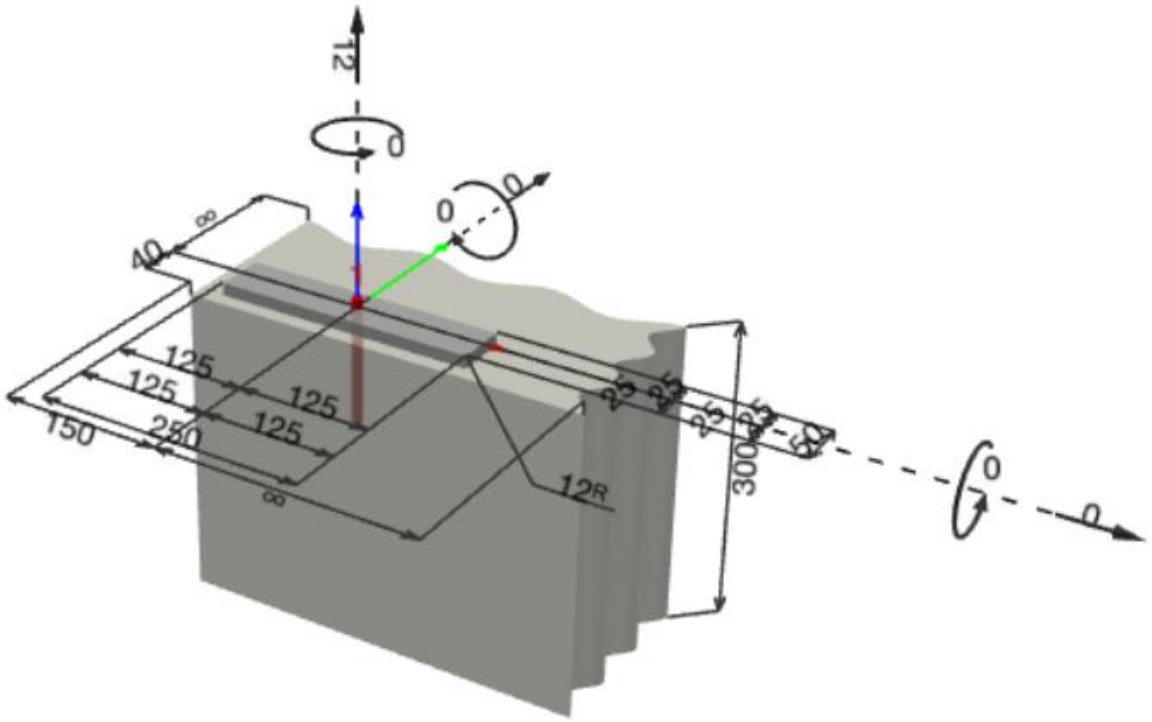
16th March 2021
Allied Concrete Limited

Manufacturer's Statement

Application Details

Anchor type and size: **HIT-RE 500 V3 + HAS-U 8.8 HDG M10**
Load demand: Characteristic resistance= 15KN, Design resistance: 12KN (assuming safety factor=1.25)
Effective embedment depth: h_{ef} = 100 mm
Base material: Concrete foundation of 300mm thickness,
Concrete strength: C20/25 uncracked concrete
Installation: hammer drilled hole



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Design Resistance obtained using the provision of TR029

Approval No.:	ETA-16/0143
Issued:	14/05/2019
Proof: design method:	EOTA TR029

Tension :

- **Pull-out Strength**

- $S_{cr,np}$ = 20 x d x $(\tau / 7.5)^{\wedge 0.5}$ = 20 x 10 x $(18 / 7.5)^{\wedge 0.5}$ = 310 mm ≥ 3xh_{ef} =270mm

  $A^0_{P,N}$ = 9xh_{ef}xh_{ef} = 90000 mm2

  $A_{p,n}$ = (40+1.5x100)x3x100= 57000 mm^2

- $N^0_{Rk,p} = 40.715$ KN

- $N_{Rk,p} = N^0_{Rk,p} * \frac{A_{p,N}}{A^0_{p,N}}$= 25.79 kN

Characteristic resistance in uplift= 17.2KN, safe.

Hilti Engineering team
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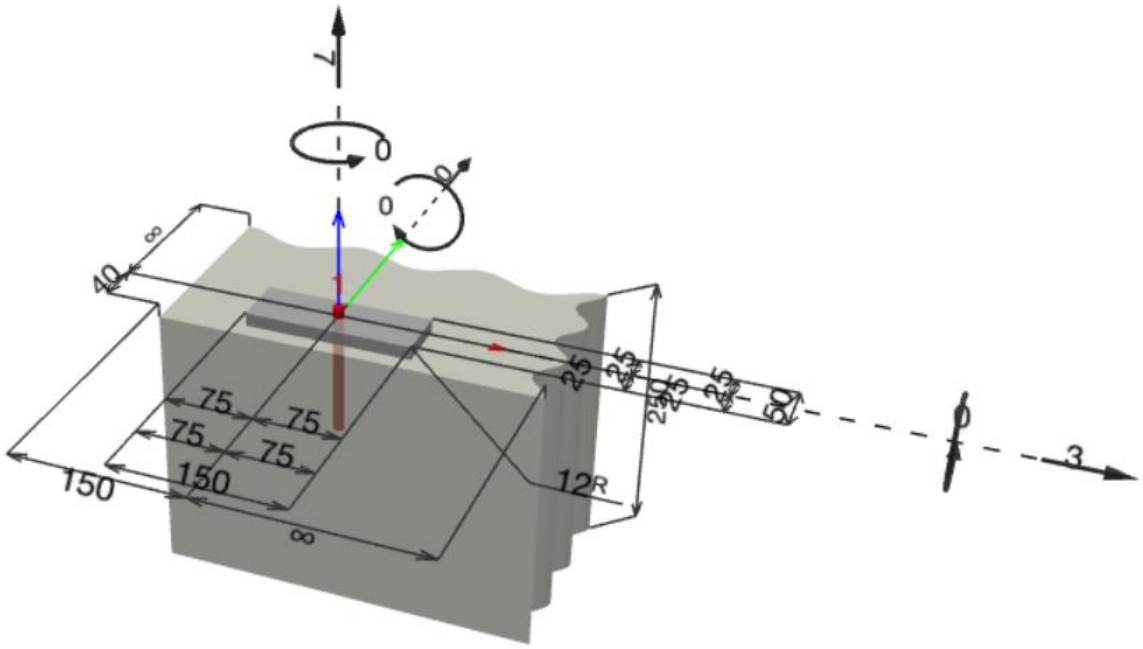
16th March 2021
Allied Concrete Limited

Manufacturer's Statement

Application Details

Anchor type and size: HUS3-H 10 at 85mm embedment depth
Effective embedment depth: h_{ef} = 67.1 mm
Base material: Concrete foundation of 250mm thickness,
Concrete strength: C20/25 uncracked concrete
Installation: hammer drilled hole



Design Resistance obtained using the provision of TR029

Approval No.: ETA-13/1038
Issued: 28/07/2020
Proof: design method: EOTA TR029

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Tension

- **Pull-out Strength**

  $S_{cr,np}$ = 3xh_{ef} = 201.3 mm

  $A^0_{P,N}$ = 9xh_{ef}xh_{ef} = 40521.69 mm2

  $A_{p,n}$ = (40+1.5x67.1)x3x67.1= 28312.845 mm^2

- $N^0_{Rk,p} = 20$ KN
- $N_{Rk,p} = N^0_{Rk,p} * \frac{A_{p,N}}{A^0_{p,N}}$= 13.97 kN

Characteristic resistance in uplift= 9.32KN

Shear

- **Concrete edge break-out**

α = 0.1 x $\sqrt[2]{(\frac{hef}{c1})}$=0.129

β = 0.076

k_1 = 2.4

$\psi_{\alpha,V}$ = 2.5

$V^0_{Rk,c}$ = k'$_1$ x d^{α} x h_{ef}^{β} x $\sqrt{f}_{ck,cube}$ x $c_1^{1.5}$ = 5.63 kN

$V_{Rk,c} = V^0_{Rk,c} * \frac{A_{c,V}}{A^0_{c,V}} * \psi_{s,V} * \psi_{h,V} * \psi_{ec,V} * \psi_{\alpha,V}$ = 14.075 kN

$V_{rd,c}$ = 9.39 kN

Combined tension and share resistance

$\beta_N^{\alpha} + \beta_V^{\alpha} \leq 1.0$

$(7/9.32)^{1.5} + (3/9.39)^{1.5}$ = 0.651+ 0.181 = 0.832, hence safe

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