SEPS

SPECIAL SERVICES FOR PIPELINES

... when the quality matters!

PIPELINES AND PIPING SYSTEMS REPAIRS AND INTERVENTIONS

UNDER PRESSURE WITHOUT SHUTDOWN

PIPE REPAIRS AND INTERVENTIONS
UNDER PRESSURE

We perform **repairs and interventions** in pipelines and piping systems **under pressure without shutdown** such as:

- **Repair of leaks** from pipes, welds, and flanged joints
- **Repair of pipelines** damaged by corrosion, weld defects and other types of pipeline damage repairs
- **Replacement of damaged valves** and piping components **without shutdown**
- **Connecting a new pipeline** (branch connection) and a new equipment
- Installation of measuring or sampling devices under pressure
- **Pipeline re-routing** (relocating)
- Pipeline cleaning and draining
- Pipeline drying
- Verifying pipeline integrity (**pipeline revalidation**) by a controlled stress overload (a stress test)

- Liquid removal, nitrogen purging and **pipeline decontamination**
- Extending pipeline service life by stress test

In the field of **inspections and NDT/NDE,** we perform:

- Inline or offline inspection of pipelines
- Defect localisation, verification and assessment
- Standard and Advanced Nondestructive Testing (NDT/NDE)
- **Corrosion mapping** and monitoring of pipes, pressure vessels, tanks and other steel structures
- High temperature wall thickness measurement
- Inspection of pipes under supports
- **Tubing inspection** and assessment of fired heaters, heat exchangers and condensers
- **Reliability and service life assessment** of pipes and steel structures

As part of other support activities, we perform:

- **Welding under pressure without shutdown**
- Coordination of welding and preparation of specialized welding procedures
- Repumping of gas by mobile gas compressor unit

Do you have any need to be solved on your pipeline, piping system or pressure vessel? Do you need any advice on selecting a suitable method for pipeline inspection, repair, or maintenance? Do not hesitate to contact us! **We will provide you with a solution to meet your needs.**

ONLINE LEAK SEALING AND REPAIR
WITHOUT SHUTDOWN

We perform **leak repair under pressure without shutdown:**

- Leaking pipe
- Leaking weld
- Leaking flange (flanged joint)
- Leaking valve
- Other leaking parts of pipelines, piping systems or pressure vessels

In the event of a leaking pipeline or flange, outlet of a pressure vessel, a tank, and the like, it is possible to fix the leak using several methods.

The choice of a suitable method depends on the operating parameters (pipeline diameter, chemical composition of the leaking product and its effect, temperature and pressure), type and size of the leak, degree of the base material damage in the area of the leak, space available for the repair at the leak location, etc.

We use the following basic methods to repair leaks under pressure without shutdown:

a) Leaking pipe or leaking weld

- PLIDCO® Split+Sleeve (repair steel sleeves for straight pipes, elbows and branch connections)
- PLIDCO® Smith+Clamp (sealing clamp for pit-hole leaks)
- Welded steel sleeve with a sealing segment and vent for the installation on leaking pipe

b) Leaking flange (flanged joint)

- PLIDCO® Flange+Repair Ring
- PLIDCO® Flange Repair Split+Sleeve

c) Leaking valve

- Valve replacement under pressure without shutdown using T.D.Williamson pipeline plugging technology

d) Other leaking parts of pipelines, piping systems or a pressure vessels

- Replacement of pipe section under pressure without shutdown using T.D.Williamson plugging technology
- Special repairs or special procedures designed for specific operating conditions, extent of damage and type of defect or leakage

REPAIR OF DAMAGED PIPE
WITHOUT SHUTDOWN

We routinely deal with **repairs of defects under pressure without shutdown:**

- Pipeline corrosion
- Welding joint defects
- Cracks
- Pipeline wall laminations
- Third-party damage
- Dents and Gouges
- Other manufacturing and construction defects

We use several methods to repair such defects under pressure without shutdown.

The choice of a repair method to be used depends mainly on the operating parameters (pipeline diameter, chemical composition of the product in the pipeline and its possible chemical effects, temperature, and pressure), type and size of the damage and space available at the repair site, for example:

- **Welded steel split sleeves** filled with a composite filler (pressurized and non-pressurized sleeves)
- **Composite wrap repair** for repairing long pipeline sections or pipeline with elbow, tees and other non-straight parts
- **Cutting out and replacing** damaged parts without shutdown
- Any minor repair of scratches, welds and similar minor defects which can be fixed technologically by **welding**, are repaired using an approved welding procedures **in accordance with the ASME PCC-2** (Repair of Pressure Equipment and Piping)

If any leak occurs at the defect's site, we use specific methods for on stream leak repair.

VALVE REPLACEMENT UNDER PRESSURE
WITHOUT SHUTDOWN

Our solutions for **replacing damaged valves or pipeline sections under pressure without shutdown:**

- Replacement of a damaged valve
- Replacement of a valve out of service
- Replacement of a valve with leak

If replacement of a valve (damaged, out of service or leaking) is required, or replacement of any pipeline section or technology part is needed without shutdown, then we use T.D.Williamson pipeline isolation technology.

Old valve removal

New valve installed

- Pipe isolation under pressure without shutdown **with temporary flow interruption** between the two isolation positions **(without a bypass)**
- Pipe isolation under pressure without shutdown, **with a temporary bypass** (product in the pipeline bypasses the site being repaired via an appropriate temporary bypass line)
- Pipe isolation under pressure without shutdown **with permanent bypass** (the bypass built for the repair remains for further use - it is used most often for pipeline relocations and re-routing)

CUTTING OUT AND REPLACING A PIPING SECTION
WITHOUT SHUTDOWN

Our solutions for replacing a damaged part of a piping under pressure without shutdown using pipe plugging technology:

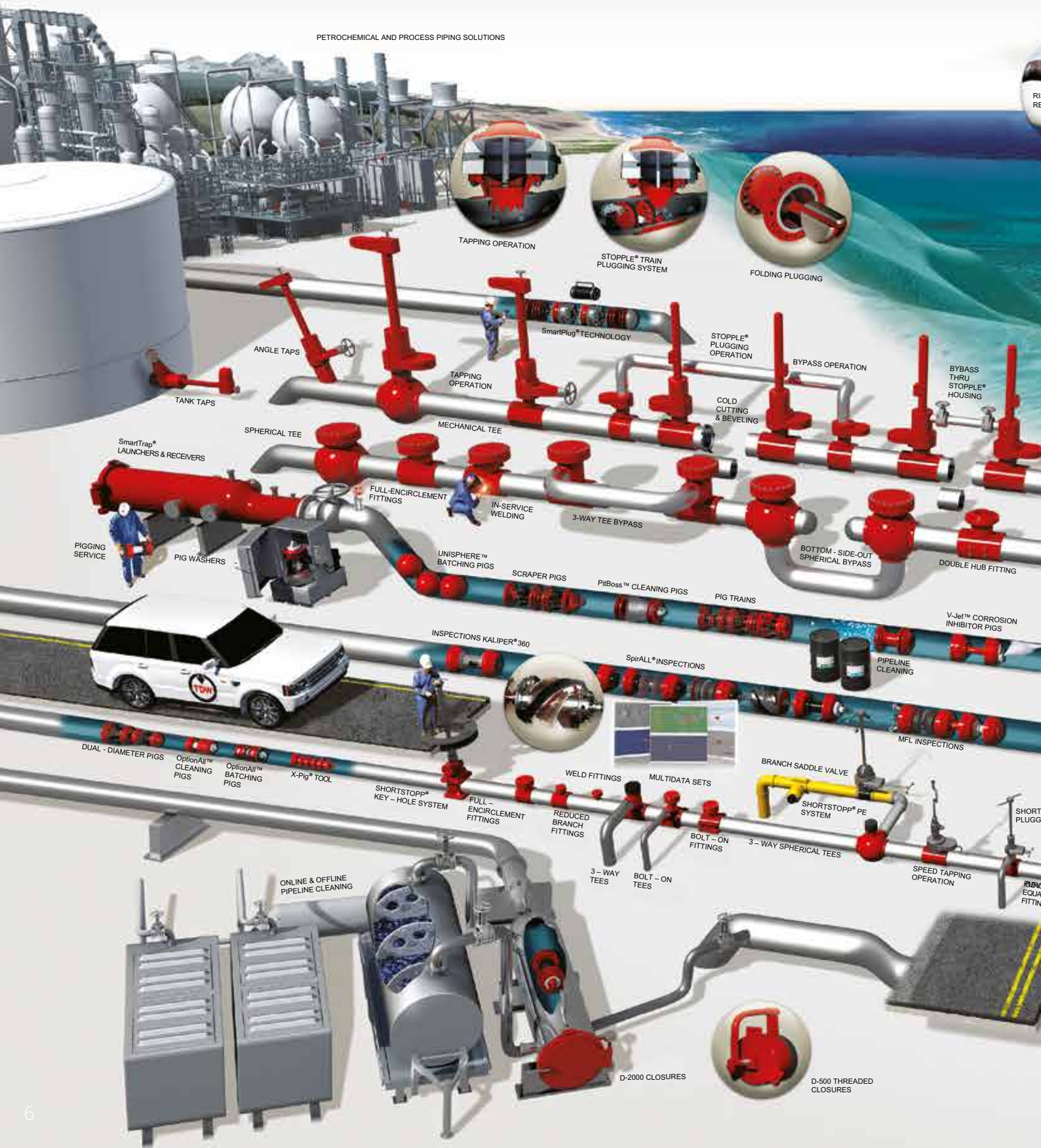
- Pipeline section is cut out and replaced by a new section
- Replacement of a unit installed in the piping (e.g. replacement of the measuring section, etc.)
- Temporary isolation of the piping section or isolation of the technological process

INSPECTIONS AND NDT/NDE

- Pipeline inspection (online or offline)
- Corrosion mapping and monitoring
- Advanced NDT (TOFD, Phased Array, Guided Waves, PECA™, PEC, EMAT ...)
- NDT (defectoscopy) field services by the mobile laboratory accredited according to EN ISO/IEC 17025
- Chemical analysis of metals using a mobile optical emission spectrometer (OES - PMI)
- On-site hardness testing of steel materials and welds
- Inspection and defect assessment of pipelines, tanks, pressure vessels and steel structures
- Localization and verification of defects identified by inline inspection (in-ditch verification)
- Defects assessment

REPAIRS WITHO

- Online leak sealing and repairs of pipelines, pipings and joints
- Pipeline plugging (pipeline isolation)
- Repairs of damaged pipes, valves, and welds while pipeline remains in service
- Pipeline cut-outs and replacement of piping components under pressure without shutdown

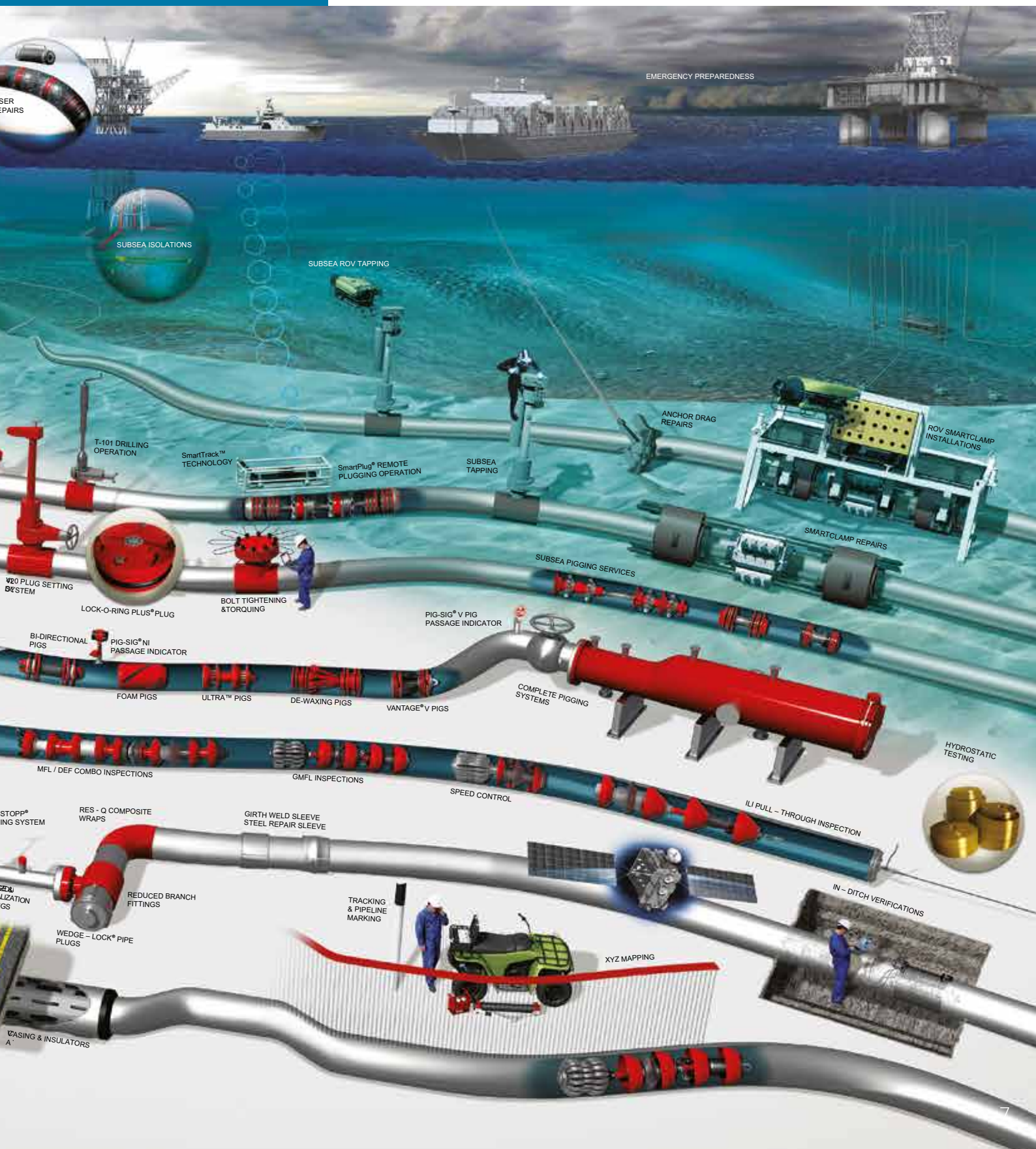


OUT SHUTDOWN

- Repairs and reconstructions of pipelines, piping systems, tanks and pressure vessels
- Making a branch connection (hot tapping and tie-ins)
- Pipeline relocations, repairs and tie-ins without pipeline shutdown by pipeline plugging and bypassing
- Composite wrap repair solutions

PIPELINE INTERVENTIONS AND REPAIR

- Hot tapping (pressure tapping) to pipes, tanks and pressure vessels
- Additional installation of measuring and sampling points without shutdown
- Pipeline decommissioning and decontamination before repairs or shutdowns by mobile nitrogen generators
- Stress tests and hydraulic pressure tests
- Welding on in-service pipelines
- Remaining service life and reliability assessment of pipelines, tanks, pressure vessels and other steel structures
- Extending the service life of pipelines and pipeline integrity verification
- Pipeline cleaning and drying
- Repumping of natural gas by mobile gas compressor unit
- Welding procedures development



CONNECTION OF A NEW PIPELINE
AND PIPELINE RE-ROUTING (RELOCATION)

We perform works under **pressure routinely without shutdown:**

- **Connecting a new pipeline** (branch connection) to an existing pipeline, plant piping, a vessel, or a tank
- **Re-routing (relocating)** a pipeline – connecting a new branch connection without shutdown
- **Connecting new equipment or technology** without shutdown, etc.

We use various T.D.Williamson hot tapping machines depending on the pipe material, bore size, product pressure, temperature and its chemical composition.

CONNECTION OF NEW TECHNOLOGY
WITHOUT SHUTDOWN

Connection of the new technology while the other part of the piping and technological processes remains in service.

All works are performed **under pressure, without interrupting** the other technological processes.

SUPPLEMENTAL INSTALLATION
OF MEASURING OR SAMPLING DEVICES

We install **new sampling or measuring devices** on a pipeline, a pressure vessel, or a tank, **without shutdown** using different types of hot tapping machines.

The design, planning, construction and manufacturing of new connections is adapted in accordance with the requirements of the operator or the supplier of such devices.

If it is necessary to add a flow meter to the pipeline, we perform **additional installation of** ultrasonic **flow meters** on the pipeline under pressure **without shutdown.** The connection method is specifically designed with the flowmeter specification in order to ensure its required accuracy.

PIPELINE ISOLATION WITHOUT SHUTDOWN

Pipeline plugging for the purpose of a **repair or another intervention** as necessary **without a pipeline shutdown.**

Plugging systems are capable to stop the product in the isolated pipe section temporarily without shutdown.

If it is necessary to ensure a product flow in the pipeline, it is possible to use a separate pipe which **"bypasses" the isolated part of the pipeline and ensures the supply of the product in the pipe** during works on the isolated section.

Pipeline plugging without shutdown is used for a pipeline made of:

- Steel and cast iron
- Different kinds of PE
- Concrete etc.

Typical procedure for isolating a pipeline with an external bypass:

1. Two bypasses and two plugging fittings are installed (by welding or bolting) while the pipeline is in service.
2. All fittings are fitted with special tapping valves and the bores are made to the pipe by the hot tapping machines under pressure without shutdown.
3. A suitable pipeline plugging system is installed on the plugging fittings and the pipeline is plugged without shutdown.
   The flow of the product in the pipe is diverted by means of the installed external bypass, which "bypasses" the repaired (isolated) pipeline section. The isolated pipeline section is depressurized and the works are performed as needed.
   Once the works are completed, the isolated section is pressurized and the plugging system is removed from the pipeline.
4. The external bypass is removed and special plugs are set to the top flanges of all fittings (depending on the type of plugging system used). The tapping valves are removed and the blind flanges are installed.

PIPELINE BALLOONING AND TIE INS

Ballooning secures the area of cutting and welding works, **preventing the effect of a hazardous product from the pipe** into the workplace. It is a specific work procedure which depends on the product in the pipeline, the pipeline diameter and the residual pressure inside the pipeline. The hazardous product must be extracted out of the workplace to save the workplace and the personnel. We perform ballooning in the pipes from DN80 to DN1400 (and larger, if necessary).

INTERNAL CLEANING OF PIPING, PIPELINES, AND TUBES

We perform **interior cleaning of pipelines,** pipes, plant piping and tubes using special pigs (cylindrical tools running inside the pipe) designed for pipeline interior cleaning to:

- Increase pipeline performance
- Reduce pressure losses
- Reduce the effects of internal corrosion
- Displace water after hydraulic pressure tests
- Dry pipes
- Displace a product out of a pipeline
- Clean a pipe after reconstruction, or repair of a long section
- Clean a pipeline as a part of Pre-Commissioning procedures

PIPELINE DRYING

We perform the pipeline drying by:

- Using foam pigs (foam cylinders absorbing water)
- Vacuum drying
- Air drying with pre-dried air

MANUFACTURING OF PIGGING TRAPS

Pig launching and receiving traps are used for inserting and removing the cleaning or inspection pigs when providing cleaning or inspection of the pipeline without shutdown.

We design, build and manufacture:

- **Standard** stationary **traps** (these are built for permanent installation on site)
- **Mobile traps** (designed for temporary use - after cleaning or inspection, they are dismantled and transported to another utilization or storage location)
- **Temporary mobile traps** used for pigging or pressure tests (if used in a section which has been shutdown or as the part of decommissioning)

As standard, we manufacture traps according to PED. ASME and other international standards we use upon request.

PIPELINE DECOMMISSIONING AND DECONTAMINATION

Pipeline decommissioning, cleaning and decontamination is used **to remove dangerous or undesirable liquids, vapours and gases** from the process units or from the pipelines or plant piping with nitrogen, **to ensure safe work conditions** during pipeline repair works.

PIPELINE **RECONSTRUCTION AND REHABILITATION**

We perform reconstructions of the existing pipelines (water, gas, oil, product pipelines and other industrial and plant piping systems) without pipeline shutdown using the different types of hot tapping and plugging technologies.

- Pipeline and piping reconstruction
- Replacement of mainline valve assembly
- Replacement of damaged valves
- Reconstruction of industrial a plant piping systems

VERIFICATION OF PIPELINE SAFETY BY CONTROLLED STRESS TEST

The controlled hydrostatic stress test is a controlled stress overload of a selected pipeline route material (pipes), which is used to **examine the pipeline integral safety** and to demonstrate, restore and, if necessary, improve its safety and reliability.

EXAMINATION OF PIPELINE SAFETY
BY HYDRAULIC PRESSURE TEST OR STRESS TEST

We perform **hydraulic pressure tests** on pipelines after construction or assembly to verify their safety according to EN standards.

We perform **stress tests** to relieve undesirable stresses in the pipe wall.

We use the unique computerized test monitoring and control systems based on the highly accurate metering equipment.

After the pressure test, the pipe is cleaned and properly dried.

EXTENDING PIPELINE **SERVICE LIFE**

Pipeline upgrading or revalidation is a controlled hydrostatic stress test of a selected pipeline route, which is used to examine pipeline safety and to demonstrate, restore and, if necessary, improve its technical parameters relating to MAOP (Maximum Allowable Operating Pressure).

By improving the technical properties of the selected pipeline section, it is possible to **increase the working pressure (MAOP)** of the existing pipeline or to **extend its service life.**

SEPS

SPECIAL SERVICES FOR PIPELINES

... when the quality matters!

SAFETY • QUALITY • RELIABILITY

SEPS, a.s.

Údernícka 11, 851 01 Bratislava
Slovak Republic

+421 2 682 45 720
+421 905 885 139

office@sepssk.sk
www.sepssk.sk