# Declaration of Performance nr.fm753

## FM 753

**Torque controlled expansion anchor wedge type made of galvanised steel**

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| **Intended use or uses of the construction product according to ETAG 001 p.1 and 2** | |
|---|---|
| Generic type | torque controlled expansion anchor wedge type |
| Base material | un-cracked concrete C20/25 to C50/60 acc. to EN 206-1:2003 |
| Material | steel zinc coated acc.to ISO4042 (bolt grade 5.8 min. acc.to EN ISO 898-1) |
| Durability | internal dry conditions |
| Loading | static and quasi-static |
| Fire Resistance | NPD |
| Fire Reaction | A1 according to EN13501-1 |
| | |
| **ETA-01/0014** issued by | **CSTB** approval body |
| On the basis of | **ETAG001 p.1-2** |
| Certificate of Conformity **0679-CPD-0016** issued by | **CSTB** notify body nr.0679 |
| Under System | **1** |

| **Declared performances according to ETAG 001 p.1 and 2** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Essential Characteristics** | | | **Performance** | | | | | |
| **Installation parameters** | | | **M6** [2] | **M8** | **M10** | **M12** | **M14** | **M16** |
| $d_0$ | Nominal diameter of drill bit | [mm] | 6 | 8 | 10 | 12 | 14 | 16 |
| $h_{nom}$ | Minimum installation depth | [mm] | 41 | 48 | 59 | 71 | 80 | 96 |
| $h_{ef}$ | Effective anchorage depth | [mm] | 35 [2] | 40 | 50 | 60 | 70 | 85 |
| $h_{min}$ | Minimum thickness of the concrete member | [mm] | 100 | 100 | 100 | 120 | 140 | 170 |
| $T_{inst}$ | Nominal torque moment | [Nm] | 6 | 15 | 25 | 50 | 70 | 100 |
| $s_{min}$ | Minimum spacing | [mm] | 50 | 60 | 75 | 90 | 105 | 130 |
| $c_{min}$ | Minimum edge distance | [mm] | 50 | 60 | 75 | 90 | 105 | 130 |
| **Tension Steel failure mode** | | | | | | | | |
| $N_{Rk,s}$ | Tension Steel characteristic failure | [kN] | 10,9 | 17,2 | 28,0 | 31,6 | 51,2 | 72,3 |
| $\gamma_{m,sN}$ [1] | Partial safety factor for tension steel failure | [-] | 1,5 | 1,4 | 1,4 | 1,4 | 1,5 | 1,5 |
| **Pull-out failure mode** | | | | | | | | |
| $N_{Rk,p,ucr}$ | Tension characteristic load in un-cracked concrete C20/25 | [kN] | **6** [2] | **9** | **12** | **20** | **25** | **35** |
| $\gamma_2$ | Partial safety factor | [-] | | 1,2 | | | 1,0 | |
| $\gamma_{m,c}$ [1] | Partial safety factor | [-] | | 1,8 | | | 1,5 | |
| $s_{cr,N}$ | Critical spacing | [mm] | 105 | 120 | 150 | 180 | 210 | 255 |
| $c_{cr,N}$ | Critical edge distance | [mm] | 53 | 60 | 75 | 90 | 105 | 130 |
| $\psi_c$ **C30/37** | Increasing factor for concrete C30/37 | [-] | | 1,17 | | | 1,22 | |
| $\psi_c$ **C40/50** | Increasing factor for concrete C40/50 | [-] | | 1,32 | | | 1,41 | |
| $\psi_c$ **C50/60** | Increasing factor for concrete C50/60 | [-] | | 1,42 | | | 1,55 | |
| **Splitting failure mode** | | | | | | | | |
| $s_{cr,sp}$ | Critical spacing (splitting) | [mm] | 210 | 240 | 300 | 360 | 420 | 510 |
| $c_{cr,sp}$ | Critical edge distance(splitting) | [mm] | 105 | 120 | 150 | 180 | 210 | 255 |
| $\gamma_{m,c}$ [1] | Partial safety factor | [-] | | 1,8 | | | 1,5 | |
| **Displacement on Tension Load** | | | | | | | | |
| $N_{ucr}$ | Service tension load in un-cracked concrete | [kN] | **2,4** | **3,6** | **4,8** | **9,5** | **11,9** | **16,7** |
| $\delta_{N0,ucr}$ | Short term displacement under tension load | [mm] | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| $\delta_{N\infty,ucr}$ | Long term displacement under tension load | [mm] | 0,6 | 0,6 | 0,6 | 0,6 | 0,6 | 0,6 |
| **Shear Steel failure mode** | | | **M6** | **M8** | **M10** | **M12** | **M14** | **M16** |
| $V_{Rk,s}$ | Shear Steel characteristic failure | [kN] | **6,0** | **9,1** | **14,8** | **18,4** | **32,1** | **42,3** |
| $M^0_{Rk,s}$ | Bending Moment characteristic failure | [Nm] | 12 | 24 | 49 | 68 | 121 | 193 |
| $\gamma_{m,sV}$ [1] | Partial safety factor for shear steel failure | [-] | | | 1,5 | | | |
| **Shear Concrete Pry-out or Edge failure mode** | | | | | | | | |
| **k** | Factor equation (5.6) of ETAG, Annex C, § 5.2.3.3 | [-] | | 1,0 | | | 2,0 | |
| $l_{ef}$ | Effective anchorage length | [mm] | 35 | 40 | 50 | 60 | 70 | 85 |
| $d_{nom}$ | Nominal diameter of anchor | [mm] | 6 | 8 | 10 | 12 | 14 | 16 |
| $\gamma_m$ [1] | Partial safety factor ($\gamma_{m,c}$=$\gamma_{m,pr}$) | [-] | | | 1,5 | | | |
| **Displacement on Shear Load** | | | | | | | | |
| **V** | Service shear load in concrete | [kN] | **2,9** | **4,3** | **7,0** | **8,8** | **15,3** | **20,1** |
| $\delta_{V0}$ | Short term displacement under shear load | [mm] | 1,5 | 1,5 | 2,1 | 2,2 | 2,4 | 2,4 |
| $\delta_{V\infty}$ | Long term displacement under shear load | [mm] | 1,9 | 2,0 | 2,6 | 2,7 | 3,0 | 3,0 |

[1] In absence of other national regulations; [2] Use restricted to anchoring of structural components statically indeterminated.

We inform you that Friulsider is classified in the EC 1907/2006 Reach Directive as a Downstream-user of substances.
The product supplied does not contain substances classified as SVHC according to the Candidate List in a concentration equal or greater than 0.1% (weight / weight). Article 31 is not applicable to the present product.

The below performances apply for the following article numbers:

| d | L [mm] | $t_{fix}$ [mm] | Marking | ID | Cod. |
|---|---|---|---|---|---|
| M6 | 65 | 15 | FM-L 6/15 | B | 75320b06065 |
| | 85 | 35 | FM-L 6/35 | C | 75320b06085 |
| | 100 | 100 | FM-L 6/50 | D | 75320b06100 |
| M8 | 65 | 7 | FM-L 8/7 | B | 75320b08065 |
| | 75 | 15 | FM-L 8/15 | C | 75320b08075 |
| | 90 | 30 | FM-L 8/30 | D | 75320b08090 |
| | 115 | 55 | FM-L 8/55 | E | 75320b08115 |
| | 135 | 75 | FM-L 8/75 | F | 75320b08135 |
| | 165 | 105 | FM-L 8/105 | G | 75320b08165 |
| M10 | 75 | 5 | FM-L 10/5 | B | 75320b10075 |
| | 90 | 20 | FM-L 10/20 | C | 75320b10090 |
| | 100 | 30 | FM-L 10/30 | I | 75320b10100 |
| | 120 | 50 | FM-L 10/50 | D | 75320b10120 |
| | 145 | 75 | FM-L 10/75 | E | 75320b10145 |
| | 170 | 100 | FM-L 10/100 | F | 75320b10170 |
| M12 | 100 | 10 | FM-L 12/10 | B | 75320b12100 |
| | 110 | 20 | FM-L 12/20 | C | 75320b12110 |
| | 135 | 45 | FM-L 12/45 | D | 75320b12135 |
| | 160 | 70 | FM-L 12/70 | E | 75320b12160 |
| | 185 | 100 | FM-L 12/100 | F | 75320b12185 |
| M14 | 100 | 3 | FM-L 14/3 | A | 75320b14100 |
| | 110 | 10 | FM-L 14/10 | B | 75320b14110 |
| | 130 | 30 | FM-L 14/30 | C | 75320b14130 |
| | 150 | 50 | FM-L 14/50 | D | 75320b14150 |
| | 170 | 70 | FM-L 14/70 | E | 75320b14170 |
| | 200 | 100 | FM-L 14/100 | F | 75320b14200 |
| M16 | 125 | 10 | FM-S 16/10 | A | 75320b16125 |
| | 145 | 30 | FM-S 16/30 | B | 75320b16145 |
| | 175 | 60 | FM-S 16/60 | C | 75320b16175 |
| | 215 | 100 | FM-S 16/100 | D | 75320b16215 |

The performances of the product identified by the above identification code are in conformity with the declared performance.
This declaration of performance is issued under the sole responsibility of Friulsider SpA.
Signed for and behalf of the manufacturer by:

| Name and functions | Place and date of issue | Signature |
|---|---|---|
| **Eng.Vittorio Pilla**<br>General Director | San Giovanni al Natisone, 12-06-2013 |  |