TECHNICAL SPECIFICATION - PAGE 1

FULLY-AUTOMATED 3D LASER SCANNER FOR QUICK INSPECTION OF MARINE ENGINE CYLINDERS

FEATURES

- Non-contact laser measurement of geometry
- On-line video inspection (frontal)
- Battery powered
- Fully wireless



Measurable parameters

The system allows for measurement of:

- Inner diameter
- Ovality
- Out-of-roundness
- Wear and tear
- Length measurement

The system scans the profile of inner surface of the marine engine cylinders and performs:

- Surface anomalies detection
- Calculation of the deviation from the shape
- Calculation of the geometric dimensions of the inner surface profile
- Visualization of anomalies

OPERATION

The system consists of a) tablet b) laser measurement probe c) tripod d) video-camera e) calibration unit d) set of cables f) communication module e) height sensor g) tool for inserting and removing. All the units except the height sensor are wireless, battery powered and connected through industrial Wi-Fi link.

Step-by-step operation is below. Firstly, check the parts of the system. Check that the battery level is sufficient and all the parts and cables are in good condition. Then follow the step-by-step guidance.



Step 1
Install the measurement probe into the calibration unit. Set the necessary cylinder diameter.



Step 2
Check that tripod is suitable for the cylinder to be measured.

TECHNICAL SPECIFICATION - PAGE 2



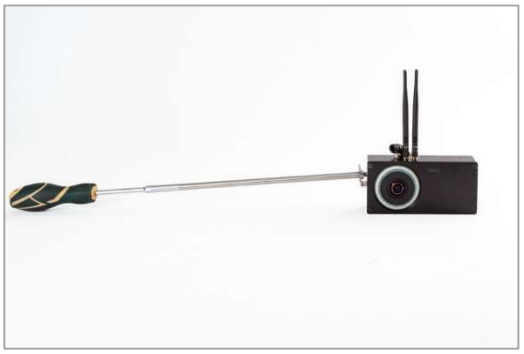
Step 3
Launch the self-diagnostic wizard.



Step 4
Check that the video camera is up and running.



Step 5
Check the complete configuration of the system



Step 6
Check the tool which places the video camera



Step 7
This is the tool which places the measurement probe



Step 8
Check the rope height sensor

TECHNICAL SPECIFICATION - PAGE 3



Step 9
Part after part place inside the cylinder 1. Tripod 2. Measurement probe.



Step 10
Put the camera on the top of the measurement probe.

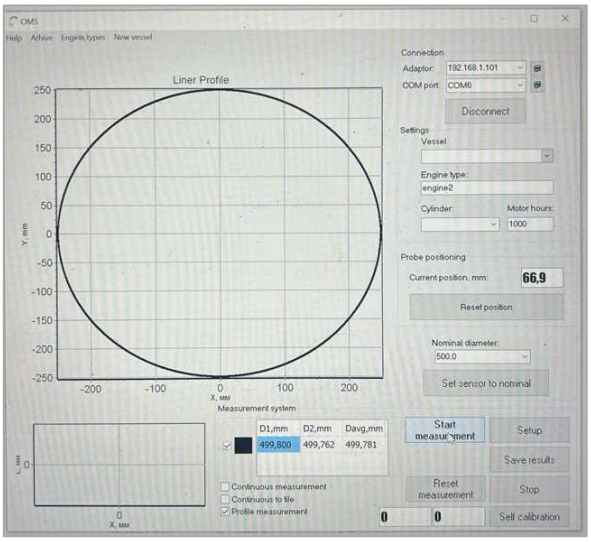


Step 11
Put the height sensor and fix its gauge on the cylinder.

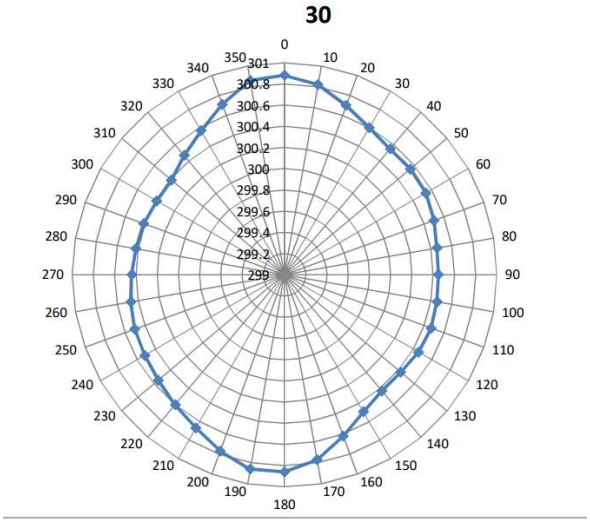


Step 12
Insert Wi Fi antenna into the top side of the cylinder.

TECHNICAL SPECIFICATION - PAGE 4



Step 13
Launch the software on the table and follow measurement guide.



Step 14
Get the report. Save it into the database. Use it for further analisys during the vessel exploitation. Predict malfunctions and save the money.

TECHNICAL SPECIFICATION - PAGE 5

DESCRIPTION

The system is a plug-and-play device and supplied in the Pelican case so you can transport it without any damages wherever you like. The system is fully sustainable. The parts of the system allow you to carry out all the inspection procedures.

The main purpose of the system is to measure the liner wear and tear of two stroke engines independently and at any time, without removing the cylinder head, through the scavenge ports. The system uses high precision optical sensors. The sensors used in the system have showed their reliability for many years in many applications.

The system can be used in the wide temperature range between 10 and 80 degrees. The calibration of the system is very easy and can be performed in any conditions.

The recorded data is automatically analyzed and the report is generated by the provided software.

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SPECIFICATION

Accuracy, mm	**+/- 0.01**
Cylinder diameter range, mm	350..980
Working temperature, °C	10..80
Ingress protection code	IP67
Lifetime	Up to 10 hours, rechargeable
Video inspection channel	Front: panamorph lens, 10 Mpix
Connection “probe”-”computer”	Wireless Industrial WiFi
Power	220 V 50 Hz 200 W via power supply