

# MasterBrace® 1441

Epoxy bonding adhesive for segmental construction and old to old concrete bonding

## DESCRIPTION

**MasterBrace 1441** is an epoxy bonding system consisting of two parts that are distinctly coloured to facilitate proper mixing - a white coloured Part 'A' and a black coloured Part 'B',

## RECOMMENDED USES

**MasterBrace 1441** is recommended for bonding two rigid elements exposed to sustained loads especially at the bond line, such as:

- Bonding precast segments in bridges & viaducts.
- Bonding external steel reinforcing plates for strengthening beams, columns and slabs.
- Bonding external Carbon laminates for strengthening beams, columns and slabs.
- Anchoring bolts, dowels, steel bars in concrete.
- Bonding the ends of concrete or metal pipes used to transport water or sewage.

## FEATURES AND BENEFITS

**Structural adhesive** - Effective transfer of stresses at bond interface.

**No creep** - even at high service temperatures and under constant load.

**Seals** - Provides watertight seal to the joint

**Non sag**- No loss of bond due to sagging of bond film.

**High bond strengths** - Good bond to damp surfaces

**Long open time even as high temperatures** - Sufficient open time for alignment and bonding of elements.

**Excellent squeeze ability** - for effective spread & contact

## PROPERTIES

Supply form, (Part A & B both)	Viscous paste
Colour	Part A : White Part B : Black Mixed : Grey
Mixing Ratio, by weight (A:B)	62:38
Mixed Density,	1.75 kg/litre
Pot life at 20°C	> 1 hour
Pot life at 30°C	50 minute
Pot life at 40°C	30 minute
Pot life at 60°C	20 minute
Min. open time.	60 Mins @ 40°C
Min. application temperature	26°C
Surface temperature for application	25-40°C
Squeeze ability (FIP 5.4)	Exceeds requirement
Initial cure	1 day

Full Cure time	5 days
Compressive strength, 1 Day	>60 MPa
Compressive strength, 7 Days	> 75 MPa
Tensile bending strength (FIP 5.14)	Concrete Failure
Slant shear bond strength, 7 days	13 MPa

## STANDARDS

**MasterBrace 1441** meets the FIP specifications of epoxy adhesive for segmental bridge construction in all respects

## APPLICATION

### Surface preparation

Correct substrate preparation is critical for optimum performance. Surfaces should be structurally sound, clean, and free from loose particles, oil, grease, or any other contaminants.

Remove oil grease and wax contaminants by scrubbing with industrial grade detergent or degreasing compounds followed by mechanical cleaning.

Remove cement laitence, loose particles, mould release agent, curing membrane, and other contaminants from the surface by wet grit blasting, high pressure water jetting (approximately 150 bars) or such other effective methods. For smoothening deep surface irregularities, use **MasterProtect 1890**. Ensure to check the segments to be bonded for good alignment. A mock-up is ideal before first actual application to fix the open time required.

### Mixing

Mechanical mixing is necessary. A slow speed (300 -600 rpm) drill with a mixing stirrer is recommended.

Mix the entire contents of both Part A and Part B containers together to avoid batching errors. Ensure to scrape down the sides of the container. However, if part mixing is necessary, stir each component individually and then measure out precisely each component in the proper ratio into a clean, dry pail for subsequent mixing. Ensure that the remaining contents of each container are not contaminated.

Mix Part A and Part B together until the streaks of Black and White disappear to yield a homogenous Grey mix. Prepare both the surfaces that are to be bonded on the above lines.

### Placing

If the surface has been treated with fairing coat as described above, allow the fairing coat to set and within 24 hours apply **MasterBrace 1441** on one

# MasterBrace<sup>®</sup> 1441

of the two surfaces being bonded.

Apply **MasterBrace 1441** within its pot life to a thickness of 1 mm to 3 mm using a trowel, so as to allow for a small quantity of the bonding material to extrude out of the bond line when pressure is applied to bond the two surfaces.

The prepared surfaces of the two rigid elements to be bonded should be brought together within the open time of the product and retained in position until **MasterBrace 1441** cures.

## ESTIMATING DATA

**MasterBrace 1441** Material requirement is 1 litre/m<sup>2</sup> per mm thickness.

Each pack of 6 Kg / 9 Kg shall be able to cover 3.25 m<sup>2</sup> / 4.8 m<sup>2</sup> area at 1mm average thickness.

## PACKAGING

**MasterBrace 1441** is available in 6 kg / 9 Kg pack.

## SHELF LIFE

**MasterBrace 1441** Store under cover, out of direct sunlight and protect from extremes of temperature.

In tropical climates the product must be stored in an air-conditioned environment.

Shelf life is 12 months when stored as above.

## PRECAUTIONS

It is highly recommended to use necessary PPE (Gloves, mask etc.) during installation of the product. In case of Incidents of direct inhalation, causing dizziness/giddiness, loss of consciousness, contact with eyes etc, seek immediate medical advice. The requirements may vary depending on the application areas. Please ensure to have proper ventilation while working in confined areas. Contact Master Builders Solutions representative in case you need further details or refer to the material safety datasheet of the product to know more.

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