TransTech
TRANSTECH SYSTEMS, INC.

PQI 301

Pavement Quality Indicator

- Quick, accurate density measurement of HMA mats
- Non-nuclear source means no licensing, service fees or safety concerns
- Accurate readings in three seconds
- Measures mat temperature and moisture levels relative to PQI reading
- Lightweight and easy to transport
- Easy and cost-effective to own and operate
- Available in English, Spanish, Dutch, German or Italian versions

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The PQI 301

TransTech Model PQI 301 is a Pavement Quality Indicator designed and built to take quick, accurate measurements of hot mix asphalt density. Developed especially for today's perpetual pavement mixes, the PQI 301 enables the asphalt paving contractor, private testing organization or relevant jurisdiction to get on and off the mat fast, so as not to interfere with compaction.

How Accurate is it?

The third generation PQI has been used by many contractors, quality control facilities and state DOTs over the past decade and test results have been superb. NCAT, the National Center for Asphalt Technology, has run hundreds of tests, comparing the PQI with a nuclear gauge. The final conclusion: "The difference between the corrected measured density and the actual density is similar for the two gauges, suggesting each can measure close to the same density."

Three Seconds and Go!

Unlike nuclear gauges, the TransTech PQI 301 takes accurate density readings in three seconds. This enables the quality tester to get on the mat, take the test and get out of the way of the roller prior to the next pass. There is no need for any complicated calibration, no waiting for standard count readings and no interpolation of results.

Safety: Consider the Source

Now in its third generation, the PQI 301 is far safer than a gauge driven by a nuclear source. There is no need for certified operators to run the PQI – anyone on site can be trained to operate this gauge.

There is no extensive training, no radiation badges, no badge service fees, no licensing fees, no special storage needs, no disposal hassles and no accident, security or terrorism concerns.

Here's the difference: Nuclear gauges are powered by two radioactive isotopes – Cesium 137 to measure density and Americium 241 – Beryllium to measure moisture. The neutrons from these devices will interact with any hydrogenbearing material, from construction material to human flesh.

The PQI develops an electromagnetic field using a transmitter and receiver running at one megahertz, a frequency that falls between your AM and FM radio ranges. Transmission safety is not an issue – period! For more information, ask for a copy of TransTech's brochure entitled "Alternative to a Nuclear Gauge."

Cost Factors

Speed, accuracy and safety are not the only issues of concern. The TransTech PQI 301 costs less to own and far less to operate than a nuclear gauge.

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Easy to Transport, Calibrate, Set Up and Run

The PQI 301 was designed to be user friendly. It is easy to transport and can legally and safely be carried in the back seat of your car. Encased, it weighs only 5.5 kg, 10 kg less than the nuclear gauge in its case.

With basic training, the Pavement Quality Indicator is really easy to calibrate, set up and run. Once calibrated against test strip core samples, accuracy and repeatability of tests is superb. Rapid threesecond tests keep the gauge operator moving and out of the way of the roller, a must on perpetual pavement projects where beating the tender zone is critical.

To see the PQI in action, ask for a free copy of our CD-video which also walks you through the simple calibration procedure. In addition to density measurement, accurate mat temperature and relative moisture levels are also included as standard features.

All readings may be downloaded to a PC for future reference. The PQI is available in five different languages.

NEW! The PQI Test Block

The PQI Test Block is now available as an option for the PQI 300 and PQI 301 Pavement Quality Indicators.

The test block is comprised of a slab of a special laminated material that provides a known and constant standard for monthly preventive maintenance testing or for diagnostic testing when PQI readings have become suspect.

The test block confirms the electronics, sensing system, internal calibration and repeatability of gauge readings. The system includes the test block and rugged storage case.

With almost a decade of field testing on thousands of jobsites combined with TransTech philosophyof product improvement, the PQI is the finest instrument in the world for asphalt pavement quality assurance.

Don't Believe Us?

Here's what the industry has to say about the TransTech PQI 301 Pavement Quality Indicator:

"With the Pavement Quality Indicator (PQI) system, paving contractors will now be able to own and operate density testing equipment that is faster, safer, more versatile, and as, if not more, reliable than nuclear gauges. This is a significant advancement for the industry."

Charles R. Glagola,
Associate Professor of Civil Engineering
University of Florida, Gainesville

"The newest PQI gauges have the best accuracy at the project tested (typically around (1 pcf)."

Steven Sabata,
Research Engineer
Texas Transportation Institute

"The Pavement Quality Indicator (PQI) model 300+ (the plus indicates changes made after the 2000 construction season) is a suitable device to control density of hot-mix asphalt during construction. It can provide immediate feedback so that irregular spots can be located and corrective actions taken."

Pedro Romero,
Ph.D., P.E.
University of Utah
Evaluation of Non-Nuclear Gauges to Measure Density of Hot-Mix Asphalt Pavements

"Uncorrected Pavement Quality Indicator (PQI) Model 301 measurements provided reasonable correlation with density measurement using cores."

Harley, Prowell, Cooley, Jr.
NCAT
TRB 2004 83rd Annual Meeting

"We've used both the nuclear gauge and the PQI, which we found to be safer, more accurate and more consistent. We get paid bonuses, so accuracy is key. We check against cores on every job and the PQI is right on. We can run five tests with the PQI in 25 seconds and only one with the nuclear gauge in that amount of time."

John Stone,
Quality Control
Hamilton, Hinkle & Rath

PQI 301

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PQI SPECIFICATIONS

OPERATIONAL SPECIFICATIONS:

Modes:

- Segregation: Identifies variations in material density associated with segregation.
- Continuous: Instantaneous density, temperature and moisture readings.
- Average: Averages five (5) readings and stores data including date and time. Stores 99 records.
- Single: Allows the operator to collect data then manually record data off the material under test. Reading time three (3) seconds.

Functions:

- Density, % Compaction, % Voids and Segregation
- Integrated Temperature Sensing: Real time temperature display 0°F to 350°F *(17.7°C to 177.6°C)*
- Moisture Sensing: Relative moisture detection and correction when necessary.

Calibration Modes:

- Normal: Correlation offset to cores.
- One Point: Averages multiple locations and establishes average correlation at established compaction percentage.
- Two Point: Adjusts the calibration slope to unique materials.

MEASUREMENT SPECIFICATIONS:

- Sensing Area: 10 in. diameter base allows optimum measurement on fine and coarse material types.
- Measurement Depth: User selected and adjustable from 1 in. to 4 in. *(25 mm to 100 mm)*
- Measurement Units: Standard and Metric Keypad controlled inches or mm, lb/ft³ *(kg/m3)*
- Measurement Display: Density, % Compaction or % Air Voids, and Segregation
- Built in Measurement Compensation: Allows for consistent and accurate results under varying moisture and temperature extremes.

MECHANICAL SPECIFICATIONS:

- Unit Weight : 16 lb. *(7.25 kg)*
- Unit Dimensions: 10.75 in. x 10.75 in. x 11 in. *(27 cm x 27 cm x 28 cm)*
- Shipping Weight w/ Case: 27 lb. (*12.25 kg)*
- Shipping Dimensions: 13 in. x 13.75 in. x 17 in. *(33 cm x 35 cm x 43 cm)*
- Operating Temperature
  Ambient: 20°F to 125°F *(7° C to 52° C)*
  Surface: 350°F *(175°C)*
- Storage Temperature: 0°F to 150°F *(18°C to +66°C)*

ELECTRICAL SPECIFICATIONS:

- CE Mark certified for no electrical interference
- Microprocessor Controlled
- 4.0 Amp-hr NiMH
- Recharge Time: 4 hours
- Display: Backlit 4- line alphanumeric
- Battery Charger (fast charge 120 AC to 12 DC)
- Serial Port Db-9

OPERATIONAL FEATURES:

- Menu driven software with keypad functions
- Diagnostic Mode for operator troubleshooting
- User Programmable Target Density
- Computer and printer download capability
- Built in Date and Time Stamp

WARRANTY:

- Standard: 12 month
- Optional Extended Warranty: Customer CarePlan includes all adjustments, upgrades, battery replacement, complete annual preventive maintenance and return shipping.

OPTIONAL ACCESSORIES:

- Test Block Dimensions: 12 in. x 12 in. x 1.5 in. *(30 cm x 30 cm x 4 cm)*
- Weight Approx.: 25 lb. *(11 kg)*
- Global Positioning System non-integrated

PQI 301 Complies with

ASTM INTERNATIONAL Standards Worldwide — D7113-05

AASHTO — TP-68-05

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Simple Solutions to Not-So-Simple Problems

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