

PLASTIC PIPES PLUS WATERLINE COATING PRODUCE PURER WATER

Nigel Peach of
Johnston Pipes reviews
the rapid advances
in technology being
used to provide the
purest of drinking
water at the
tap for the
people of
Britain and
Europe.

Hunting  **Waterline**

Hunting Industrial Coatings and Johnston Pipes, one of the UK's leading pipe manufacturers, have together produced a ground-breaking new product – the GRP H20-E pipe. The understated technical name tag belies the potentially massive impact the pipe is set to make on the quality of our drinking water.

Product innovation

The new pipe is made from Glass Reinforced Plastics (GRP) which is lined with Hunting Industrial Coatings' Waterline epoxy resin coating ensuring that potable water passing through the pipe does not become contaminated. The pipe has been approved by the Department of the Environment after assessment by an independent committee attached to the Drinking Water Inspectorate. Johnston Pipes manufactures the GRP pipes under licence using the Hobas process. The raw materials are applied to the inside of a spinning mould, centrifugal forces keeping the materials in contact with the surface of the mould. When the pipe has been manufactured, the polyester resins are allowed to cure for a short time before the Waterline epoxy resin is spray applied. This is also carried out while the mould and pipe are spinning, resulting in a smooth, mirror-like finish. Within 90 minutes of applying the epoxy lining the pipes can be fully tested through Johnston Pipes' normal quality assurance procedures.

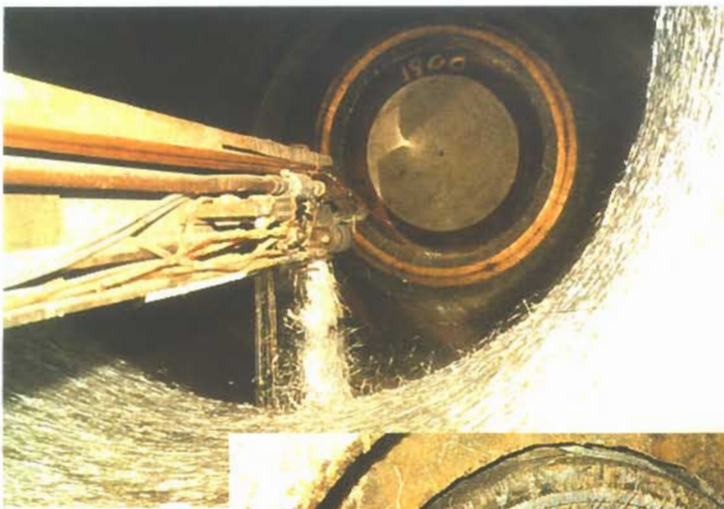
The testing of the pipe required the most advanced and sophisticated methods ever to be used in this type of test and was capable of detecting contaminants at concentrations measured in parts per billion – equivalent to a few raindrops in an Olympic swimming pool. The pipe passed this stringent test with flying colours, pushing the potable water quality threshold to a new high.

A history of innovation

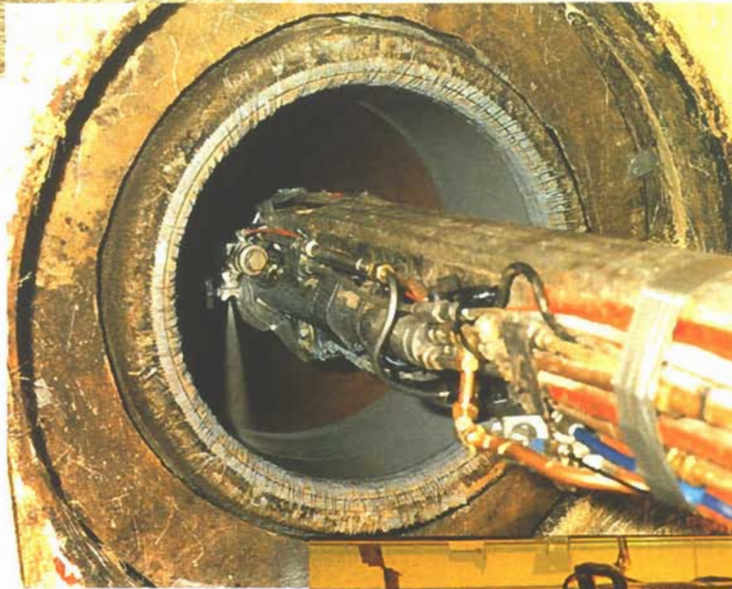
Product and service innovation and development have been at the forefront of Johnston Pipes since its inception. Recent developments have included the introduction of GRP pipes to British shores back in 1973. As well as being used extensively abroad, GRP has also been put in the ground by almost every British water company, many of whom have had so few problems with it that they have forgotten it was there; and the implementation of new captive joint technology in the concrete market which saves contractors time, money and waste. 'We have certainly come a very long way since our very first



*Johnston
Pipes
factory at
Telford.*



Left
Manufacturing a GRP pipe. Raw materials are applied to the inside of a spinning mould, centrifugal forces keeping the materials in contact with its surface.



Right
Hunting Industrial Coatings' Waterline epoxy resin being spray applied to the inside of the spinning pipe in its mould.

product developments – horse troughs and barrage balloon weights', said Roy Swarbrooke, sales director at Telford-based Johnston Pipes. Roy sits on the Board at Johnston – a Board which boasts over 80 years collective service demonstrating the stability and depth of knowledge in a company which owns the largest pipe manufacturing premises in the UK.

Johnston Pipes has two operating divisions, one manufacturing concrete pipes and accessories and the other manufacturing GRP pipes and accessories.

Diversification

Moving into the complementary industry of concrete pipes and other precast concrete products was the natural progression from the



Completed pipe being extracted from the mould.



Left
Comparison of an unlined and Waterlined pipe showing the smoothness of the lining.

initial business of quarrying stone 80 years ago. It was in 1973 that Johnston moved into GRP after becoming the first company to obtain a manufacturing licence from the Swiss innovators, Hobas. The number and diversity of applications in which GRP pipes are used has grown steadily since with work now taking place as far afield as Indonesia.

Products for today's needs

The GRP pipe meets the latest civil engineering needs:

- More corrosion-resistant than any other material in any ground conditions without the need to install or maintain cathodic protection systems.
- High stiffness resistant to distortion.
- Smooth internal surface for minimal sliming and maximum velocity.
- Constant outside diameter so that pipes can be cut and jointed at any point along their length.
- Choice of fittings which can be configured to individual needs.
- Lightweight – approximately 10 per cent the weight of concrete pipes.
- Push-fit sleeve coupling for easy jointing and captive rubber seal saving time and cost.

- Consistent quality – controlled to internationally-recognised standards product to BS 5480, quality to BS/EN/ISO 9002 and BS 5750 Part 2 and installation to BS 8010 Part 2.5.
- It can be manufactured to specific requirements due to a flexible production process which also keeps costs down by not forcing contractors to use pipes of a far higher specification than necessary e.g. different pressure ratings
- Proven performance – used throughout the world for 30 years.

Government approval

The pipe is lightweight, making it ideal for projects where weight is a major factor such as relining a low level sewer under the Houses of Parliament. On this project, a 2,100 mm diameter GRP pipe was segmented into six sections and Johnston developed 'H' section strips to locate each segment to reform the circle. Once the GRP was in place and held using packings, the annulus between the liner and the old brickwork was filled with grout.

'GRP's raw materials are essentially inert which contribute to its corrosion-resistance but also the composition can be formulated to meet precise mechanical properties for particular applications', said Graham Clarke, UK design manager at Johnston Pipes. 'In this case, the inner surface of the pipe has a slightly flexible material minimising the impact of solids in the flow giving abrasion resistance equal to, if not better than, rigid materials. The Hobas casting process ensures a constant outside diameter for accurate cutting and joining. As the manufacturing is computer-controlled we have totally consistent "repeatability". It all adds up to a very reliable pipeline.'

GRP pipes' corrosion resistance is legendary. In accelerated ageing tests, a section of GRP has been immersed in sulphuric acid for over 18 years (equivalent to over 100 years in real time) and is still going strong.

Below

The size – and strength – of Johnston's GRP pipes is shown here.

This corrosion resistance means that lifetime costs are intrinsically low but to ensure that customers receive the full benefit of both GRP and concrete pipes, Johnston offers a complete service package.

While Johnston has a very broad range of stock, sometimes customers require something a little different. Technical experts from Johnston work with the customer to design exactly what is required, then a Johnston installation engineer will be on site to ensure all pipes are laid correctly and to offer advice and help where necessary.

A telephone sales hotline, which can turn quotes around within 48 hours, and after-sales advice complete the customer service package. The latter is vitally important because as well as being an integral part of the customer support, it can often provide the insights that lead to new product innovation.

'It's only by anticipating customer needs and giving them new products complemented with continually improved services that we can feel sure that Johnston will be around in 100 years time', said Roy Swarbrooke.

At Hunting Industrial Coatings, Neil Whittle, technical director, is equally enthusiastic about the tie-up with Johnston Pipes. 'Johnston is the first company in the UK to be able to offer medium and large diameter GRP pipes lined with our Waterline product to fully comply with Drinking Water Inspectorate Regulation 25(1)(a) for contact with drinking water.' He went on to state, 'It heralds the beginning of a long and mutually beneficial partnership between two blue chip companies in a highly regulated and professional market.' ■

Below

Relining a low-level brick sewer under the Houses of Parliament using GRP 2,100 mm diameter pipe segmented into six sections.

