

PRODUCT DATA SHEET

L-Box Apparatus

L-Box Apparatus – GI Steel with Sliding Gate and Reinforcing Bars

Test Equipment for Flowability, Passing Ability and Segregation Resistance of Self-Compacting Concrete (SCC)



GENERAL INFORMATION

Parameter	Details
Equipment Name	L-Box Apparatus
Full Form	L-Box Test Apparatus for Self-Compacting Concrete
Application	Determination of flowability, passing ability and segregation resistance of Self-Compacting Concrete (SCC)
Test Material	Self-Compacting Concrete (SCC)
Construction	GI steel L-shaped box with sliding gate and removable reinforcing bar set
Gate Type	Sliding gate between vertical and horizontal sections
Standards Compliance	EFNARC Guidelines, EN 12350-10

EQUIPMENT DESCRIPTION

The L-Box Apparatus is a test equipment used to determine the flowability, passing ability and segregation resistance of Self-Compacting Concrete (SCC). The vertical section is filled with fresh SCC and the sliding gate is lifted, allowing the concrete to flow through the reinforcing bars into the horizontal section. The height of concrete at the end of the horizontal section (H_2) is compared with the height in the vertical section (H_1) to give the L-Box ratio, indicating how well the mix passes through congested reinforcement without blocking or segregating.

MAIN COMPONENTS

1. Vertical Section (Filling Hopper):

- GI steel section, 200 mm × 100 mm × 700 mm, into which SCC is filled
- Smooth internal surface for consistent flow
- Rigid construction to prevent distortion during testing

2. Horizontal Section (Flow Channel):

- GI steel section, 200 mm × 100 mm × 700 mm, through which SCC flows
- Provides the flow path for measuring the final concrete height (H_2)

3. Sliding Gate:

- Separates the vertical and horizontal sections during filling
- Lifts vertically to release the concrete for the flow test

4. Reinforcing Bar Set:

- 3 bars of 12 mm diameter fitted at the gate opening
- Clear spacing of 41 mm ± 1 mm to simulate congested reinforcement

TECHNICAL SPECIFICATIONS

Parameter	Specification
Standard	EFNARC Guidelines, EN 12350-10
Material	GI Steel
Vertical Section Dimensions	200 mm × 100 mm × 700 mm
Horizontal Section Dimensions	200 mm × 100 mm × 700 mm
Height of Vertical Section	700 mm
Gate Type	Sliding Gate
Reinforcing Bars Diameter	12 mm
Number of Bars	3 Bars
Clear Spacing Between Bars	41 mm ± 1 mm
Measurement Accuracy	1 mm
Test Material	Self-Compacting Concrete (SCC)
Test Result	L-Box Ratio (H_2/H_1)
Acceptance Range	0.80 – 1.00

TEST PROCEDURE (SUMMARY)

1. Place the apparatus on a firm, level surface and close the sliding gate.
2. Fill the vertical section with fresh SCC without vibration or tamping.
3. Allow the concrete to rest for the period specified in the standard.
4. Lift the gate and let the concrete flow through the bars into the horizontal section.
5. Once flow stops, measure the heights H_1 (vertical section) and H_2 (end of horizontal section).
6. Calculate the L-Box ratio H_2/H_1 and compare it with the acceptance range.

SAFETY & QUALITY FEATURES

- Rigid GI steel construction for stability and dimensional accuracy
- Smooth, deburred edges to protect the operator
- Corrosion-resistant GI material suitable for wet laboratory use
- Precisely spaced reinforcing bars for repeatable passing-ability results
- Smooth-operating sliding gate for controlled release of concrete
- Measurement accuracy of 1 mm for reliable readings

OPERATING FEATURES

- Simple operation with a single sliding gate
- Suitable for laboratory and on-site SCC quality control
- Easy to clean after use and low maintenance
- Repeatable results in line with EFNARC and EN 12350-10

ENVIRONMENTAL SPECIFICATIONS

Parameter	Range
Operating Temperature	5°C – 50°C
Relative Humidity	Suitable for wet and humid laboratory conditions
Installation / Use Location	Laboratory, precast yard and site testing areas

APPLICATION AREAS

- Concrete testing and quality control laboratories
- Construction material research facilities
- Ready-mix and precast concrete plants
- Highway, bridge and infrastructure project sites
- University and research institutions
- SCC mix design and trial mix evaluation

MAINTENANCE SCHEDULE

Daily Maintenance: Clean the apparatus immediately after use, remove all concrete residue, check gate movement and bar condition

Monthly Maintenance: Inspect welds, bars and gate guides for wear or damage, check bar spacing ($41 \text{ mm} \pm 1 \text{ mm}$), lightly lubricate gate guides

Yearly Maintenance: Complete dimensional and structural inspection, verify calibration of dimensions, repair or replace damaged parts

WARRANTY

Warranty Period: 12 Months (1 Year) from date of installation or invoice