

BETEC[®] 110 W

High strength grout with strength class C 100/115

Product description

BETEC[®]110 W is a cement based, volume stable grout with high initial and final strength development with final strength class of C100/115 and tested fatigue resistance according to Model Code 2010, and EN 1992-2, part 2 concrete bridges. BETEC[®]110 W stands out by controlled volume expansion and offers maximum durability and applicability.

Advantages

- High surface load capacity guarantees long-term maintenance-free constructions.
- High early- and final strength development to strength class C100/115 for the most durable and reliable structural connections, statically and dynamically load bearing.
- S-N curves according to Model Code 2010 and EN 1992-2, part 2 concrete bridges can be used for design without restrictions.
- Extended workability times and exceptional rheology are ensuring fast, easy, and cost-effective application even with pumps. Compact mortar matrix due to self-compacting and controlled volume expansion.
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- Declaration of performance according to EN 1504 part 6

Certificates

- Declaration of performance according to EN 1504 part 6 / System 2+
- Assessment for fatigue strength according to Model Code 2010 and EN 1992-2, part 2 concrete parts.

Areas of Application

All grouting applications where superior applicability, high performance and durable connections are required:

- Structural connections of onshore wind turbine foundations.
- Segment assembly for concrete wind towers.
- Grouting of heavy machinery and industrial equipment.
- Grouting of bridge bearings and bridge support structures.

Product Properties

Technical Data/Properties ⁽¹⁾

		BETEC® 110
Property	Unit	Value ⁽¹⁾
Grain size	[mm]	0-1
Application thickness	[mm]	5 - 150
Consistency	[-]	High flowable
Flowability	[mm]	≥ 750
Water addition according to required consistency and/ or temperature conditions	[l /25 kg]	2.6
Workability time	[min]	ca. 90
Application temperature (Powder, water, and environment)	[° C]	+5 to +35
Shrinkage (91 days)	[%]	≤ 0.6
Expansion	[Vol-%]	≥ 0,1
Fresh mortar density	[kg/dm ³]	ca. 2.34
Yield (25kg bag)	[dm ³]	ca. 11.8
Calculation quantity	[kg/m ³]	2100
Strength development ⁽⁴⁾	[-]	fast
Compressive strength ⁽²⁾⁽³⁾	[MPa]	
- 24 h		≥ 90
- 7 d		≥ 115
- 28 d		≥ 145
Compressive strength class	[-]	C 100/115
Modulus of elasticity	[MPa]	ca. 45.400
Exposure classes ⁽⁴⁾	[-]	X0, XC1-XC4, XD1-XD3, XS1-XS3, XA1, XF1-XF3
Moisture classes ⁽⁴⁾	[-]	WO,WF,WA
Shelf life	12 months To be stored in dry and frost-free conditions in originally sealed packaging.	
Packaging	Bags of 25 kg with plastic liner. 40 bags per pallet (1000 kg)	
Appearance	Grey powder	

- (1) Typical values in production control. All tests were executed under conditioned temperature of 21 °C and 65% RH.
- (2) The illustrated compressive strengths are measured with 100 mm cubes.
- (3) At +5 °C material and ambient temperatures the grout achieves ≥ 10 MPa after 24 hours.
- (4) According to EN 206-1:2001 in combination with DIN 1045-2

Application

1. Preparation of Substrate

- Substrate preparation has to be according EN 1504-10 part 7.
- The substrate has to be free from dirt, grease, laitance, loose concrete, loose particles or layers which could adversely affect adhesion.
- Remove all damaged concrete and prepare substrate by sand or grid blasting, high pressure water jetting, or other methods until base concrete is exposed, offering sufficient roughness (bond) and open pores.
- The substrate must be pre-wetted with clean water until saturated. The substrate should be damp, but without free standing water.
- The substrate must be frost-free and have a cohesion of minimum 1.5 MPa.
- Manual

2. Mixing

- **Mechanical**
- It is advised to mix the product by mechanical force-action mixers.
- Add the total required quantity of water into the mixer, add the powder and mix for 5 minutes until a lump-free, homogeneous mixture is obtained.
- Recommendations can be made for the selection of a suitable forced action mixer and feed pump.
- Mixing pumps (continuous mixers) are not recommended for mixing the product but can be used as a feed pump.
- **Manual**
- The product has to be mixed using a suitable manual forced action mixer (400-600 rpm) (two-paddle mixers recommended). The mixing head must be completely immersed in the powder.
- Add the total required quantity of water into the mixer, add the powder and mix for 5 minutes until a lump-free, homogeneous mixture is obtained. Never use more than the maximum water quantity.
- The mixture must be allowed to rest to release air entrapped during mixing.
- Once the grout has deaired, apply immediately. Do not prepare more material than can be used within the open time of the material.
- When the grout starts to set, remix for 1 minute but never add more water.

3. Application

- The material is always poured or pumped from one side or corner in one continuous application. A dense and non-absorbent formwork is necessary. To prevent air entrapment, sufficient ventilation holes must be provided.
- Do not vibrate.

4. Curing

- After treatment according to EN 13670.
- In warm or windy conditions protect the applied material from dehydration by mist-spraying with clean water or protective tarpaulins until the initial set has taken place.
- In cold conditions cover with insulated tarpaulin, polystyrene, or other insulating material. Protect surfaces against frost and rain until final set has taken place.
- In cold, humid, or unventilated areas it can be necessary to allow for a longer curing period, or to introduce forced air movement to avoid condensation. Never use dehumidifiers during the curing period or within 28 days after application.
- Formwork should not be removed for at least 48 hours.
- The after-treatment should be at least 5 days.
- The after-treatment should take place as soon as possible, at the latest when the material surface starts to set.
- As an alternative to the conventional treatment methods, suitable curing agents can be used to prevent rapid water loss.

5. Cleaning and maintenance

- Mixing and application equipment should be cleaned immediately with clean water. Hardened material needs to be removed mechanically.

6. Special remarks

- Cementitious materials can lead to incompatibilities under certain conditions in combination with nonferrous metals (such as aluminium, copper, zinc).
- Low temperatures reduce flow and delay the early strength development. High temperatures accelerate the strength development and decrease the open time of the material.
- Depending on geometry and application thickness, reinforcement steel can be necessary.
- Lateral grouting overhang should be kept as low as possible (approx. 20–50mm).

Health and Safety

BETEC®110 W is a product based on cement and can therefore cause burns to skin and eyes, which should be protected during use. Wear gloves and protective eye shields. Wearing a dust mask is advised. Treat splashes to eyes and skin immediately with clean water. Consult a doctor when irritation continues. If accidentally ingested, drink water and consult a doctor. Users must comply with all risk and safety phrases. MSDS's can be obtained from GCP Applied Technologies or from our website. GISCODE ZP1.

CE Certificate :



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