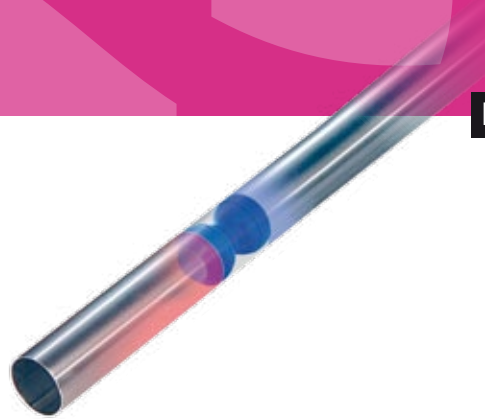


Pigging Systems
Duplex-Pig
Aseptic-Duplex-Pig

Product Separation



KIESELMANN
FLUID PROCESS GROUP

Safe Recovery of Product with KIESELMANN Pigging Systems

Quick, easy, absolutely reliable, and affordable. These are the essential demands on pipeline recovery systems. Safe and reliable product separation is of importance if, for example, small batches are to be separated in one and the same pipeline, or if valuable product is to be removed and recovered effectively prior to cleaning, and it is of particular importance if the product cannot drain by itself out of the pipe to be cleaned. In addition, it is of utmost importance to remove the product completely, if the cleaning process is to be implemented in such a manner as to keep adverse effects on the environment to a minimum.

Saving time and money rapidly and verifiably, by integrating the KIESELMANN pigging technology in your production. This technology guarantees an almost loss-free emptying of the pipelines. You will reduce the costs in the fields of cleaning, wastewater, energy, and owing to this, this results in a more efficient use of the raw materials.



KIESELMANN pigging system in a production plant

KIESELMANN Pigging Technology Features

- ▶ Easy integration in available process plants
- ▶ Damping systems for gentle running of the pig into the stations
- ▶ Flow control with optimised cleaning in the stations
- ▶ Easy detection in the product pipe by means of integrated solenoids in the pigs
- ▶ Pig can be led back by means of product/water/air
- ▶ Available in hygienic and aseptic design
- ▶ Environmentally friendly and resource-saving
- ▶ Closed launching and receiving station for integration in the cleaning cycles, including steam sterilisation

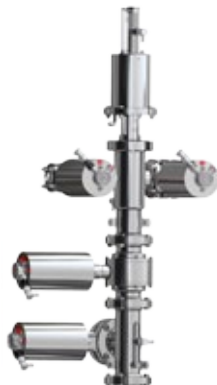
Schematic Representation

Asptic-Duplex-Pigging Launching and Receiving Station

- A** CIP/water inlet/outlet
- B** Product line
- C** Compressed air (connection for sterile air)
- D** Position of pig in the launching station
- E** Position of pig in the receiving station



Pig launching station
(hygienic version)



Pig receiving station
(hygienic version)

- ▶ Easy integration into existing process plants
- ▶ Closed launching and receiving stations, can be integrated in cleaning cycles
- ▶ Pig is carefully „parked“ in the stations by means of a buffer system
- ▶ Flow guidance produces the best possible cleaning results in the stations
- ▶ Pig sensors located at the final positions or at the pipeline
- ▶ Pig transport by product/water/air
- ▶ Can be upgraded at anytime with KIESELMANN's automation components



Aseptic
pig launching station



Aseptic
pig receiving station

- ▶ Design and execution consequently according to aseptic standard
- ▶ Hermetic separation of product area/surrounding area with the GEMBRA diaphragm technology in the stations
- ▶ Advanced PTFE diaphragm technology
- ▶ Pig and sealing materials generally with FDA conformity or FDA approval respectively
- ▶ Individual production adapted to your requirements or technical requirements respectively
- ▶ Economically best solution, because no steam is required for sterile lock

Save Separation of Product with Duplex Pigging Technology

The patented KIESELMANN Duplex-pig is at the heart of KIESELMANN's Duplex pigging systems. It has been designed to permit forward and backward movement in the pipeline. The permanent magnet at the core of the Duplex-pig coupled with sensor technology easily lets you monitor the position of the Duplex-pig in all system components.

The double-ball design gives the Duplex pig its optimised geometrical shape to effortlessly travel through standard 90° bends and tees. In order to perfectly adapt to its environment, its diameter is adjustable and thus can snugly fit the inner pipe wall. The outcome is the safe product separate and effective cleaning.

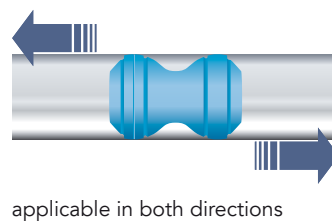
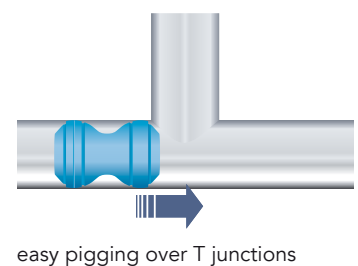
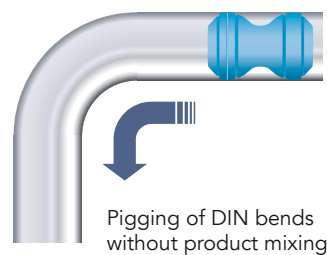
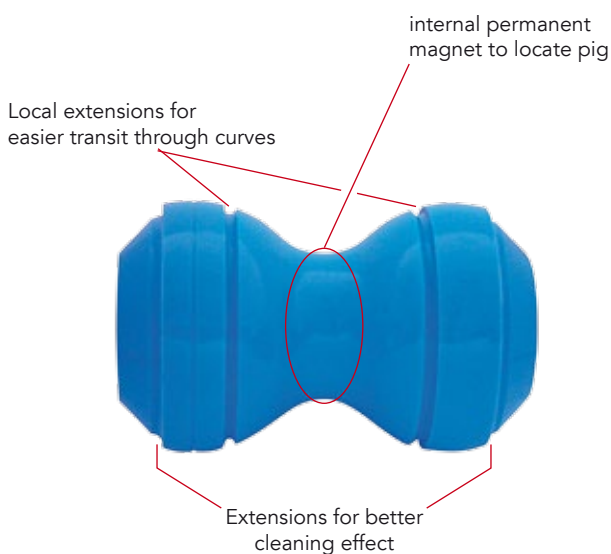
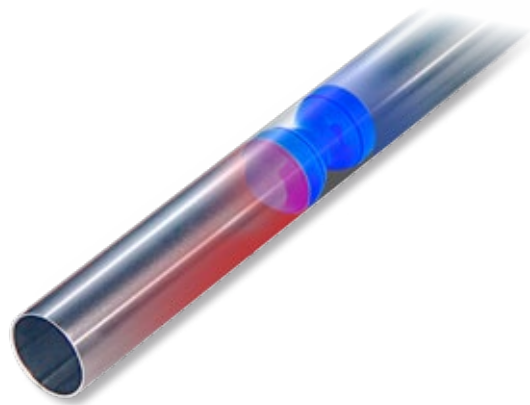
Due to these performance features and especially due to its sanitary design, the Duplex-pig is predestined for applications in the food and beverage industries. In addition, it will help to significantly reduce the cleaning time and cleaning agents used and thus will lower costs and the environmental impact.



Aseptic-Duplex-Pig

(also for hygienic stations)

- ▶ Our Aseptic-Duplex-Pigs are seamlessly moulded from elastomers as full bodies in solid design.
- ▶ Magnets, encapsulated in stainless steel, for detection from outside, by means of magnetic-inductive sensors, are integrated as standard version in each pig.
- ▶ All types and materials are delivered with FDA conformity/FDA approval certificate.
- ▶ In addition to the KIESELMANN Aseptic-Duplex-Pig for high and highest demands, further types and materials are available for almost every application in the food, beverage, cosmetic, pharmaceutical and chemical sectors.



TECHNICAL DATA	Hygienic	Aseptic
Dimensions:	DN 25–100, 1"–4"	DN 40–100
Materials of pig:	EPDM (FDA), Silicone (FDA), Viton	Silicone (FDA) with migration test
Materials of stations:	1.4404/AISI 316L	1.4404/AISI 316L
Pressure rating:	PN 10–16 depending on nominal width	PN 6

Automation of Pigging Systems

With the increasing trend towards fully computer controlled automation of process plants, KIESELMANN's Duplex pigging systems of course can be used in fully automatic operations. As a perfectly fitted module in a plant and its control systems, the Duplex pig will independently and reliably complete its tasks, whereby it does not matter whether it is to be integrated in a master control or whether it is to be operated via an autonomous control system. In addition to a standard control system design, KIESELMANN also offers the capability to integrate the Duplex pigging system into a modern field bus system.

To do so KIESELMANN has developed the electronic control KI-TOP specifically for valves. This valve control provides the intelligence to realise automation of the Duplex pigging process right on-site. With KIESELMANN's automation technology you will be in the position to easily realise a significant reduction in time and labour required for wiring, a reduction in installation times; you will simplify the start-up, enjoy extensive yet easy-to-use error analysis capabilities, and above all you will increase your system's safety and save up to 30% in costs for the control system.



fully automatic pig launching station



fully automatic pig receiving station

KIESELMANN Automation Components



KIESELMANN valve control KI-TOP with SPS or ASI-Bus control

KIESELMANN Automation Technologies

- ▶ Duplex-Pigging-Stations and controls from one supplier
- ▶ Sensor technology to locate pig
- ▶ Variable design of KIESELMANN's standard fittings
- ▶ Actuator valve control with SPS or ASI-Bus control
- ▶ Maintenance-free pneumatic multiturn actuator with 5 year functional warranty



Piggable
double sealing single seat valve

For Your Advantage – The FLUID PROCESS GROUP

KIESELMANN bundles by participation in companies the authority in different parts of plant engineering and component production within the FLUID PROCESS GROUP. This network of independent companies allows to offer and produce complex projects as a general contractor via partner companies, without the common practicing surcharges.



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