ARGUS
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PIGS SUITABLE FOR ARGUS PIGGING VALVES

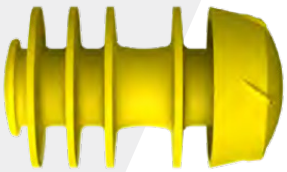
MAINTENANCE PIGS

Foam Drying / Cleaning

Foam Wiping / Cleaning / Scraping / Brushing

Foam Sphere / Balls

Brush Pig



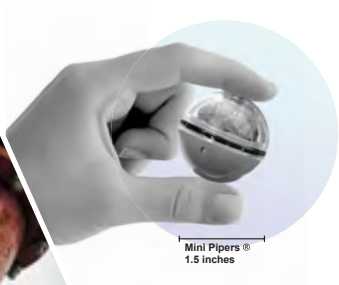
Polyurethane Disc & Cup Style Pig

TYPES OF INSPECTION PIGS

I2I PIPELINES

ROSEN

QUEST INTEGRITY



INGU

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ARGUS PIGGING VALVES

QUEST INTEGRITY - SINGLE MODULE ILI TOOL

Quest Integrity

- Inspects non-standard and bulging pipe material.
- Quest Integrity Houston Flow Loop with Argus 8 inch 300 ASME Launcher and Recieving Valve for test witnessing.
- Provides 100% overlapping coverage of pipeline geometry and pipeline metal-loss features in a single pass.
- Navigates back-to-back bends with >90° short radius turns.
- Accommodates limited or missing launcher / receiver facilities.
- Functions in low-flow or limited flow conditions.
- Has been tested in the Argus 6 and 8 inch Launcher and Receiving valves. 4 inch tool now available.
- Identifies significant wall thickness changes and pipeline wall loss.
- Traverses bottom unbarred tees, wyes and mitre bends.
- Lightweight, hand-held intelligent pig reduces safety and operational risk.
- Lower pressure differential requirements and bi-directional capability minimize line disruptions.
- Unique design reduces wear, impact and debris collection.
- Ultrasonic in-line technology measurement delivers accurate, repeatable results.
- Linear ultrasonic sizing minimizes verification digs and improves excavation and repair confidence.
- Permanent line modifications not required.
- Efficient pipeline inspections minimize offline status.
- Onsite turnaround and rapid pipeline geometry inspection data analysis allows real-time operating decisions.
- Ultrasonic inline inspection technology does not permanently magnetize pipe like magnetic flux leakage tools, hereby eliminating demagnetization repairs.
- Following the field inspection and preliminary report, the high-quality ILI data is analyzed for wall loss and anomalies such as corrosion, denting and ovality.

Argus Pigging Ball Valves PLUS Quest "Invista" Inspection Tool equals a good solution for internal inspection of what was once, un-piggable and non-inspectable.

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i2i Pipeline Inspection Pigs & Argus Pigging Valves

i2i PIPELINES
Simplifying Pipeline Inspection

- i2i Pioneer pigs for pigging valves offer a extremely cost effective solution.
- i2i smart pig valve tools are field proven onshore and offshore.
- The tools use electromagnetic inspection technology.
- They can be Pioneer (Mandrel type) or SmartFoam.
- They are single module pigs that can manage 1.5D bends.
- They can operate in all mediums, including gas / multiphase / oil, etc.
- They can clean and inspect at the same time.
- They can negotiate 20% ID restrictions.
- They inspect for all internal anomalies (wall loss / pitting / cracking).
- The inspection sensors can manage speeds of 7m/s (23ft/s).
- Sizes range from 3 inch to 16 inch.
- Easy maintenance – PU sensor heads are throw away items when they are worn through.
- Battery pack is rechargeable so once the data from an inspection run is downloaded the pigs can be run again.

Successfully tested in both the Launching and Receiving modes at the Pipeline Research Council International (PRCI), Houston, Texas, June 2017.

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ROSEN Pipeline Inspection Tool & Argus Pig Valves

ROSEN
empowered by technology

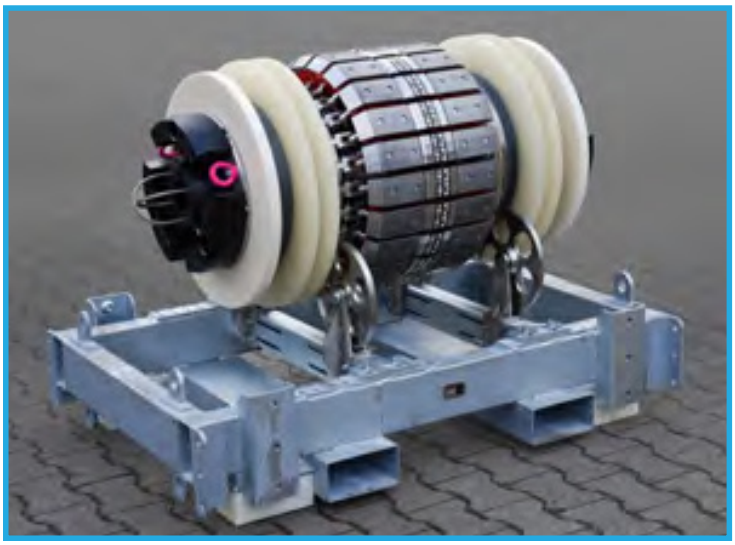
ROSEN's extremely short RoCorr • MFL/BiDi tool provdes new possibilities for the inspection of challenging pipelines. Capable of passing through a conventional launcher or a launch valve, it is the ultimate ILI tool for pipelines with only one entry and exit point.

One of ROSEN's most recent developments for the inspection of challenging pipelines is the free-swimming, single body RoCorr MFL/BiDi inline inspection tool. It has been specifically designed for the inspection of pipelines with only one entry and exit point, i.e. for situations where the pipeline launcher is at the same time used as the receiver. Unlike tethered inspection tools, ROSEN's RoCorr-MFL/BiDi has no limitations in terms of inspection length and/or number of bends.

One of the unique features of this extremely short and compact tool is that it can be launched through a small entry point including a three-way ball valve. Such valves are commonly used by pipeline operators to load sphere or short foam tools for the purpose of pipeline cleaning. Until recently, pipelines without proper launchers and receivers required significant modification to enable inspection tools to enter and leave the pipeline. With ROSEN's new RoCorr MFL/BiDi fleet, even these challenging pipelines can now easily be inspected without the need for any modifications.

Incorporating Magnetic Flux Leakage inspection technology, ROSEN's RoCorr MFL/BiDi offers the full versatility and accuracy of a high-resolution MFL inspection tool while making only moderate demands in terms of pre-inspection cleaning. Most of ROSEN's RoCorr MFL/BiDi tools can negotiate 1.5D bends, pass through constrictions in the pipeline down to 85% of the outer pipeline diameter and magnetize pipes and pipe fittings up to Schedule 80.

Robust in design and featuring a special bidirectional propulsion disc setup, ROSEN's RoCorr MFL/BiDi is launched and pumped all the way to the end of the inspection path. The flow is then reversed, so that the tool is pumped back to the launch site for recovery.



- Allows in-service inspections and requires only one entry/exit point = cost savings.
- Extremely short - can be launched through launch valves.
- No tether - not restricted by bends or inspection path length.
- 1.5D-capable and easy to handle – great flexibility.
- Robust and reliable - low pre-inspection cleaning demands.
- High sensor density, sampling rates and magnetic saturation - accurate feature classifcation and sizing.

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Pipeline Inspection Sensors & Argus Pigging Valves

INGU SOLUTIONS

Almost 40 per cent of the world's oil and gas pipelines are unreachable using current inspection technologies. However, recent advances in microelectronics and machine learning have led to an innovative new solution: Pipers® free-floating smart pipeline sensors. For the first time, there is a cost effective, easy to use solution to gain visibility into the interior of your organization's entire pipeline infrastructure.

Inspection in the Palm of Your Hand

Ingu's Pipers® offer universal pipeline access using smart sensor technology capable of navigating even the smallest pipelines under the most challenging conditions. Pipers® travel with the flow in operational pipelines, mapping the interior as well as detecting leaks, magnetic features, geometric defects and deposits that threaten performance and safety - with zero downtime. Small enough to fit in the palm of your hand, yet powerful enough to travel great distances over its 24-hour screening range, Pipers® hardware is provided at no cost. Customers only pay for the inspection analtycs and reporting they need.

Applications:

+ Pressure profile
+ Pipeline geometry
+ Deposit survey
+ Leak detection
+ Magnetic anomalies

Deployment:

+ Gas & liquids pipelines
+ Steel, HDPE, ...
+ 2" and larger pipelines
+ Up to 1,450 PSI
+ 24 hour runtime
+ Class 1, Zone 0 environments certification

Benefits:

+ Easy to deploy
+ No hardware costs
+ Fast turnaround
+ No downtime
+ Subscription-based

Successfully tested in both the Launching and Receiving modes at the Pipeline Research Council International (PRCI), Houston, Texas, June 2017.

www.ingu.com

December 15, 2021

FEATURES, ADVANTAGES, & BENEFITS OF ARGUS PIGGING VALVES

#1

FEATURE

Manufactured to API 6D under License #2025, API SPEC Q1 and ISO 9001.

ADVANTAGE

The product is produced to stringent manufacturing guidelines as laid out by Industry for Industry, the program is managed by an industry committee of Manufacturers and Users. Monogram licensees meet API's high standards for quality and products, as well all licensees are manufacturers with capabilities proven through intensive on-site API audits.

BENEFIT

You can rest assured that the Argus Pigging Valve meets all requirements as laid out by industry
ensuring complete qualification of your gathering infrastructure.

#2

FEATURE

Argus has invested in relationships with Inline Inspection Technology developers to confirm compatibility of their technologies with the Argus Pigging Valve Technology.

ADVANTAGE

You now have the ability, to not only incorporate mechanical pigging facilities for Production Optimization and Corrosion Mitigation but to include the ability to insert and retrieve Inline Inspection Technologies within the same equipment.

BENEFIT

Argus Pigging Valves are now providing additional value with respect Production Optimization, Corrosion Mitigation, and Inline Inspection capabilities.

#3

FEATURE

Engineered and Manufactured in North America with North American raw materials.

ADVANTAGE

You can rest assured that you have the best fit for purpose valve with the highest level of quality.

BENEFIT

You can reduce delays and costly downtime in the field due to quality, design and functionality issues avoiding unproven technology while enjoying seamless well tie-ins and uninterrupted production.

#4

FEATURE

A complete solution of Pigging Valve and Pig.

ADVANTAGE

You are not left up to your own devices when it comes to optimum liquids sweeping and debris removal solutions.

BENEFIT

You can take advantage of effective Production Optimization and Corrosion Mitigation.

#5

FEATURE

Argus offers Automated Pigging solutions for high pigging frequency applications or remote locations.

ADVANTAGE

Proven automated Pigging solutions for operational challenges.

BENEFIT

Lowers cost of operations through reduced manpower and improves effectiveness of the gathering process.

#6

FEATURE

When compared to fabricated barrel style launchers and receivers the footprint is reduced significantly.

ADVANTAGE

Less space is required for your pigging facilities, and they have less physical presence.

BENEFIT

Land costs and physical presence in the environment are kept to a minimum.

#7

FEATURE

Inherent safety features such as pressure alert valves, gauge ports and pressure warning grooves. In addition, the orientation for insertion and removal of pigging devices is in the vertical orientation as opposed to the horizontal orientation which often puts personnel in the line of fire in a projectile situation.

ADVANTAGE

Operations personnel safety is enhanced by built in safety redundancy.

BENEFIT

Improved safety records through the ever-dangerous pigging operation.

#8

FEATURE

Substantial emissions reduction with manual valves and up to 91% reductions when utilizing automated pigging packages in gas applications.

ADVANTAGE

Enhanced safety when working with challenging media such as H2s as pigging operation can be performed with NO venting or send to flare.

BENEFIT

Safer working conditions, less prone to operational hazards. Enables End User to take advantage of industrial and environmental programs with respect to Green House Gas Emissions and the reduction of their carbon footprint.