



Concrete Permeability Tester

Available Variants

1. 1 Cell With Air Compressor
2. 3 Cell With Air Compressor
3. 3 Cell Up To 15 Kg Pressure With Air Compressor
4. 6 Cell With Air Compressor
5. 6 Cell Compact
6. 9 Cell With Air Compressor
7. 3 Cell As Per IRS Concrete Bridge Code With Compressor

Description

Concrete Permeability Tester is designed to determine the depth of penetration of water into concrete under known time and pressure. The apparatus consists of specimen holder assemblies with a manifold, pressure gauges, chamber, suitable flanges and gaskets. Concrete specimens are placed in the test chamber and subjected to controlled water pressure for the prescribed duration. After testing, the specimen is split and the depth of water penetration is measured.

The apparatus is supplied with an air compressor where specified. The equipment accommodates concrete cylinder specimens of 150 mm diameter $\times$ 160 mm high or cube moulds of 150 $\times$ 150 $\times$ 150 mm dimensions. The Compact variant also supports cubic, cylindrical or prismatic specimens up to 200 $\times$ 200 $\times$ 200 mm.

Applications

Water penetration testing of concrete to determine the depth of water penetration and assess concrete impermeability under known time and pressure.

The 3 Cell variant applies a water pressure of 500 ± 50 kPa to a concrete specimen for 72 ± 2 hours, after which the specimen is split and the maximum penetration depth is measured.

The IRS Concrete Bridge Code variant is used for permeability testing as per IRS Concrete Bridge Code 1997, Appendix-G.

Apparatus Details

The standard Concrete Permeability Tester consists of specimen holder assemblies, manifold assembly, pressure gauges, chamber and suitable clamping arrangements.

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GST TIN No. : 24AABCE4018L1ZU
I.T. PAN No. : AABCE 4018L
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The specimen is placed into the test chamber and clamped with suitable flanges and gaskets. Known water pressure is applied to the specimen surface for the prescribed time using a suitable air compressor. The penetrated water is measured by splitting the specimen.

The standard specimen size for the applicable variants is 150 mm diameter × 160 mm high or 150 × 150 × 150 mm cube.

The Compact variant consists of a chamber with quick clamping arrangement and special circular gaskets. It is equipped with stainless steel 304 grade specimen holders, air and water pressure gauges, brass water valves, sealing rings and a stainless steel platform with drainage arrangement. It can apply and maintain up to 7 kg/cm² pressure for up to 72 hours.

The IRS variant consists of permeability cells, water reservoir, graduated side arm gauge-glass, fittings and valves for admitting water and compressed air, draining, bleeding and connecting to the permeability cell.

Variant Details

1 Cell With Air Compressor

Concrete Permeability Apparatus consists of a single specimen holder assembly as per IS 516 (Part 2/Sec1): 2018.

Fitted with manifold assembly to hold end pressure of maximum 7 kg/cm², chamber pressure gauge of 14 kg/cm² and another pressure gauge of 21 kg/cm² to show the inlet pressure.

Supplied complete with Air Compressor.

3 Cell With Air Compressor

Concrete Permeability Apparatus consists of three specimen holder assemblies as per IS 516 (Part 2/Sec1): 2018.

Fitted with manifold assembly to hold end pressure gauge of 14 kg/cm² (14 Bar), chamber pressure gauge of 21 kg/cm² (21 Bar), with another pressure gauge of 14 kg/cm² (14 Bar) on the chamber to show the inlet pressure.

Supplied complete with Air Compressor.

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3 Cell Up To 15 Kg Pressure With Air Compressor

Concrete Permeability Apparatus consists of three specimen holder assemblies as per IS 516 (Part 2/Sec1).

Fitted with manifold assembly to hold end pressure of 15 kg/cm² (15 Bar), pressure gauge of 21 kg/cm² (21 Bar) and another gauge of 21 kg/cm² (21 Bar) on the panel to show inlet pressure.

Size: 150 mm diameter × 160 mm high.

Complete with Air Compressor.

Includes 3 HP High Pressure Air Compressor With 50 Litre Tank.

6 Cell With Air Compressor

Concrete Permeability Apparatus consists of six specimen holder assemblies as per IS 516 (Part 2/Sec1): 2018.

Fitted with manifold assembly to hold end pressure of maximum 7 kg/cm², chamber pressure gauge of 14 kg/cm² and another pressure gauge of 21 kg/cm² to show the inlet pressure.

Supplied complete with Air Compressor.

6 Cell Compact

Concrete Impermeability Apparatus consists of a chamber where the concrete sample is placed and pressure is applied to force water or other fluids through the concrete.

Supports six specimen holders accommodating 150 mm cube or cylindrical specimens.

Constructed from premium-grade materials for enhanced durability. Stainless steel 304 grade specimen holders resist corrosion and maintain structural integrity.

Fitted with high-quality air and water pressure gauges for precise readings and brass water valves for smooth operation.

Capable of applying and maintaining up to 7 kg/cm² pressure for up to 72 hours.

Designed to apply water pressure from the bottom of the specimen.

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Each specimen holder features a single spindle for easy tightening or loosening of the specimen.

Sealing rings are provided at the bottom of each holder to prevent water leakage.

Specimen holders are mounted on a stainless steel platform to collect dripped water.

The platform includes a drainage system with a hole and drain pipe for easy water removal.

9 Cell With Air Compressor

Concrete Permeability Apparatus consists of nine specimen holder assemblies as per IS 516 (Part 2/Sec1): 2018.

Fitted with manifold assembly to hold end pressure of maximum 7 kg/cm², chamber pressure gauge of 14 kg/cm² and another pressure gauge of 21 kg/cm² to show the inlet pressure.

Supplied complete with Air Compressor.

3 Cell As Per IRS Concrete Bridge Code With Compressor

The apparatus consists of 3 permeability cells.

Each permeability cell consists of a non-corrodible metal cylinder for holding a specimen of 200 mm diameter × 120 mm high. A rubber or neoprene O-ring or other suitable gasket, seated in matching grooves, is used between the cell and cover plate to render the joint water-tight.

The water reservoir consists of a suitable metal pipe, 50 to 100 mm diameter and about 500 mm long. It is fitted with a graduated side arm gauge-glass and necessary fittings and valves for admitting water and compressed air, draining, bleeding and connection to the permeability cell.

Test specimen of 200 mm diameter and 120 mm thick is used. After 24 hours of casting, the central circular area of 100 mm diameter is roughened with a wire brush on the side where water pressure is applied. The unroughened part is sealed with two coats of cement water paste with W/C = 0.4.

After 28 days curing, the specimen is fitted into the test apparatus. Pressure of 1 Bar is applied for 48 hours, followed by 3 Bar for 24 hours and 7 Bar for 24 hours through an Air Compressor.

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After testing, the specimen is split in the middle by compression applied on two round steel bars lying on opposite sides.

The average of three maximum values of penetration is calculated. The depth of penetration of water should not be more than 25 mm; otherwise, the specimen is considered failed in the permeability test.

Consumable available at extra cost: Sealing compound, wax and resin.

Specifications

1 Cell With Air Compressor

Specification	Details
Number Of Cells	1
Specimen Size	150 mm dia. × 160 mm high or 150 × 150 × 150 mm cube
End Pressure	Maximum 7 kg/cm ²
Chamber Pressure Gauge	14 kg/cm ²
Inlet Pressure Gauge	21 kg/cm ²
Air Compressor	Supplied complete

3 Cell With Air Compressor

Specification	Details
Number Of Cells	3
Specimen Size	150 mm dia. × 160 mm high or 150 × 150 × 150 mm cube
Water Pressure	500 ± 50 kPa
Test Duration	72 ± 2 hours
End Pressure Gauge	14 kg/cm ² (14 Bar)
Chamber Pressure Gauge	21 kg/cm ² (21 Bar)
Inlet Pressure Gauge	14 kg/cm ² (14 Bar)
Overall Dimensions	720 × 1220 × 2000 (L × W × D) mm
Net Weight	135 kg

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Specification

Details

Air Compressor Supplied complete

3 Cell Up To 15 Kg Pressure With Air Compressor

Specification

Details

Number Of Cells 3

Specimen Size 150 mm dia. × 160 mm high

End Pressure 15 kg/cm² (15 Bar)

Pressure Gauge 21 kg/cm² (21 Bar)

Inlet Pressure Gauge 21 kg/cm² (21 Bar)

Overall Dimensions 720 × 1220 × 2000 (L × W × D) mm

Net Weight 135 kg

Air Compressor 3 HP High Pressure Air Compressor With 50 Litre Tank

6 Cell With Air Compressor

Specification

Details

Number Of Cells 6

Specimen Size 150 mm dia. × 160 mm high or 150 × 150 × 150 mm cube

End Pressure Maximum 7 kg/cm²

Chamber Pressure Gauge 14 kg/cm²

Inlet Pressure Gauge 21 kg/cm²

Overall Dimensions 720 × 1220 × 2000 (L × W × D) mm

Net Weight 210 kg

Air Compressor Supplied complete

6 Cell Compact

Specification

Details

Number Of Cells 6

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Specification	Details
Maximum Specimen Size	Up to 200 × 200 × 200 mm
Supported Specimens	Cubic, cylindrical or prismatic
Specimen Holders	Stainless Steel 304 Grade
Maximum Pressure	7 kg/cm ²
Maximum Pressure Duration	Up to 72 hours
Water Pressure Direction	From Bottom Of Specimen
Holder Tightening	Single Spindle
Drainage	Hole And Drain Pipe
Overall Dimensions	1500 × 800 × 1300 (L × W × D) mm
Net Weight	150 kg

9 Cell With Air Compressor

Specification	Details
Number Of Cells	9
Specimen Size	150 mm dia. × 160 mm high or 150 × 150 × 150 mm cube
End Pressure	Maximum 7 kg/cm ²
Chamber Pressure Gauge	14 kg/cm ²
Inlet Pressure Gauge	21 kg/cm ²
Air Compressor	Supplied complete

3 Cell As Per IRS Concrete Bridge Code With Compressor

Specification	Details
Number Of Permeability Cells	3
Specimen Size	200 mm dia. × 120 mm high
Water Reservoir Diameter	50 to 100 mm
Water Reservoir Length	About 500 mm

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Specification	Details
Central Roughened Area	100 mm diameter
Cement Water Paste W/C	0.4
Initial Pressure	1 Bar for 48 hours
Second Pressure	3 Bar for 24 hours
Final Pressure	7 Bar for 24 hours
Maximum Permissible Water Penetration	25 mm
Overall Dimensions	850 × 300 × 900 (L × W × D) mm
Net Weight	95 kg
Air Compressor	Used for pressure application

Standards

- IS 516 (Part 2/Sec1): 2018
- BS EN 12390 (Part-8)
- ISO 1920-5:2004
- ASTM C642
- DIN 1048-5
- ISO 7031
- UNI 9533
- IRS Concrete Bridge Code: 1997 (Appendix-G)

Additional Included / Consumable Items

Item	Details
Air Compressor	Supplied with applicable variants
High Pressure Air Compressor	3 HP with 50 Litre Tank for 3 Cell Up To 15 Kg Pressure variant
Sealing Compound	Wax and resin available at extra cost for IRS variant

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