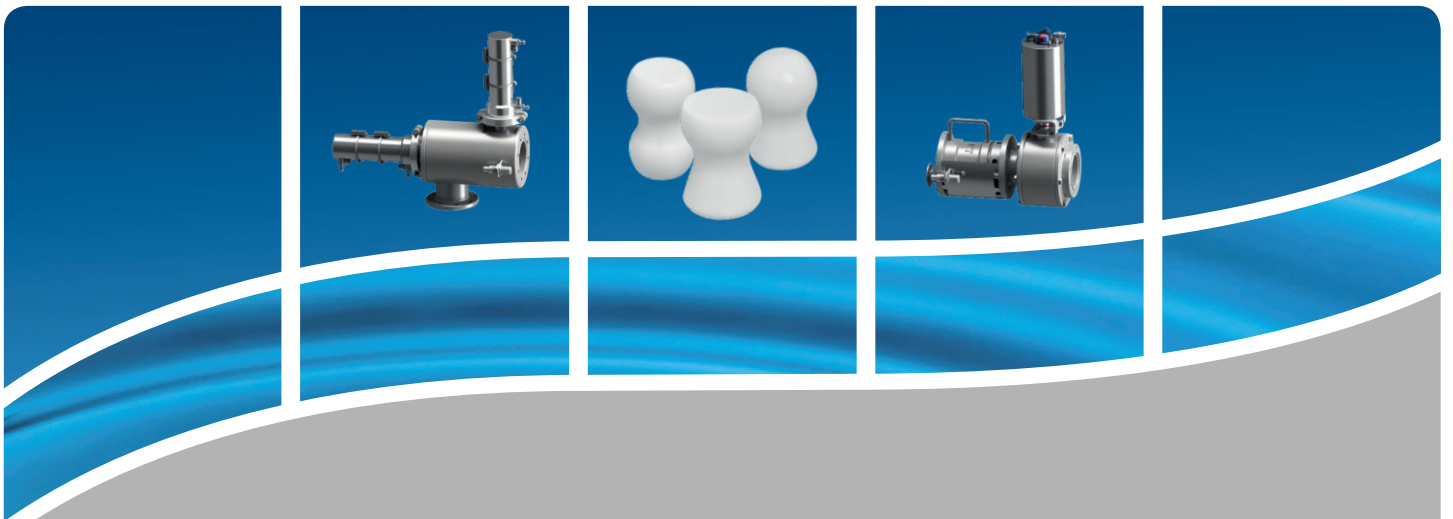


Product Recovery Technology



„Focus on
sustainability
& efficiency“

Efficiency that pays off

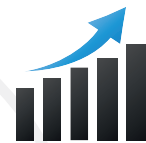
No other technology exploits production potential as consistently as product recovery technology. Higher product yields, shorter cleaning cycles, and maximum plant efficiency make all the difference.

In addition to securing a clear competitive advantage, product recovery technology makes an active contribution to sustainability and environmental protection.

Time savings
Shorter downtimes during
product changes.
Faster switching between
products/batches.



Resource conservation
Reduced water and cleaning
agent consumption.
Low wastewater volumes.



Cost-effectiveness
Higher product yield
and reduced
disposal costs.



Higher product yield
Nearly complete
product discharge
from pipes.



High product quality
No mixing of different media. Less
oxidation or quality loss
due to residues.



Sustainability
Reducing energy
consumption
and conserving
environmental
resources.

AWH Product Recovery Technology

Product recovery technology is used in all industries where liquid or viscous products are transported through pipelines and product losses, cleaning costs, or cross-contamination must be avoided.

Product recovery technology can demonstrate its advantages particularly well when processing highly viscous or highly adhesive products.

It also impresses with its efficiency, flexibility, and cost-effectiveness in production environments with a wide variety of products or small product quantities, which inevitably require frequent cleaning cycles.

„Wide range of applications“

Food & beverage industry

- Dough & baked goods
- Dairy products
- Meat processing
- Fruit & vegetable processing
- Non-alcoholic beverages
- Alcoholic beverages



Chocolate & confectionery industry

- Pralines & chocolate
- Confectionery
- Sugar confectionery
- Ice cream



Chemical industry

- Paints & coatings
- Cleaning agents & disinfectants
- Adhesives
- Biomass in biogas plants
- Intermediate & end products



Cosmetics industry

- Care products
- Cleaning products
- Perfumes
- Oral hygiene
- Makeup



Pharmaceutical & biotech industry

- Ointments and creams
- Pastes
- Tinctures, juices, syrups, solutions

Areas of application

„Efficient product emptying, separation, & dosing“

Time-saving, reliable, and cost-efficient — product recovery technology enables virtually **loss-free emptying of pipelines** as well as safe separation and dosing of media. Especially with small batches, high-quality products, or media that are difficult to flow, it ensures **maximum product utilization** and **minimal losses**.

A precisely fitting pig is moved through the pipe with the aid of a liquid or gaseous propellant medium, gently pushing the product ahead of it. The precise seal between the pig and the pipe wall, as well as a thin film of liquid, ensure smooth and reliable operation.

The result:

less cleaning effort,

less wastewater, reduced energy costs,

and significantly more efficient use of your raw materials

– for greater cost-effectiveness and sustainability in production.

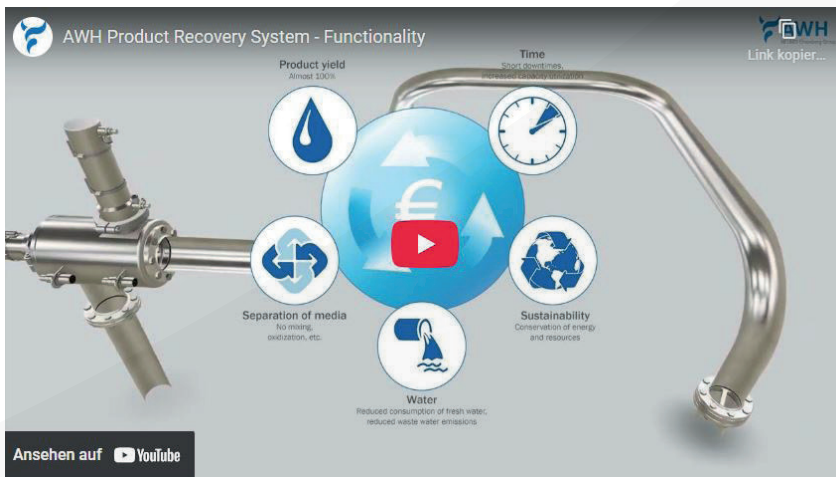


Functionality

You can explore the **basic structure and functionality** of product recovery systems digitally. A detailed video and the intuitive product recovery technology interaction tool clearly explain the key components, the pigging process, and the associated benefits.

Simply scan the QR codes and experience it live:

„Product Recovery Technology LIVE“



YouTube Video

How the pig works, explained briefly and clearly visualized in two minutes.



3D Tool Product Recovery

With the 3D interactive application for the product recovery system, you can interactively explore the complete structure, all components, and how the pig works.

The intuitive tool allows you to visually follow the steps of the pigging process and shows how pipelines are effectively cleaned using a pig and air pressure.



Product Recovery Technology LIVE

„Designed
for specific
applications“

AWH pigs have been specially developed for the efficient cleaning of pipelines. Thanks to their **robust construction** and **precise properties**, they enable the thorough removal of deposits and contaminants. The **pigs are versatile** and can be used in various industrial sectors.

Different types of pigs are available depending on the area of application, use case, and product recovery system design.

Tangent Pigs



- Forms K, L, and D – hygienic full-body design for the food and beverage, cosmetics, pharmaceutical, and chemical industries
- Materials: FDA and EC 1935/2004 compliant, BSE/TSE-free silicone, EPDM, and FKM; polyurethane for chemical and wastewater applications
- Reliable detection using encapsulated permanent magnets (silicone/polyurethane) or material-related magnetization (EPDM/FKM)
- Bidirectional, highly flexible
- Suitable for pipe bends from 1.5D (BA3) as well as piggable components and fittings
- Available in nominal sizes DN25–100 and 1“–4” (others on request)

Lip Pigs



- Multi-part lip seals made of PVDF body with replaceable, low-wear silicone sealing lips - especially for the chemical industry
- Alternative, hygienic full-body design made of silicone
- Materials comply with FDA and EC 1935/2004, BSE/TSE-free
- Reliable detection: Integrated, encapsulated permanent magnets for external detection
- Bidirectional, highly flexible
- Suitable for pipe bends from 1.5D (BA3) as well as piggable components and fittings
- Available in nominal sizes DN25–100 and 1“-4” (others on request)

Special Pigs

- Available special pigs: dome, ball, lamella, pipe, spherical, and cylindrical pigs
- Hygienic full-body design made of silicone
- Materials: FDA and EC 1935/2004 compliant, BSE/TSE-free silicone; polyurethane for chemical and wastewater applications
- Reliable detection: Integrated, encapsulated permanent magnets for external detection
- Bidirectional, highly flexible
- Suitable for pipe bends from 1.5D (BA3) as well as piggable components and fittings
- Available nominal diameters on request



„User comfort & process reliability“

Depending on the application, area of use, and desired degree of process automation, AWH offers you a wide range of product recovery systems and peripheral pigging components.

Our standard product range offers:

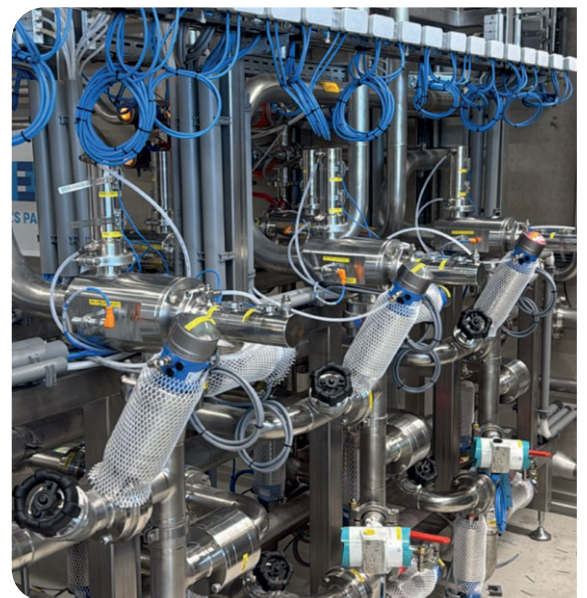
- Product recovery system manually operated
- Product recovery system semi-automatic
- Hygienic product recovery system fully automated - also available in ATEX
- Heated product recovery systems

All listed product recovery systems are available in nominal sizes DN25–100 and 1“–4“. They are manufactured from 1.4404/AISI 316L material and can be equipped with either EPDM or FKM O-ring seals.

We offer sensor technology, supply fittings, pigging fittings, and ball valves tailored to the product recovery system.



Pig station for catching and returning pigs in ATEX design in a cleaning agent production plant



Fully automatic hygiene product recovery system in ATEX in a cleaning agent production plant

In addition, we offer the following upon request:

- Customized product recovery system and valve designs
- Aseptic pigging systems
- Pigging systems and pigging components for other pipe standards and nominal diameters
- Special materials
- On-site services for commissioning our product recovery systems as well as adjustment and maintenance work

Product Portfolio

„Need-based product recovery systems“

Product recovery system - manually operated

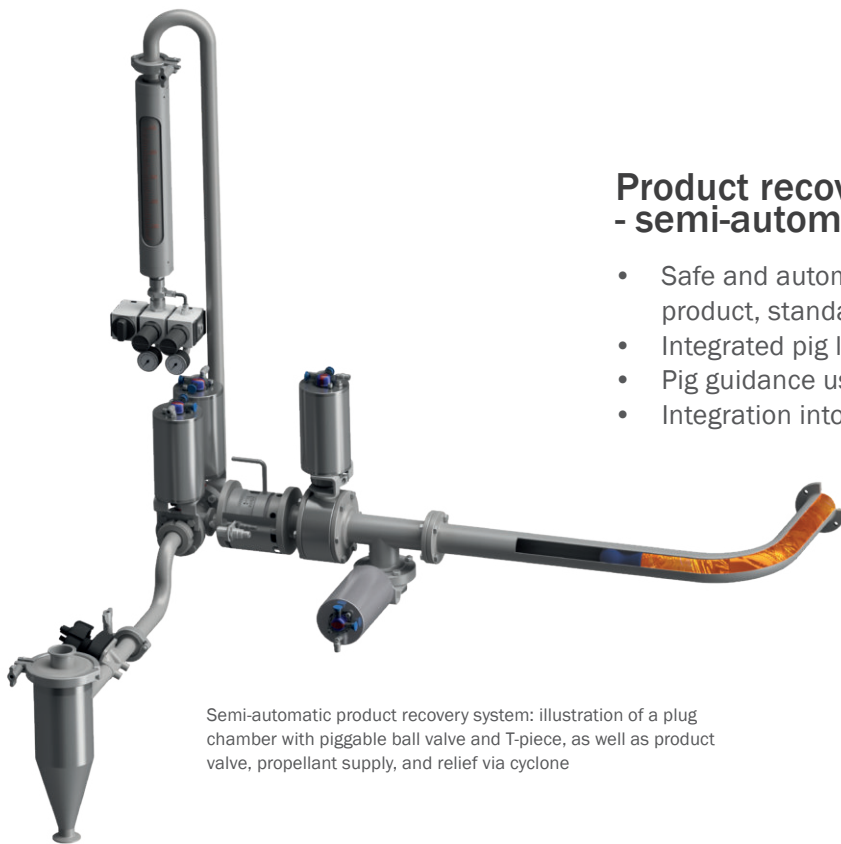
- Safe, simple, and cost-effective way to push out product, mainly for use in single-use operations
- Hygienic design for easy cleaning
- Manual insertion and removal of the pig via the sending/receiving station
- Pig guidance using liquid or gaseous propellants
- Can be integrated into existing process plants



Manually operated product recovery system: illustration of a sending/receiving station with piggable T-piece and ball valve as well as product valve, propellant supply, and relief via cyclone

Product recovery system - semi-automatic

- Safe and automatable product recovery system for pushing out product, standard for use in shuttle operation
- Integrated pig lock and separation to the product line
- Pig guidance using liquid or gaseous propellants
- Integration into existing process plants possible



Semi-automatic product recovery system: illustration of a plug chamber with piggable ball valve and T-piece, as well as product valve, propellant supply, and relief via cyclone

„Product recovery systems for highest hygiene standards“

Hygienic Product recovery system - fully automated

- Safe and automatable product recovery system, standard for use in shuttle operation
- Complete integration of the product recovery process into the production and cleaning cycle – the pig inside can be completely flushed or rinsed
- Fully enclosed hygienic inline station with integrated pig locking and pig cleaning
- Hygienic design of the hygienic inline station for easy cleaning – made possible by the use of hygienic O-ring seals and scrapers as well as hygienic flange connections in accordance with DIN 11864



Fully automatic hygienic product recovery system: The illustration above shows a hygienic inline station with a piggable ball valve and T-piece, as well as a propellant supply and discharge via cyclone.



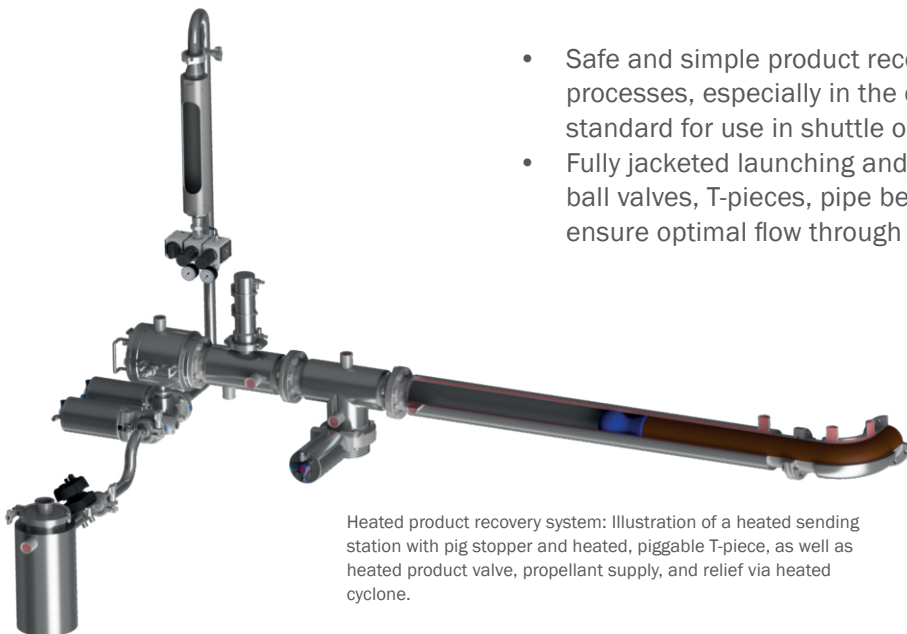
The illustration below shows the hygienic receiving chamber, pig stopper, piggable T-piece, product valve, propellant supply, and discharge via cyclone.

- Product recovery using liquid or gaseous propellant media
- Can be integrated into existing process plants
- ATEX design in accordance with Directive 2014/34/EU – for use in Zone 1 inside and outside (device cat. 2G) and Zone 21 outside (device category 2D)

„Efficient systems for chocolate and confectionery“

Heated product recovery system

- Safe and simple product recovery system for temperature-sensitive processes, especially in the chocolate and confectionery industry, standard for use in shuttle operation
- Fully jacketed launching and receiving stations as well as piggable ball valves, T-pieces, pipe bends, product valves, and cyclones ensure optimal flow through heating and cooling media

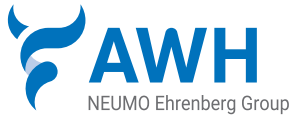


Heated product recovery system: Illustration of a heated sending station with pig stopper and heated, piggable T-piece, as well as heated product valve, propellant supply, and relief via heated cyclone.



Heated product recovery system: Illustration of a heated trap station with heated ball valve, heated piggable T-piece, heated product valve, propellant supply, and relief via heated cyclone.

- Hygienic design for easy cleaning
- Manual insertion and removal of the pig via the sending station
- Pig guidance using liquid or gaseous propellants
- Integration into existing process plants possible



Armaturenwerk Hötensleben GmbH
 Schulstr. 5-6
 D-39393 Hötensleben

Tel: +49 39405 92-0
 Fax: +49 39405 92-111
 E-Mail: info@awh.eu
 http://www.awh.eu

NEUMO Ehrenberg Group

