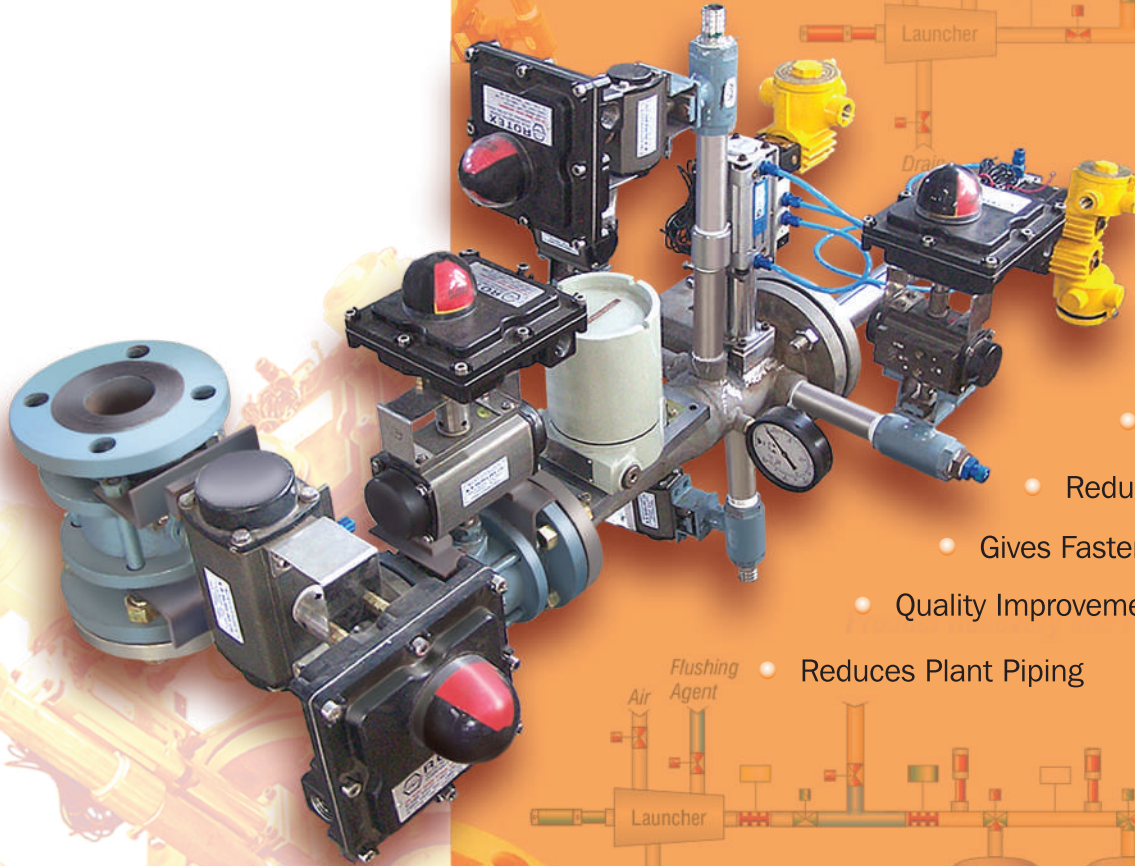
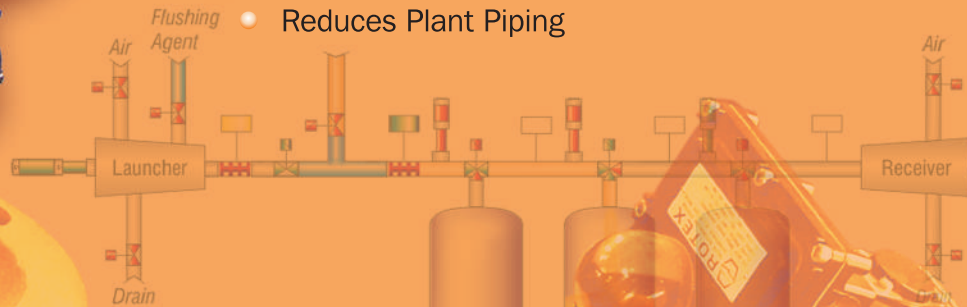


Process Pigging System

Cleaning in Place (CIP)



- Improves Yields
- Reduces Effluents
- Gives Faster Changeovers
- Quality Improvement
- Reduces Plant Piping



- Pumping of Flushing Agent stopped as the pig reaches the stopper
- Pig 2 Launched with Air

GRAFFIN
technologies

A pigging system normally uses water, air or flushing agent to propel a rubber pig, along a length of pipe and removes any residue product from the line. This results in effluent reductions. It can also be used to provide a physical interface between different products, enabling faster change-overs between production runs.

The main advantages of the pigging system are :

- they increase the yield by recovery of residual product which was previously sent to drain.
- they reduce effluent loading through product retrieval
- they reduce CIP (Cleaning In Place) costs
- they enable fast changeovers between products, by using the pig as a physical interface
- they maintain product quality, especially on start-up, where the interface between pipe contents is discrete and not left to the operators' discretion



Bi-Directional Pigs



Spherical Pigs

The use of piggable lines can drastically reduce the number of pipelines needed to transfer various liquids from one point in a process to the another. However, the piping system must be designed to accommodate pigs and typically requires a number of special "piggable" components.

Graffin Technologies offers totally automated pigging systems and components for pigging systems.

- **Pigs** Solid Urethane Disc, Rubber, Foam, Teflon, Viton & Others
- **Pig Launcher/Receivers** Single or Dual Pig, Manual, Semi-Autoamtic, Automatic-Carbon Steel, Stainless Steel
- **Piggable Tees** Special tee fitting manufactured with a built-in "pig-guide" to prevent a pig from moving into the branch of the tee. Piggable tees are available in Carbon Steel, Stainless Steel and other materials.
- **Demisters** Designed to help coalesce mist and collect the resulting liquid for disposal. Demisters are available in Carbon Steel, Stainless Steel, and other materials.
- **Pressure Gauges** Indication of line pressure or pigging-air supply pressure
- **Pig Passage Indicator-Magnetic** These devices are used to detect the presence of a pig at a particular point in piggable piping system. Their magnetic sensors allow them to be non-intrusive, but the pig must be equipped with an embedded magnet. They permit local indication of the pig's presence, or can serve as a remote sensor for a computer-operated/monitored system.
- **Pig Stop** A stainless steel rod that penetrates the pipe wall and protrudes into the center of the pipe. It physically blocks the movement of the pig and can be retracted with an electric solenoid to allow the pig to pass. We also supply non-retractable pig stops which can be used to stop the pig while allowing fluid to pass freely.
- **Piggable Ball Valves** Manual or remotely operated, these valves are full-ported (line I.D. size) and permit free passage of the pig.

Automation

We offer manual, semi automatic and fully automatic systems.

Fully automatic systems are controlled through PLC.

Field input/output modules can be provided to reduce field wiring. These modules communicate through industrial standard bus. Magpass pig passage indicator can also communicate through the bus.

Operator interface can be through PC Softwares, touch panels or graphic terminals.



Magpass pig passage indicator with PLC interface



QT 320K Graphic Operator Interface Terminal



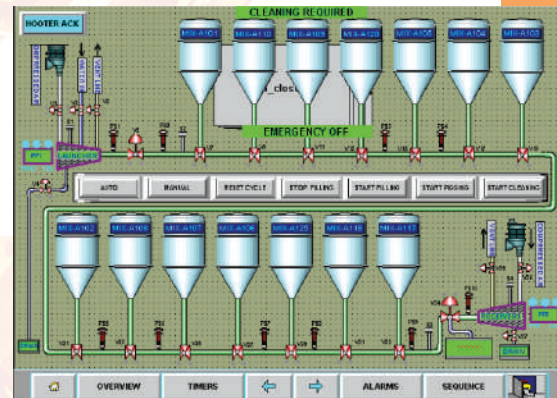
Magpass pig passage indicator for local indication



Field I/O module



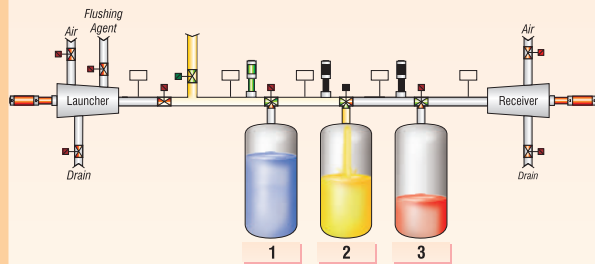
Operator Interface



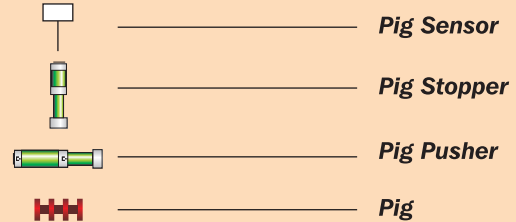
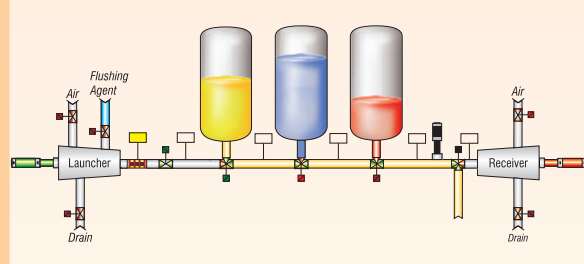
PC Control Software

Typical Applications

Pigging System for Multiple Product Tank Filling



Pigging System for Multiple Product Tank Discharge



Other Products and Services

- Electronic Geometry Pigging-Geometry Survey of Cross Country Pipeline
- MAGPASS- Pig Passage Recorders
- Pig Locator & Tracker

Applications

- Petrochemicals
- Chemicals
- Dairy
- Pharmaceutical
- Beverages
- Food
- Paints

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