lamps, Holscot has developed techniques to cover the circular lamps and manufacture welded pouches to encapsulate U shaped and dual lamps.

As legislation dictates that even standard fluorescent lamps should be protected in areas of high risk such as public access and food preparation areas, Holscot has further expanded its operations in this field – such that all UK divisions of the group are actively involved in the covering of lamps. Holscot has increased its extrusion capacity to accommodate this upsurge in demand and now covers nearly 2 million lamps per year. Holscot also supplies the lamp covers as heat shrinkable sleeving for customers all over the world to fit to lamps themselves.

New Developments

Over the years, other fluoroplastic products have come onto the market and as customers become aware of the materials and their properties, Holscot have added these products to their capabilities. Ultra flexible Tefzel* ETFE has been produced in continuous lengths of 2

km for use in offshore applications. It is also the material of choice for use in architectural structures because of its robustness and Broad Spectrum Solar transmissivity. It has been used extensively in high profile constructions such as the Eden Project and the Beijing Olympic swimming pool. Holscot set out to develop a modular system based on ETFE covered panels for use in greenhouses, solar rooms, butterfly houses and general roof structures.

Holscot has an on-going programme of augmenting and improving the extrusion facilities. These have further refined the quality of the extrusion, and allowed Holscot to consider new products to augment the range including larger diameters and film.

Holscot has built up a considerable and loyal customer base in a diverse variety of Industries, including Paper, Converting, Textiles, Reprographic and Aerospace Industries.

Most notably, Holscot and MT Aerospace in Germany worked together over a 5 year period to develop and produce a lining system for tanks being used to transport drinking water to the International Space Station. This necessitated the creation of the biggest vacuum forming ever carried out in FEP.

In order to accommodate the ever increasing volume of products – in particular the number of lamps received for processing which exceeds 1.5 million per year, a new warehouse was built on the site.

Holscot Northern Division.

With a view to providing a more prompt level of service to customers in the North of England and Scotland, Holscot established a satellite unit in Leven in Fife.

Holscot Northern Division services the Northern territory. The manufacturing facility specialises in the manufacture of the Holscot range of Teflon flange shields. These are transparent FEP guards which clip around flanges to prevent leaks being expelled and harming plant personnel. In addition they manufacture small FEP components such as FEP welded sample bags and laboratory components as well as covering some sizes of lamps. This division is also responsible for sales to the Republic of Ireland.

Holscot Europe

As mentioned above, Holscot had established a network of European distributors for its range of Teflon* roller covers. However, with the prospect of the trade barriers being lifted, Holscot looked to establish a European base to encourage sales of the other products in its range.

Holscot Europe was therefore formed in 1992 and sited in Breda in Holland. It is equipped with a small unit which is manned by two staff and acts primarily as a sales office for all the products of the Holscot Group of Companies. It also factors a wide range of associated fluoroplastic products including PTFE components and Spray Coating.

Fluoro Engineering Plastics.

Fluoro Engineering Plastics (Linings) was established in Rochdale in 1988. Its particular area of activity was the lining of all types of chemical equipment. As such it was initially a competi-

tor of Holscot. However, Holscot encouraged their growth by supplying them with materials at attractive prices.

As well as using the melt processable materials which Holscot employ, PVDF, ECTFE, FEP and PFA, they also use PTFE for lining of pipework. They established themselves with a reputation for a speedy and reliable service for lining everything from small dip pipes to large vessels. In 1992, financial problems beset them and Holscot decided to incorporate them into the Holscot Group. Maintaining the same manufacturing team which had worked so successfully, Fluoro Engineering Plastics (Linings) has become a valuable addition to the Holscot Group.

Shelman.

The assets of the Shelman group of companies were acquired by Holscot. Shelman had been involved in the lining of chemical vessels and the supply of PTFE lined pipework including iso-static moulded fittings. This latter facility was transferred to the Rochdale plant of Fluoro Engineering Plastics together with other items which now augment Fluoro Engineering Plastics range of products. ***FEP Shelman*** now has a complete range of PTFE lined pipework, together with the same lining techniques for which both companies were renowned.

Early in 1996, the volume of business being carried out at Rochdale combined with the need to investigate other manufacturing techniques have led FEP Shelman to relocate to premises twice the original size in Oldham.

As the Chemical Industry waned in the UK market, the emphasis of FEP Shelman's activities has changed. Whilst they are still operating the quick response lining capability for which they are respected, the fitting of FEP and PFA sleeves to rollers is now carried out at this division and their staff is often called upon to carry out installations throughout the UK and Europe.

For companies new to fitting these sleeves, FEP Shelman offers a training programme to instruct customers' engineers on the techniques of installing sleeves.

Cameron Coatings.

In 1996, the Holscot Group was joined by Cameron Coatings, a specialist Coating Company located in Cinderford, Gloucestershire. Licensed applicators of Teflon, Xylan and Halar products from Du Pont, Whitford Plastics and Solvay Solexis, their expertise in dispersion coatings of PTFE has added a new facet to the Holscot range.

Holscot Deutschland

In early 2001, in recognition of the size and potential of the German market for Teflon Sleeves, it was decided to set up a Sales Office located in Ratingen, South of Dusseldorf. It is the aim of the experienced staff to provide a prompt and efficient service to German customers and thereby to increase Holscot's market share.

Quality.

Throughout its history, Holscot has prided itself on the quality of products it has provided. Carrying out work for British Aerospace, Rolls Royce and the Ministry of Defence it has had to

establish and maintain a Quality Control System. These systems were subsequently extended to cover the entire product range and early in 1994, Holscot received approval for its Quality Systems under British Standard BS 5750, now renamed ISO 9001. Holscot has continued to maintain this Quality System and is regularly audited to that standard.

Awards

As a reflection of the value which Holscot place on Quality, Holscot have been awarded the license to use the Teflon* Trade Name by DuPont de Nemours.

In 2000, Holscot was also awarded the DuPont Plunkett Award in recognition of their work in the Development of Teflon* Fuel Bags for use in Space Applications.

A second award was given for Holscot's work in the development of a Teflon* based coating fused by Laser.

Web Site

Full product information is contained on our Web Site at **www.holscot.com**

In the 21st Century, the Holscot Group of Companies stands as a foremost company in fluoroplastics, incorporating five other divisions with unique capabilities in welding, extrusion, lining and coating technology as well as unparalleled experience in the use of fluoroplastics.

<p><i>Head Office:</i> Holscot Industrial Linings Ltd Alma Park Road, Alma Park Industrial Estate Grantham, Lincs. NG31 9SE Tel: +44 (0)1476 574771 Fax: +44 (0)1476 563542 E-mail sales@holscot.com</p>	<p>Holscot Northern Division Unit 9, Burnmill Industrial Estate Burnmill Road, Leven, Fife KY8 4RA Tel: +44 (0)1333 427555 Fax: +44 (0)1333 422929 E-mail alan.ross@holscot.com</p>
<p>FEP Shelman Unit K, Oldham Central Trading Park, Coulton Close, Oldham, Lancs.OL1 4EB Tel: + 44 (0)161 628 0628 Fax: + 44 (0)161 628 0555 E-Mail michael.radcliffe@fepshelman.co.uk</p>	<p>HOLSCOT® EUROPE Postbus 7401-4800 GK Breda, The Netherlands. Tel: + 31 (0)76 5718295 Fax: + 31 (0)76 5718315 E-mail pvn@holscoteurope.nl</p>
<p>CAMERON COATINGS 18, Forest Vale Road Cinderford, Gloucestershire GL14 2PH Tel: + 44 (0)1594 826088 Fax + 44 (0)1594 826092 E-mail camerons@holscot.com</p>	<p>Holscot Deutschland Duisburgerstrasse 169 D40885 Ratingen, Germany Tel + 49 (0) 2102 3099811 Fax + 49 (0) 2102 3099812 E-mail doris.holscot.de@t-online.de</p>