TORONTECH

AUTOMATIC CONE PENETRATION TESTER

Automatic Cone Penetration Tester TT-217Z

Automatic Cone Penetration Tester TT-217Z is utilized to evaluate the consistency of lubricating greases and wax, as well as to assess the needle penetration for bitumen products.

APPLICATIONS

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TT-217Z

The primary application of the Automatic Penetration Tester TT-217Z is to determine the hardness or consistency of various semi-solid materials. It does this by measuring the depth (in tenths of a millimeter) that a standardized cone or needle penetrates a sample under controlled conditions.

It is used for several key tests, including:

- **Cone Penetration of Lubricating Greases** (ASTM D217, ASTM D1403)
- **Needle Penetration of Bituminous Materials / Asphalt** (ASTM D5)
- **Needle Penetration of Petroleum Waxes** (ASTM D1321)

Key Industries

- **Lubricant Manufacturing:** This is a fundamental test for quality control in grease production. The penetration value defines the NLGI (National Lubricating Grease Institute) consistency grade of the grease, which is a critical performance property.
- **Road Construction & Paving:** The penetration test is used to grade asphalt binders (bitumen). The "pen grade" is a direct measure of the asphalt's hardness, which is essential for ensuring it will perform correctly in a specific climate and under certain traffic loads.
- **Petroleum Refining:** Refineries produce the primary feedstocks for all these products. They use penetration testing for quality control of petroleum waxes and asphalt binders before they are sold or further processed.

FEATURES

Applicable standard

- ASTM D217
- ASTM D1321
- ASTM D5
- ASTM D1403

- The instrument automatically detects cone penetration and utilizes laser transmission for non-contact detection, significantly reducing human interference.
- Features a 6-inch color LCD touch screen for automatic detection and storage of test results.
- Equipped with an electric lifting system that allows for electronic adjustment of lifting speed.
- Base adjustment mechanism includes fine-adjusting anchor screws and leveling round blisters embedded in the surface. This enables easy adjustment of the base table's level by adjusting the anchor screws.
- Utilizes a DC low voltage locking device for safety and reliability.
- The instrument offers a wide measuring range, capable of measuring full-size, 1/2, and 1/4 penetrations, as well as the penetration of asphalt and paraffin wax (ASTM D5, ASTM D1321).

TECHNICAL SPECIFICATIONS

Measuring range: 0 to 500 cone penetration units.

Vertebral body release stroke: Over 62mm.

Laser sensor: Utilizes a Japanese Panasonic laser component system.

Minimum reading: 1 cone penetration unit.

Timing range: Adjustable from 5 seconds to 90 seconds.

Timing error: ≤0.02 seconds.

Repeatability: <2+0.03P, where P is the arithmetic mean of the two measurement results.

Stability: Δu ≤ 0.2.

Temperature control range: 23 degrees Celsius to 60 degrees Celsius.

Power supply: AC220V±10%, 50Hz±2%. (110V also available)

Packing List				
No.	Item	Unit	Qty.	Remark
1	Main Unit	Set	1	Standard equipped
2	Full size worker	Set	1	Standard equipped
3	Full cone	Piece	1	Standard equipped
4	Cone rod	Piece	1	Standard equipped
5	Scraper	Piece	1	Standard equipped
6	1/2 worker	Piece	1	Optional
7	1/2 Cone	Piece	1	
8	1/4 worker	Piece	1	
9	1/4 Cone	Piece	1	
10	Dedicated constant temperature bath□ 25℃±0.1℃	Set	1	

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