

# TECHNOLOGICAL EQUIPMENT AND TOOLS FOR PRESSURIZED PIPELINES

Innovations | Quality | Reliability



# OUR TECHNOLOGIES FOR YOUR OPPORTUNITIES



# Safety and efficiency in one solution

TechSystema produces equipment and consumables for the maintenance and repair of pipelines without the need to turn off the pressure and disrupt the transportation of the product.

Our technologies allow us to carry out repairs and reconstruction of pipeline systems operating under pressure up to 10.0 MPa.

This catalog presents an extensive selection of products offered by TechSystema for use on pipelines of various diameters in the oil and gas distribution industries.

Our extensive experience in supplying equipment to leading Russian companies testifies to its efficiency, reliability, cost-effectiveness and environmental safety.

## 25 years

– equipment service life

## 2–5 years

– average payback

## 12 months

– manufacturer's warranty

## 100 000+

units of product sold

## 90%

gas distribution companies of the Russian Federation are equipped with our equipment



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# Drilling machines

## Steel pipelines BM 20-150

### Purpose:

for hot tapping into steel and polyethylene pipelines

### Rotation drive:

manual

### Feed drive:

manual

### Transported products:

- ▶ water
- ▶ gas
- ▶ gas condensate
- ▶ oil
- ▶ steam
- ▶ air
- ▶ chemical substances and gases

### Steel

**19-150 mm**

tapping diameter

**up to 10.0 MPa**

working pressure

**steel/  
aluminum**

body material

### Polyethylene

**63-225 mm**

tapping diameter

**up to 1.6 MPa**

working pressure

**aluminum**

body material

## Polyethylene pipelines BM 63-225



### Main/additional parts

tapping adapter



flange



cutter holder



plug holder

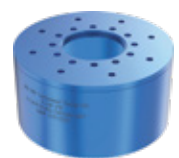


### Consumables

pilot drill



hole saw cutter



# Drilling machines

## Steel pipelines BM 300-800

### Purpose:

for hot tapping into steel and polyethylene pipelines

### Rotation drive:

hydraulic

### Feed drive:

manual

### Transported products:

- ▶ water
- ▶ gas
- ▶ gas condensate
- ▶ oil
- ▶ steam
- ▶ air
- ▶ chemical substances and gases

## Polyethylene pipelines BM 315 - 400

### Steel

**200-800 mm**

tapping diameter

**up to 10.0 MPa**

working pressure

**steel/  
aluminum**

body material

### Polyethylene

**225-400 mm**

tapping diameter

**up to 1.6 MPa**

working pressure

**aluminum**

body material



### Main/additional parts

flange adapter



cutter holder



plug holder

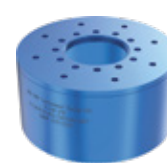


### Consumables

pilot drill



hole saw cutter



# Linestop systems

## Block-Device 50-300

### Purpose:

for plugging steel  
and polyethylene pipelines

### Ability to connect

to a video surveillance  
device (VSCD V)

### Input drive

manual

### Plugging drive

manual

### Transported products:

- ▶ water
- ▶ gas
- ▶ gas condensate
- ▶ oil
- ▶ steam
- ▶ air
- ▶ chemical substances and gases



### Steel

**50-300 mm**

plugging diameter

**up to 10.0 MPa**

working pressure

**steel/  
aluminum**

body material

### Polyethylene

**110-400 mm**

plugging diameter

**up to 1.6 MPa**

working pressure

**aluminum**

body material

### Consumables

reinforced sealing  
element NBR



trapezoidal sealing  
element NBR/polyurethane





# Linestop systems

## Block-Device 500-800

### Purpose:

for plugging steel pipelines

### Ability to connect

to a video surveillance device (VSCD V)

### Input drive

hydraulic

### Plugging drive

hydraulic

### Transported products:

- ▶ water
- ▶ gas
- ▶ gas condensate
- ▶ oil
- ▶ steam
- ▶ air
- ▶ chemical substances and gases

### Body material

steel

**350–800 mm**

plugging diameter

**up to 10.0 MPa**

working pressure

### Main/additional parts

plugging head



### Consumables

reinforced sealing element NBR/polyurethane



# Linestop systems

## Gate-port (temporary valve) 50-100

### Purpose:

for installation of equipment during hot tapping and line stop works

### Transported products:

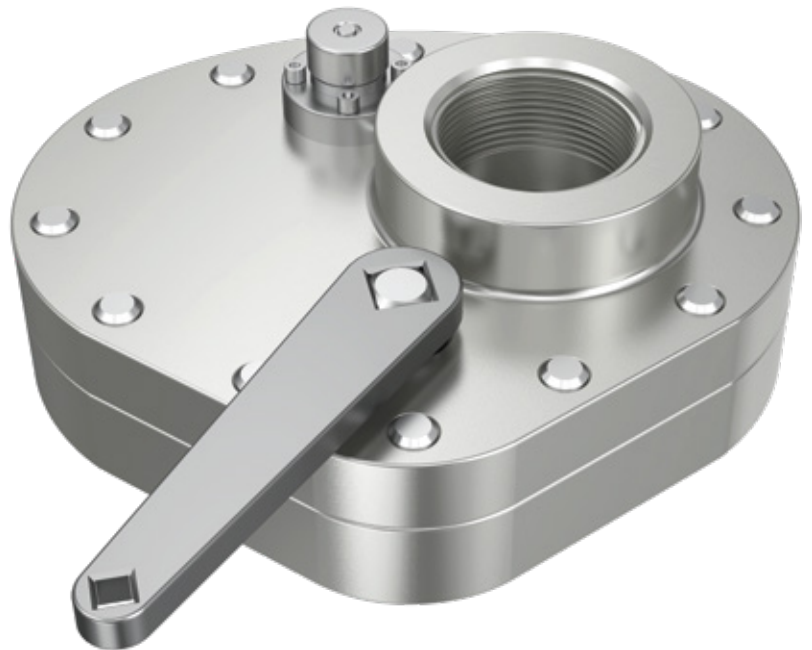
- ▶ water
- ▶ gas
- ▶ gas condensate
- ▶ oil
- ▶ steam
- ▶ air
- ▶ chemical substances and gases

### Standards:

- ▶ GOST 33259
- ▶ ASME
- ▶ others

### Body material

steel



**50-100 mm**

passage diameter

**up to 10.0 MPa**

working pressure

### Additional parts

adapter



# Linestop systems

## Gate-port (temporary valve) 150-800

### Purpose:

for installation of equipment during hot tapping and line stop works (steel and PE pipes)

### Ability to connect

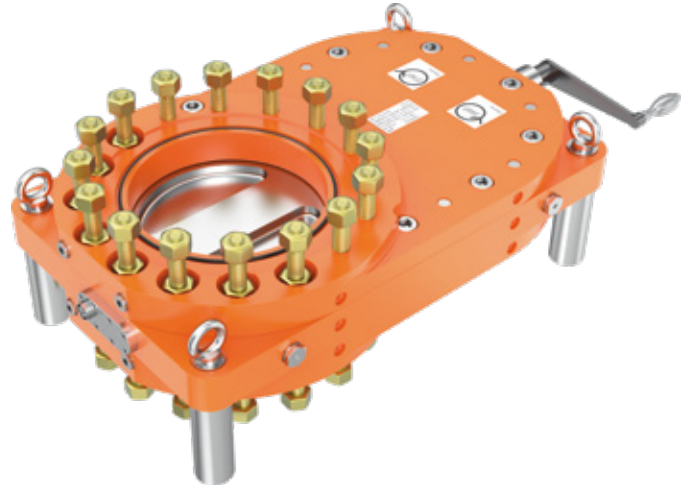
to a video surveillance device (VSCD V)

### Standards:

- ▶ GOST 33259
- ▶ ASME
- ▶ others

### Transported products:

- ▶ water
- ▶ gas
- ▶ gas condensate
- ▶ oil
- ▶ steam
- ▶ air
- ▶ chemical substances and gases



### Steel pipe

**150-800 mm**

passage diameter

**up to 10.0 MPa**

working pressure

**steel/  
aluminum**

body material

### PE pipe

**160-400**

passage diameter

**up to 1.6 MPa**

working pressure

**aluminum**

body material

### Additional parts

adapter



# Plug introducing device (completion machine)

## UVZ 500-800

**Purpose:**

for installing plugs in fittings

**Usage:**

with flange adapters

**Ability to connect**

to a video surveillance  
device (VSCD V)

**Drive:**

hydraulic

**Transported products:**

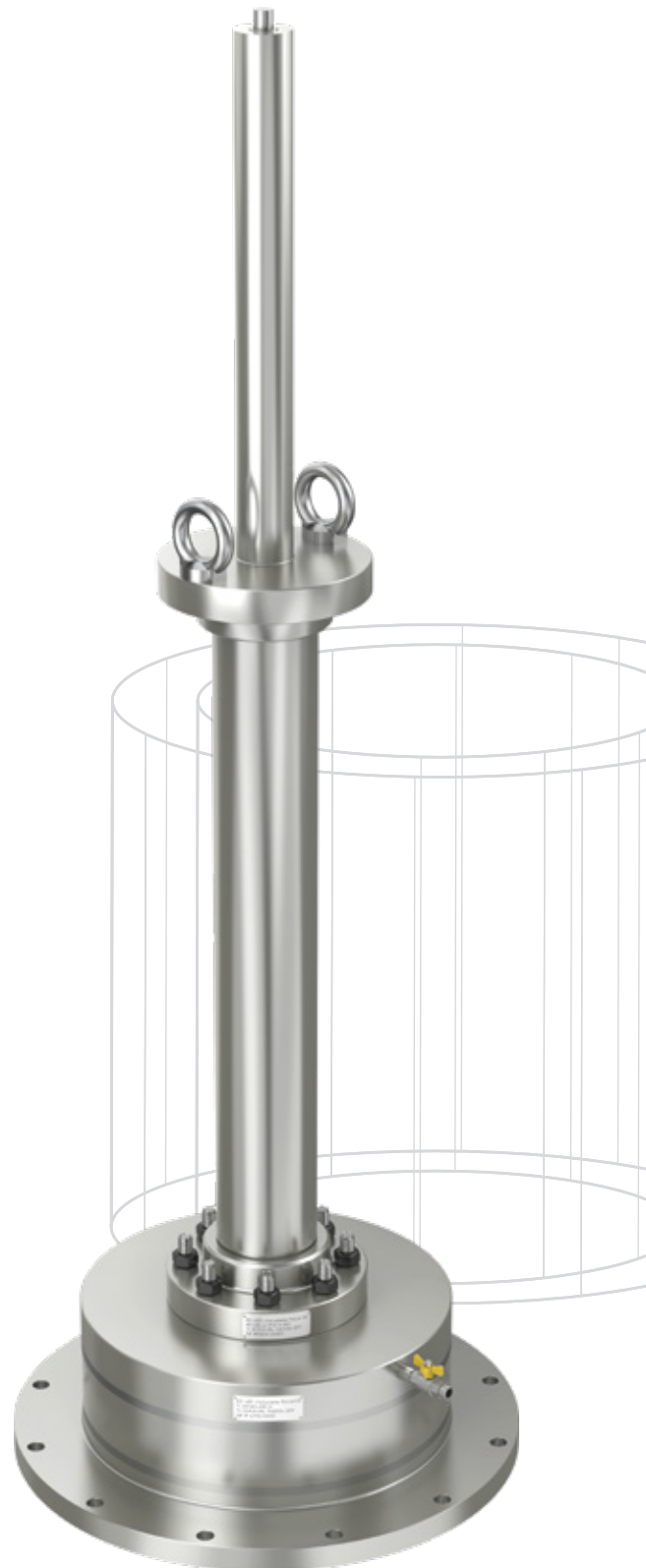
- ▶ water
- ▶ gas
- ▶ gas condensate
- ▶ oil
- ▶ steam
- ▶ air
- ▶ chemical  
substances and gases

**350-800 mm**

diameters of installed plugs

**up to 10.0 MPa**

working pressure



# Devices for inspection and cleaning of inner pipe surfaces

## VSCD O

**Purpose:**

ensuring visual inspection and cleaning inner surface of the pipeline

**up to 1.6 MPa**

pipeline working pressure  
up to 500 mm

**up to 500 mm**

DN

## VSCD V

**Purpose:**

selection of the optimal work location with the least amount of deposits and defects in the pipeline

**Advantages:**

- ▶ accurate detection of defects on the inner surface of the pipe
- ▶ 8 hours of continuous video recording with the ability to transmit information for a technical report

**Control of:**

- ▶ position of the pilot drill, cutter and cutted coupon
- ▶ degree of expansion of the sealing element of the plugging head

**Transported products**

optically transparent only

**Video recording:**

AVI, MP4, H26X

**File transfer:**

Wi-Fi, USB, Ethernet



**57-820 mm**

DN of the pipe

**8 hours**

battery life

**2.4 MPa**

pipeline working pressure

**17,3"**

capacitive IPS monitor  
1920x1080

# Devices for inspection and cleaning of inner pipe surfaces

## Pipeline stripping system OPT 300–500

A unique device that has no analogues!

### Purpose:

targeted spot cleaning of the inner surface of the pipe to eliminate defects of any complexity

### Works in complex

with videoinspection and control device (VSCD V)

### Complete set:

high definition camera and Full HD monitor

### Drive:

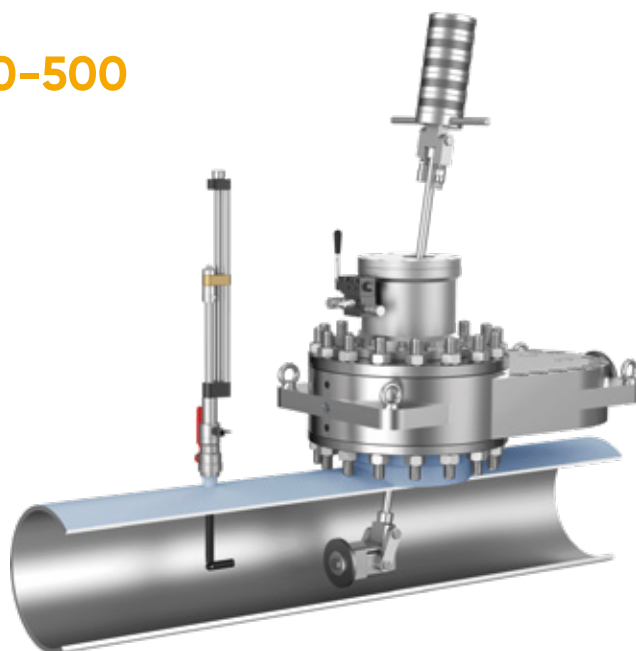
hydraulic

### Control:

manual

### Transported products:

optically transparent only



**219–530 mm**

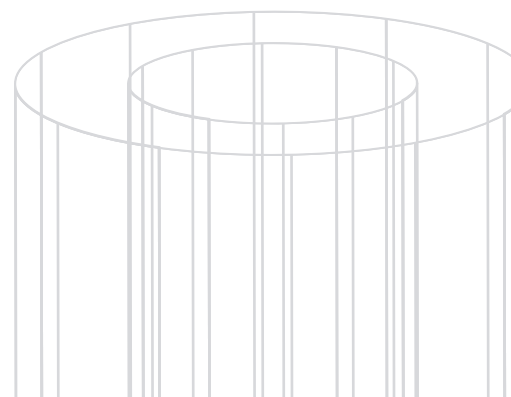
pipe DN

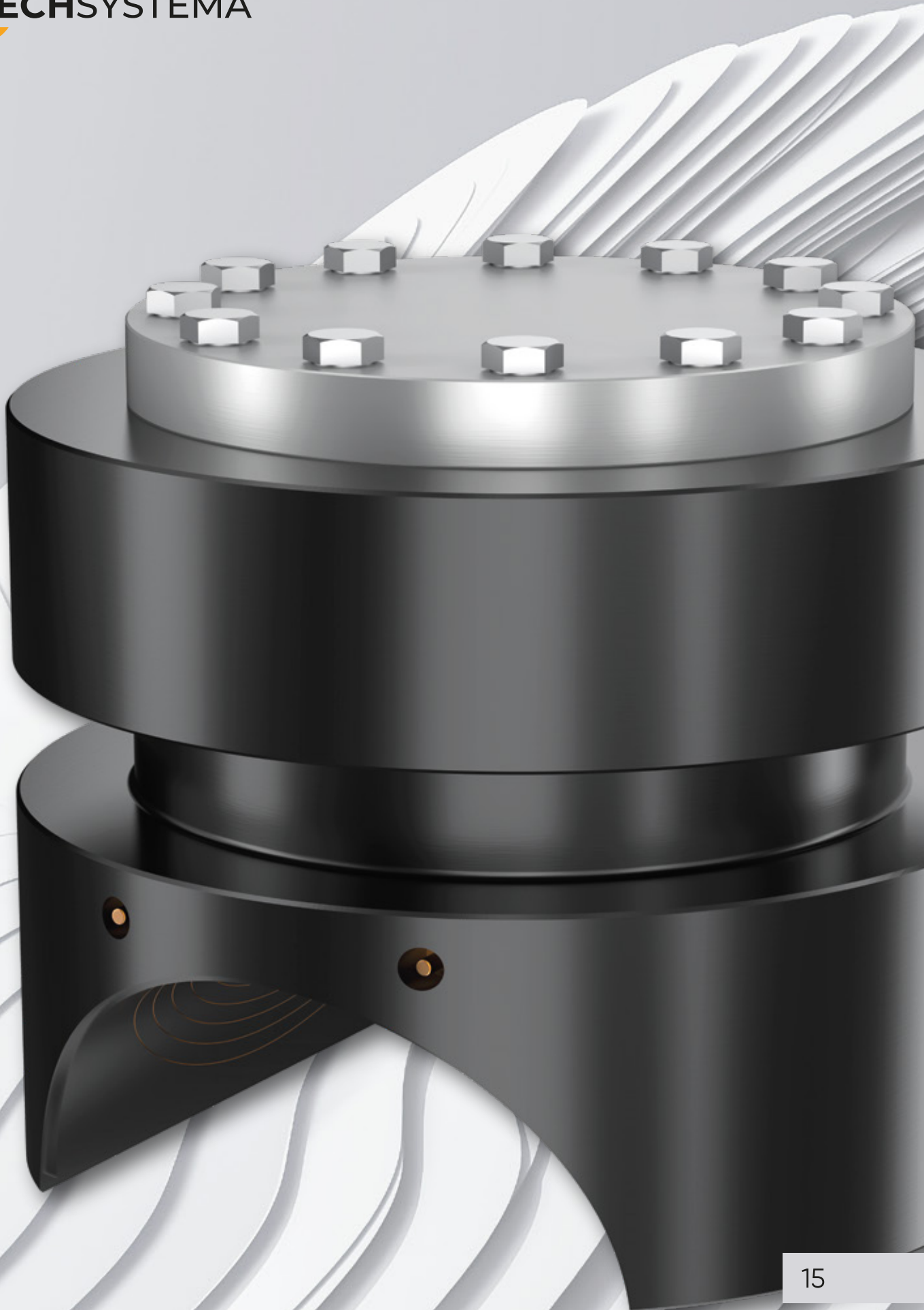
**1.6 MPa**

pipeline working pressure

**3000 rpm**

maximum rotation speed





# Fittings

**Purpose:**

for line stop and hottaping works with pressurized steel and PE pipelines

**Compatibility:**

equipment manufactured by TechSystema , Ravetti S.R.L, T.D.Williamson

**Types of fittings:**

straight and tees

**Connection types:**

threaded/flanged

**Design:**

body, inner plug, O-ring



**Steel pipe**

**up to 10.0 MPa**

working pressure

**20 - 1400 mm**

DN

**PE pipe**

**up to 1.6 MPa**

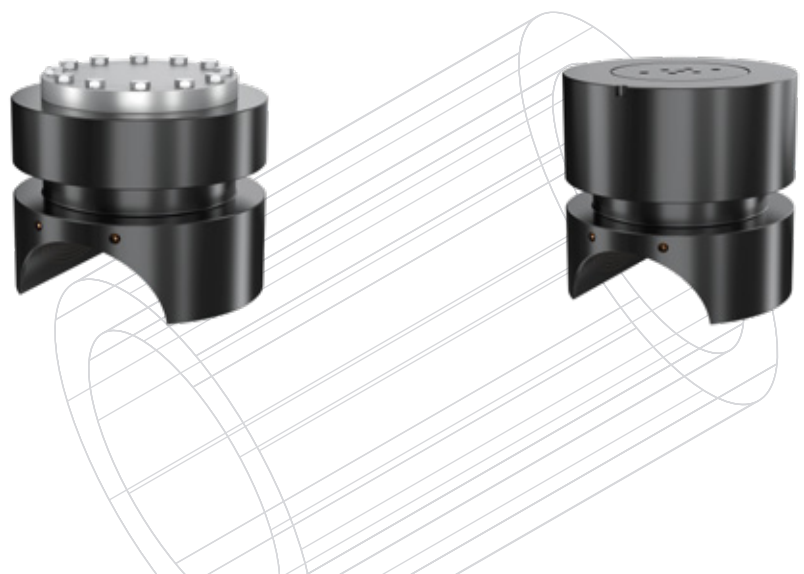
working pressure

**110 - 400 mm**

DN

**Polyethylene fittings options:**

- ▶ with threaded metal bushing, metal plug, cup
- ▶ with threaded electric-welded polyethylene plug





# Fittings



**Purpose:**

for line stop and hottaping works with pressurized steel pipelines

**Compatibility:**

equipment manufactured by Ravetti S.R.L

**Connection types:**

threaded/flanged

**up to 1.4 MPa**

working pressure

**32-530 mm**

DN



# Fittings



## Purpose:

for line stop and hottaping works with pressurized steel pipelines

## Compatibility:

equipment manufactured by T.D.Williamson

## Design:

body, inner plug, cap and o-rings

## Connection types:

threaded/ flanged

**up to 10.0 MPa**

working pressure

**57-820 mm**

DN

## Types of plugs



SHORTSTOPP



LOCK-O-RING Plus



LOCK-O-RING



# Fittings

**Purpose:**

for hottaping works with pressurized steel pipelines

**Compatibility:**

UVG-100, UVG-200

**Design:**

body, inner plug and o-ring

**Connection type:**

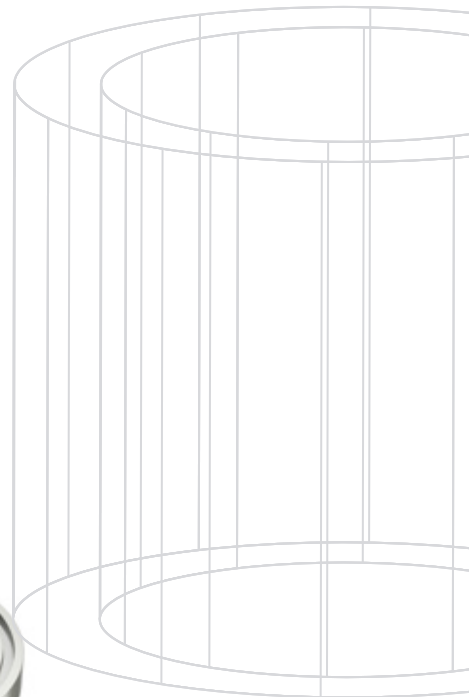
bayonet

**up to 1.6 MPa**

working pressure

**57-219 mm**

DN



# Repair and leakage elimination complex for pressurized pipelines

## KUPOL

### Transported products:

- ▶ oil
- ▶ gas

### Material: steel

- ▶ 09G2S
- ▶ 10HSND

## KUPOL COMPACT

- ▶ water
- ▶ steam

- ▶ 13HFA
- ▶ 10G2FBU

**89-630 mm/3"-24"**

DN

**10.0 MPa**

max working pressure

**from -40 to +140 °C**

product working temperature



# Ball valve replacement device

**SHILO**

**15-50 mm / 1/2" - 2"**

nominal diameter

**135-170 mm**

maximum length of replacement valve

**17-53,5 mm**

maximum internal diameter of the pipeline

**15-40 mm**

minimum bore diameter of valve  
and pipeline

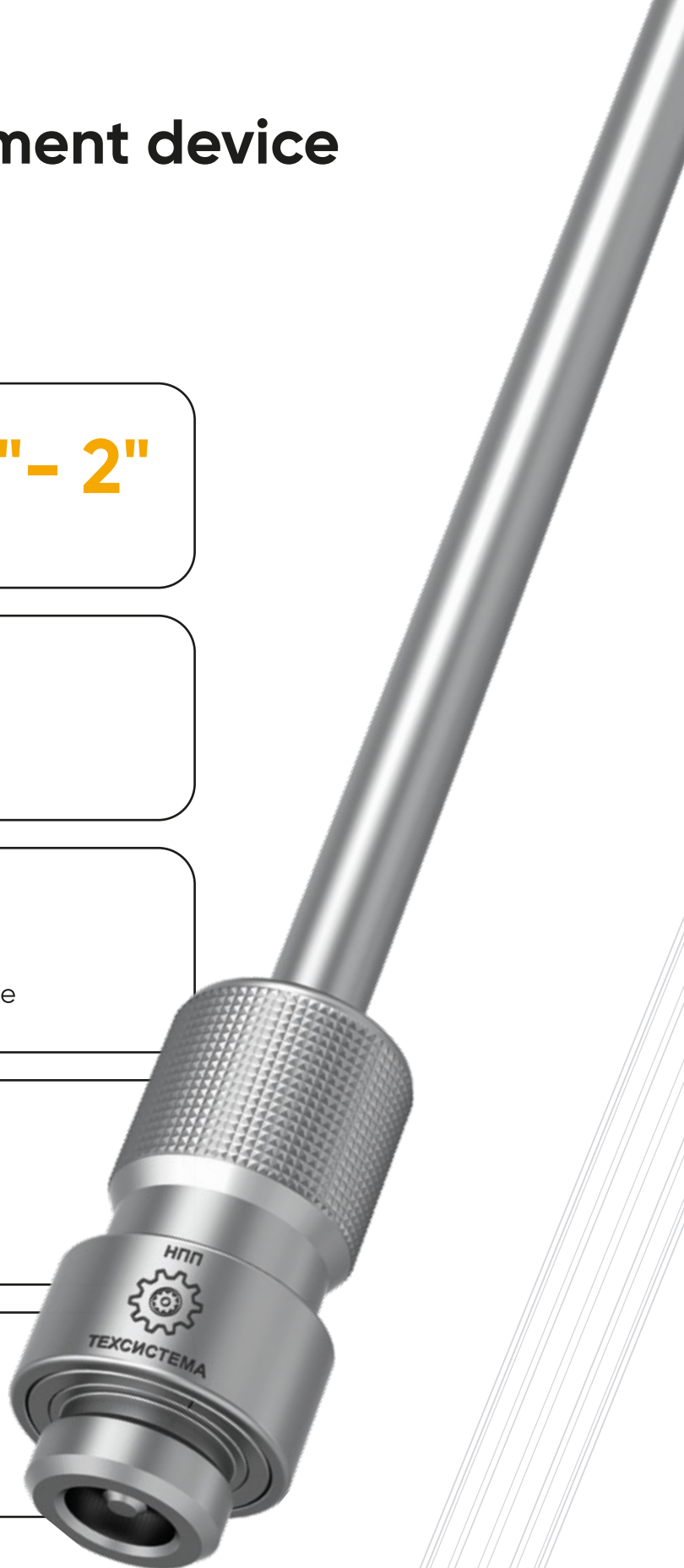
**0.6 MPa\***

maximum working pressure

**Pipe material:**

steel/cast iron

\*provided there are no fatty deposits on the walls of the pipeline and significant defects in the pipe



# Hydraulic equipment and tools

## Hydraulic power pack

### Purpose:

for supplying working fluid to hydraulic tools for various purposes

### Advantages

- ▶ Simple and robust modular design
- ▶ All components are carefully selected and tested
- ▶ No prior training required for operation
- ▶ Reliability and greater productivity with lower fuel consumption compared to electric and pneumatic analogues
- ▶ Cooling system automatically adjusts temperature hydraulic circuit
- ▶ Sturdy stainless steel frame with flexible lifting eye
- ▶ Folding handle, side handles and wheels provide ease of movement
- ▶ Low noise level
- ▶ Minimum fuel consumption
- ▶ Couplers with swivel fittings that protect the station from impacts
- ▶ Oil cooler on the suction line provides protection against pressure pulsations
- ▶ Honda/Subaru engine
- ▶ Recoil starter



**69 kg**

weight

**750x500x570 mm**

dimensions

**30 l/min**

oil flow

**140 bar**

pressure

**3,5 l/h**

average fuel consumption

**13 hp**

engine power

## Hydraulic actuator

### Purpose:

for drilling machine drive

### Advantages

- ▶ Completely replaces and surpasses pneumatic and electric analogues
- ▶ Equipped with speed and torque adjustment, control handle and return spring, ensuring complete operator safety
- ▶ Easy and quick adjustment of maximum force and shaft speed
- ▶ Possibility of installing accessories on the shaft (connectors, replaceable heads for keys, adapters that allow you to connect the tool with various devices)

**6 kg**

weight

**430x70x180 mm**

dimensions

**10-30 l/min**

oil flow

**4300 Nm**

torque

**90-180 bar**

pressure

**0-600 rpm**

rotational speed



## Hydraulic impact wrench

### Purpose:

for unscrewing and screwing nuts and bolted connections

### Description

- ▶ Power per unit weight is not comparable to electric and pneumatic impact wrenches in their class
- ▶ Wear-resistant swashplate mechanism
- ▶ The handle gets slightly warm
- ▶ Reversing valve for switching direction of rotation
- ▶ 3/4" square drive for mating with work heads
- ▶ Control lever on the tool handle



|                                     |                                |                       |
|-------------------------------------|--------------------------------|-----------------------|
| <b>305x220x350 mm</b><br>dimensions | <b>15-45 l/min</b><br>oil flow | <b>8 kg</b><br>weight |
| <b>340-1632 Nm</b><br>torque        | <b>70-140 bar</b><br>pressure  |                       |

## Submersible pump

### Purpose:

for pumping water (including heavily polluted, sea, hot, water with impurities of chemically aggressive components)

### Advantages

- ▶ Easy to use
- ▶ Does not require pre-filling with water and can run idle without damage
- ▶ Due to quick-release connections, installation and connections take a minimum of time



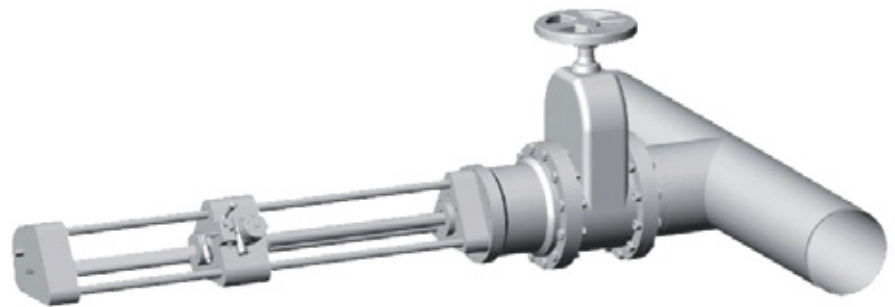
|                                     |                                 |   |  |  |
|-------------------------------------|---------------------------------|---|--|--|
| <b>9,5 kg</b><br>weight             | <b>300x300 mm</b><br>dimensions | <b>96 m<sup>3</sup>/hour</b><br>max performance | <b>63.4 mm</b><br>drain hose diameter      | <b>40-45 m</b><br>max pumping height       |
| <b>15 %</b><br>solids<br>in liquids | <b>15-34 l/min</b><br>oil flow  | <b>150 bar</b><br>max. working<br>pressure      | <b>100°C</b><br>max. liquid<br>temperature | <b>20mm</b><br>max pumped<br>particle size |

# Technology of works on pressurized pipelines

## Hot tapping



▶ hot tapping through the tee fitting



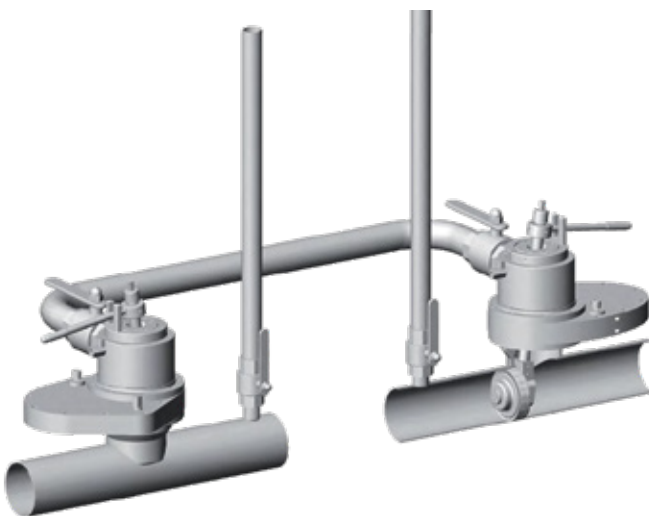
▶ hot tapping through shut-off valves

**up to 1.6 MPa**

working pressure

## Plugging (line stop)

▶ double-sided



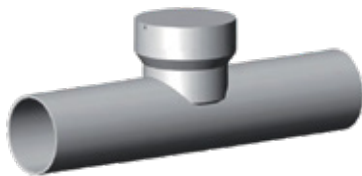
▶ one-sided



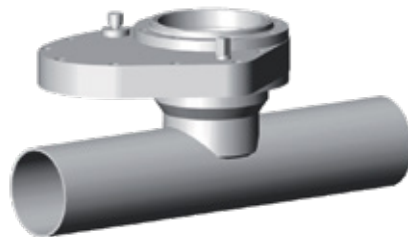


# Technology of works on pressurized pipelines

## Main stages of plugging (line stop)



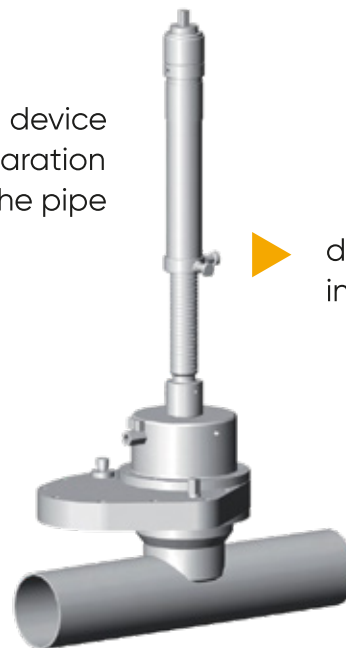
▶ fitting welding



▶ Gate-port (temporary valve) installation



▶ installation of a viewing device for inspection and preparation of the inner surface of the pipe

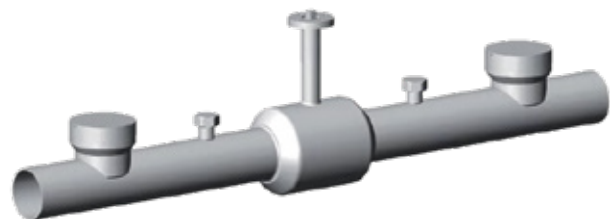


▶ drilling machine installation



▶ installation of linestop system for blocking the pipe and transporting the product through the bypass

▶ installation of plugs in fittings and dismantling of equipment after the work has been completed

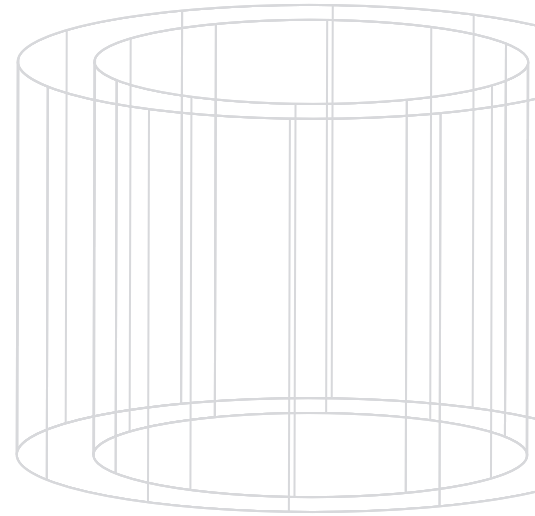


# Technology of works on pressurized pipelines

## Hot tapping



▶ hot tapping through the tee fitting



▶ hot tapping through shut-off valves



**up to 10.0 MPa**

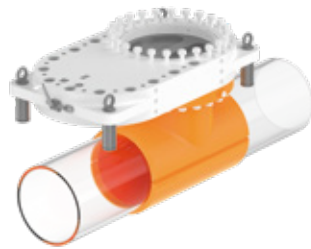
working pressure

# Technology of works on pressurized pipelines

## Main stages of plugging (line stop)



▶ fitting welding



▶ Gate-port (temporary valve) installation



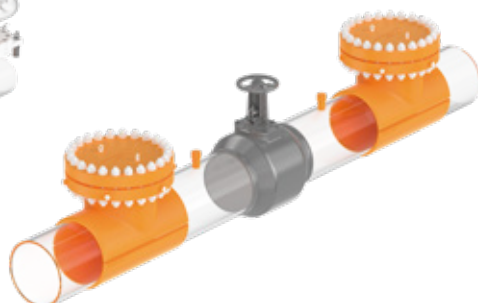
▶ drilling machine installation and performing hot tapping into a pipeline under pressure



▶ installation of a viewing device for inspection and preparation of the inner surface of the pipe



▶ installation of linestop system for blocking the pipe and transporting the product through the bypass



▶ dismantling of equipment and installation of external cups on fittings after completion



INNOVATIONS | QUALITY | RELIABILITY

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