POLICON
Engineering & Manufacturing

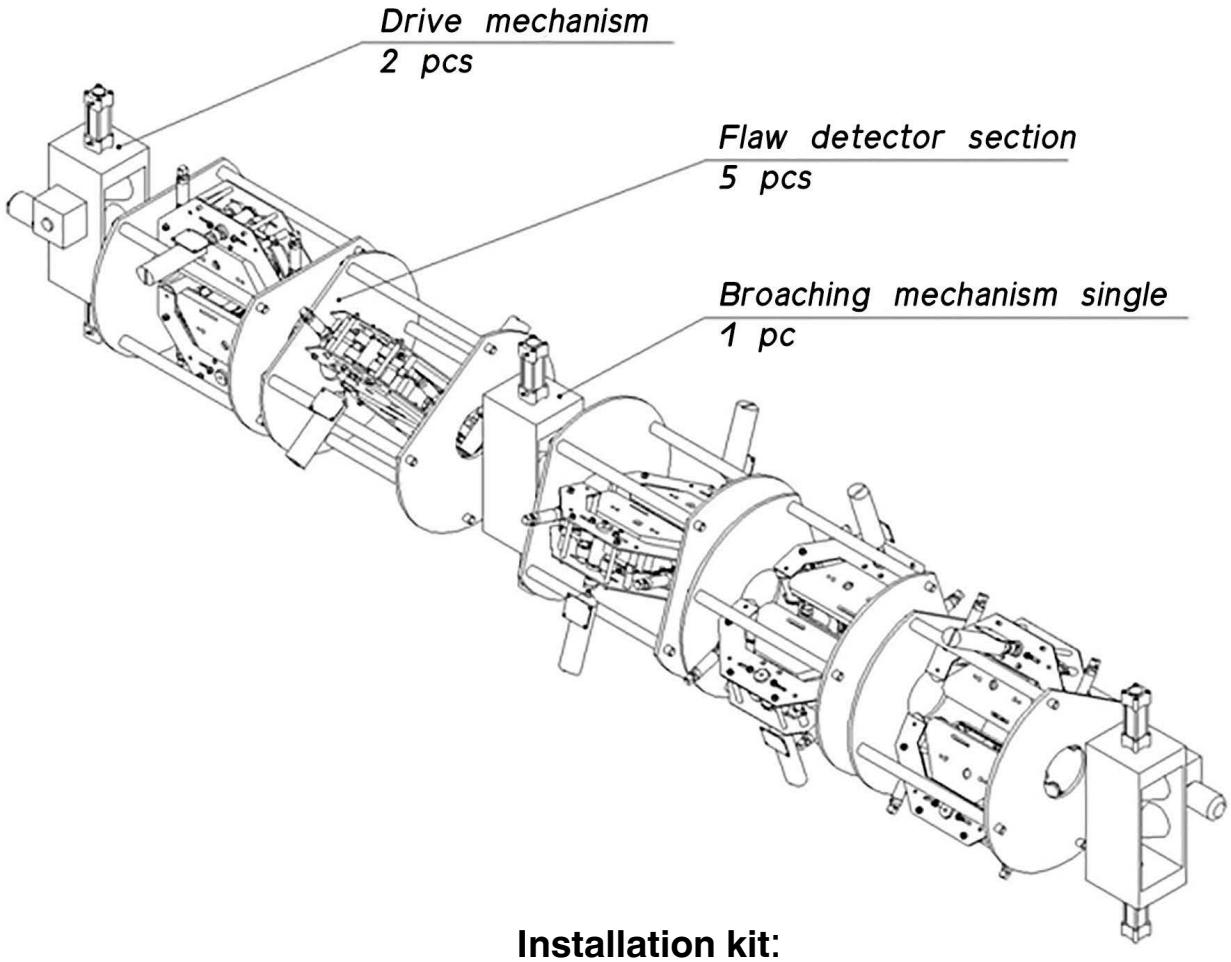
Installation of non-destructive testing of pump-compressor tubes

Description

Installation of non-destructive testing (flaw detection) of pump-compressis pipes (hereinafter referred to as the Installation of flaw detection) is intended for carrying out non-destructive testing (flaw detection) of the body material of new or repaired pump-compressor pipes in order to detect unacceptable defects. Both pipes with a screwed coupling and pipes without a coupling can be controlled.

Installation of flaw detection is installed in the existing production line of the workshop, or installed in a separate production line.

The physical principle of operation of the flaw detection unit is based on the formation of a magnetic field in the pipe material with the help of a magnetic system and the subsequent recording of changes in a number of parameters of this magnetic field by integral sensors.



Installation kit:

- Receiving frame – 1 pc. The frame is designed for the proper installation and fixation of all elements of the installation.

- Flaw detector section - 5 pcs. Each section consists of two blocks of sensors. The section is rigidly mounted in a frame so that all the sensor units of the Installation “wrap around” the entire perimeter of the pipe section. The flaw detector sections are numbered and installed into the frame strictly in order. The flaw detector section performs direct non-destructive testing of the pipe wall in its area and transmits the information to the Processing Unit.

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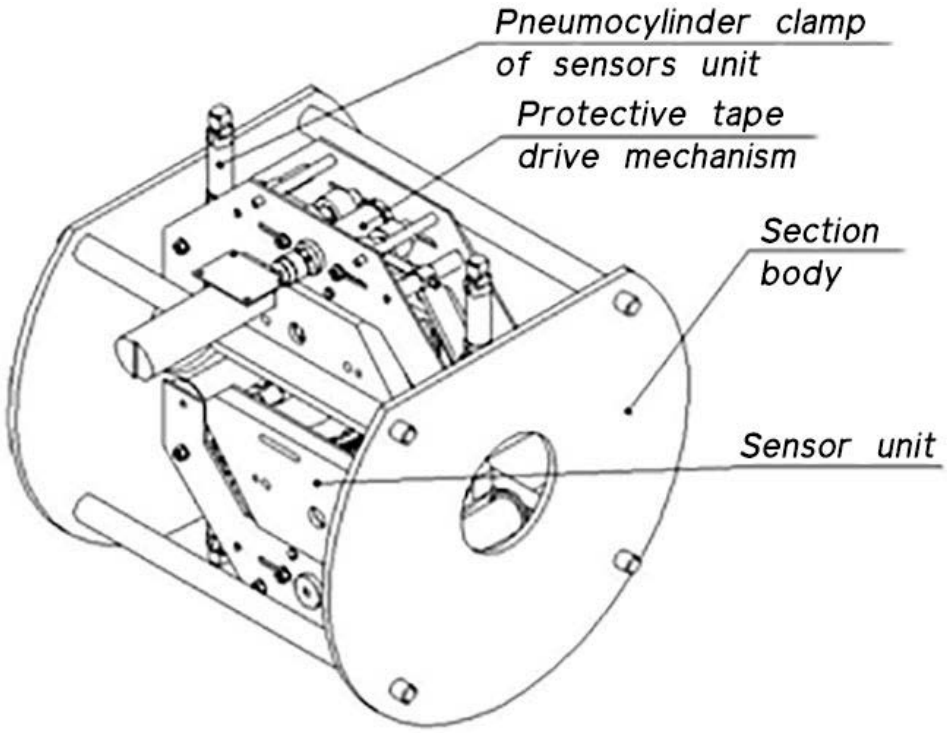

- Drive mechanism (DM) - 2 pcs. Designed to ensure uninterrupted and uniform straight-line movement of the pipe through the installation of flaw detection. DM consists of two biconical rollers, which are pressed to the surface of the pipe by two pneumatic cylinders through a synchronizing mechanism. One of the DM's rollers is driven - the rotational drive is carried out by a gearmotor.

- Broaching mechanism single (BM) - 1 pc. Designed to maintain the pipe during its movement through the installation of flaw detection. BM similarly as DM consists of two biconical rollers, which are pressed to the surface of the pipe by two pneumatic cylinders through a synchronizing mechanism.

Key features and benefits

- Resistance to the presence of scale, corrosion, traces of dirt and oil products on the surface of the pipe.
- The design of the scanning device (sensor unit) eliminates the destruction of the sensors when inspecting pipes that have tearing on the surface and tearing out metal.
- Modular design of sensor units.
- Low power consumption.
- No demagnetization of the pipe after fault detection.
- Availability of the system of self-testing and testing the operability of sensors operating in the continuous monitoring mode with the issuance of diagnostic results.
- Easy to maintain and repair. It is enough to replace the sensor units for another pipe size or replace the failed ones.

Technological capabilities of installations of flaw detection

- The installation provides the definition of longitudinal / transverse both external / internal and through defects in the material of the pipe body with the minimum unacceptable dimensions in accordance with GOST R ISO 10893-3-2016.

These types include the following most common defects in the tubing:

- cracks;
- scoring on the pipe wall;
- metal digging;
- corrosive thinning;
- erosion thinning;
- fistula.

- Measurement of pipe length with an accuracy of ± 10 mm.
- Determination of the location (in length and angular position) of the defect on the body of the pipe, indicating the degree of danger.
- Additional functions The flaw detection installations are implemented on the basis of a mathematical apparatus for interpreting the results of sensor readings to obtain actual values of the wall thickness of the pipe being monitored.
  - Function - «Determination of the pipe strength group»;
  - Function - «Determination of wall thickness in mm».

Completeness of delivery Flaw detection installations for inspection of pump-compressor pipes with diameters of 60, 73 and 89 mm

- Flaw detector section housing with all necessary installation elements - 10 pcs.
- The body of the sensors unit, complete with all the necessary mechanisms and fixtures for assembling the flaw detector section - 20 pcs.
- A set of replacement parts for Sensors unit for setting up the Installation of flaw detection to the required size:
- replaceable parts for 60 mm pipe - 10 pcs;
- replaceable parts for 73 mm pipe - 10 pcs;
- replacement parts for pipe 89 mm - 10 pcs.
- Frame Installation flaw detection - 1 pc.
- The mechanism for pulling the drive pipe - 2 pcs.
- Pipe idling pulling mechanism - 1 pc.
- Electronic devices for receiving, transmitting and processing data - 1 set.
- Software package for processing the results obtained during pipe inspection - 1 set.
- Control panel - 1 pc.
- SOP kit for tuning and debugging; Flaw detection installations:
- for a pipe of 60 mm - 1 piece;
- for pipe 73 mm - 1 pc;
- for pipe 89 mm - 1 pc.
- Roller conveyor for installing flaw detection equipment - 1 pc.
- Conveyor for removal tubes - 1 pc.

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Technical Specifications:

Diameter of pipes, mm.....60, 73, 89

Coupling diameters, mm.....73,0; 88,9; 108,0

The value of the «dead zone» in the area of the coupling, mm..... 80

The value of the «dead zone» in the nipple area, mm.....80

Power supply, V / Hz..... 380/50

Rated power consumption, kW.....3,0

Working pressure in the pneumatic system, atm.....6,0

Overall dimensions, mm (without remote control and pnevmoshkafa):
- length.....3 700
- width.....до 800
- height.....до 1 200
- Installation axis height 800

Weight, kg.....до 800

Management (1 operator or flaw detector) ..... Manual / Auto

This product can be manufactured according to the customer's specifications, taking into account its specified parameters and features.

Food Machinery

Machinery for tires, rubber, plastics manufacturing

Modernization and automation of production

Non-standart equipment

Production of spare parts, components, assemblies

Outsourcing services - repair and maintenance of equipment

Global engineering solutions

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