

## MARBOS Bonding agent for paving bedding mortar

**NBM 4 DC**

Binder for the production of bedding mortars and base layers from approved aggregates for all load classes occurring in pavement construction.



### Application areas:



For the production of high-strength, drainable, mineral mortars for bedding of natural stone paving and concrete blocks (old or new paving) as well as plates both indoors and outdoors.

Drainage screed.

Drain concrete base layers according to ZTV Wegebau (DIN 18316).

Suitable also for highly loaded surfaces (depending on mixing ratio).

Suitable for load classes up to and including Bk 3.2 according to RStO 12.

Suitable for use category N1 to N3 according to ZTV Wegebau.

**N1:** Walkable, surfaces pavements not intended for motor vehicles and comparable uses outside of road traffic areas (e.g. terraces, garden paths, paths in home garden areas, seating areas in parks).

**N2:** Pavements for vehicles up to 3.5 t permissible total weight outside of road traffic areas (e.g. garage entrances, car parking spaces, paths in green areas). Note: not suitable for vehicles with high point loads, e.g. industrial trucks, forklifts, lift trucks, lifting platforms.

**N3:** Trafficable surface pavements like load category 2, but with occasional traffic of vehicles up to 20 t permissible total weight with wheel loads ≤ 5 t outside of road traffic areas (e.g. care, maintenance and rescue routes as well as fire department, garage and building access roads).

Bedding mortar according to FGSV data sheet for surface pavements with paved and slabbed surfaces in bonded application M FPgeb.

- For indoors and outdoors

### Properties:

- Single-component
- Hydraulically hardening
- Plastic-modified
- Trass-modified
- Low shrinkage and low residual stress
- In combination with suitable aggregate: drainable according to DIN 18130-1, Table 1
- High early and final strength
- High frost/ de-icing salt resistance
- Prevents discolorations and efflorescences

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### Material basis:

- Cement - DIN EN 197
- Trass - DIN 51043
- Additives to improve processing properties

### Technical data:

Consistency	Earth-moist
Color	grey
Mixing ratio	See table
Processing temperature	+ 5° C to +30 °C (Air, object and material)
Processing time	ca. 90 minutes
Open time	ca. 30 minutes
Layer thickness	≥ 40 mm For layer thicknesses > 70 mm, intermediate compaction is necessary.
Compressive strength	See table
Bonding bridge to be used	Pflasterbinder PFB GaLaVarioFlex GVF
Capillary absorption behaviour (According to DNV-RL plaster and tile corners: ≤ 5 wt.-%)	approx. 0.8 M-% (mixing ratio 1:5 with grit 2-5 mm)

### Substrate preparation:

The subsoil, subgrade and base course must be suitable for the expected loads and sufficiently permeable to water.

For dense base layers (e.g. concrete), additional drainage (drainage sheet with grid mesh lamination, e.g. Gutjahr Aqua-Drain® EK) with sealing underneath the bedding is required.

In this case, the jointing must be impermeable to water. When used as a drainage screed: For rapid water drainage, use drainage sheets and maintain a minimum slope of 1.5%.

For adhesive bonding, the underside of the covering is fully treated with our bonding bridge and the covering is tapped into the fresh bedding mortar.

An appropriately dimensioned flex strip must be attached to vertical components in order to avoid internal stresses. Movement joints from the substructure must be transferred to the superstructure. Depending on the size and geometry of the surface, movement joints must be included.

### Mixing and application:

25 kg MARBOS Bonding agent for paving bedding mortar NBM 4 DC with 100 - 200 kg aggregate 2/5 or 2/8 mm according to DIN EN 13139, depending on the required strength and intended use (MV 1:8) only for foot traffic.

For large-format plates, the use of aggregate without fines in a mixing ratio of 1:8 (bedding type 2 according to ZTV Wegebau) is recommended. Always process whole containers, by mixing the bag with the specified amount of water to form an earth-moist, lump-free mortar.

Depending on the moisture content of the aggregate, add additional clean, cold tap water until an earth-moist to slightly plastic consistency is achieved.

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**Mixing and application:** Common free-fall mixers, screed mixing and conveying machines or compulsory mixers are suitable for mixing.  
Finished mortar should be applied within 90 minutes.  
Do not add any other additives to the mortar.  
Apply and compact the bedding mortar manually.  
With dimensionally accurate pavement, pull-off gauges can be used to achieve the desired layer thickness.

**Working:** The laying of the top layer as well as the production of a multi-layer bedding is performed fresh in fresh.  
Plate coverings can alternatively also be laid on a sufficiently hardened bedding.  
A suitable adhesive mortar (MARBOS GalaVarioFlex GVF) must then be used as adhesion promoter.  
The joint areas must not be closed by the adhesion promoter. On water impermeable substrates, we recommend a water-impermeable jointing.  
For jointing, we recommend our pavement joint mortars.  
When used as a drainage screed, compact it as a self-supporting layer and pull it off at a slope and apply it in a layer thickness of at least 50 mm.  
The following mixing ratios must be observed:  
25 kg NBM 4 DC with maximum 125 kg aggregate 2/5  
25 kg NBM 4 DC with maximum 100 kg aggregate 2/8.  
Protect from drying out and pollution until installation.

**Post-treatment:** Protect the installed bedding mortar against drying out too quickly by suitable measures, such as damp cloths, bags, etc.

**Material consumption:**

Mixing ratio:

NBM 4 DC	Aggregate - DIN EN 13139		Compressive strength according to 28 d - DIN EN 196-1	ca. consumption NBM 4 DC [kg/m <sup>2</sup> /cm]
	2/5 mm	2/8 mm		
25 kg	100 kg		ca. 40 N/mm <sup>2</sup>	ca. 3,5
25 kg	125 kg		ca. 30 N/mm <sup>2</sup>	ca. 2,9
25 kg	150 kg		ca. 20 N/mm <sup>2</sup>	ca. 2,5
25 kg	200 kg		ca. 12 N/mm <sup>2</sup>	ca. 1,9
25 kg		100 kg	ca. 35 N/mm <sup>2</sup>	ca. 3,9
25 kg		125 kg	ca. 25 N/mm <sup>2</sup>	ca. 3,2
25 kg		150 kg	ca. 18 N/mm <sup>2</sup>	ca. 2,7
25 kg		200 kg	ca. 10 N/mm <sup>2</sup>	ca. 2,1

**Packaging:** • 25 kg paper sack – 42 pieces per pallet

**Storage:** • Protected from weather, cool and dry on wooden racks.  
• Unopened containers if stored properly 12 months from date of manufacture.  
• Low chromate according to directive No. 1907/2006 (REACH) - GISCODE ZP 1.

**Waste management:** Hardened product remainders to be wasted as common rubble under code no. 17 09 04.

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<b>Cleaning:</b>	Immediately clean containers, tools, etc. with water. Cleaning is only possible by mechanical means once the product has hardened.
<b>Safety note:</b>	<ul style="list-style-type: none"> <li>• Keep out of the reach of children.</li> <li>• Additional information: see safety data sheet.</li> </ul>
<b>Note:</b>	<ul style="list-style-type: none"> <li>• The technical data relates to +20 °C and 50 % rel. humidity. Lower temperatures extend the specified values, higher temperatures shorten them.</li> <li>• While the product is setting, protect it against direct sunshine, draughts, frost, driving rain as well as too high (&gt; 30 °C) and too low (&lt; 5 °C) temperatures.</li> <li>• Do not dilute material that is already setting by means of water.</li> <li>• Movement joints from the substrate are to be transferred.</li> <li>• The pavement must be separated from all rigid, penetrating or rising building components such as walls, stairs, foundations, columns and surrounds, etc., by movement joints.</li> <li>• Movement joints must be transferred through the entire pavement structure.</li> <li>• In the case of bedding made of the bedding mortar-binder up to a mixing ratio of 1:8, movement joints within the surface do not necessarily have to be led through the bedding.</li> <li>• For the work to be performed, the relevant recommendations, guidelines, standard and regulations, as well as the generally accepted rules of technology must be observed.</li> <li>• We recommend in particular to observe the following regulations: <b>DIN 18318 VOB</b> - Part C: (ATV) - Paved surfaces and plates, edgings, ZTV-Wegebau "Additional technical contract conditions for the construction of paths and squares outside road traffic areas"</li> <li>• Due to compaction, a slump of ca. 1 cm is to be expected.</li> <li>• In case of doubt, create test surfaces.</li> </ul>
<b>Quality Control:</b>	Subject to continuous internal and external monitoring. Production and WPK are certified according to DIN EN ISO 9001.
<b>Test certificates/ Approvals:</b>	Our products are externally monitored by the Materialprüfungsamt Nordrhein-Westfalen (MPA NRW).

During execution of work the relevant recommendations and guidelines, rules and standards, relevant technical instruction leaflets as well as the acknowledged rules of architecture and engineering have to be regarded. We do not have any influence on different weather/substrate and object conditions. Our written and spoken application/technological recommendations handed out to customers and craftsmen respectively are without obligation and do not constitute any contractual legal relationship and no lateral duty of a sales contract. All indications and recommendations of technical data sheets refer to standard purpose of use. With the publication of this technical instruction sheet, the previous ones lose their validity. This is a translation. Please refer in any case of misunderstanding the relevant German technical data sheet. Ed. 10.04.2024