Leeb Hardness tester TQ TKM-359CE

Portable high precision hardness tester TKM-359CE intended for quick measuring of metal items in laboratorial, manufacturing and field conditions.
Device is intended for non-destructive testing of production quality in metallurgy, mechanical engineering, aircraft, shipbuilding, atomic industry, oil and gas industry.
Hardness tester functions by Leeb method.

TQ TKM-359CE controls hardness of following:

- All basic types of metals and alloys without additional calibrations (structural, tool, corrosion-proof, heat-proof, non-corrosive steels and alloys as well as alloys of nonferrous metals, castiron, aluminium, bronze, brass);
- Items with surface hardening and high frequency current hardening;
- Items of complicated configuration;
- Heavy and big items with rough surface.

Exploitation advantages

- Wide range of controlled metals and alloys.
- Low sensitivity to the curvative and roughness of surface.
- Monitoring of hardness change along the surface.
- Stable measurements independent from force and time of pressing the probe to the surface.
- Possibility of material identification in blank production.
- Control of “volumetric” hardness.

Features of TKM-359CE

- Impact-, dust- and water- proof housing.
- Bright color display allows working at below zero temperature and stays bright at any lighting.
- Signalization of exceeding of prescribed readings threshold.
- Unique system of statistic data processing and averaging of readings.
- Fast adjustment of readings and programming of additional calibrations to basic scales by 2 or less standard blocks.
- Flexible device memory for recording of readings and their analysis.
- Programming of additional scales calibrations of hardness tester by 2 or less standard test blocks.
- Fast programming of additional scales by 2 to 10 standard test blocks.

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Probes characteristics

Photo	Probe Type	Weight/thickness/ surface roughness of the article under check	Length/ Diameter	Application
	«D»	3 kg/6 mm/Ra 3,2	138/21 mm	Solving of main hardness testing tasks with surface roughness less than 3.2 Ra
	«E»	3 kg/6 mm/Ra 3,2	138/21 mm	Probe with polycrystalline indenter made of cubic boron nitride to test materials with high hardness
	«G»	8 kg/55 mm/Ra 7,6	200/29 mm	Hardness testing of high structure inhomogeneity items with surface roughness more than 7.2 Ra

Exploitation

Requirements to controlled item:

- Items heavier than 5 kg and thicker than 6 mm need no additional preparation.
- Hard items (eg tubes) with awaited hardness from 90 to 250 HB and thicker than 4 mm need no additional preparation.
- Other items should be fixed on a support plate by fixing paste.
- Roughness of controlled surface providing best measurement accuracy depends on a probe.

Hardness testers modes

Measurement mode	Readings	Using
By basic scales	Basic hardness units (HRC, HB, HV)	Hardness testing of the bulk of products
By additional calibrations to basic scales	By HRA, HRB, HSD scales and ultimate tensile strength	Hardness testing of high-alloy steels, special cast iron and nonferrous metals
By additional scales	Scales are programmed by the user	Special problems solving

The parameters of the statistical processing of measurements

- Maximum, minimum, mean value, standard deviation from the mean.
- The average deviation from the values set by a user, results are more/less the values, the maximum deviation in the large/smaller side of the value.
- Number of results outside the upper/lower limit of range (user specified), maximum deviation from the upper/lower border.
- Automatic garbage results, incorrect measurement.
- Comparison of results of measurements in the series (the comparison charts on the display of the hardness tester).

ACCESSORIES

- Replaceable probes of different construction and impact force
- Special head "Z-359" for easier probe positioning on complex surfaces
- Connection cables

Technical specifications

Characteristic	Values
Relative average error at regular calibration	3-5 %
Hardness testing ranges:	
Rockwell C	20-70 HRC
Brinell	90-450 HB
Vickers	240-940 HV
Spot diameter on the item surface for probe positioning	From 7 mm
Quantity of possible additional scales calibrations	5 for each scale
Quantity of additional scales	3
Duration of the measurement	2 seconds
Quantity of measurements for average reading calculation	1-99
Memory capacity	12 400 readings
Maximum quantity of named blocks of readings generated in memory	100
Signalization about threshold exceeding	Provided
PC connection	USB
Power supply	Li-ion accumulation battery
Dimensions of hardness tester electronic unit	121x69x41 mm
Weight of electronic unit	0.3 kg
Weight of D-probe	0.15 kg
Operating temperature range	-15...+35 °C
Warranty	1 year

Delivery set

Elements	Leeb Hardness tester TKM-359CE	Leeb Hardness tester TKM-359CE special
Electronic unit with accumulation battery	+	+
D-type probe	+	
Special probe type-D with socket		+
Connecting cable for D-type probe		2 pcs
Special head "Z-359"		+
Standard test block HB		+
Charger	+	+
Operating manual	+	+
PC cable	+	+
Soft case	+	+
Cuff to fix device on arm	+	+
Bag for carrying and storing	+	+

TEQTO ESTONIA OÜ
REG. N 16476638 / EU VAT EE102483538
TALLINN, ESTONIA

teqto@teqto.pro
www.teqto.pro