

**BUYERS' GUIDE
&
DIRECTORY OF MEMBERS
2010 – 2011**

**CELEBRATING 20 YEARS
SERVING THE PIPELINE INDUSTRY**



www.ppsa-online.com

Pigging Products and Services Association
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An international trade association serving the pipeline industry

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The Piggings Products and Services Association (PPSA) was formed in 1990 and now has over 90 members, representing the piggings industry throughout the world.

The Association is entirely funded by its members through their annual subscription fees. Its aims are, "To promote the knowledge of piggings and its related products and services by providing a channel of communication between the members themselves, and with users and other interested parties".

PPSA plays a major role in providing information and sourcing equipment and services, for pipeline operators and the industry generally and responds to hundreds of enquiries each year.

The PPSA web site enables visitors to source the products and services they need quickly and easily and provides a link to PPSA's technical information service.

PPSA runs seminars and training courses on piggings, sponsors lectures and meetings about the subject and supports relevant conferences.

Full Members are companies manufacturing or marketing piggings products and services.

Associate Members are companies connected with the industry, e.g. operators, suppliers and allied industries.

Individual Members are anyone with an interest in piggings.

For further information, technical enquiries, or to find out how to join the Association please contact:

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The following has been extracted from the PPSA book: "An Introduction to Pipeline Pigging". It (and other books about pigging) is available from Scientific Surveys Ltd, PO Box 21, Beaconsfield, Bucks, HP9 1NS, UK.
E-mail: jt@scientificsurveys.com ISBN 0 901360 26 0, 104 pages, price: £21.00 UK, \$52 US elsewhere, including P&P.

WHY PIG A PIPELINE?

It is generally agreed that a pipeline should be pigged, but the reasons for doing so are not always fully appreciated. This may result in improper pigging programs and/or the use of the wrong type of pig and this could have an adverse effect on the pipeline's operating and maintenance costs.

A pipeline is arguably the most efficient method yet devised for transporting fluids – whether gases or liquids. Its relative efficiency though, depends upon two fundamental requirements:

1. It must operate continuously.
2. The required throughput must be obtained with the least capital investment and the lowest operating costs.

Utility pigs and In Line Inspection tools ('intelligent/smart pigs') play a major role in both obtaining and maintaining these 'two fundamentals':

1. They help to ensure continuous operation by:
 - removing any substance which might damage the pipeline process systems
 - helping to prevent the formation of corrosion cells
 - providing timely information of any developing problems
 - providing data on any perceived problems to enable informed decisions to be made
 - providing an alternative to shutting down for statutory periodic testing.
2. They help to ensure maximum efficiency by:
 - removing any debris or foreign matter in the line
 - removing any deposits, either liquid or solid, which might otherwise build up and restrict the flow
 - by monitoring the operating and/or physical conditions of the line.

In short, pipeline pigs help to ensure that the pipeline is constructed properly – and that it stays that way.

Pigging is required during each phase in the life of a pipeline, typically:

During construction

- i) Removing debris from the line
- ii) Pressure testing
- iii) Commissioning

During operation

- i) Pipe wall cleaning
- ii) Condensate removal
- iii) Product separation
- iv) Applying inhibitors

For inspection

- i) To check for damage
- ii) To detect corrosion or cracking
- iii) Leak detection
- iv) Sampling
- v) Line cover and spanning

For general maintenance and repair

- i) Corrosion inhibition
- ii) Pre-inspection cleaning
- iii) Decommissioning
- iv) Isolation
- v) Recommissioning

During renovation/rehabilitation

- i) Gel pigging
- ii) Applying in situ coatings
- iii) Chemical cleaning
- iv) Scale removal
- v) Product conversion

Decommissioning

- i) Product removal
- ii) Inerting

Many pipeliners only resort to pigging when a problem becomes apparent and they have no other choice. Often, this is too late. The damage has been done and a multi-million dollar investment is put at risk. Use of the correct type of pig and a proper pigging program will help to maintain the integrity and optimum efficiency of the pipeline; safeguarding both the environment and the assets of the pipeline owner. The PPSA book: "An Introduction to Pipeline Pigging" will provide guidance in this respect, but if in any doubt, contact should be made with a PPSA member company, who will be pleased to advise.

PIG TRAP DESIGN GUIDANCE NOTES

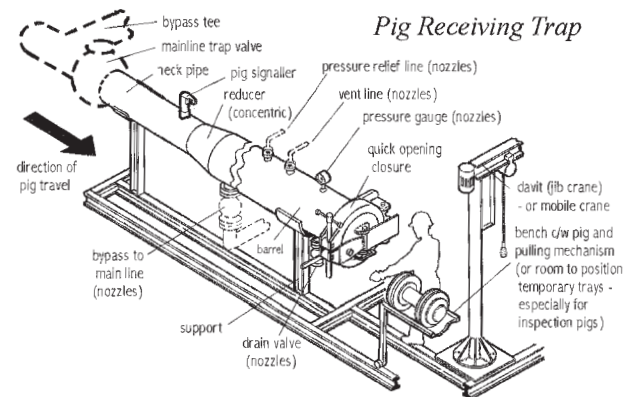
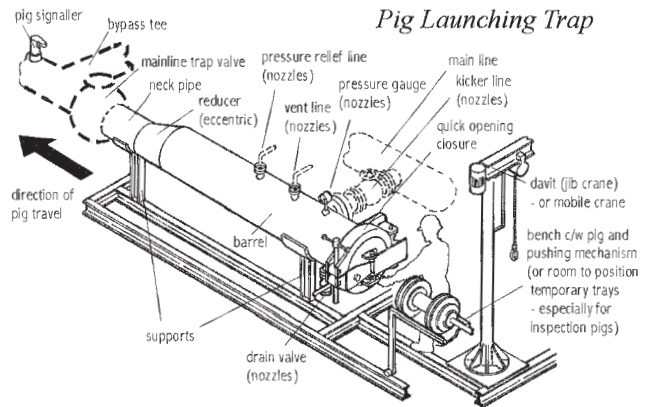
The main purpose of a pipeline pig trap system is to provide, in a safe manner - and without flow interruption - the means to both insert and launch a pig into a pipeline and receive and retrieve a pig from a pipeline.

The essential difference between a launching and receiving trap is:

- **Overall length** - the receiver is longer
- **Position of bypass** - closer to the reducer on receivers
- **Location of pig signallers** - sited on the neck pipe of receivers

In pipelines where spheres are to be used, the traps have a small incline for launchers and a decline for receivers.

Minimum requirements with regard to design parameters, components and configurations are as shown in the table below:



		CONVENTIONAL PIGS		INSPECTION PIGS	
		LAUNCHER	RECEIVER	LAUNCHER	RECEIVER
BARREL	Diameter	2" > Neck pipe dia.		4" > Neck pipe dia.	
	Length	Neck pipe dia. x 4	Neck pipe dia. x 6	Tool length + 10%	Tool length + 10%
NECK	Length	≤24"ns: 500mm >24"ns: 1000mm		Tool length + 10%	Tool length + 10%
NOZZLES Pipeline dia/nozzle dia Note: All diameters are nominal size (ns)	Bypass	Neck pipe dia. x 25%		As Conventional Pigs	
	Vent	≤12"/1"; >12"/≥2"			
	Drain	≤12"/2"; >12"/≥4"			

DESIGN PARAMETERS to be considered:

Design code; Working pressure; Temperature; Testing & Inspection requirements; Welding requirements; Line product; Materials of manufacture; Type of pigs to be used; Paint finish

Important note! The above information is not intended to be a recommendation, but simply a guide to pig trap design. It will be applicable in some cases, but in many others, the design will have to be tailored to meet specific requirements. It is therefore essential that discussions are held with a PPSA member company before finalising any design.

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Disclaimer

The information contained in this publication has been submitted by the Members and is intended for guidance only. The Pigging Products & Services Association cannot accept responsibility for its accuracy, nor for any errors or omissions which may have occurred.

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A. Hak Industrial Services provides industrial, pipeline and inspection services to (petro)chemical, refining and pipeline industries. The Dutch headquarters serves industrial areas in Benelux and the UK. Equipment and personnel is available for European customers from Germany, France, Italy, Romania and Spain. With bases in Brasil, USA, UAE, South Africa and 25 agents, A. Hak's global presence serves the industry world-wide.

Industrial Services – range of nitrogen services, including reactor cooling, leak detection, system purging, furnace cleaning and chemical cleaning.

Pipeline Services – engineering and construction services, pre-, re-, and commissioning services, maintenance and operating services and decommissioning services.

Inspection Services – in-line inspection of non-piggable pipelines from assessments, pre-engineering, mechanical works/cleaning to gauging/caliper running, inspecting, reporting and consulting.



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AGR Pipetech AS is part of the AGR Group, located in Straume, outside Bergen, Norway. The Group is one of the leading providers of well services, pipeline, process and underwater excavation services and inspection integrity services. AGR Pipetech provides the market with tailor made inspection solutions for both piggable and so-called, un-piggable pipelines. Using high resolution ultrasonic scanners and self propelled pigs, AGR has served the offshore market for a decade. AGR Pipetech's core activities are ultrasonic and visual in-line inspection but it offers inspection packages where cleaning and mechanical solutions are included.

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Analytic Pipe is a well established medium-sized company providing worldwide pipeline inspection services since 1999.

The company specializes in caliper inspection which includes the standard caliper services as well as the multi-channel-tool providing detailed information on the orientation and shape of defects.

In addition to that Analytic Pipe has recently launched a fleet of MFL tools in order to expand their services in the pipeline inspection field.

They also develop engineering solutions for special requirements such as High Pressure Caliper (HPC) tools, especially designed for deep sea inspection. The latest in-house development is a tractor unit, the Self Propelled Caliper (SPC), which pulls the measurement unit through the line. With this untethered device pipelines of 100km length and more can be surveyed without the need of a propelling medium.

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One of Applus RTD divisions specializes in the design, construction and use of cable operated ultrasonic inspection tools for inspection of "unpiggable" pipelines, municipal heating grids, offshore platform risers, vertical casings to underground storage facilities and SCRs in deep water. These tools can be made to comply with specific conditions and customer requirements. Solutions exist for inspection of liquid filled pipelines. Empty or gas-filled casings can also be inspected with these tools.

Tools exist for pipe diameters of 6" to 60" with lengths up to 17km and full circumferential coverage can be provided using a novel transducer lay-out.

Additionally, "Fitness for Purpose" studies can be provided by Applus RTD's Integrity Management Services group.

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Aubin are market leaders in the development and supply of novel pipeline gel technologies for use in oil, water and gas pipelines. They offer a full range of gels and chemical pigs for cleaning, de-oiling/dewatering, debris removal, chemical train separation and spool filling. With the environment one of Aubin's top priorities, they make their products as 'green' as possible and so most of their gels are approved by CEFAS for use in the North Sea as CHARM category Gold.

Aubin also offer specialist gels for applications such as buoyancy (DeepBuoy), leak sealing (DeepSeal) and insulation (DeepGel). Also, they have developed the world's first chemical pig capable of negotiating multi-bore pipelines (L-Gel Pig).

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BG Technical Limited (BGT) is a leading pipeline service company with significant activity in Africa. Areas of specialisation are pigging services; project design and execution, inline inspection service; MFL, caliper and impact logger, pipeline commissioning, drying, and nitrogen packing. Other services are chemical cleaning, on-line cleaning in gas pipelines using high volume separators, chemical de-scaling of heat exchangers, HVAC systems, valve servicing/ maintenance and supply of launchers/receivers, barrel doors and the like. BGT designs and installs valve interlocking systems for process control and also tamper prevention systems for facility and remote location protection.

A subsidiary company, PPA, manufactures various types of pipeline pigs; foam, mandrel, polyurethane systems, and supplies pigging accessories.



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BJ Process & Pipeline Services Group provides extensive experience in the service business worldwide with a staff dedicated to offering technology that delivers effective and efficient operations and gives best value to the customer. BJ provides a full spectrum of pipeline services that include flooding, hydrotesting, cleaning, drying, commissioning, inline gas filtration, gel pigging, chemical cleaning, isolation, nitrogen, pumping, consulting, pigging, intelligent pigging (inertial geometry, mapping, metal loss/corrosion) and fitness for purpose evaluations.



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Baker Hughes Pipeline Management Group (PMG) programs provide solutions for pipeline owners and operators for managing all pipeline assets. Solutions include direct assessment, hi-resolution inline inspection, caliper and geometry surveys, IMU surveys, high resolution tethered MFL inspection services, turnkey cleaning services, complete system integration and full spectrum flow assurance.

Baker Hughes PMG pipeline solutions ensure the reliability, verify integrity and improve the delivery of a pipeline network.

CDRiA Pipeline Services Ltd

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CDRiA Pipeline Services design and manufacture intelligent pigs and perform high quality pipeline inspections. Services provided include pipeline preparation and cleaning, multichannel internal geometry surveys and assessment of the technical state of pipelines with high resolution ultrasonic intelligent tools. The tools were validated by the German TÜV Rheinland Group and the Polish Office of Technical Inspection. CDRiA Pipeline Services was formed by Oil Pipeline Operation Company "Friendship" comprising over 2500 km of crude oil and product pipelines, and companies involved in the construction of smart pigs. The company is experienced in pipeline operation and is a highly qualified specialist in the fields of electronics, corrosion, mechanics and NDT.

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Founded in 1982 and located in Paris, Challenger Special Oil Services, a subsidiary of Entrepose Contracting, provides a wide range of pipeline services to the oil and gas industries. To achieve optimum efficiency of pipelines, Challenger has developed its *savoir-faire* in leak detection (strength and leak tests, hydrostatic testing), intelligent pigging (calibration, thickness measurement, corrosion survey), pipeline dewatering and drying (vacuum, dry air, methanol), pipeline rehabilitation and pipe works (deviations, hot-tapping, repairs, relining of pipelines).

Challenger has developed a new and very successful pigging activity called "hard descaling" for petroleum companies.

Conducting studies for cathodic protection and for installation, general maintenance and engineering studies, Challenger provides operation surveys and maintenance consulting, and is active in the research and development of new products and processes.

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Founded in 1992, CPPI provides a full range of pipeline services world-wide. They include: pipeline cleaning, inline intelligent pigging (geometry/deformation, mapping, metal loss/corrosion) and fitness for purpose evaluations. CPPI employs specialists in pipeline operation, data analysis and integrity to serve all of its customers and to provide effective and efficient operations.

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Diascan was formed in 1991 and currently inspects an average of 25,000 to 30,000 km of pipelines each year.

The company has extensive experience in servicing pipelines under the varied climatic conditions of Russia and in hard to access regions. Diascan performed inspections during construction of the Baltic Pipeline System and the Eastern Siberia-Pacific Ocean Pipeline. They detect and classify size defects with a high level of accuracy and calculate the strength and durability of pipes with defects.

Diascan has its own test loop to develop its in-line flaw detectors. It also provides the following services: visual measurement testing, ultrasonic thickness measurement, acoustic emission inspection, ultrasonic flaw detection of welds, X-ray inspection of welded seams.



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FTL Technology is the designer and manufacturer of the patented "Varipig" wheeled suspension system for dual/multidiameter pipeline systems. Varipig projects include: 42" x 28", 20" x 26" x 20", 10" x 16" and 24" x 32". Varipig details and project references can be found at www.varipig.co.uk

Varipig provides true centreline running and low differential drive pressure combined with high efficiency and operational repeatability.

FTL Technology has many years experience in solving fluid sealing problems, as well as using its extensive elastomeric knowledge to offer engineered solutions to the oil and gas industry.

FTL Technology is accredited to ISO 9001:2000 and is qualified to the Achilles Joint Qualification System. It is also an accredited IIP company.

GD Engineering

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GD Engineering, an SPX Brand, is a market leader in the design and manufacture of engineered pipeline pigging solutions to the oil, gas and process industries.

Their Bandlock™ 2 Closure range provides speed of operation with safety benefits. Used on process vessels such as, pig traps and filters, size range to 100" (2.5m) diameter, pressures to ASME #2500 (425 barg).

GD Engineering has many years experience in providing innovative closure designs for a wide range of process vessel applications.

The Pigalert Hi-T intrusive and the non-intrusive MAGAlert and ULTRAlert pig signaller range provide reliable pig/sphere passage indication.

Multiple Pig Launchers allow remote multiple pig launching without depressurisation.

The Company's quality system is approved to ISO 9001:2000 by LRQA and they feature in the FPAL and Achilles Joint Qualification System.

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GE's pipeline inspection and integrity services bring specialized skills, advanced technologies and field experience essential for a confident assessment of the present and future condition of a pipeline-services to manage pipelines safely within regulations, cost efficiently whilst maximizing throughput.

GE's inspection tools represent technological innovation and in-field success, with more than 630000kms of pipeline inspected. They have accurately and consistently identified anomalies of every type and size and measured all known cracks, in every kind of pipeline worldwide. The information gathered helps operators beyond detection – to integrity management solutions such as: direct assessment; quantitative risk assessment; turnkey infield services; pipeline repair and rehabilitation; GIS & data management software; and pipeline monitoring systems.

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Girard Industries began manufacturing pipeline cleaning pigs in 1968. The product range consists of steel mandrel pigs, solid cast polyurethane pigs, polly-pigs and polyurethane pipeline and meter prover spheres. Steel mandrel pigs include bi-di, cleaning, batching, gauging and displacement pigs configured with guide and seal discs, scraper cups, conical cups and/or scraper discs. Girard manufactures replacement cups and discs for most pigs available on the market.

Girard manufactures a complete range of solid cast polyurethane pigs. The Turbo[®] series consists of 2, 3 and 4 cup pigs with disc pigs ranging in size from 2" to 36". Pipeline and meter prover polyurethane spheres sized from 2" to 42" and include up to 5 different mold sizes per nominal pipe size. Frequently this allows "fill and run" without inflating thus extending the life and performance of the sphere. Neoprene and nitrile spheres are also available.

Polly-pigs range from bare swabs to heavy duty cleaning and scraping pigs. Girard also supplies Hi-T pigalerts, pig valves, launchers and receivers, and related pigging equipment.

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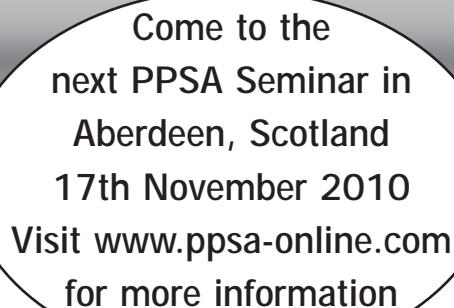
Contact (Sales): Elwin Faulk

Greene's Energy Group offer high quality pipeline pigs, well designed, well maintained and available at the shortest notice. They also offer speciality pigs to meet a variety of cleaning requirements.

For maintenance, productivity improvement and pre-commissioning work, Greene's is equipped to handle pipeline projects of any size: 4 inch to 48 inch diameter lines. Greene's offer turn-key services or can provide specialised rental equipment for the most demanding pipeline projects.

Greene's Energy Group provide pigging, hydrostatic testing, filling, abandonment, umbilical testing, cleaning, dewatering, nitrogen purge and testing, valve greasing, drying, pig sales, pig tracking, pre-commissioning and ILL line preparation services.

Greene's has provided expertise in helping oil and gas operations stay up and running for over 50 years.



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Gulf Petrochemical Services & Trading LLC

Post Box 1633, Postal Code 114, Jibroo,
Sultanate of Oman

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Gulf Petrochemical Services & Trading LLC is a contractor commercially registered in the Sultanate of Oman for a number of activities such as engineering, procurement and construction (EPC) contracts for green-field and brown-field projects for facilities and pipelines, infrastructure projects, maintenance contracts for oil & gas facilities, integrity management services of cross country pipelines, pipeline rehabilitation and environmental services.

GPS is responsible for the maintenance of over 90% of oil and gas pipelines currently in operation in Oman. GPS owns one of the biggest fleet of plant and equipment in Oman and directly employs over 5000 multi-disciplined manpower. GPS is also active in UAE, Kuwait, Saudi Arabia and India.

IKM Testing AS

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IKM Testing UK Ltd

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IKM Testing Australia Pty Ltd

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Contact: Craig Owen-Turner

IKM Testing with its 750 employees is a part of the IKM Group which has 2200 employees. IKM Testing specialises in providing pipeline services to the oil and

gas industries. The head office is located in Stavanger, Norway with daughter companies in the United Kingdom (Newcastle and Aberdeen), Canada (St. John's), Spain (Cadiz), Australia (Perth), Singapore, Indonesia, Thailand, Kazakhstan (Atyrau) and Brasil (Rio de Janeiro). IKM has been involved in on-/offshore development projects since 1989. It offers a safe and cost attractive alternative within pipe/pipeline services including: engineering, commissioning, pressure testing, nitrogen services, pigging, flooding, gel, waxing, drying, preservation, isolation, calibration, chemical cleaning, bolt services, video inspection and hot oil flushing. IKM Testing has a certified Quality Assurance system in accordance with ISO 9001:2000, OHASA 18001:2007 and ISO 14001:2004.

Inline Services Inc

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Contact: Steve Harvey

Pipeline Cleaners Inc

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Fax: +1 319 372 7091

Contact: Terry Van Aken

Established in 1995, Inline Services offers specialised pigging services and equipment to the oil, gas and process industries.

Inline manufactures and supplies purpose built pigs for wax/scale removal, corrosion control and commissioning, including foam and mandrel pigs, urethane cups and discs, pig signallers, pig diverters, dust bags and closures.

The Pipeline Cleaners division, manufactures specialty mandrel pigs and brushes custom made for both surface and pit cleaning. Brush designs include block, strip, ring and pencil configurations in steel, stainless and plastic materials.

Inline stocks pig tracking equipment both for land and subsea applications in both electromagnetic and acoustical versions.

Inline Services offers consulting services for any pipeline integrity application including corrosion control, data analysis and ILI support.

Inpipe Products Ltd

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Contact: Azmi Nordin

At its UK headquarters, iNPIPE PRODUCTS™ has the latest in cutting edge technology in-house design and manufacturing capabilities. The extensive product range includes pipeline pigs, spheres, monitors, weld testers, pipe plugs, and isolation tools as well as launchers/receivers and closures.

Exacting industry standards have resulted in iNPIPE PRODUCTS™ producing and patenting products now regarded as the industry norm.

iNPIPE PRODUCTS™ also offers the largest UK hire fleet of over 600 items to the whole of Europe. With patented Posi-seal technology, iNPIPE PRODUCTS™ offers simple tools for low-cost time-saving solutions.

After 25 years of business, iNPIPE PRODUCTS™ is entering a new era of expansion, building upon the existing successful foundations to develop new products and services to suit industry requirements, and to propel iNPIPE PRODUCTS™'s success globally.

Kleiss & Co bv

Scheepmakersstraat 17, 3334 KG Zwijndrecht,
PO Box 254, 3330 AG Zwijndrecht, The Netherlands

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E-mail: info@kleiss.nl

www.kleiss.nl

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Contact (Sales): Cees de Haard

Kleiss & Co has manufactured and distributed pipeline equipment since 1967. The company provides in-house design, engineering, manufacturing and testing of pipeline pigs for all purposes, from 1" up to 100" and from soft foam up to sophisticated tools for cleaning. CAD facilities, computer and climate controlled manufacturing and process equipment, test facilities guarantee constant quality.

The company provides soft, medium and high density foam pigs, cup pigs, bidirectional pigs, flexible pigs, gauging pigs, brush pigs, magnetic pigs, pipeline spheres, FDA pigs for food and cosmetics, pencil brushes, polyurethane, neoprene, nitril, viton, EPDM and silicone pigs. Kleiss also supplies pig locating equipment, pig signalers, high friction pigs and ancillary materials for pipeline repair, coating, maintenance and installation.



Knapp Polly Pig Inc

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E-mail: knapp@pollypig.com www.pollypig.com
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Contact: Eng Sergio Cantu

Knapp Polly Pig Inc, the original manufacturer of the Polly Pig, has been manufacturing pipeline cleaners for over 35 years. The company's product lines, include urethane foam pigs, urethane cups (conical and scraper), discs, spheres and several all-urethane pig designs such as the NOVA, Polly Tri-Cup, SUD pig, Ultra-Cast, Polly-Cast and K-Disc. Knapp supplies steel mandrel assemblies, and manufactures a full line of foam-filled ultra-strength ship's fendering systems.

Knapp serves the oil, gas, water, wastewater, chemical and food processing sectors of the piping industry. It specializes in custom designs and materials for all applications. Products are available for use in adverse cleaning situations, pipe size reductions, long distance pig runs, sour gas lines (with H₂S present), automatic pigging operations and other special procedures. Products are available in sizes up to 60in. The company can assist operators to optimise the cost and efficiency of pigging by analysing current pigging procedures and recommending improvements.

Lin Scan Advanced Pipeline & Tank Services

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LIN SCAN provides pipeline integrity solutions for the oil and gas industry worldwide. Their products and services include: pipeline cleaning tools and accessories, cleaning operations, high resolution geometry and metal loss inspection (MFL and UT), customised inspection, XYZ mapping, robotic inspection, optical inspection, leak detection, EMAT coating inspection

and crack detection, fitness-for-purpose assessments, asset integrity management software and data management services, recommendations for the pipeline repair plan.

LIN SCAN's equipment can be run in pipelines with non-standard conditions (1.5D bends, heavy pipe wall, multi-diameter pipelines, adverse temperature and pressure etc). These services are provided for 3"-64" pipelines both onshore and offshore.

LIN SCAN operates worldwide with international activities supported by overseas offices.

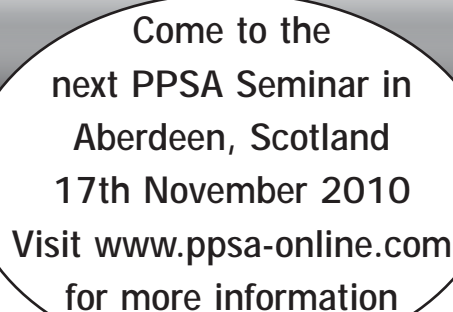
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MACAW is an engineering consultancy providing solutions to problems associated with the management, operation and integrity of pipeline systems. MACAW has extensive knowledge of pipeline corrosion mechanisms, materials, coatings, NDT methods, pressure vessels and welding procedures.

Based in Newcastle, the company was formed in 1996 by senior engineers from the former British Gas Engineering Research Station. Since then the company has expanded to over 20 consultants who have dealt with pipeline issues in nearly 40 countries.

Typical services include development of corrosion strategies, interpretation of pig data, defect assessment and implementation of integrity management systems for both onshore and offshore systems, and patenting products regarded as the industry norm.



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NDT Systems & Services (Americas)

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NDT Systems & Services offer global pipeline inspection and integrity services. The inspection services for the onshore and offshore pipeline industry make use of a full range of advanced in-line inspection tools for the detection, sizing and locating of geometric anomalies, metal loss defects and cracks.

Inspection technologies utilised include ultrasound, high resolution magnetic flux leakage and eddy current. Combo and multi-technology tools offer multiple inspection solutions in a single run. NDT also operate a fleet of mapping and leak detection tools.

The engineering resources of NDT ensure state-of-the-art inspection tools and the capacity to offer special solutions for a wide range of inspection tasks, including high pressure, high temperature and deep water application.

The services provided include full integrity assessment, fitness-for-purpose analysis, run comparisons and corrosion growth studies.

In addition NDT offer LinaView® Professional, an integrated software tool for data analysis, data visualization and pipeline integrity management, incorporating a wide range of tools relating to risk analysis and asset maintenance.

N-SPEC®

A division of Coastal Chemical Co. LLC/Brenntag

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N-SPEC® provides portable high pressure separators for on line pigging. N-SPEC® products/applications provide turnkey pigging services, specialised pipeline treating chemical products, application engineering, and laboratory analysis of pipeline liquids and solids. N-SPEC® pipeline cleaners/applications are a trademarked group of products/applications designed to remove deposits from the pipe wall and improve their transport out of the pipelines/vessels. These products improve the cleaning of pipelines with or without the use of pigs. N-SPEC® products/applications are proven effective in removing solids including iron sulfide, paraffin, asphaltene, sand, and crystalline salt. The products are also useful in cleaning gas processing vessels e.g. separators, dehydrators, and sweetening equipment. N-SPEC® cleaners are safe to handle and environmentally acceptable. N-SPEC®'s pipeline treating products include corrosion inhibitors, scale inhibitors, biocides, cleaners, and paraffin inhibitors.



Narmada Offshore Constructions Pvt Ltd

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Narmada Offshore Constructions Pvt Ltd., established in 1994, is a Mumbai, India based company specialising in the provision of services to the oil & gas sector for pre-commissioning & commissioning of pipelines either sub-sea or onshore, including cleaning, gauging, hydro-testing, swabbing, drying, inerting etc. They also undertake EGP Survey (caliper pigging), vacuum drying. To date they have successfully tested almost 5000 kms of various sizes (from 4" to 60" diameter) pipelines in offshore field and cross country pipelines. They have worked for almost all operators / EPC contractors.

Narmada Offshore owns a bank of specialised equipment / instruments and has a qualified technical support staff of almost 60. Their equipment bank and staff can undertake 5 projects at different locations at any given time.

Netherlocks Safety Systems BV

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www.netherlocks.com

Contact (PPSA): Frank Gielissen

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Netherlocks supplies safety products for the oil & gas industry. Their products are used by most of the major end users in the sector to help create a safer working environment. Netherlocks are market leaders in mechanical interlocks and also manufacture several other safety products.

Pigging is one of the main applications for safety interlocks. As part of an interlocking sequence, locks on the closure and different valves, prevent opening the door when it is unsafe. All critical valves can only be operated when the closure is fully closed and locked.

A pigging operation is recognized as highly dangerous and even deadly. Locking systems are recommended to avoid human error and, subsequently, dangerous incidents.

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Contact (Sales): Rachel Riddell, Carmen Orellana,
Lee Guyan

Online Electronic Ltd (OnlinE) specialises in the design and manufacture of pig monitoring equipment and pipeline data communication systems. The products range from acoustic, electromagnetic, to magnetic and ultrasound technologies covering subsea and land applications with an innovative approach to pig locating, signaling, pipe wall communications and data transfer to remote locations.

OnlinE specialises in "one-off" design projects and ATEX compliant products. Products can be supplied or hired at short notice.

OnlinE's head office is based in Aberdeen UK, supported by their wholly owned office in Singapore – Online Electronics Asia Pacific Pte. Ltd. Other supporting locations are Houston (USA), Rio de Janeiro (Brazil), India and Dubai.

The Queen's Award for Enterprise, the most prestigious accolade for successful businesses in the UK, has been conferred on Online Electronics for its tremendous success in international trade.



THE PPSA BUYERS' GUIDE

A breakdown of the products and services provided by the Members will be found on the next two pages. The following is an explanation of some of the less well known terms and items which are listed:

1. "Utility pigs" are used for a variety of purposes such as internal pipe wall cleaning, condensate removal, water fill for pressure testing, gauging, dewatering, drying, commissioning etc. There are many different types available for use in uni-directional, bi-directional and multidiameter pipelines. Utility pigs have been divided into the four different forms in which they are made:
 - a) "Mandrel pigs" are assembled from a number of component parts, and spare parts are available.
 - b) "Foam pigs" are moulded from polyurethane foam with various configurations of solid polyurethane strips and/or wire bristles, studs etc. permanently bonded to them.
 - c) "Solid cast pigs" are moulded in one piece – usually from polyurethane.
 - d) "Spheres" are hollow balls, usually made from polyurethane and inflated to the optimum diameter with water/glycol.
2. "Hyperbaric spheres" and "High DP pigs" are used mainly on subsea pipelines as a temporary plug while the two ends of the line are welded together.

3. "Pig signals" indicate the passage of a pig. Intrusive types are mechanically actuated via a trigger or plunger which protrudes into the line. Non-intrusive and subsea signals may employ magnetic, ultrasonic or radioactive techniques.
4. "Pig locators" are used to locate a pig which may or may not be in motion.
5. "Sphere flow tees" are specially designed to allow a sphere to pass an offtake without stalling. They may be called simply "Sphere tees" or "Flow tees".
6. "Sphere lifters" are usually in the form of tongs or suction devices.
7. "Pig suspension systems" are designed to keep a pig in the centre of a pipeline. They usually comprise spring-loaded skids or wheels and are used for inline inspection tools, or other relatively heavy pigs, and in multi-diameter pipelines.
8. There are two main methods of finding metal loss (corrosion): Magnetic flux leakage (MFL) and ultrasonics (UT). Another emerging technology involves the use of eddy currents.

Further, more detailed information on pigs and pigging will be found in the PPSA book entitled: "An Introduction to Pipeline Pigging" which is available from the publishers:

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PIGGING PRODUCTS & SERVICES ASSOCIATION

*One Day Seminar on "Meeting the Challenges of Pipeline Pigging"
Aberdeen 17th November 2010*

At the time of going to print the programme was not yet finalised but full details will be available soon.

To find out more and book your place, please contact the Secretary at:

PPSA, PO Box 30, Kesgrave, Ipswich, Suffolk, IP5 2WY, UK
Tel: +44 1473 635863 Fax: +44 1473 353597 E-mail: ppsa@ppsa-online.com
An International trade association serving the pipeline industry



BUYERS' GUIDE

Note: Inspection companies can generally arrange for the pipeline to be cleaned/prepared prior to inspection.

- Manufacturer &/or Service Company
- ▲ Distributor

	PIPELINE PIGS					PIPELINE PIGGING COMPONENTS AND EQUIPMENT																	
	Mandrel pigs	Foam pigs	Solid cast pigs	Spheres	Hyperbaric spheres	High DP (plugging) pigs	Pig signals – intrusive	Pig signals – non-intrusive	Pig signals – subsea	Pig locaters – onshore	Pig locaters – offshore	Pig/sphere traps	Closures & Interlocks	Pig/sphere launch valves	Sphere launch pins/flaps	Sphere flow tees	Diversers	Convergers (Wyes)	Pig handling systems	Pig Suspension Systems	Sphere lifters	Testing	
A Hak Industrial Services BV																							●
AGR Pipetech AS																							
Analytic Pipe GmbH																							
Applus RTD																							
Aubin Limited																							
BG Technical Ltd	●	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲					▲				●
BJ Process & Pipeline Services Ltd	▲	▲	▲			▲	▲	▲	▲	▲										▲			▲
Baker Hughes Pipeline Management Group	●	●	●	●	●	●					●												
CDRIA Pipeline Services Ltd										●													
Challenger Special Oil Services/Entrepose Contracting	▲	▲	▲	▲	▲	▲						▲	▲										●
China Petroleum Pipeline Inspection	●	●		●			●			●													
Diascan Technical Diagnostics Center OJSC							●			●													
FTL Technology Ltd	●																			●			
GD Engineering							●	●	●			●	●		●								
GE Oil & Gas, PII Pipeline Solutions																							
Girard Industries	●	●	●	●			▲	▲	▲	▲	▲	▲	▲	▲						▲		▲	
Greene's Energy Group	●	▲	●	▲					▲	▲	▲												●
Gulf Petrochemical Services & Trading LLC	▲	▲	▲	▲			▲	▲		▲		▲	▲	▲	▲	▲				▲	▲		●
IKM Testing AS	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	●
Inline Services Inc	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Inpipe Products Ltd	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Kleiss & Co bv	●	●	●	●	▲	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
Knapp Polly Pig Inc	▲	●	●	●		▲	●	●		▲	▲	▲	▲			▲	▲	▲	▲				
Lin Scan Advanced Pipeline & Tank Services	●	●	●	●	●	●																	
MACAW Engineering Ltd																							
NDT Systems & Services AG	▲	▲	▲	▲						▲		▲	▲	▲						▲			●
N-SPEC®	▲	▲	▲	▲								▲											▲
Narmada Offshore Constructions Pvt Ltd																							●
Netherlocks Safety Systems BV												●											
Online Electronics Ltd									●	●	●	●											
3P Services GmbH & Co. KG								●	●	●	●												
PNS – Pipeline Nitrogen Services bv	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	●	▲							●	●		●
PSI Pipeline Services International	▲	▲																					●
Penspen Integrity																							
Pigs Unlimited International, Inc	●	●	●	●			●	●	●	●	●	●	▲	▲		●	▲	▲	●				▲
Pigtek Limited	●	▲						●	●	●										●	●		
Pipeline Engineering	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Pipeline Pigging Products Inc	▲	●	▲	▲		▲	▲	▲	▲	▲	▲												
Pipeline Services LLC (PLS)	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Pipesurvey International CV	●					●	▲	▲	▲	▲	▲												
Pipeway International, Inc	▲	▲	▲	▲			▲	▲	▲	▲	▲	▲											
Quest Integrity Group, LLC																							
Romstar Sdn Bhd		▲																					
ROPLAST	●	●	●				●	●	●	●	●												
ROSEN Group	●	▲	●	▲	▲	▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	●	●	▲	●	
Sahara Petroleum (SAPESCO)	▲	▲	▲	▲	▲	▲				●	●												●
Sonotec GmbH								●															
Spetsneftegaz NPO JSC							●	●		●					●						●		
Synergy Services, Inc	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	●
T D Williamson	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TDW Offshore Services AS	●					●		●	●	●	●	●			●			●	●	●			
TRAPIL																							
Technipipe	▲	▲		▲						▲													●
Tianjin Greentsing Pipeline Scin & Tech	●	●	●	●	●		●	●		●		●	●									●	●
Topline Limited	▲	▲	▲	▲						▲	▲												●
Tracerco							●	●	●	●	●												
Trans Asia Pipeline Services FZC	●																						●
VP Engineers	●	●	●	●																			
Veekay Vikram & Co	●	●	●	●	●	●	●	●		▲	▲	●	●	▲		●	●		●		●	●	
Weatherford Pipeline & Specialty Services	●	▲	●	●	▲	●	▲	▲	▲	●	▲	●	▲							●		▲	●

3P Services GmbH & Co KG

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In-Line inspection using MFL (metal loss), GEO (geometric) and DMR (direct magnetic response) are available for 3" to 42" pipelines at 3P Services. Customer applications to inspect pipelines that are considered "difficult to pig" or even "unpigable" are a speciality of the company. There are tools for conventional (free swimming), for bi-directional (pump-in/pump-out), and pull-through operation.

3P Services provides associated services including feasibility studies, cleaning, geometric inspection, post-inspection support etc. The company was founded in 1992, is privately owned and based in the oil fields of NW-Germany.

PNS – Pipeline Nitrogen Services bv

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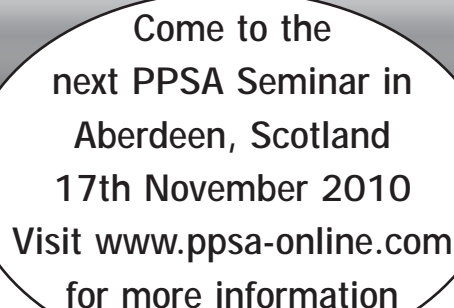
PNS – Pipeline Nitrogen Services bv was founded in 2006 in Emmen. The Netherlands headquarters supports offices in Germany, France, Italy, Spain, Libya, Croatia and China in engineering and operations. PNS employs about 50 people worldwide as staff personnel. The company specialises in pipeline cleaning by means of mechanical pigging utilising specially designed pigs, or chemical cleaning using the latest reactive chemistry. These services are used for pipeline de-contamination and commissioning projects including pipeline drying, gauging and inspection.

PSI – Pipeline Services International GmbH & Co KG

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PSI – Pipeline Services International, provides special services for pipeline pre-commissioning, rehabilitation and pipeline inspection. Pipeline inspection is a new part of PSI, which uses its own fleet of single, and the new multi-channel caliper tools for baseline surveys, passage control for third party intelligent inspection tools and the usual inspection of deformation of the inner diameter of pipelines. The advantage of the new multi-channel system is to give additional information about the o'clock position and the shape of the detected indication.

PSI also provides the following services: hydrostatic testing by water, air or gas; chemical/mechanical cleaning; pipeline drying by air, nitrogen, or vacuum; intelligent pigging; leak detection; construction/sale of pigs; supervision of all above mentioned services.



Come to the
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for more information

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Penspen Integrity is a business stream of Penspen Limited (incorporating Andrew Palmer and Associates). Penspen has no ownership ties with operators, contractors, or suppliers and is therefore independent.

Penspen Integrity provides consultancy and services in the integrity management and risk assessment of onshore and offshore pipelines, including: reviews to determine the need for pigging; smart pigging strategies; engineering assessment, design and remedial work before pigging; tendering and management of pigging contracts; fitness-for-purpose assessment of defective pipelines; corrosion and cathodic protection consultancy; direct assessment advice; repair, remediation, and rehabilitation advice and works.

Pigs Unlimited International, Inc

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Pigs Unlimited Inc supplies pipeline pigs, pigging components and equipment, cleaning and related services and consultancy. Its manufacturing division produces a full line of pigs from 1/2"-96" including foam pigs, steel mandrel pigs (cup, disc, brush, blade), solid cast pigs (sphere, cup, disc), for various functions including drying, batching, cleaning, dewatering and

displacement. It also offers pigging related components and equipment, including launchers, receivers, pig detectors, trackers, pigging valve diverters and closures.

Its service division performs testing, drying, cleaning, pig tracking, insitu coating and leak detection. It also offers customer designed classes for educating clients and employees both new to pigging operations, or needing to implement new pigging programmes.

Pigtek Limited

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Contacts (PPSA): Ralph Hyslop & Richard Kershaw

Contacts (Sales): Ralph Hyslop & Richard Kershaw

Pigtek supply specialist pigging equipment and services for applications where proprietary "off the shelf" equipment will not perform efficiently.

Pigtek products and services have evolved from years of on-site international pigging experience.

Products are available on a sale or hire basis and include: dual/multi diameter pigs, heavy-duty magnetic cleaning pigs, heavy duty brush pigs, HDR de-scaling pigs, advanced by-pass pigs, non-intrusive pig signallers, pig tracking and location equipment.

On-site services include pipeline proving and gauging, advanced pipeline cleaning for flow improvement, pre-inspection proving and cleaning, pig tracking, stuck/lost pig location / removal, training / supervision during pigging operations.

Development services include specialist pig design, pig verification trials, feasibility studies, developing pigging procedures.

Full technical support is assured and Pigtek are certified to ISO 9001:2008.

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Pipeline Engineering, an ISO9001 company, is a global leader in the supply of pipeline pigging products and related services to the international oil and gas industry. As well as providing standard pigging products including pig, spheres, signallers, closures, traps, tees, etc, the company has a team of specialist engineers who look at particular pipeline flow problems and provide specific engineered solutions. With comprehensive machining, fabrication, polyurethane molding and testing facilities, the company is able to provide a turnkey service from concept through prototyping to a finished product. The Company has made substantial investment in its polyurethane formulations (Omnithane®) and processes to ensure that its products lead the industry in durability for use in deep water and long distance pipelines.

Visit PPSA's Web Site
www.ppsa-online.com

for more information and
Hyperlinks to Members'
Web Sites

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Spencer Cubage

Pipeline Pigging Products Inc, a company with over sixty years of combined pig manufacturing experience, offers a full line of flexible polyurethane foam pigs, commonly known to the trade as "poly pigs". Available in drying, wiping and scraping types for pipe sizes below 2" to over 78" in diameter.

The company also has a pipeline cleaning division, Flowmore Services. This group which was founded in 1977, provides PPP customers with the technical "know-how" to use their pipeline cleaning products properly. In addition, Flowmore provides constant product feedback to the manufacturing group in order to ensure the products meet the tough needs of the pipeline cleaning industry.

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Founded in 1960, Pipeline Services LLC, is a prime international contractor providing the oil, gas, petrochemical, water and energy industries with a complete industrial service from project inception to completion. Over the years Pipeline Services LLC has built a unique range of products and services through the successful interaction of diverse technologies. With an ever-increasing range of services, Pipeline Services LLC has become a "one-stop shop" offering a full spectrum of services which are provided either individually or in any combination to suit specific requirements.

These services are provided through 6 main operational divisions, GRE/GRP installation works and piping fabrication, pipeline specialist services, cathodic protection and corrosion control, NDT and inspection services, secondment of personnel; and equipment and material supplies.

Pipesurvey International CV

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Pipesurvey International provides high-end inspection and cleaning services for pipelines. Its innovative inspection tools, developed in-house, provide accurate information about the structural integrity of piggable and non-piggable pipelines. Their team of engineers cover all the required disciplines of mechanical and electrical engineering, software development, physics, materials science, defect assessment, NDT technology, pipeline operations and pigging experience.

Pipesurvey offers MFL inspection with compact-size flexible and bidirectional tools, suitable for short radius bends and high wall thickness. It also offers ultrasonic pipeline inspection, accurate multichannel geometric pipeline inspection, GPS pipeline mapping using IMU, defect assessment and fitness-for-purpose analysis, free-swimming camera inspection, pipeline cleaning using Kathar chemicals or gel pigging and removal of black powder, wax and scale.

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PipeWay has 14 years experience in ILI inspection. It was formed through the licensing of technology developed by Petrobras to solve integrity monitoring issues in its onshore and offshore pipelines and plant piping. The high resolution MFL equipment for piggable pipelines is controlled by powerful software that allows the integration of prior run data from both PipeWay and competitors. Patented Porcupine technology is used to detect and measure internal defect anomalies that are problematic for all MFL tools. These defects include channeling corrosion, general corrosion, erosion, general wall thinning and encrustations that can hide bacterial corrosion colonies. GIP is MFL technology applied externally to the pipeline for use in non-piggable pipelines, plant piping, pier piping and for localised prove up.

Quest Integrity Group, LLC

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Quest Integrity Group provides highly accurate, technology-enabled inspection and assessment solutions to the pipeline industry. These solutions are particularly applicable to unpiggable and difficult to inspect pipelines. The company's InVista™ high fidelity ultrasonic inspection technology accommodates 3–14 inch diameters, is bi-directional and provides 100% overlapping coverage of geometry and metal loss features in a single pass. LifeQuest™ pipeline provides advanced fitness-for-service assessment using inspection data. The solution provides MAOPr for the entire pipe length and follows API 579-1/ASME FFS-1 local thinning assessment methodology. Quest Integrity Group is built upon a foundation of leading edge science and technology that has innovated and shaped industries for more than forty years, and is focused on empowering its clients' operating and maintenance decisions.

Romstar Sdn Bhd

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Romstar offer a full range of pipeline related services, from standard pre-inspection related services – cleaning, gauging, enhanced cleaning (for more difficult lines), to high resolution inspection services deploying intelligent pigs to measure metal loss, internal and external corrosion, coating loss, mechanical deformations and many other features without interrupting the pipeline transportation process. Romstar conduct in-house data interpretation and analysis in their Kuala Lumpur office.

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ROPLAST, the systems house of the ROSEN Group, develops and manufactures products and systems using high performance RoPlasthan® elastomers. ROPLAST's product range includes: Easy Clean™ and UltimateClean™ pipeline cleaning tools (ATEX), cups & discs, transmitters, data loggers, electronic pig detectors, sensors, rollers, elastomer bearings, vibration dampers, clamps, valve insulation plates, diablo rollers, buffers, wheel chocks, fasteners, custom products and systems.

RoPlasthan® is a unique family of non-cellular polyurethane elastomers for demanding applications. It features outstanding mechanical properties combined with a widely extended range of thermal, hydrolytic, and chemical resistance and shows excellent dynamic behaviour even under extreme conditions.

The newly developed RoCoat™ pipe interior coating based on RoPlasthan® technology provides high abrasion resistance and wall adhesion strength.

ROSEN Group

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Please find further information on the ROSEN website: www.RosenInspection.net

The ROSEN Group was created to meet the challenging need to inspect complex and sensitive engineering structures such as oil and gas pipeline systems and above-ground storage facilities.

ROSEN operates in more than 80 countries worldwide and offers a full range of products and services to the oil and gas industry covering pipe diameters from 3" up to 64" for any length or configuration (e.g. 1.5 D bends, dual diameter pipelines, multi-diameter pipelines).

Pipeline cleaning tools and accessories, in-line cleaning, high-resolution geometry inspection, XYZ mapping, high-resolution metal loss inspection, customised in-line inspection, EMAT crack detection and coating disbondment, multi-diameter pipeline inspection, leak detection, robotic inspection, optical inspection, plant and facility inspection, hydrostatic testing and commissioning, data services, asset integrity management support, asset integrity management software, pipeline-, plant- and facility rehabilitations.

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SAPESCO is a major services company which provides a wide range of land, marine and offshore services to the upstream and downstream oil, gas and petrochemical sectors in Africa and the Middle east.

SAPESCO (SIS) is an integrated solutions provider with extensive downstream experience, offering a comprehensive range of services from pipeline pig supply to marine coiled pipe lay and turnkey packages.

In addition to conventional remedies, SAPESCO engineer solutions for marine intervention, pipeline and process systems, pre-commissioning and commissioning. Services include, but are not limited to: CLT; GLT; NLT; pneumatic; nitrogen; hydrostatic testing, ILI, chemical, cleaning, cathodic, mechanical and others.

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Sonotec GmbH is an ever growing technology venture which develops and produces methods and products based on ultrasonic measurement. Sonotec was established in 1991 and operates internationally. Its core operation is the in-house development and production of ultrasonic sensors exclusive to the company.

Sonotec develops sensor solutions for the chemical and pharmaceutical industry, medical technology, petroleum/gas and pipeline technology, generation plants, mechanical, plant and automation engineering. The company offers sensors and measuring devices for the non-contact level measurement, devices for leak detection, instrumentation testing, wall thickness, as well as flow meters for compressed air lines. Sonotec also develops and produces customised sensors and OEM solutions.

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Spetsneftegaz NPO JSC, in-line inspection operator for Gazprom JSC, for 18 years, invents, develops and produces high resolution electronic magnetic, ultrasonic ILI tools and cleaning pigs – diameters 6" to 56" – for gas, oil and product pipelines onshore and offshore, including: EMAT (electromagnetic acoustic ILI tools to detect and size extra small SCC cracks and disbanded coating zones), MFL, MFL+ ("introsopes" for photographic inspection of inner pipeline surfaces), TFI, electronic geometry ILI tools with built-in XYZ mapping system, demagnetizing tools, ILI tools (stress meters) for locating and measuring pipeline stress zones.

The company's Scientific and Production Base, the Computer ILI Data Treatment Centre is located in Ekaterinburg. Final reports in English are to international standards. Spetsneftegaz works in Russia, CIS countries, the EU, Argentina, India and the Middle East.



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Synergy Services, Inc. optimises customer asset safety, throughput, reliability and efficiency with customised cleaning and maintenance programs for oil, gas and product pipeline and plant systems by removing debris and preventing re-occurrence. Specialising in black powder removal with patented POWDERSOLV™ chemistry, the company also provides custom formulated cleaning solutions for paraffin, asphaltines and other debris found in pipeline systems. Online valve and vessel cleaning, compressor service and hydrotesting are included in a full array of vertically integrated services that are complemented by Synergy's FLOCLEAN™ family of proprietary and patented chemicals, portable separation equipment to 500mmcf, and one of the world's most advanced crawler pigging technologies for cleaning, ILI and video inspection of unpiggable offshore/onshore lines, 2-inch and upwards.



T D Williamson

Europe / Africa / Middle East Region

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T D Williamson, Inc., is one of the world's most recognised names in pipeline equipment and services, delivering safe integrity solutions for onshore and offshore applications. TDW provides hot tapping and plugging, pipeline cleaning, geometry and MFL inspection, pigging and non-tethered plugging pig technology services for any pressurised pipeline system, anywhere in the world.

TDW's pigging products include a full range of pipeline pigs, pig launchers and receivers, closures, cleaning detergents, pig cleaning systems, automated launch systems, pig tracking equipment, and numerous variations of pig passage indicators.

TDW's pipeline services include: geometry inspection, corrosion inspection, defect assessment repair and rehabilitation, pipeline preparation, hydrotesting, line dehydration, corrosion inhibitor application, pipeline cleaning programs with mechanical cleaning pigs and/or cleaning detergents, and equipment rental.

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TDW Offshore Services is a leader in tetherless, through-wall remote-controlled pipeline pressure isolation services. The company minimises customers' pipeline downtime through fast-track delivery of project-specific pigging, repair and handling tools, both onshore and offshore. A broad range of products and services are offered within the areas of: pipeline pressure isolations; pipeline pigging; pipeline flood prevention; pipeline construction and pipeline repair.

TDW Offshore Services is a subsidiary of T.D. Williamson, Inc. (TDW). TDW, a well recognised name in pipeline equipment and services, delivers safe integrity solutions for onshore and offshore applications. With more than 1000 employees, TDW's experts provide hot tapping and plugging, pipeline cleaning, geometry and MFL inspection services for any pressurised pipeline system anywhere in the world.

TRAPIL

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TRAPIL was established in 1950 and is the oldest and largest refined products pipeline operator in Europe. Operations include the Le Havre/Paris pipeline system and many other civil and military networks throughout France. It represents some 4700km of pipeline and 160 pumping and delivery stations. There are also more than 850 000 cubic meters of storage tanks.

To monitor and maintain the integrity of this pipeline network, TRAPIL has developed a range of instrumented pigs and other specific products. This combination of operational experience and instrumented pig applications enables TRAPIL to provide solutions to many pipeline inspections and leak detection/location problems.

The services provided include acoustic measurement for leak detection and ultrasonic pigging for metal loss features, corrosion and geometric anomalies detection.

Visit PPSA's Web Site
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Established in early 1990, Technipipe specialises in the engineering, control and maintenance of pipelines. Technipipe offers a wide range of services to pipeline contractors and operators: pipeline engineering, construction and maintenance consulting, construction supervision, design, supply of cathodic protection systems, hydrostatic testing, commissioning, pigging, cleaning, drying and purging. These services are provided worldwide, from Technipipe's head office and its two branches in France, by experienced engineers and technicians. Technipipe also supplies cleaning pigs and offers intelligent pigging services through various representatives' agreements.

Tianjin Greentsing Pipeline Scin & Tech Development Co Ltd

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Founded in 2002, Greentsing (GT) specialises in the design and manufacture of pipeline pigging, inspection and maintenance equipment. Tianjin Greentsing Pipeline Scin & Tech Development Co Ltd is its wholly-owned subsidiary.

GT's main products include: pipeline pigging equipment, pressure pipeline fittings and pipeline inner inspectors. Its main technical services include pipeline inspection and pigging engineering.

GT imported the automatic casting machine, big machining facilities and raw materials. Its products are sold to the Middle East and Europe and were approved by foreign experts during oil pipeline pigging in Sudan, Libya and Russia. Its equipment and services are widely used in China's oil pipeline market and West-East natural gas transmission project construction.

Topline Limited

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Topline Limited is a company with a combined experience of 23 years of pipeline pigging, valve servicing and manifold maintenance in the Nigeria oil and gas industry.

The company has a large pool of experienced pipeline engineers which it offers to the oil and gas industry for commissioning, decommissioning, descaling and desanding of pipelines across the West African coast.

Topline Limited has a relationship with GE Energy (PII) in Nigeria to offer pipeline integrity management planning and related services within the region.

Tracerco

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www.traceroasia.com
Contact: Robert Yong

Tracerco is a leading provider of precision subsea services with more than 50 years experience. It offers a range of techniques that allow you to see through pipelines and processes, ultimately providing "insight onsite".

The company's cutting edge, flow assurance, pipeline services and inspection services are used subsea to ensure flow from the reservoir to the point of sale, improving efficiency, reducing risk and saving money. The flow assurance solutions provide flow profiling or pipeline deposit volumes, allowing for strategic instant process changes or successful inspection campaigns. Tracerco's pipeline services provide 100% accurate and reliable pig tracking solutions and with wireless technology deliver a fast and effective utilisation of vessel time, saving time, increasing safety and reducing risk.

Trans Asia Pipeline Services FZC

Plot 4M-25, PO Box 42181, Hamriya Free Zone, Sharjah, UAE

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Contact (Sales): D Surendranath, Managing Director

Trans Asia Pipeline Services FZC, an offshoot of Narmada Offshore Construction (Pvt) Ltd., India, works in the growing oil and gas petrochemical industry in the Middle East. Trans Asia provides a full spectrum of pipeline services including; flooding, cleaning, gauging, hydro testing, dewatering, drying, commissioning, gel pigging and caliper pigging. The company has recently embarked on the manufacture of pigs, pig accessories and pig closures and offers a pipeline inspection service on the general condition of pipelines.

VP Engineers

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VP Engineers manufacture specialized industrial products for refineries, petrochemicals, pipe laying companies, thermal power plants and other process industries.

They produce utility pigs – cleaning, bi di, batching and foam. Other products within their range include: pig

traps, wire brushes, sealing/guide/ spacer discs, scraper cups, conical cups and gauging plates.

VP Engineers manufacture casing insulator and casing end seals – moulded insulator – multi segmented – HDPE with steel fasteners; moulded end seals – wrap around model with steel band clamps.

In addition, they produce pipe end caps and bevelled end protectors to protect pipes from dusts and foreign particles during storage and in transit; monolithic insulation/isolation joints and pipe repair clamps.

Vee Kay Vikram & Co

B-2, Silicon Valley, Shivranjani Crossroad, Ring Road, Satellite, Ahmedabad, 380 015, Gujarat, India

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Vee Kay Vikram & Co was established in 1969, is accredited to ISO9001:2000. VKVC manufactures pig barrels, quick opening closures, flow tees, pig wyes, tees, online leak repair clamps, pin hole repair clamps, reinforcement epoxy grout sleeves, insulation joints, pipeline connectors and pig indicators.

VKVC quick opening closures and leak repair clamps are offered with API-6H monogram under license number 6H-0012.

VKVC pig launching and receiving valves are offered with API-6D monogram under license number 6D-0622.

VKVC also manufactures various types of pipeline pigs up to 56". NB: size, including Bi Di, spherical, commissioning and special purpose pigs.

VKVC personnel are available at various sites in India, Bangladesh and Middle East for carrying out pipe jobs on contract including geometric (EGP) survey or pipelines.

Weatherford Pipeline & Specialty Services

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 Contact (PPSA): Detlev Els

Weatherford's Pipeline & Specialty Services Group is a global provider of game-changing technologies for the pipeline and process industries. With over 30 years experience in pigging and pig manufacturing, Weatherford offers an extensive range of high-quality, reliable pigs either off the shelf or specially designed to suit clients' specific requirements. Weatherford's inspection tools utilise the latest technologies and expertise and include MFL/TFI, UTWM and UTCD, as well as SAAM® Smart Utility Pig and MultiCalSM 360. Additional pipeline services include cleaning, filling, testing, dewatering, drying, and purging. For every pigging requirement, Weatherford can provide a dependable solution.

Associate Members

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Cottam Brush Ltd	31
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American Tool & Die, Inc	30
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PIPELINE REINFORCEMENT SYSTEM	
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DSV Pipetronix Ltd	31
P.S.E. International Ltd	32
PIPELINE SYSTEM OPERATOR	
S.N.T.G.N. Transgaz S.A.	32

American Tool & Die, Inc

HIGH PRECISION MACHINING

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American Tool & Die, Inc., has been supplying the high precision CNC machined component needs of the pigging industry for a number of years, with "build to customer print" product ranging from sensor rings to linkages, bodies, mandrels, shoes, and internal electronic chassis, to name a few.

Comprehensive experience and knowledge of materials common to pigging tools, coupled with competitive pricing, and aggressive delivery lead times make American Tool & Die, Inc., an attractive vendor to pig designers and builders.

Brenntag Nederland BV

PIPELINE SERVICES PROVIDER

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Brenntag, a world leading distributor of industrial and specialty chemicals, provides a full line of products and services to the oil and gas producing and processing industry. Its product range includes process, production and cleaning chemicals. Brenntag pipeline services include high quality pigging activities, chemical cleaning and geometric surveys.

Whatever the contamination in the pipeline, Brenntag provides a solution. Its unique chemicals and services allow pipeline operators to clean lines online, combining task specific surfactants with advanced surface cleaning effects and non-hazardous carrier fluids. Brenntag's team of highly trained specialists provides these services on a project or turn key basis.

The Clock Spring Company, L.P.

PIPELINE REINFORCEMENT SYSTEM

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www.clockspring.com

Contact: Andrew Patrick

Highly effective, ingeniously simple, the Clock Spring pipeline reinforcement system redefines the economics of pipeline repair. With the patented Clock Spring system, *permanent* field repair and reinforcement of pipe sections weakened by corrosion or mechanical damage is easy, fast and inexpensive.

The Clock Spring sleeve is a specially developed, 0.06" sheet of high strength composite material. Its unique coil-shaped configuration creates a matrix memory which allows the Clock Spring® to wrap tightly around pipe of virtually any size. Applied with a patented fast-curing yet incredibly strong adhesive, it forms a composite wrap which actually exceeds the yield strength of the original pipe.

Cottam Brush Ltd

BRUSH MANUFACTURERS

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John Burrow

Cottam Brush Ltd specialise in the design and manufacture of brushes for the cleaning and MFL in-line inspection of pipelines. Their brushes are bespoke, designed and manufactured to suit individual pigs and pipelines.

Founded in 1858 the organisation has vast experience in offering solutions to customers across the globe. The organisation is fully accredited to ISO9001:2008 and

has invested heavily in the latest CNC machines and CAD facilities.

A variety of materials and construction methods are utilised to ensure each brush is ideally suited to the environment in which it is used and to maximise performance for each run.

DSV PIPETRONIX Ltd

PIPELINE SERVICE PROVIDER

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DSV PIPETRONIX Limited provide services to the Nigerian oil and gas industry. Their services include pipeline cleaning and de-scaling; pipeline repair and construction; hydrotesting, drying and commissioning; gel pigging, chemical cleaning, corrosion control and inhibition; also pipeline integrity assessment in partnership with Rosen. With their team of trained personnel, DSV Pipetronix ensure that their clients receive a high level of service with a great emphasis on safety.



Ghizzoni SpA

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Ghizzoni SpA has been operating in the pipeline construction field since the 1950s and has gained valuable practical experience in the different sectors.

Ghizzoni SpA has highly specialised equipment including on-line automatic welding, induction pre-heating systems, lifting and transporting systems by means of cables, winches and capstans, waterway crossing, H.D.D. rig, hydrostatic and pneumatic testing, drying cleaning and commissioning up to 60".

The Quality Management System of Ghizzoni SpA is certified to UNI EN ISO 9001:2000 and OHSAS 18001:1999.

P.S.E. International Ltd

PIPELINE SERVICES PROVIDER

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E-mail: info@pse-int.com www.pse-int.com

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P.S.E. International Ltd provides services and constructs drying equipment for the drying and cleaning of pipes in the oil and gas industries.

The company was founded by Peter Vemmelund and Kent Friberg who have over 30 years experience in: drying (drying with super dry air), vacuum techniques, cleaning and refrigeration techniques. Today PSE International is owned by Peter Vemmelund, Lars Hartvigsen and Torben Bilstrup.

P.S.E. International uses top quality measuring instruments to ensure quality of work. The drying system is specially constructed, the dry air being 100% oil free because air blowers in the compression part, operate without oil. The method of drying is well approved and used on pipelines with diameter from DN 80 (3") to DN 1400 (56") worldwide.

Shell UK Exploration & Production

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S.N.T.G.N. Transgaz S.A. was established based on the Government Decision no. 334 on 28th April 2000. Its main activity is gas transmission, dispatching, international transit of gas, and research and design for the transmission of natural gas.

S.N.T.G.N. Transgaz S.A. is the administrator and technical operator of the natural gas transmission system, the entity ensuring and responsible for the operation under quality, safety, efficiency and environmental protection conditions of the natural gas transmission system. The company operates approximately 12,000 km of transmission pipelines with diameters between 6" and 40", with a very complex infrastructure.

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Process piping and pipeline access, isolation and integrity solutions provider.

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Pipeline cleaning with the Hydraulically Activated
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Pipeline pigging consultant. Former President of PPSA.

Some useful conversion factors

LENGTH

1 in	= 25.40 mm
	= 2.540 cm
	= 0.0254 m
1 ft	= 304.80 mm
	= 30.480 cm
	= 0.3048 m
1 mile	= 1.6094 km
1 mm	= 0.0394 in
1 cm	= 0.3937 in
1 m	= 39.370 in
	= 3.2808 ft
	= 0.6214 miles

VOLUME

1 barrel	= 42 US gallons (liquid)
	= 34.9909 Imperial gallons
	= 5.6146 cu ft
	= 158.9871 li
	= 0.1590 cu m
1 US gallon (liquid)	= 0.0238 barrel
	= 0.1337 cu ft
	= 0.00379 cu m
	= 3.7854 li
1 US gallon (liquid)	= 0.0038 cu m
	= 0.8327 Imperial gallons
1 Imperial gallon	= 0.0286 barrel
	= 0.1605 cu ft
	= 277.4171 cu in
	= 4.5460 li
	= 0.0045 cu m
	= 1.2009 US gallons (liquid)
1 li	= 0.001 cu m
	= 1000.0000 cu cm
	= 0.2200 Imperial gallons
	= 0.2642 US gallons (liquid)

VELOCITY

1 mile/hour (mph)	= 0.0167 miles/min
	= 0.0003 miles/sec
	= 88.000 ft/min
	= 1.4667 ft/sec (fps)
	= 1.6094 kilometres/hour (kph)
	= 26.8225 m/min
	= 0.4470 m/sec
1 kilometre/hour (kph)	= 0.01667 kilometres/minute
	= 0.0003 kilometres/sec
	= 16.6667 m/min
	= 0.2778 m/sec

	= 0.6214 mph
	= 54.6800 ft/min
	= 0.9113 ft/sec
1 ft/sec	= 0.6818 mph
	= 1.0973 kph
	= 0.3048 m/sec
1 m/sec	= 3.6000 kph
	= 2.2369 mph
	= 3.2808 ft/sec

MASS

1 pound (lb)	= 0.4536 kg
1 kg	= 2.2046 lb

WEIGHT OF WATER @ 62°F/16.67°C

1 barrel	= 349.9860 lbs
	= 158.7512 kg
1 US gallon	= 8.337 lbs
	= 3.7820 kg
1 Imperial gallon	= 10.0122 lbs
	= 4.5420 kg

APPROX WEIGHT OF CARBON STEEL

1 cu in	= 0.283 lbs
	= 0.128 kg
1 cu ft	= 489.0 lbs
	= 221.8 kg
1 cu cm	= 0.008 kg
	= 0.017 lbs
1 cu m	= 7810 kg
	= 17300 lbs

PRESSURE

1 ft head water @ 60°F	= 0.4335 pounds/square inch (psi)
	= 0.0305 kilogrammes/square centimetre
	= 0.0299 bars
	= 0.3048 m of water
1 m of water	= 0.1000 kg/sq cm
	= 0.0967 bars
	= 3.2808 ft of water
1 psi	= 0.0689 bars
1 bar	= 14.5039 psi

MISCELLANEOUS CONVERSIONS

1 Newton	= 0.225 lbs
1 lb	= 4.448 Newtons

USEFUL FORMULAE

Flow in a pipeline:	m/sec = (brl/day) / 275d ²
	ft/sec = (brl/d) / 83.82d ²
	where d = inside diameter of pipe in inches



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the
PPSA
Web Site

Visit the PPSA Web Site to find out more about Pigging
www.ppsa-online.com

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