

MasterRoc[®] STS 20S

Premixed, high build, shotcrete mortar

DESCRIPTION

MasterRoc STS 20S is a ready to use, cementitious powder, which on mixing with the specified quantity of water yields a sprayable high build mortar for dry and wet shotcrete application in civil and mining projects

RECOMMENDED USES

MasterRoc STS 20S is recommended for situations requiring spray application of mortar to a thickness of 10 - 100 mm in a single layer, for repairs and protection. Applications include;

- repairs to the underside of bridge decks, piers, and beams, tunnels and culverts.
- Tunnel linings
- repairs to sewer pipes, drains, water towers, etc.
- slope stabilization.
- Fireproofing and protection to steelworks.
- Structural shotcrete combine with mesh or fibers

FEATURES AND BENEFITS

Higher build per pass	Considerable savings in time and labour when building up thick sec- tions.		
Prepacked, pre- for- mulated	No batching errors. Con- sistency in performance		
Reduced rebound	Minimised wastage.		
High strength	Stronger repair		

TYPICAL PERFORMANCE DATA

	Strength (N/mm ²)		
	1 Day	28 Days	
Compressive (ASTMC109)	20.0	50.0	
Flexural (ASTM C348)	2.0	6.0	
	Plair	n Mortar	
Permeability, m/sec (Taywood method)	4.10	x10 ⁻¹³	
Volume of permeable core C642)	11.3		
Water absorption, %	5.2		
(ASTM C642 procedure A)			

APPLICATION

Substrate condition

The substrate must be clean and free from surface contaminants such as moss and fungus growth, curing membrane, rust, sludge, dirt and loose particles. Use scabbling, wire brushing and water blasting with compressed air through the shotcrete nozzle, to clean the surface.

If the application is for replacing damaged concrete, first saw cut the boundary of the damaged area, perpendicular to the surface, to at least 10 mm depth and hack out the area to at least 40 mm depth, before cleaning the surface.

Where required, cut back concrete to at least 25 mm behind the rebars. Remove all corrosion products from the rebars by grit blasting or other suitable technique. Replace the affected part of rebar if the diameter after grit blasting is found to be reduced by more than 20% of the original diameter.

Note : It is recommended that the decision on replacement of rebars is taken based on the advice of the structural engineer responsible for the works.

In a chloride laden environment, the rebars are recommended to be coated with zinc rich primer. Saturate the surface thoroughly with clean water before applying the mortar.

Mixing

Dry process : Introduce both the powder and water at the nozzle for mixing.

Wet process : Premix the powder and water, then pump the mixture to the nozzle.

Water requirement (per 20 kg)

Consistency	Min.	Max.
Sprayable	10% (2.	0 L)15% (3.0 L)

Placing

On primed surfaces start placing after the primer reaches a tacky state.

MasterRoc STS 20S has been formulated for placing by spray to thickness ranging from 10 mm to 100 mm in one pass of the nozzle, both by wet and dry processes.

Spray the mortar using a gear pump for mixing and spraying of ready mixed mortars for wet spraying or a shotcreting machine for processing dry-mix shotcrete for dry spraying. For satisfactory results, an experienced operator in sprayed concrete is essential.

The maximum thickness per pass is also dependent on the surface conditions of the substrate, skill of the nozzleman and the orientation of the treated surface - verti

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cal, inclined or overhead.

Smooth the final surface by a wooden, plastic, or synthetic sponge faced trowel. Start trowelling only after the mortar has set sufficiently hard to resist penetration by fingers.

CURING

Immediately after final finishing, start (preferably) 3 - 5 days of wet-curing, then cure with a uniform coat of a membrane curing compound such as MasterKure series

EQUIPMENT

Wet process : gear pump for mixing and spraying of ready mixed mortars.

Dry process : shotcreting machine for processing drymix shotcrete.

CLEANING OF TOOLS

Clean tools and equipment with water, before the mortar hardens.

ESTIMATING DATA

A 20 kg bag of **MasterRoc STS 20S** mixed with 2.60 L of water (or with 2.60 L of a 1:1 solution of Barra Emulsion AC in water) yields 9.920 litres (0.009920 m3).

Therefore, material requirement on a smooth and flat surface is 20.16 kg/m2 at 10 mm thickness excluding

rebound losses and allowance for 'cut off'.

Actual consumption depends up on the surface profile and rebound loss. The loss from rebound depends on the experience of the nozzle man, the orientation of the surface and the surface texture. Excluding any allowance for 'cut off', it is recommended that a minimum of 10% allowance for rebound be made for vertical and inclined surfaces and 50% for overhead surfaces.

PACKAGING

20 kg, multi-ply paper sacks with polythene liner.

SHELF LIFE

MasterRoc STS 20S can be stored in unopened original bags for 12 months, if kept dry and at even temperature.

PRECAUTIONS

Health : MasterRoc STS 20S is alkaline like normal cement and can cause skin irritations to persons with sensitive skin. Wear gloves and masks while handling the product. Take all precautions normally taken while handling cement.

Safety: Take adequate safety measures during spraying. Consult the supplier of the spraying machine. **Fire : MasterRoc STS 20S** is not flammable.

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