

Surface equipment

## DEFECTOSCOPE-COILED-TUBING apparatus for inspection of coiled tubing



is used for inspection of coiled tubings (CT) technical condition in units.

### DEFECTOSCOPE-COILED-TUBING ALLOWS

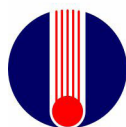
- displaying internal and external defects of CT in real-time;
- measuring and displaying diameter, out-of-roundness and average thickness of CT;
- informing an operator about critical defects and exceeding the permissible deviations of the measured parameters;
- indicating dangerous changes of coiled tubing condition in time and decrease the risk of crashes;
- accumulating results and displaying integral characteristics of CT.

### APPARATUS INCLUDES

- sensor unit with integrated unit of signal processing (there are options for CT diameters from 30 to 45 mm);
- device for anchoring of a sensor unit to CT unit;
- emergency alarm unit;
- laptop with technological software.

### BASIC ADVANTAGES

- folding design of sensor unit allows fixing and removing it without necessity of CT lifting and dismantling of injector;
- high acceptable speed of CT motion (up to 0.8 m/s) allows providing inspection not affecting on technological operations;
- high resolution of measurement (2mm) allows detecting defects at the early stage of their development;
- usage non-contact method of measurement allows to reduce the number of wearing parts and prolong the life of the system;
- low power consumption (~120W) allows you to power the system from an on-bort electrical power outlet of CT unit;
- interface with measuring instrument of immersion depth of CT allows organizing integrated relation of measurement results to depth;
- technological software allows displaying data of measurement in real-time on screen of laptop, changing operating modes of system and input commentaries according to estimation of defects;
- opportunity of system adaptation to CT made from various alloys, can improve the accuracy of the measurements;
- usage of vibration resistant laptop with extended temperature range allows placing it in operator's cab;
- self-testing and automatic control of fixing integrity allows giving signal to operator in case of operation disturbance of system.



## SPECIFICATIONS

design of sensor unit:	folding
principle of measurement:	electromagnetic (non-contact)
diameter of coiled tubings, mm:	from 30 to 45 ( one sensor unit for one diameter)
maximum thickness of coiled tubing wall, mm:	up to 5
speed of coiled tubings trip, m/s:	up to 0.8
acceptable steel grade of coiled tubings:	ferromagnetic
measurement interval, mm:	~2
the number of sensors:	16
detectable defects:	internal, external buckles and cavities; cross and inclined cracks with thickness 0.1 mm, length from 10 mm; flaws with diameter from 1 mm
the number of sensors of external diameter measurement:	4
range of out-of-roundness measurement, mm:	from 0 to 3
accuracy of out-of-roundness measurement, mm:	±0,2
frequency of measurement of average wall thickness, Hz:	10
accuracy of measurement of average wall thickness, mm:	±0,5
supply voltage from storage battery, V:	24±4
power consumption of sensor unit, W:	less than 60
power consumption of laptop, W:	less than 60
range of sensor unit operating temperature, °C:	from -40 to +50
dimensions of sensor unit, mm:	340x300x260
weight of sensor unit, kg:	less than 20
length of connecting cable from sensor unit to laptop, m:	50

## SCREEN FORMS OF TECHNOLOGICAL SOFTWARE

