



# PIPELINE PIGGING TOOLS



**PIPELINE ENGINEERING**

*"Expertise in Pipeline Pigging Tools and Pigging Operations"*

## "Expertise in Pipeline Pigging Tools and Pigging Operations"

**Pipeline Engineering** is a global provider of products, services and engineered solutions for the pipeline pigging and flow assurance industry.

We provide products and services for the Oil, Gas, Renewables and Process Industries. We have particular expertise in the design and manufacture of specialist pigging tools which are engineered to meet the specific requirements of individual pipelines.

In addition to pigging tools, PE produces other polyurethane products, fabricates a range of metal products and provides a range of pigging and flow assurance services.

### Other polyurethane products produced include:

- > Bend Restrictors
- > Bend Stiffeners
- > J-Tube Seals
- > Cable / Umbilical / Pipe Protection
- > Filtration Panels
- > Bespoke Polyurethane Components

### Metal products fabricated include:

- > Pig Launchers / Pig Receivers
- > Rapid Opening Closures
- > Pig Signallers
- > Subsea Laydown Heads
- > Piggable Pipeline Tees
- > Other Fabricated Products

### Services provided include:

- > Project Management & Engineering Consultancy
- > Engineering Services
- > Pipeline Pig Design, Prototyping & Testing
- > Pipeline Cleaning, Management & Consultancy
- > Pipeline Surveys
- > Pipeline Pigging Tool Cleaning & Refurbishment
- > Caliper Surveys
- > Pipeline Pigging
- > Internal Joint Testing & Flange Weld Testing

Cover Photograph: Pigging tool ready for testing



ISO 9001



ISO 14001







A selection of pigging tools

## Pigging & Polyurethane Expertise

*A tailored approach to the design, development and supply of pipeline pigging tools*

**Pigging tools that we design and manufacture are tailored for the specific requirements of each pipeline.**

PE works closely with clients to design and produce pigging tools which offer the best solutions for their pipelines.

Very often, dependant on the complexity of a pipeline, we will carry out testing and trials prior to delivery to ensure we achieve the required specification.

**The products available include:**

- > Foam pigging tools
- > Pipeline spheres
- > Solid cast polyurethane pigging tools
- > Metal bodied spindle and multi-bolt pigging tools
- > Specialist pigging tools

PE is also recognised for its expertise in the manufacture of polyurethane. Our Omnithane® polyurethane formulation is suitable for the most aggressive operating conditions and used on all types of pigging tools.



Metal bodied pigging tool ready for launching



Metal bodied pigging tool following cleaning run





A selection of foam pigging tools

## Foam Pigging Tools

*A range of foam pigging tools to suit any pipeline*

Foam pigging tools are generally used for liquid removal, swabbing, drying, product separation, cleaning and in the initial stages of progressive pipeline cleaning campaigns. Foam pigging tools are ideal for pipelines and piping systems with very tight radii or mitred bends and where significant variations in internal diameters exist.

Foam pigging tools available from PE include:

- > Bare foam pigging tools
- > Single spiral foam pigging tools
- > Criss cross foam pigging tools
- > Criss cross silicone carbide foam pigging tools
- > Wire brush foam pigging tools

We produce foam pigging tools for all pipe sizes, including the largest pipelines of 56" and above. Our heaviest density foam pigging tools can travel up to 500km in a single run.

We can adapt our foam pigging tools for different operational requirements. Typical adaptations include:

- > Extended length
- > Fixing of towing and lifting loops
- > Addition of tracking equipment housings
- > Inclusion of additional jetting ports
- > Double dish (bi-directional) configuration
- > Double nose (bi-directional) configuration



Specialist bristle foam pigging tools



Foam pigging tool being loaded into pipeline



Solid cast pigging tool

## Solid Cast Pigging Tools & Pipeline Spheres

*Pigging tools designed for use in complex pipeline geometry and automated processes*

PE Solid Cast Pigging Tools are ideal for small diameter pipelines. They are manufactured from an all-polyurethane construction which makes them flexible and capable of negotiating complex pipeline geometries.

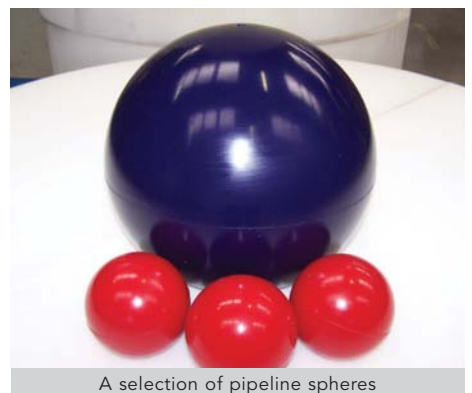
Solid cast pigging tools are used to remove debris, keep pipelines clear of deposit build-up and pigging operations when metal components are not desirable.

We also manufacture solid, inflatable and weighted spheres used for automated pigging programmes, batching and condensate removal. Our inflatable spheres are used for meter proving, batching and condensate removal.

- > Solid spheres are available in sizes between 1½" and 8"
- > Inflatable spheres are available in sizes from 3" to 48"
- > Capable of negotiating most bore fittings
- > Suitable for uni-directional or bi-directional pigging
- > Available in a range of Shore A hardnesses
- > Can be weighted if required
- > Can have magnets embedded if required for tracking purposes



Solid cast pigging tool being positioned in a pipeline



A selection of pipeline spheres





A selection of metal bodied pigging tools

## Metal Bodied Pigging Tools

*A range of pigging tools designed and built to suit any operational requirements*

PE is a market leader in the design and manufacture of metal bodied pigging tools, with expertise having been gained over many years in the industry.

We have metal bodied pigging tools for most pigging requirements, including cleaning, batching and separation. Our metal bodied pigging tools can be fitted with a combination of components to suit the function that they will perform; these include, cups, discs, brushes, plough blades, gauge plates, magnets and tracking equipment.

Our Engineering Team works closely with clients to provide the most appropriate pigging tools and if necessary specialist pigging tools can be developed.

Metal bodied pigging tools that we offer include:

- > Standard profile cup pigging tools
- > Conical profile cup pigging tools
- > Bi-directional pigging tools
- > Long run pigging tools
- > Dual-diameter pigging tools
- > Sealing / welding pigging tools
- > Specialist pigging tools

Many of the components on PE metal bodied pigging tools can be replaced and are interchangeable, making them suitable for a wide range of pigging operations. The use of wear lines on discs helps indicate when they need replacing, thus ensuring continued effective pigging. Unique PE identification numbers on discs makes the selection of new discs easier.

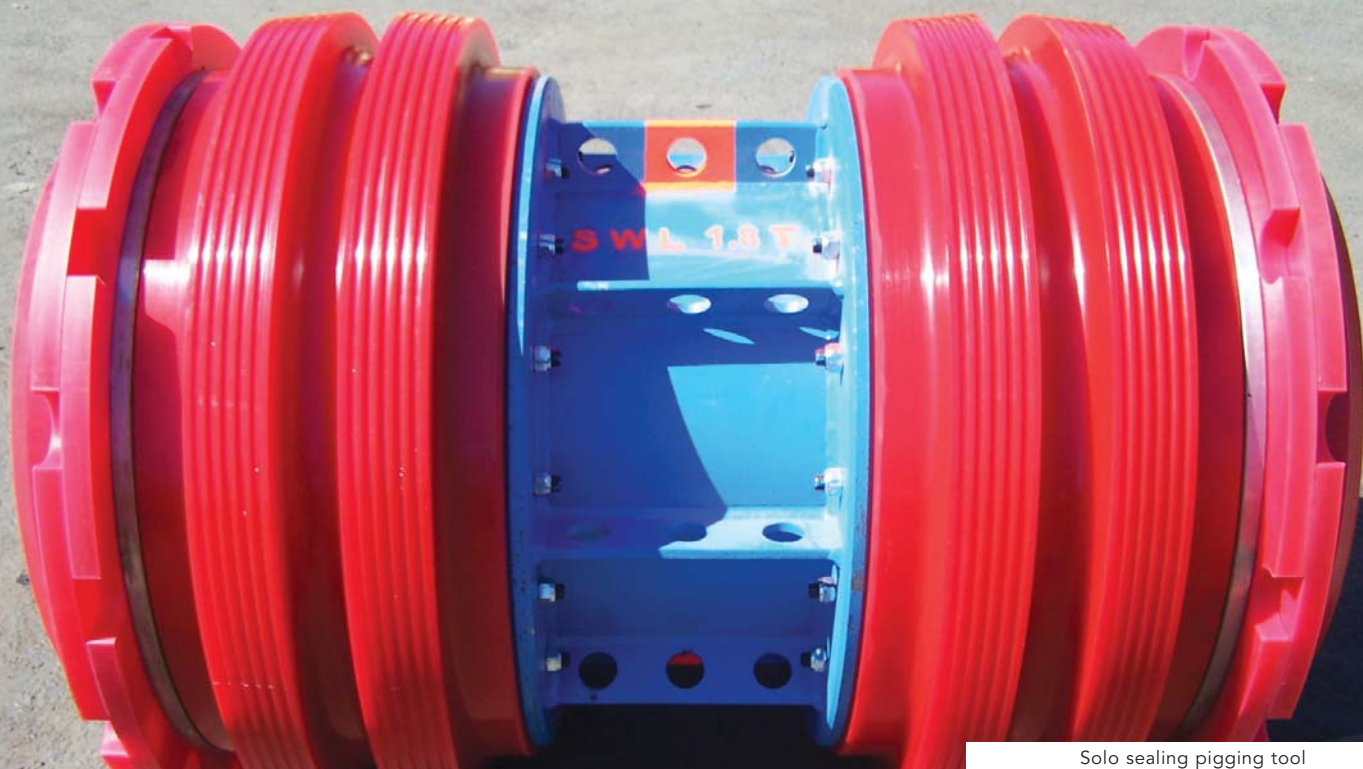


Memory retaining brushes on pigging tools



Assembled cleaning pigging tools





Solo sealing pigging tool

## Specialist Pigging Tools

*Engineering expertise to develop specialist pigging tools for the most demanding pipelines*

PE designs and builds Specialist Pigging Tools to meet the specific pigging requirements of complex pipelines. This is achieved through detailed analysis of the relevant pipeline issues leading to the design, prototyping and final production of pigging tools to provide the solution.

**Computer Aided Design** - 'State of the art' 3D CAD design capability allows us to develop special pigging tool designs and simulate their functionality on screen.

**Prototyping & Trialling** - We then develop prototype pigging tools which are tested in our purpose built test loops to allow us to prove their suitability and further refine their performance.

**Special Pigging Tool Assembly / Manufacturing** - Final designs are then transferred to our computer aided manufacturing system for production. Quality components are used including our own Omnithane® polyurethane, specifically developed for the pipeline pigging industry.



Dual-diameter pigging tool



Purpose built test loop



High friction pigging tool

## Specialist Pigging Tools

*Engineering expertise to develop specialist pigging tools for the most demanding pipelines*

PE has the experience and capability to engineer and design all types of specialist pigging tools, examples include:

- > Specialist cleaning pigging tools
- > De-waxing pigging tools
- > Jetting pigging tools for the removal of large amounts of material with minimum redeposition
- > High friction pigging tools
- > Special design foam pigging tools
- > Dual-module articulated pigging tools
- > Multi-diameter pigging tools
- > Sealing pigging tools for low pressure isolation
- > Welding pigging tools for pipeline construction
- > Caliper pigging tools for the mapping of pipeline features
- > Low flow pigging tools

Special pigging tools are usually required for pipelines with complex geometry or with difficult operating parameters. In these situations, we are able to bring a wealth of knowledge to bear, working with the client to design and engineer the most effective pigging tools.

Additional field support may also be necessary and our team of operational pigging engineers are able to provide this worldwide.



Articulated pigging tool



Single module disc pigging tool





Inspection of pigging tool during cleaning

## Pipeline Pigging Services

*Services to support and assist pipeline pigging operations*

PE has always recognised that to offer the most appropriate pigging tools for each pipeline pigging requirement it is essential to have the relevant engineering skills and a wider understanding of all the variables that may affect pigging tool performance.

This capability enables PE to offer pipeline pigging services which include:

- > Pipeline evaluation
- > Pipeline pigging reviews
- > Pigging tool assessments
- > Pigging regime assessments
- > Pigging tool design, testing and development
- > Pipeline inspection, maintenance and cleaning

Additionally, through our local Service Centres PE offers:

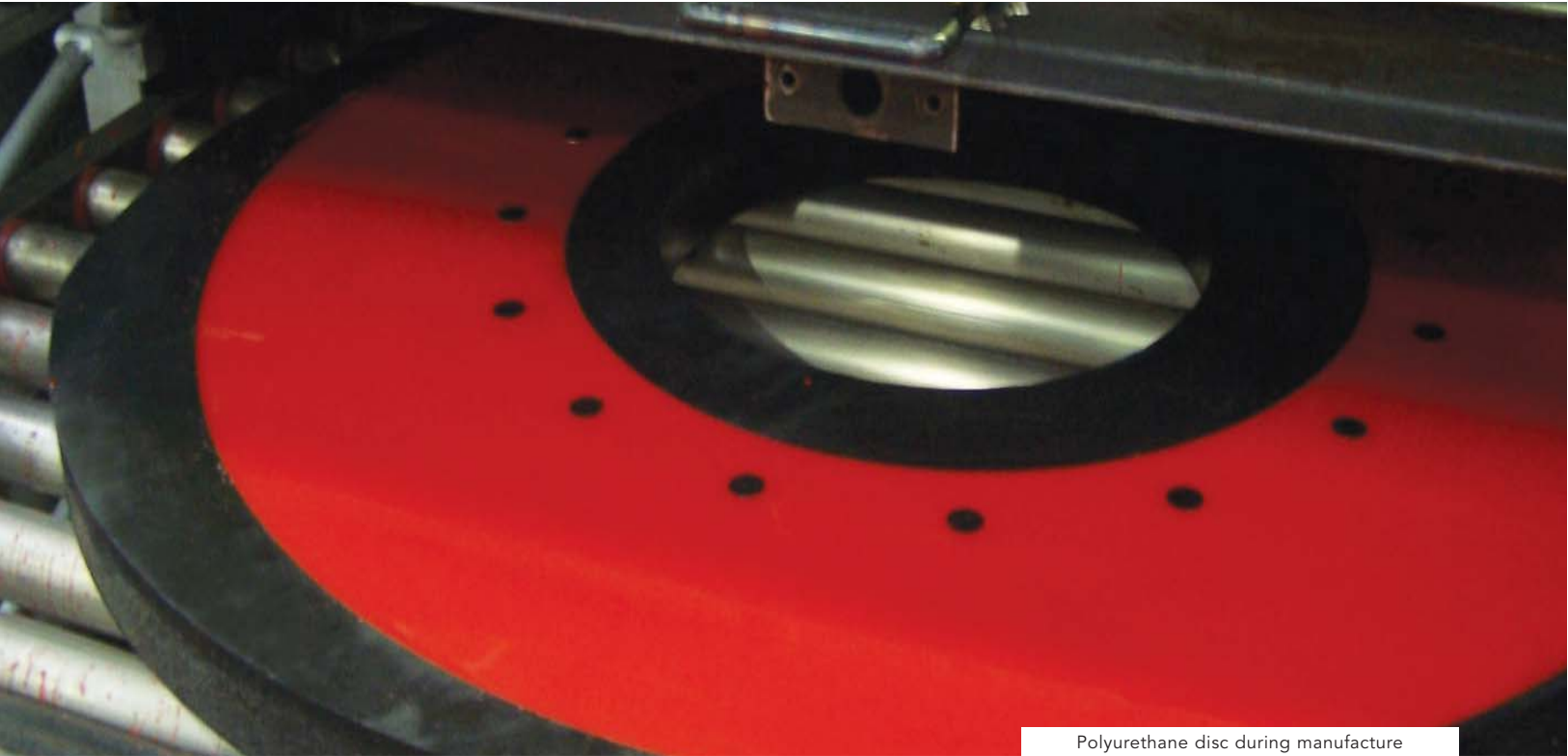
- > Pigging tool refurbishment & repair
- > Pigging tool cleaning
- > Pigging tool component manufacture
- > Project management and engineering support



Pigging tool being refurbished



Testing of specialist pigging tool



Polyurethane disc during manufacture

## Focus on Service, Quality, Testing and Manufacture

*Providing comprehensive service & adopting high quality, proven manufacturing procedures*

**Service support** - A team of onshore / offshore certified engineers are available to assist with or manage pipeline pigging and flow assurance projects. Support services are available worldwide.

**Quality** - All products are designed and manufactured in line with ISO 9001:2000 and ISO/TS29001:2007, the Oil and Gas Industry's Quality Management Standard. Our Omnithane® polyurethane is extensively tested during manufacture to ensure material consistency and performance.

**Manufacture** - We have a dedicated production zone for pigging tool manufacture and assembly. Our manufacturing centre includes 'state of the art' computer controlled rapid moulding machines, mixing and dispensing machines and tooling equipment.

**The environment** - A progressive and responsible attitude to the environment has helped PE secure ISO14001 status. Where possible we use environmentally friendly chemicals in our processes and limit the use of hazardous chemicals.

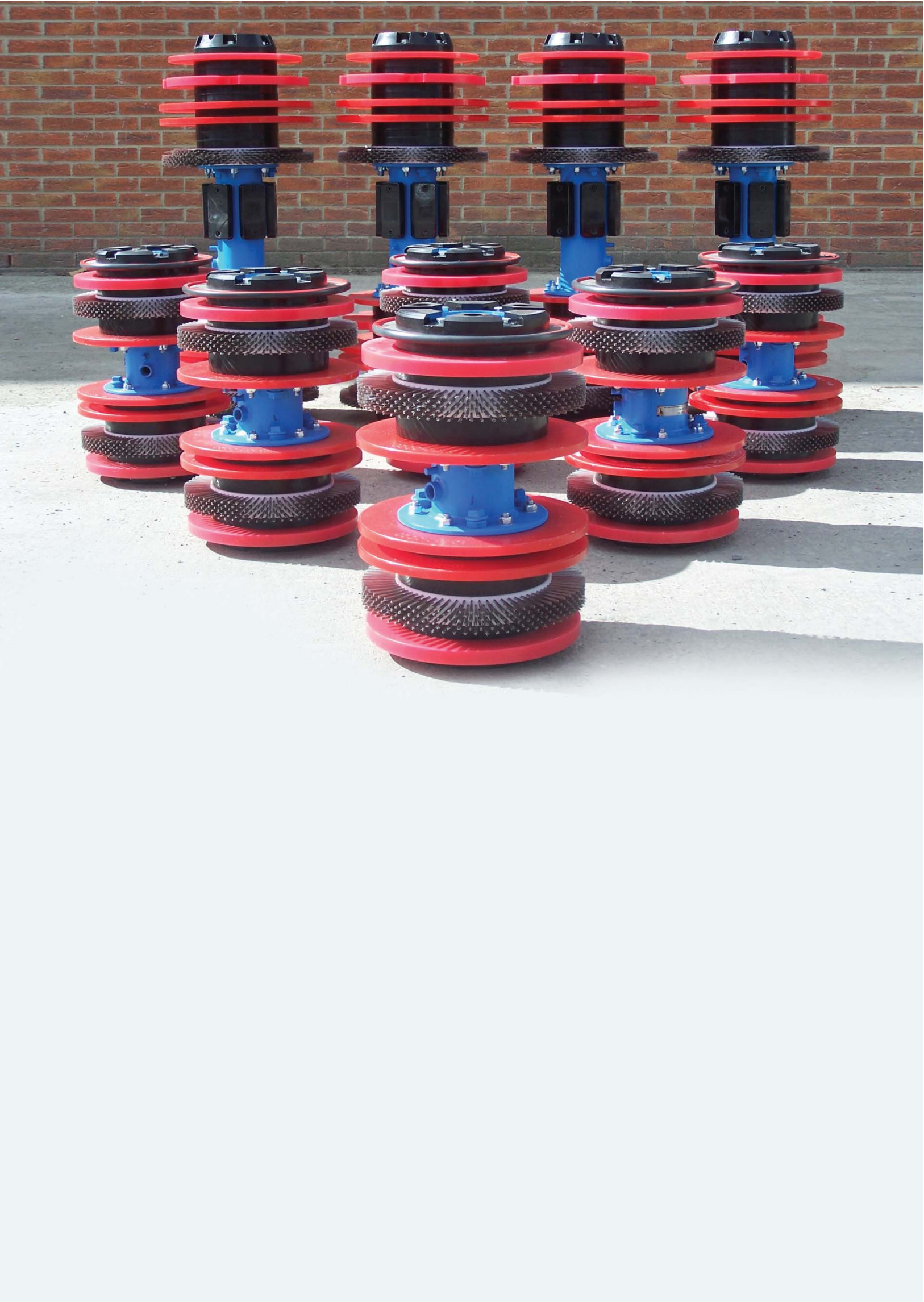


Polyurethane sample for mechanical testing



Polyurethane abrasion testing





Pipeline Engineering  
Gatherley Road  
Catterick Bridge  
Richmond, North Yorkshire  
DL10 7JQ United Kingdom

Tel: +44 (0) 1748 813 000  
Fax: +44 (0) 1748 813 501  
e: [sales@pipelineengineering.com](mailto:sales@pipelineengineering.com)  
w: [www.pipelineengineering.com](http://www.pipelineengineering.com)



**“Expertise in Pipeline Pigging Tools and Pigging Operations”**