

ULTRA-PRECISION CONCRETE AIR METER



Ultra-Precision Concrete Air Meter – ToronCAM™ UP

ToronCAM™ UP is an ultra-precision direct-reading concrete air meter built for demanding field and laboratory applications where accuracy and temperature sensitivity cannot be compromised. Featuring a magnesium-aluminum-zinc alloy body with full-copper operating valves, this air entrainment meter delivers consistent, repeatable measurements across a temperature range of -30°C to 60°C — making it one of the most versatile concrete air testers available for use in extreme climates.

With a 7,000 mL measuring bowl, a measurement range of 0% to 10% (maximum range $\leq 14\%$), and a pressure gauge accuracy level of 0.1 (allowable standard temperature -20°C to 40°C $\pm 2^\circ\text{C}$), the ToronCAM™ UP air meter concrete professionals rely on sets a high bar for precision in air content testing. The built-in temperature detection range of -30°C to 60°C adds a layer of data collection not found in standard instruments, supporting comprehensive fresh concrete reporting on every test.

APPLICATIONS

Ultra-Precision Concrete Air Meter – ToronCAM™ UP Applications

The ToronCAM™ UP air meter for concrete is suitable for use across a broad range of construction environments and project types:

- Ready-mix concrete plants: high-precision air entrainment meter testing before delivery dispatch
- Cold-weather and hot-weather concrete operations: wide temperature detection range supports year-round testing
- Bridge decks, highway pavements, and airport runways: freeze-thaw durable concrete verification
- High-performance concrete production: ultra-precision readings for demanding structural specifications
- Precast and prestressed concrete manufacturing: production-line air content QC
- Independent testing laboratories: repeatable, traceable concrete air tester results for ASTM compliance
- Government and DOT oversight: specification verification for public infrastructure projects



FEATURES

Ultra-Precision Concrete Air Meter - ToronCAM™ UP Key Features

The ToronCAM™ UP ultra-precision air entrainment meter delivers a comprehensive set of performance features for accurate concrete air content testing:

- Ultra-precision class instrument: engineered for tighter accuracy than standard concrete air meters
- Wide air content measurement range of 0% to 10% with a maximum capacity of up to 14%
- Magnesium-aluminum-zinc alloy body with all-copper operating valves: durable, corrosion-resistant construction
- Aggregate compatibility up to 40 mm: supports a broad range of concrete mix designs
- Graduated test error performance: 0%–4% $\pm 0.1\%$, 5%–8% $\pm 0.12\%$, 9%–10% $\pm 0.15\%$
- 0.1 MPa maximum pressure gauge range with accuracy level 0.1: fine-resolution measurement
- Pressure gauge accuracy level of 0.1: allowable standard temperature -20°C to $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$
- Four factory self-calibrated initial pressure points: selectable per environment and operator preference
- Dry method support: initial pressure point without water injection reads as 0 for consistent baseline
- Temperature detection range of -30°C to 60°C : built-in fresh concrete temperature monitoring
- Manual exhaust method: controlled, reliable pressure release during testing
- Universal bubble level: ensures proper instrument leveling before each test

THEORY & METHOD

Theory and Method

The ToronCAM™ UP concrete air meter uses the pressure method to determine the percentage of entrained air in freshly mixed concrete. A sealed air chamber above the concrete sample is pressurized to a calibrated initial point. When the equalization valve is released, the pressurized air compresses the entrained voids within the sample. The resulting pressure drop is read directly off the precision gauge as a percentage of air content — no curves or calculations needed.

The instrument supports both standard (wet) and dry test methods. For the dry method (no water injection), the initial pressure point reads at 0, giving operators a reliable starting reference under variable field conditions. Four factory self-calibrated initial pressure points are included, each selectable based on environment and operator preference. The manual exhaust system and universal bubble level ensure standardized test setup and controlled pressure release consistent with ASTM and international testing protocols.

TECHNICAL SPECIFICATIONS

Ultra-Precision Concrete Air Meter - ToronCAM™ UP Technical Specifications

Parameter	Specification
Model	ToronCAM™ UP
Measuring Bowl Volume	7,000 mL
Air Content Measurement Range	0% - 10% (maximum range ≤14%)
Maximum Aggregate Particle Size	≤40 mm
Main Unit Material	Magnesium-aluminum-zinc alloy; copper operating valves
Test Error (0%-4%)	±0.1%
Test Error (5%-8%)	±0.12%

Parameter	Specification
Test Error (9%-10%)	±0.15%
Maximum Pressure Gauge Range	0.1 MPa
Pressure Gauge Accuracy Level	0.1 (allowable temperature: -20°C to 40°C ±2°C)
Initial Pressure Points	4 (factory self-calibrated; selectable per environment/operator)
Initial Pressure Point (Dry Method)	0 (no water injection)
Air Exhaust Method	Manual
Instrument Leveling Method	Universal bubble level
Temperature Detection Range	-30°C to 60°C



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