

Technical Information Sheet  
Article No. 0748-0769 and 0789

# Restoration Mortar

Ready-to-use, factory-mixed, dry mortar.  
Pure cementitious based binders and aggregates.

## Range of use

Remmers Restoration Mortar is excellently suited for true to the original re-profiling of weathered sandstone and for the reproduction of ornamental building elements, figures, baluster, etc. in a casting procedure. Restoration Mortar can also be used for the reconstruction of bricks. With the aid of a stone sample, the different variations in colour and granulation of sandstone normally found in practice can be formulated by the producer without significant deviation. By using various working techniques as well as mortar consistency, facing and pulled concrete work can be executed with Restoration Mortar.

It can also be used for joint work. If small joints are to be closed, we recommend the use of a compressed air gun, Type SVV. When worked by machine, 12 ml Remmers Liquid Air Entraining Agent per 30 kg dry mortar should be added.

## Property profile

Restoration Mortar is a ready-to-use, factory-mixed, dry mortar made of pure cementitious raw materials (binder and aggregates). Its physical characteristics

## Characteristic data of the product in the packaged state

Bulk density:	approx. 1.7 kg/litre	
Compressive strength:		
RM normal (n):	after 28 days	< 13 N/mm <sup>2</sup>
RM soft (w):	after 28 days	< 8 N/mm <sup>2</sup>
Adhesive tensile strength:	after 28 days	> 1 N/mm <sup>2</sup>
E-modulus in conformity with DIN 1048 (n/s):	E ≈ 15 * 10 <sup>3</sup> N/mm <sup>2</sup> / E ≈ 9* 10 <sup>3</sup> N/mm <sup>2</sup>	
Shrinkage deformation DIN 52450:	after 7 days	approx. - 0.3 mm/m
	after 28 days	approx. - 0.7 mm/m
Colours:	0750 white 0751 ochre 0752 reddish brown 0753 turquoise grey 0754 Baumberg sandstone 0755 yellowish green 0756 antique white 0757 brick red 0758 light beige 0759 anthracite 0760 marl 0761 light yellow 0762 mottled sandstone 0763 brick orange 0764 cream 0765 grey 0766 light grey 0769 special colours	

correspond to the requirement for the lowest possible inherent stress and a compressive and adhesional/tensile strength coordinated to the natural stone substrate. Because of its good

plasticity, Restoration Mortar is very suitable for making reproductions in a casting procedure. The grains of the aggregates essentially correspond to those of fine-grained sandstone.

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## Working

Prerequisite for the application of Restoration Mortar is a sound and load-bearing capable substrate (balanced strength profile). This can be reached by stone masonry preparation or consolidating conservation, in case of need in combination with a treatment with Remmers Antihydro.

### Preparation by a restorer:

For historically valuable surfaces which risk to loose their surface characteristics if the substrate is prepared by stone-masonry works, strengthening of the natural stone, if necessary in the substrate preparation process, should be done using the Remmers Silicic Acid Ester System. The exact working process has to be determined specifically in relation to the object to be restored.

### Stone-masonry preparation:

The areas to be repaired with Restoration Mortar should be cut out at a right angle with a chisel or fly-wheel cutter. The damaged, weathered areas should be scabbled out down to sound substrate. Edge areas should never taper off to zero.

Supporting reinforcement in the form of star dowels or stainless steel should only be carried out on strongly cantilevered building elements such as cornices, etc. These are anchored with plastic dowels or thickened Remmers Epoxy BH 100.

### Applying Restoration Mortar:

Before applying the restoration mortar, especially on deeper defective areas, one or multiple-layered core reconstruction with Priming Mortar is necessary. The areas to be repaired should be blown off with compressed air, thoroughly pre-wet and grouted with Restoration Mortar in a thin consistency (approx. 1 litre water to 5 kg mortar). Restoration Mortar in a plastic consistency (approx. 750 ml water to 5 kg mortar) is immediately applied to the freshly grouted area, 1-2 mm higher than the surrounding stone. Joints in the

masonry should be maintained. The lightly set Restoration Mortar is then levelled with a foam rubber float or suitable wooden tool and after 3-4 hours (after initial setting), the surface is adjusted to the original stone surface by stone dressing. Experience has shown that Restoration Mortar layers greater than a max. of 3 cm should not be applied.

Application of thin layer coats in edge areas of defects can be made easier if Adhesive Emulsion is added to the mixing water (mix ratio 1 : 4), however, this will cause a slight delay of the hardening process. The adhesive strength value will be increased.

## Working procedure

### Restoration sequence with Priming Mortar and Restoration Mortar.

1. Mark off the defective areas at right angles using a hard pencil or diamond cutter.
2. Cut the defective areas out at a right angle approx. 0.3 cm deep.
3. Chase out all loose and friable parts of the whole area. In case of deeper defective areas or on strongly cantilevered building elements:
4. Drill holes approx. 8 mm in defective areas deeper than 3 cm, also on the undersides and drip moulds of cornices and projections in squares of 5-8 cm.
5. Insert plastic dowels into the holes (blow out first).
6. Screw corrosion resistant wood screws into the dowels. Distance from the substrate approx. 1 – 1.5 cm. (Brass screws are not corrosion resistant. We recommend V 4A screws size 5/50 or 5/60.) When using star dowels, items 5 and 6 do not apply.
7. Clean the dusty substrate thoroughly using a high pressure cleaner.
8. Pre-wet the defective areas.
9. Grout immediately with thin-plastic Priming Mortar.
10. Apply thick-plastic Priming Mortar to the freshly grouted areas, however, do not apply more than 2 cm in one application within 24 hours. Keep joints as they are. For multiple-layered construction, roughen after the first layer has thoroughly dried and moisten. Apply another layer of thin-plastic Priming Mortar, then, while fresh, apply the second layer of thick-plastic Priming Mortar.
11. After approx. 2-6 hours, depending on weather conditions after application but after initial setting, scrape the Priming Mortar surface or the profile down until it is at least 3-5 mm below the final surface.
12. After 24 hours, moisten the filled-in areas.
13. Grout with thin-plastic Restoration Mortar.
14. Apply thick-plastic Restoration Mortar (as with the Priming Mortar described in steps 9-11), however, fill in approx. 1-2 mm above the final surface.
15. Compact the initially set Restoration Mortar with a foam rubber float. Do not use a metal trowel!
16. Carefully level the initially set mortar and press down in the edge zone areas.
17. Adjust the dressing tools to the type of surface dressing needed to match the surrounding stone.
18. After initial setting, depending on weather, dress to match the appearance of the surrounding stone, e.g. with a saw blade with segmented teeth.
19. Sweep off the repaired areas carefully with a soft broom.
20. Remove the remains of grout from edge zone areas between the natural stone and the mortar restoration by washing off or sandblasting with a special gun.
21. Moisten all restored areas several times during the next 14 days.
22. Three to four weeks after the stone replacement measures,

the complete weathered natural stone area including the areas repaired with Priming and Restoration Mortar should be strengthened with KSE 100.

23. Adjust the colour of the restored areas with Silicone Resin Paint LA.
24. Treat with Remmers impregnation agents for long term protection against driving rain and atmospheric pollutants dissolved in water.

#### Notes

Setting should be controlled, especially in warmer weather. Wetting down at least twice a day for the first four days is necessary to prevent the mortar from drying out too quickly. Three to four weeks after the stone replacement measures have been executed, strengthening of all the natural stone with Remmers Stone Strengthener is indicated, including the areas repaired or reconstructed with Restoration Mortar.

Afterward (observe waiting time), the colour can be adjusted with Remmers Silicone Resin or Historic Grout Scumble. Finally, as a preventive stone protection measure, hydrophobic impregnation of the whole object with Funcosil impregnation products should be carried out.

#### Along with the Art. No., each order must state strength and granulation as follows

n	0,5	069
Strength / Grain / Colour		

The colour reference can be given or will be determined at the plant when a sample is sent. Always set up trials!

#### Tools and cleaning

Brush, trowel, filling knife, foam rubber float, scraper, stone mason's tools, high pressure jet, compressor, etc.  
Clean tools and equipment with water while the material is still fresh.

#### Packaging, application rate, shelf-life

**Packaging:**  
30 kg paper bags

**Application rate:**  
Approx. 1.8 kg for 1 litre cavity volume (n) and approx 1.3 (w). The amount required depends on application thickness.

**Shelf-life:**  
At least 1 year stored dry in closed bags.

#### Safety, ecology, disposal

Further information concerning safety during transport, storage and handling as well as for disposal is found in the latest Safety Data Sheet.

The statements above are compiled from our field of production and according to the latest technological developments and application techniques.

Since application and working are beyond our control, no liability of the producer can be derived from the contents of this information sheet. Any statements made beyond the contents of this information must be confirmed in writing by the producer.

In all cases, our general conditions of sale are valid. With the publication of this Technical Information Sheet all previous editions are no longer valid.

0748-0769 and 0789-TI-08.06



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