# YTELSESERKLÆRING

Nr: DoP-170568 [NO]

## Varetypens unike identifikasjonskode:

Spikeranker (Nail Anchor) ENA 6 / ENA 8 / ENA-K / ENA-M / ENA-O

## Produsent:

ESSVE Produkter AB
BOX 7091
164 07 Kista
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| Europeisk teknisk bedømmelse (ETA) | Dimensjon & Materiale | Artikkelnummer |
|---|---|---|
| ETA-17/0568 (2017-08-10) | ENA-K<br>Zinc plated | Alle artikkelnummer i produktgruppen er dekket av ETA. |
| | ENA-K<br>A4 | Alle artikkelnummer i produktgruppen er dekket av ETA. |
| | ENA-M<br>Zinc plated | Alle artikkelnummer i produktgruppen er dekket av ETA. |

| Europeisk teknisk bedømmelse (ETA) | Tilsiktet bruksområde | Betongkvalitet |
|---|---|---|
| ETA-17/0568 (2017-08-10) | Anchors (multiple use) for use in non-structural applications under static or quasi-static actions, in redundant systems, in cracked or non-cracked concrete. | Reinforced or unreinforced normal weight concrete according to EN 206-1:2000.<br>• Solid concrete C12/15 to C50/60 |

| Europeisk teknisk bedømmelse (ETA) | System for vurdering og verifikasjon av byggevarers ytelser (AVCP) | Europeisk bedømmelsesdokument | Teknisk bedømmelsesorgan (TAB) | Teknisk(e) kontrollorgan (NB) |
|---|---|---|---|---|
| ETA-17/0568 (2017-08-10) | 2+ | ETAG 001 Part 6, (2011-01) | DEUTSCHES INSTITUT FÜR BAUTECHNIK (DiBt) | 1343 (FPC) |

# YTELSESERKLÆRING

Nr: DoP-170568 [NO]

| Europeisk teknisk bedømmelse (ETA) | Egenskap | Ytelse |
|---|---|---|
| ETA-17/0568 (2017-08-10) | Characteristic resistance | Table C1 |
| | Reaction to fire | Class A1 |
| | Resistance to fire | Table C2 |

Ytelser for denne byggevaren som er anført ovenfor, er i overensstemmelse med de angitte ytelsene. Denne ytelseserklæringen er utarbeidet i overensstemmelse med forordning (EU) nr. 305/2011 under produsentens eneansvar, som anført ovenfor.

Underskrevet for produsenten og på dennes vegne:

Kista 2018-10-12

Viktor Bukowski
Product Developer/Technical expert – Fasteners

*Table C1 - Characteristic and design resistance for a fixing point [1], design method C*

| **Anchor types** | | | **ENA 6** | **ENA 8 ENA-K ENA-M** | **ENA-O** | **ENA 6** | **ENA 8 ENA-K ENA-M** | **ENA-O** |
|---|---|---|---|---|---|---|---|---|
| Effective anchorage depth | $h_{ef} \geq$ | [mm] | 25 | | | 30 | | |
| Partial safety factor for any direction | $\gamma_M$ | - | 1,5 | | | | | |
| **Optimized for maximum load** | | | | | | | | |
| Characteristic resistance **C12/15** | $F_{Rk}$ | [kN] | 3,0 | 3,0 [4] | 1,5 | 4,0 | 4,0 [4] | 1,5 |
| Characteristic resistance **C20/25** to **C50/60** | | | 4,5 | 4,5 [4] | | 5,9 | 5,9 [4] | |
| Design resistance **C12/15** | $F_{Rd}$ | [kN] | 2,0 | 2,0 [4] | 1,0 | 2,7 | 2,7 [4] | 1,0 |
| Design resistance **C20/25** to **C50/60** | | | 3,0 | 3,0 [4] | | 3,9 | 3,9 [4] | |
| Respective spacing between fixing points [1] [2] | $s_{cr}$ | [mm] | 100 | | | | | |
| | for $c_{cr} \geq$ | | 200 | | | | | |
| Respective edge distance [2] | $c_{cr}$ | [mm] | 100 | | | | | |
| | for $s_{cr} \geq$ | | 200 | | | | | |
| **Optimized for minimum edge distance** | | | | | | | | |
| Characteristic resistance **C12/15** | $F_{Rk}$ | [kN] | 1,5 | 1,5 [4] | 1,5 | 2,0 | 2,0 [4] | 1,5 |
| Characteristic resistance **C20/25** to **C50/60** | | | 2,0 | 2,0 [4] | | 2,5 | 2,5 [4] | |
| Design resistance **C12/15** | $F_{Rd}$ | [kN] | 1,0 | 1,0 [4] | 1,0 | 1,3 | 1,3 [4] | 1,0 |
| Design resistance **C20/25** to **C50/60** | | | 1,3 | 1,3 [4] | | 1,7 | 1,7 [4] | |
| Respective spacing between fixing points [1] | $c_{cr}$ | [mm] | 50 | | | | | |
| | for $s_{cr} \geq$ | | 100 | | | | | |
| **Shear load with lever arm** | | | | | | | | |
| Characteristic resistance, **steel zinc plated** | $M^0_{Rk,s}$ | [Nm] | 9,2 | 12,7 | [3] | 9,2 | 12,7 | [3] |
| Characteristic resistance, **stainless steel A4/HCR** | | | 9,2 | 13,5 | [3] | 9,2 | 13,5 | [3] |
| Partial safety factor | $\gamma_{Ms}$ | - | 1,25 | | | | | |

[1] A fixing point is defined as:

- Single anchor,
- Double anchor group with a minimum spacing s of 50 mm ≤ s < $s_{cr}$ or
- Quadruple anchor group with a minimum spacing s of 50 mm ≤ s < $s_{cr}$

If the spacing in a fixing point is greater than or equal to the respective spacing in this table, the characteristic resistances apply to every single anchor.

[2] Intermediate values can be linearly interpolated.

[3] Proof against failure due to shear load with lever arm is not required.

[4] When applying a shear load to anchor version ENA-M, shear load with lever arm must be proven.

*Table C2 - Characteristic resistance for a fixing point [1] under fire exposure in concrete C20/25 to C50/60, design method C*

| **Fire resistance class** | | | | **ENA 6 ENA 8** | **ENA-K** | **ENA-M[3]** | **ENA-O** | **ENA 6 ENA 8** | **ENA-K** | **ENA-M[3]** | **ENA-O** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Effective anchorage depth | | $h_{ef} \geq$ | [mm] | 25 | | | | 30 | | | |
| **Load in any direction** | | | | | | | | | | | |
| R 30 | Characteristic resistance, **steel zinc plated** | $F_{Rk,fi}$ | [kN] | 0,6 | 0,6 | 0,6 | 0,2 | 0,9 | 0,9 | 0,8 | - |
| R 60 | | | | 0,6 | 0,6 | 0,6 | 0,2 | 0,7 | 0,8 | 0,7 | - |
| R 90 | | | | 0,5 | 0,6 | 0,6 | 0,1 | 0,5 | 0,6 | 0,6 | - |
| R120 | | | | 0,4 | 0,5 | 0,5 | 0,1 | 0,4 | 0,5 | 0,6 | - |
| R 30 | Characteristic resistance, **stainless steel A4 / HCR** | $F_{Rk,fi}$ | [kN] | 0,6 | 0,6 | 0,6 | 0,2 | 0,9 | 0,9 | 0,8 | 0,2 |
| R 60 | | | | 0,6 | 0,6 | 0,6 | 0,2 | 0,9 | 0,9 | 0,7 | 0,2 |
| R 90 | | | | 0,5 | 0,6 | 0,6 | 0,1 | 0,9 | 0,9 | 0,6 | 0,1 |
| R120 | | | | 0,4 | 0,5 | 0,5 | 0,1 | 0,7 | 0,7 | 0,6 | 0,1 |
| R 30 – R 120 | Edge distance | $c_{cr,fi}$ | [mm] | 50 | | | | | | | |
| | Spacing | $s_{cr,fi}$ | [mm] | 100 | | | | | | | |
| **Shear load with lever arm** | | | | | | | | | | | |
| R 30 | Characteristic resistance, **steel zinc plated** | $M^0_{Rk,fi}$ | [Nm] | 0,7 | 1,0 | 0,7 | [2] | 0,7 | 1,0 | 0,7 | - |
| R 60 | | | | 0,5 | 0,8 | 0,7 | [2] | 0,5 | 0,8 | 0,7 | - |
| R 90 | | | | 0,4 | 0,5 | 0,6 | [2] | 0,4 | 0,5 | 0,6 | - |
| R120 | | | | 0,3 | 0,4 | 0,5 | [2] | 0,3 | 0,4 | 0,5 | - |
| R 30 | Characteristic resistance, **stainless steel A4 / HCR** | $M^0_{Rk,fi}$ | [Nm] | 1,4 | 2,1 | 0,7 | [2] | 1,4 | 2,1 | 0,7 | [2] |
| R 60 | | | | 1,1 | 1,5 | 0,7 | [2] | 1,1 | 1,5 | 0,7 | [2] |
| R 90 | | | | 0,7 | 1,0 | 0,6 | [2] | 0,7 | 1,0 | 0,6 | [2] |
| R120 | | | | 0,5 | 0,7 | 0,5 | [2] | 0,5 | 0,7 | 0,5 | [2] |
| If the fire attack is from more than one side, the edge distance shall be $\geq$ 300 mm. | | | | | | | | | | | |

[1] A fixing point is defined as:

- Single anchor,
- Double anchor group with a minimum spacing s of 50 mm $\leq s < s_{cr}$ or
- Quadruple anchor group with a minimum spacing s of 50 mm $\leq s < s_{cr}$

If the spacing in a fixing point is greater than or equal to the respective spacing in this table, the characteristic resistances apply to every single anchor.

[2] Proof against failure due to shear load with lever arm is not required.

[3] Only in connection with threaded rods M8, M10 or M12 minimum strength class 5.8. When applying shear load to this anchor version, shear load with lever arm must be proven.