

Product Name :
Stress And Strain Analysis on A Thick-Walled Cylinder

Product Code :
TN212



Description :

Stress And Strain Analysis on A Thick-Walled Cylinder

Technical Specification :

Stress And Strain Analysis On A Thick-Walled Cylinder
The unit is perform the following experiments and investigations:

Learning Objectives / Experiments:

Measurement of elongations by strain gauges

Application of mohr's circle for the triaxial stress state

Determination of the distribution of direct stress in

Radial, tangential and axial direction

Investigation of correlations between elongation, pressure and stress in the triaxial stress state

Supplied with;

Multi-channel measuring amplifier

PC1 Computer-System with 21" TFT-Monitor Win 10 engl.

Specifications:

Investigation of the stresses and strains in a thick-walled cylinder under internal pressure

Two-part cylinder with flat groove

Strain gauge application at various radial points in the groove and on the cylinder surface

Hermetically sealed hydraulic system, maintenance-free to generate pressure

Hydraulic system with hydraulic pump and manometer

With supplied measuring amplifier

Software for analyzing measured values in amplifier supplied

Technical Data:

Aluminium cylinder

Length: 300mm

Diameter: $\varnothing = 140\text{mm}$

Wall thickness: 50mm

Internal pressure: max. 7N/mm^2 (70bar)

Strain gauge application

11 strain gauges: half-bridges, 350 Ohm

Gauge factor: $2,00 \pm 1\%$

Supply voltage: 10V

Pressure gauge

0...100bar

Accuracy: class 1,0

Dimensions and Weight

Length x Width x Height: 700x350x330mm

Weight: 32kg

Multi-channel measuring amplifier

Learning Objectives / Experiments:

Amplification and display of signals from strain gauge measuring points

Processing of measured values on computer

Evaluation of stress and strain analysis experiments

Evaluation of experiments relating to forces

Specifications:

[1] multi-channel measuring amplifier for processing of strain gauge signals

[2] strain gauge connection in half or full bridge configuration

[3] strain gauge connection via 68-pin input port

[4] automatic tare of measured values

[5] processing of measured values directly in the measuring amplifier or using the supplied software on a PC

[6] integrated software for experimental units on stress and strain analysis

[7] software for data acquisition via USB under Windows 7, 8.1, 10 including PC1 Computer-System with 21" TFT-Monitor Win 10 engl.

Technical Data:

Amplifier

Number of input channels: 16

Strain gauge connection in half or full bridge configuration

Resistance: min. 350 ohm/strain gauge

Strain gauge supply voltage: $\pm 5\text{Vdc}$

Input voltage: max. $\pm 32\text{mV}$

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase

UL/CSA optional

Dimensions and Weight

Length x Width x Height: 230x200x120mm

Weight: 2kg.

Naugralabequipments

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