



DECLARATION OF PERFORMANCE

In accordance with Construction Products Regulation No. 305/2011

DoP N°22/0468

Unique identification code of the product-type:

BCR E-PLUS

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

BCR + contenuto in ml + E-PLUS. Esempio BCR 585 E-PLUS

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

| | | | | | | | | | | | | |
|--|-----|--|----------|-----------|------|------|------|------|-----------|------|------|------|
| Generic type and use | | Chemical anchor for post-installed connections of rebars | | | | | | | | | | |
| Size covered | | Ø8 | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø22 | Ø24 a Ø26 | Ø28 | Ø30 | Ø32 |
| lv [mm] | min | according to EN 1992-1-1 and EAD330087-01-0601 | | | | | | | | | | |
| | max | 250*-700 | 250*-900 | 250*-1100 | 1300 | 1400 | 1800 | 2000 | 2200 | 2500 | 2500 | 2500 |
| | | * Valid lengths for drilling with reduced diameter | | | | | | | | | | |
| Base material and strength class | | Normal weight concrete of a minimum grade C12/15 and maximum grade C50/60 according to EN 206-1. | | | | | | | | | | |
| Base material condition | | Cracked and non-cracked concrete. | | | | | | | | | | |
| Anchor metal material and corresponding environmental exposure | | Straight reinforced bars category B or C according to Annex C of EN 199-1-1 table C1 and C2N. Exposure category from X0 to XA according to EN 206-1. | | | | | | | | | | |
| Type of loading | | Static or quasi static load, seismic and fire resistance | | | | | | | | | | |
| Service temperature range | | -40°C to +80°C (max. short term temperature +80°C and max. long term temperature +50°C). | | | | | | | | | | |
| Use category | | Dry and wet concrete, not flooded hole. Non-carbonated concrete with the allowable chloride content of 0,40% (Cl 0,40) related to the cement content according to EN 206-1. Overhead installation is allowed. Perforation with hammer drilling machine, hollow drill bit and diamond drilling machine. | | | | | | | | | | |

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

Bossong S.p.A. - via Enrico Fermi 49/51 - 24050 Grassobbio (Bg) - Italy - www.bossong.com

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):

Non applicabile

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:

Not applicable

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

ETA-DENMARK issued ETA-22/0468 on basis of EAD 330087-01-0601.

TZUS (n°1020) performed:

the determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product; the initial inspection of the factory and of the factory production control; the continuous surveillance; assessment and approval of the factory production control; under system 1 and issue the certificate of conformity n° 1020-CPR -090-056636.

9. . Declared performance:
HARMONIZED TECHNICAL SPECIFICATION: EAD330087-01-0601

| ESSENTIAL CHARACTERISTICS | PERFORMANCE ACCORDING TO ETA-22/0468 | | | | | | | | | | |
|---|--|---------|---------|--------|--------|--------|--------|-----------|--------|-------|-----|
| Installation parameters | Ø8 | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø22 | Ø24 a Ø26 | Ø28 | Ø30 | Ø32 |
| Ø [mm] | 8 | 10 | 12 | 14 | 16 | 20 | 22 | 24 a 26 | 28 | 30 | 32 |
| d ₀ [mm] | 10**-12 | 12**-14 | 14**-16 | 18 | 20 | 25 | 26 | 30-32 | 35 | 35-37 | 40 |
| a [mm] | 40 mm ≥ 4·Ø | | | | | | | | | | |
| C _{min} [mm] | 30 + 0,06 lv ≥ 2·Ø per Ø<25 mm 40 + 0,06 lv ≥ 2·Ø per Ø≥25 mm (the minimum concrete cover according to EN 1992-1-1 must be observed) | | | | | | | | | | |
| Setting depth | Ø8 | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø22 | Ø24 a Ø26 | Ø28 | Ø30 | Ø32 |
| l _{b,min} [mm] under tensile | max {0,3 · l _{b,rqd} ; 10 Ø; 100 mm} | | | | | | | | | | |
| l _{b,min} [mm] under compression | max {0,6 · l _{b,rqd} ; 10 Ø; 100 mm} | | | | | | | | | | |
| l _{0,min} [mm] | max {0,3 α ₆ l _{b,rqd} ; 15 Ø; 200 mm} | | | | | | | | | | |
| l _{b,rqd} [mm] | according to EN 1992-1-1 point 8.4.3 | | | | | | | | | | |
| Amplification factor for concrete class C12/15 a C50/60 – All drilling method for 50 and 100 years | Ø8 | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø22 | Ø24 a Ø26 | Ø28 | Ø30 | Ø32 |
| α _{lb} | 1,0 | | | | | | | | | | |
| Efficiency factor k _b for hammer drilling for 50 and 100 years | C12/15 | C16/20 | C20/25 | C25/30 | C30/37 | C35/45 | C40/50 | C45/55 | C50/60 | | |
| from Ø8 to Ø30 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | |
| Ø32 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,93 | |
| * Design bond strength f _{bd,PIR} according to EN 1992-1-1 [N/mm ²] for hammer drilling for 50 and 100 years | C12/15 | C16/20 | C20/25 | C25/30 | C30/37 | C35/45 | C40/50 | C45/55 | C50/60 | | |
| from Ø8 to Ø30 | 1,60 | 2,00 | 2,30 | 2,70 | 3,00 | 3,40 | 3,70 | 4,00 | 4,30 | 4,30 | |
| Ø32 | 1,60 | 2,00 | 2,30 | 2,70 | 3,00 | 3,40 | 3,70 | 4,00 | 4,00 | 4,00 | |

* Values valid only for good bond condition according to EN 1992-1-1. For other bond conditions multiply the values for 0,7

** Valid for drilling with reduced diameter.

HARMONIZED TECHNICAL SPECIFICATION: EAD330087-01-0601

| ESSENTIAL CHARACTERISTICS | PERFORMANCE ACCORDING TO ETA-22/0468 | | | | | | | | |
|--|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Efficiency factor k_b for diamond drilling for 50 and 100 years | C12/15 | C16/20 | C20/25 | C25/30 | C30/37 | C35/45 | C40/50 | C45/55 | C50/60 |
| from Ø8 to Ø26 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Ø28 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,92 | 0,86 |
| Ø30 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,91 | 0,84 | 0,79 |
| Ø32 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,90 | 0,82 | 0,76 | 0,71 |
| *Design bond strength $f_{bd,PIR}$ according to EN 1992-1-1 [N/mm ²] for diamond drilling for 50 and 100 years | C12/15 | C16/20 | C20/25 | C25/30 | C30/37 | C35/45 | C40/50 | C45/55 | C50/60 |
| from Ø8 to Ø26 | 1,60 | 2,00 | 2,30 | 2,70 | 3,00 | 3,40 | 3,70 | 4,00 | 4,30 |
| Ø28 | 1,60 | 2,00 | 2,30 | 2,70 | 3,00 | 3,40 | 3,70 | 3,70 | 3,70 |
| Ø30 | 1,60 | 2,00 | 2,30 | 2,70 | 3,00 | 3,40 | 3,40 | 3,40 | 3,40 |
| Ø32 | 1,60 | 2,00 | 2,30 | 2,70 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 |

* Values valid only for good bond condition according to EN 1992-1-1. For other bond conditions multiply the values for 0,7

HARMONIZED TECHNICAL SPECIFICATION: EAD 330087-01-0601- SEISMIC CONDITION

| ESSENTIAL CHARACTERISTICS | PERFORMANCE ACCORDING TO ETA-22/0468 | | | | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Efficiency factor $k_{b,seis}$ for hammer drilling for 50 and 100 years | C16/20 | C20/25 | C25/30 | C30/37 | C35/45 | C40/50 | C45/55 | C50/60 |
| from Ø12 to Ø30 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Ø32 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,93 |
| * Design bond strength $f_{bd,PIR,seis}$ according to EN 1992-1-1 [N/mm ²] for hammer drilling for 50 and 100 years | C16/20 | C20/25 | C25/30 | C30/37 | C35/45 | C40/50 | C45/55 | C50/60 |
| from Ø12 to Ø30 | 2,00 | 2,30 | 2,70 | 3,00 | 3,40 | 3,70 | 4,00 | 4,30 |
| Ø32 | 2,00 | 2,30 | 2,70 | 3,00 | 3,40 | 3,70 | 4,00 | 4,00 |

* Values valid only for good bond condition according to EN 1992-1-1. For other bond conditions multiply the values for 0,7

HARMONIZED TECHNICAL SPECIFICATION: EAD 330087-01-0601

| ESSENTIAL CHARACTERISTICS | PERFORMANCE |
|---------------------------|--|
| Fire reaction | In the final application the thickness of the mortar layer is about 1 to 2 mm and most of the mortar is material classified class A1 according to EC Decision 96/603/EC. Therefore it may be assumed that the bonding material (synthetic mortar or a mixture of synthetic mortar and cementitious mortar) in connection with the metal anchor in the end use application do not make any contribution to fire growth or to the fully developed fire and they have no influence to the smoke hazard. |

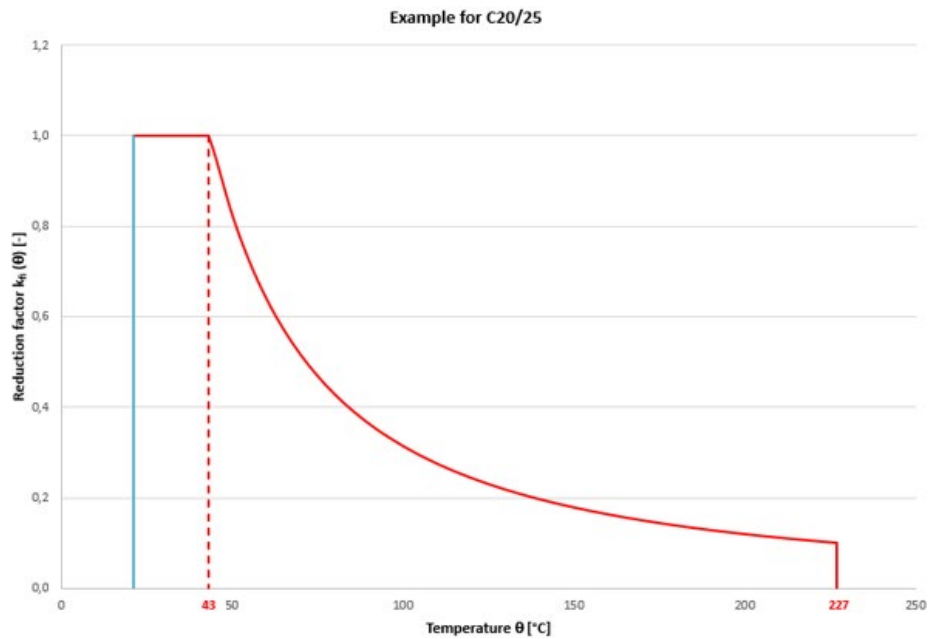
HARMONIZED TECHNICAL SPECIFICATION: EAD 330087-01-0601 – FIRE RESISTANCE

ESSENTIAL CHARACTERISTICS

PERFORMANCE ACCORDING TO ETA-22/0468

Reduction factor under fire exposure $k_{fi}(\theta)$ for 50 and 100 years

$$\begin{aligned} \text{Per } 21^\circ\text{C} \leq \theta \leq 227^\circ\text{C} \quad k_{fi}(\theta) &= \frac{1887,34 \cdot \theta^{-1,392}}{f_{bd,PIR} \cdot 4,3} \leq 1,0 \\ \text{Per } \theta > 227^\circ\text{C} \quad k_{fi}(\theta) &= 0 \end{aligned}$$



Values of the design adhesion $f_{bd,fi}$ for exposure to fire for 50 and 100 years

$$f_{bd,fi}(\theta) = k_{fi}(\theta) \cdot f_{bd,PIR} \cdot \frac{\gamma_c}{\gamma_{M,fi}}$$

TERMINOLOGY AND SYMBOLS

| | |
|-------------------|--|
| \varnothing | Nominal diameter of the reinforced bar |
| d_0 | Drill hole diameter |
| l_v | Setting depth |
| a | Minimum clear spacing between two post-installed rebar |
| C_{min} | Minimum concrete cover |
| $l_{b,min}$ | Minimum anchorage length |
| $l_{0,min}$ | Minimum overlap joint length |
| $l_{b,rqd}$ | Required basic anchorage length |
| α_{lb} | Amplification factor |
| k_b | Efficiency factor |
| γ_c | Safety installation coefficient |
| $\gamma_{M,fi}$ | Safety installation coefficient for exceptional actions |
| $f_{bd,PIR}$ | Design values of bond adhesion |
| $f_{bd,PIR,seis}$ | Design values of seismic bond adhesion. |
| θ | Temperature |
| $k_{fi}(\theta)$ | Reduction factor under fire exposure |
| $f_{bd,fi}$ | Design value of the ultimate bond stress in case of fire |

Regulation REACH n°1907/2006


Estimate customer,

We inform you that in the REACH supply chain our company is classified as DU: Downstream-user.

About the product detailed in the point 1 we confirm you that we don't use in our production substances classified as SVHC according to the Candidate List published on ECHA site web:

http://echa.europa.eu/chem_data/candidate_list_table_en.asp.

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.
This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.
Signed for and on behalf of the manufacturer by:

| Name and function | Place and date of issue | Signature |
|----------------------------------|---------------------------------------|---|
| Andrea Taddei General Manager | Grassobbio (Bg) - Italy 10.10.2022 |  |