Plast Roc TG

Uses
Plastroc TG is suitable for wide range of concrete and masonry repairs, particularly in vertical and overhead locations without the Use of formwork. The mortar is formulated for use in hot climates and suitable for all types of patch repair and for use on large areas as a render.

Advantages
High build achievable without form work-saving time and expense of multiple applications. Formulated for use in hot climates. Can be applied by the wet or dry spray process for fast, exceptionally high build repairs with enhanced characteristics.
Low permeability provides good protection against carbon dioxide and chlorides.
Excellent bond to the concrete substrate.
Shrinkage compensated. Contain no chloride admixtures.

Description
Plastroc TG is supplied as ready to use blend of dry powders which requires only the site addition of clean water to produce a highly consistent, medium-weight repair mortar for general purpose concrete and masonry repairs. The material is based on Portland cement, graded aggregates, special fillers and chemical additives, modified by anti-desiccation additives, to provide a mortar suitable for use in hot climates. It maintains good handling characteristics while minimising water demand. The product exhibits excellent thermal compatibility with concrete and good water repellent properties. The low water requirement ensures fast strength gain and long-term durability.

Design criteria
Plastroc TG is designed for vertical, overhead or horizontal use without the use of formwork. It can be applied up to 20 mm thickness in large sections overhead and up to 50 mm thickness in large vertical sections. Up to 100 mm thickness can be achieved in small pockets or by the use of formwork. In horizontal locations, Plastroc TG can be applied up to 100 mm. Thicker sections can be built up in layers using a wet-on-wet technique. The material should not be applied at less than 10 mm thickness. Thicknesses greater than 20 mm overhead and 50 mm vertically in large areas can be achieved by spray application.

Properties
The Following typical results were obtained @ water/powder ratio of 0.18
Compressive strength (BS 4550, Pt Section 3.4: 1978) at 20°C
13 to 15 N/mm^2 at 3 days
28 to 30 N/mm^2 at 28 days
Slant shear bond strength to concrete
(BS 6319 Pt 4: 1984): 25 N/mm^2 @ 28 days
Coefficient of thermal expansion 7 to 12x10 $^{-6}$/°C
Setting time (BS 5075):

Initial	2-3 hours
Final set	4 to 6 hours

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Fresh wet density 1750 kg/m3
Chemical resistance
The low permeability of Plastroc TG retards chemical attack in aggressive environments. The cured mortar is resistant to acid gases, chloride ions, oxygen and water.

Application instructions
Preparation
Saw cut or back the extremities of the repair locations to depth of at least 10 mm to avoid feather-edging and to provide a square edge. Break
out the complete repair area to a minimum depth of 10 mm up to the swan edge. Clean the surface and remover any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits
or algae. Where breaking out is not required, i.e. where concrete is sound and of good quality but cover is to be increased, roughen the surface and remover any laitance by light scrabbling or Grit-blasting.
It will still be necessary to cut back the perimeter to a depth of 10 mm so that the repair patch may be "toed-in" and finished flush with the surrounding concrete.
Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a bull-off test. Expose full any corroded steel in the repair area and remove all loose scale and corrosion deposits.
Steel should be cleaned to a bright condition baying particular attention to the back of exposed steel bars. Grit-blasting is recommended for this process. Where corrosion has occurred during to the presence of chlorides, the steel be high-pressure washed with clean water immediately after grit- blasting to remove corrosion products from pits and imperfections within its surface.

Reinforcing steel priming
Apply on full coat of Techno Epoxy zinc Prime and allow to dry before continuing. If any doubt exists about having achieved an unbroken coating a second application should be made and again, allowed to dry before continuing.

Substrate priming
The substrate should be thoroughly soaked with clean water and any excess removed prior to applying one coat of Techno Bond Lx primer. The primer should be scrubbed well into the surface. Plastroc TG can be applied as soon as the Primer becomes tacky. If the Techno bond Lx primer is too wet, vertical and overhead build up of the Plastroc TG mortar may be difficult. In exceptional circumstances, e.g. where a substrate/ repair barrier is required or where the substrate is wet or likely to remain permanently damp, Techno bond EP epoxy bonding agent should be used.

Mixing
Care should be taken to ensure that Plastroc TG is thoroughly mixed.
A forced-action mixer is essential. Mixing in a suitably sized drum using approved spiral paddle with a slow speed) 400/500 RPM(heavy-duty drill is acceptable for single bag mixes. Free-fall mixers must not be used. Mixing of part bags should never be attempted. For normal applications, place 4.0 to 5.0

liters of drinking quality water into the mixer and with the machine in operation, add one full 25 kg bag of Plastroc TG and mix for3 to 5 minutes until fully homogeneous.
Note that powder must always be added to water. The amount of water required may vary slightly but should not exceed 5.0 litres per 25 kg bag of Plastroc TG
Note that the temperature of the mixed mortar should not exceed 30ºC.

Application
Exposed steel reinforcing bars should be firmly secured to avoid movement during the application process as this will affect mortar compaction, build and bond. Apply the mixed Plastroc TG to the prepared substrate by gloved hand or trowel. Thoroughly compact the mortar on to the primed substrate and around exposed reinforcement. Plastroc TG can be applied up to 20 mm thickness in large section overhead, 50 mm thickness in large vertical sections but up to 100 mm thickness in smaller pockets or with the use of formwork. If formwork is used, it should have properly sealed faces to ensure that no water is absorbed from the repair material. In horizontal locations. Plastroc TG should be completely removed and reapplied at a reduced thickness on to the correctly reprimed substrate. Note: the minimum applied thickness of Plastroc TG is 10 mm.
Build-up Additional build-up can be achieved by a wet-on-wet application technique or the application of multiple layers. The final thickness is dependent on the material consistency and substrate profile.
Where multiple layers will by hand or trowel, the surface of the intermediate layers should be scratch-keyed and cured with Techno bond Lx. repriming with Techno bond Lx and a further application of Plastroc TG may proceed as soon as this layer has set.

Spray application
Plastroc TG can be applied by the wet or dry spray techniques. In circumstances where large areas of repair are required, the rapid placement and higher build attainable by these methods offer economic advantages over hand-trowelling. The resultant repair also offers a over hand-trowelling. The resultant repair also offers a generally denser compound with greatly enhanced mortar/ substrate bond characteristics. For further details on the wet and dry spray techniques, including selection of spraying machines and nozzles, consult M.T.C. et or Dry spray Application Guides or the local M.T.C. office.

Finishing
Plastroc TG is finished with a straight edge and closing with a steel float. Wooden or plastic floats or damp sponges may be achieving the desired surface texture. The completed surface should not be overworked. Low temperature working although formulated for use in hot climates, Plastroc TG can be used in more moderate locations. In cold conditions down to 5°C. The use of warm water (up to 30ºC) is advisable to accelerate strength development. Normal precautions for winter working with cementitious materials should not be applied when the substrate and/or air temperature is 5 °C and Falling. At 5°C and rising, the application may proceed. High temperature working At ambient temperatures above 35ºC, the material should be stored in the shade and cool water used for mixing. Note that the

temperature of the mixed mortar should not exceed 30°C.

Curing

Plastroc TG is a cement-based repair mortar. In common with all cementitious materials, Plastroc TG must be cured immediately after finishing in accordance with good concrete practice. The use of Techno bond Lx, sprayed on to the surface of the Finished Plastroc TG in a continuous film is recommended. Large areas should be cured as trowelling progresses (5.0m^2 at a time) without waiting for completion of the entire area. At ambient temperatures above 30°C. Supplementary curing with polythene sheeting taped down at the edges must be used. If used in cold conditions, the finished repair must be protected from freezing.

Over coating with protective decorative finishes Plastroc TG is extremely durable and will provide excellent protection to the embedded steel reinforcement within the repaired locations. The surrounding parts of the structure will generally benefit from the application of a barrier/decorative coating to limit the advance of chlorides and carbon dioxide, thus bringing them up to the same protective as the repair itself. M.T.C. recommends the use of the Techno guard range of protective, anti-chloride and anti-carbonation coatings.

These products provide a decorative and uniform appearance as well as protecting areas of the structure which might otherwise be at risk from the environment. Techno guard products may be applied over the repair area without prior removal of the Techno bond Lx curing membrane. Other curing membranes must be removed prior to the application of Techno guard products.

Limitations

Plastroc TG should not be used when the temperature is below 5 °C and falling. Do not mix part bags. The product should not be exposed to moving water during application. Exposure to heavy rainfall prior to that set may result in surface scour. The product should not be applied in windy conditions as rapid surface drying will occur and may results in surface crazing or cracking of the repair. If any doubts arise concerning temperature, application of substrate conditions, consult the local M.T.C. office.

Supply

Plast Roc TG	25 kg bags
Techno Epoxy zinc Prime	1 and 5 kg cans
Techno Bond Lx	4 and 20 liter
Techno bond EP	1and 4.5 kg packs
Techno solvent 102:	4 liters cans

Coverage and yield

Plastroc TG Approximately 16 litres/25 kg bag(1.6 m2 at 10 mm thickness)
Techno Epoxy zinc Prime: 3.7 m^2 / kg on flat smooth surface
Techno Bond Lx: 6 to 8 m^2 / liter
Techno bond EP: 4 m^2 / kg

Storage

All products have a shelf life of 12 months if kept in a dry store in the original, unopened bags or packs.