

NASLOVNA STRAN NAČRTA

Občina Piran, Tartinijev trg 2, 6330 Piran, JP Okolje Piran d.o.o.

PODATKI O GRADNJI

naziv gradnje	Ureditev skladišč v stavbi predelave- vzdrževalna dela
kratak opis gradnje	Jeklena konstrukcija za skladiščenje v dveh nivojih, Predelne stene z ab ojačitvami, Preklade nad vrati dostopnega hodnika
VRSTE GRADNJE	☐ NOVOGRADNJA - NOVOZGRAJEN OBJEKT
<i>označiti vse ustrezne vrste gradnje</i>	☐ NOVOGRADNJA - PRIZIDAVA
	☐ REKONSTRUKCIJA
	☐ SPREMEMBA NAMEMBOSTI
	☐ ODSTRANITEV CELOTNEGA OBJEKTA
	☐ LEGALIZACIJA
	☐ MANJŠA REKONSTRUKCIJA

PODATKI O PROJEKTNIM DOKUMENTACIJAM

vrsta dokumentacije	PZI-vzdrževalna dela
številka projekta	488/25, november 2025

PODATKI O NAČRTU

strokovno področje načrta	GRADBENIŠTVO
naziv načrta	2-NAČRT GRADBENE KONSTRUKCIJE
številka načrta	74/2025
datum izdelave	NOVEMBER_2025
datum spremembe	

PODATKI O PROJEKTANTU NAČRTA

projektant načrta (naziv družbe)	SVETOVANJE IN PROJEKTIRANJE, MILAN REJEC S.P.
naslov	DOLGA REBER 36, 6000 KOPER
odgovorna oseba projektanta načrta	MILAN REJEC, univ.dipl.inž.gradb.
podpis odgovorne osebe projektanta načrta	SVETOVANJE IN PROJEKTIRANJE MILAN REJEC s.p. DOLGA REBER 36, 6000 KOPER

PODATKI O IZDELOVALCU NAČRTA

ime in priimek pooblaščenega arhitekta, pooblaščenega inženirja	MILAN REJEC, univ.dipl.inž.gradb.
identifikacijska številka	IZS G-1277
podpis pooblaščenega arhitekta, pooblaščenega inženirja	MILAN REJEC univ. dipl. inž. grad. IZS G-1277

PRILOGA 2C

**IZJAVA PROJEKTANTA NAČRTA
IN POOBLAŠČENEGA STOKOVNJAKA,
KI JE IZDELAL NAČRT V PZI IN PID****PROJEKTANT NAČRTA**

projektant načrta (naziv družbe)	SVETOVANJE IN PROJEKTIRANJE, MILAN REJEC S.P.
naslov	DOLGA REBER 36, 6000 KOPER
odgovorna oseba projektanta načrta	MILAN REJEC, univ.dipl.inž.gradb.

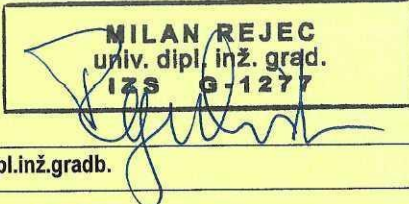
IN POOBLAŠČENI STROKOVNJAK, KI JE IZDELAL NAČRT

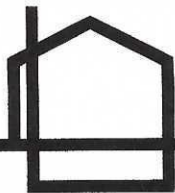
pooblaščen strokovnjak	MILAN REJEC, univ.dipl.inž.gradb.
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IZJAVLJAVA:**da načrt**

vrsta dokumentacije	PZI-vzdrževalna dela		
strokovno področje načrta	GRADBENIŠTVO		
naziv načrta	2 - NAČRT GRADBENE KONSTRUKCIJE - SKLADIŠČ V STAVBI PREDELAVE		UREDITEV
številka načrta	74/2025		
datum izdelave	NOVEMBER_2025		

upoštevam relevantne predpise in druge normativne dokumente ter da so upoštevane ustrezne bistvene in druge zahteve.

pooblaščen strokovnjak	MILAN REJEC, univ.dipl.inž.gradb.
identifikacijska številka	IZS G-1277
podpis pooblaščenega strokovnjaka	 MILAN REJEC univ. dipl. inž. gradb. IZS G-1277
odgovorna oseba projektanta načrta	MILAN REJEC, univ.dipl.inž.gradb.
podpis odgovorne osebe projektanta načrta	SVETOVANJE IN PROJEKTIRANJE MILAN REJEC s.p. DOLGA REBER 36, 6000 KOPER 



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6000 KOPER, DOLGA REBER 36, tel. (05)-6306300, fax. (05)-6314510, e-mail: milan@ediling.si

2.3 KAZALO VSEBINE NAČRTA

2 NAČRT GRADBENE KONSTRUKCIJE

Priloga 1C – Naslovna stran

Priloga 2C

2.3 Kazalo vsebine načrta

2.4 Tehnično poročilo in statični račun

2.5 Grafični del:

1	POZICIJSKI NAČRTI	M 1:50
2	ARMATURNI NAČRTI	M 1:50



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2.4

TEHNIČNO POROČILO IN STATIKA

INVESTITOR:

OBČINA PIRAN, TARTINIJEV TRG 2
6330 PIRAN

NAROČNIK:

JP OKOLJE PIRAN, ARZE 1B
6330 PIRAN

OBJEKT:

UREDITEV SKLADIŠČ V STAVBI PREDELAVE

**VRSTA PROJEKTNE
DOKUMENTACIJE:**

PZI

VRSTA GRADNJE:

VZDRŽEVALNA DELA

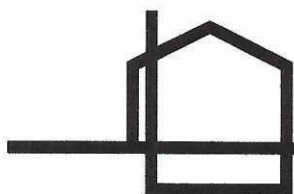
TEHNIČNO POROČILO IN STATIČNI RAČUN

IZDELAL:

MILAN REJEC, univ.dipl.inž.gradb.



KOPER, NOVEMBER 2025



SVETOVANJE IN PROJEKTIRANJE MILAN REJEC s.p.

6000 KOPER, DOLGA REBER 36, tel. (05)-6306300, fax. (05)-6314510, e-mail: milan@ediling.si

2.5

GRAFIČNI DEL

INVESTITOR:

OBČINA PIRAN, TARTINIJEV TRG 2
6330 PIRAN

NAROČNIK:

JP OKOLJE PIRAN, ARZE 1B
6330 PIRAN

OBJEKT:

UREDITEV SKLADIŠČ V STAVBI PREDELAVE

**VRSTA PROJEKTNE
DOKUMENTACIJE:**

PZI

VRSTA GRADNJE:

VZDRŽEVALNA DELA

GRAFIČNI DEL

IZDELAL:

MILAN REJEC, univ.dipl.inž.gradb.

MILAN REJEC
univ. dipl. inž. gradb.
IZS G-1277

KOPER, NOVEMBER 2025

SPLOŠNO

Obravnavamo gradnjo jeklenih podestov - skladišč v stavbi predelave (nekdanje klavnice) v Dragonji. Celotno obstoječe skladišče (cca.300m²) se razdeli na tri približno enake dele z dvema predelnima stenama iz siporeksa ojačanih z vertikalnimi in horizontalnimi ab vezmi. V vsakem delu se izdelava jeklena konstrukcija (medetaža), tako da je možno skladiščenje v pritličju in na 1.etaži. Peš dostop je po jeklenih stopnicah, skladiščenje na zgornjem platu pa se izvaja ob pomoči dvigovanja materialov z viličarjem. Na dostopnem hodniku se izvede pozidava z vrati, nad katerimi je AB preklada 20/30cm.

KONSTRUKCIJA

Jekleno konstrukcijo podesta sestavljajo primarni nosilci IPE-140 in sekundarni nosilci IPE-100, jekleni stebri iz pravokotnih cevi 120/120/5mm in nosilci stopnic UNP-180. Priključne pločevine so debeline 10mm in 5mm. Podesti so sidrani v ab stebre hale ali pa v armiranobetonske vezi. Stebri podesta so sidrani v talno ploščo obstoječega objekta.

Ograja je iz okroglih jeklenih cevi $\Phi 42,4/4$ mm. Popoditev je izvedena z vezanimi ploščami T-FIX BOR F/M d=21mm. Vse elemente jeklene konstrukcije je potrebno protikorozijsko zaščititi z osnovnim in finalnim opleskom skladno s standardom v skupni debelini 150 mikronov. Maksimalna dovoljena obremenitev skladiščnih površin je 5kN/m² in mora biti vidno označena z opozorilnimi tablicami.

TEMELJENJE

Osnovna hala je temeljena na pilotih, preko katerih je položena mreža armiranobetonskih nosilcev z ab nosilno ploščo 20cm v zgornji coni nosilcev. Na njej je hidro in toplotna izolacija ter talna plošča debeline 15cm, katera je bila dimenzionirana za Transporte z večjimi viličarji ter skladiščno obtežbo nad 10kN/m².

MATERIALI

Vse armiranobetonske konstrukcije - ab vezi imajo razred izpostavljenosti XC2, razred betona je C30/37, c=3,5 cm. Uporabi se armatura S500, kateri ustreza karakteristična vrednost meje tečenja $f_{yk}=500$ MPa. Izbrano jeklo mora biti razreda C.

Pri jekleni konstrukciji mora kvaliteta uporabljenih vroče valjanih, hladno oblikovanih profilov in pločevin odgovarjati najmanj kvaliteti S235, skladno s standardom SIST EN

10025. Kvaliteta vijačnega materiala mora odgovarjati najmanj kvaliteti 5.6 . Kvaliteta zvarjenih spojev mora odgovarjati kvaliteti I po SIST EN 1090-2. Montaža jeklenih konstrukcij mora potekati v skladu s SIST EN 1090-2. O montaži jeklene konstrukcije mora biti izdelano končno poročilo oziroma izjava CE. Jeklena konstrukcija mora biti ustrezno **antikorozijsko zaščitena** (osnovni in končni premaz skupne minimalne debeline 150mikronov). Sidranje konstrukcije se izvede s kemijskimi sidri Hilti (ali enakovredno). Račun je priložen v statičnem računu. Povsod, kjer je uporabljeno montažno varjenje, je potrebno po varjenju obnoviti antikorozijsko zaščito.

OSNOVE IZRAČUNA GRADBENE KONSTRUKCIJE

Skladno s Pravilnikom o mehanski odpornosti in stabilnosti objektov (Uradni list RS 101/2005) so osnova za statične izračune v načrtu gradbenih konstrukcij Eurocodi (SIST EN 1990 – 1998) . Pri izvedbeni dokumentaciji in polaganju armature je potrebno upoštevati konstrukcijska pravila iz evrokodov. Upoštevani so standardni vplivi: lastna teža, sneg, veter. Potres v tem primeru ni merodajen.

OPAZOVANJE POSEDKOV OBJEKTA

Opazovanje glavnih nosilnih elementov konstrukcije:

Glavni nosilni elementi so elementi jeklene konstrukcije. Vizuelni pregled glavnih nosilnih elementov se izvede na vsakih 10 let. Pregled naj obsega snemanje položaja in velikosti pomikov, ki bi nastali med eksploatacijo jeklenega platoja.

Če se na podlagi pregleda ugotovi, da je varnost konstrukcije manjša od projektirane, je potrebno konzultirati projektanta – statika, ki predpiše nadaljnje ukrepe.

1 PODEST-VEZANA PLOŠČA d=21mm**POZ 1**

Vezana plošča T-FIX BOR F/M d=21mm

Product Specification / Data Sheet

Film Faced Pine Plywood

Thickness: 21 mm

Dimension: 1250 mm x 2500 mm

Number of Plies: 11 plies

Density: 570-610 kg/m³

Glue: Phenol Formaldehyde, E1

Film: Dark Brown Phenolic Film; 1 side 45/125 gr/m² - 1 side 90/250 gr/m²

Bending Strength: (acc. to TS EN 310)

Parallel to face pattern grains : 40,4 N/mm² (Class F30)Upright to face pattern grains : 34,1 N/mm² (Class F30)

Modulus of Elasticity while bending : (acc. to TS EN 310)

Parallel to face pattern grains : 3260 N/mm² (Class E60)Upright to face pattern grains : 4325 N/mm² (Class E6)**1.1. Obtežba**

Lastna teža

$$g_1 = 0,50 \text{ kN} / \text{m}^2$$

Vpliv spremenljive teže (skladišče E1)

$$q_k = 5,00 \text{ kN} / \text{m}^2$$

1.2. Dimenzioniranje**vezana plošča b/h=100/2,1cm**

$$e = 1,00 \text{ m} \quad L = 0,63 \text{ m} \quad q' = (1,35 * 0,5 + 1,5 * 5,0) * 1,00 = 8,18 \text{ kN/m'}$$

Kontrola na upogib:

$$M_{d,max} = \frac{q' * L^2}{8} = \frac{8,18 * 0,63^2}{8} = 0,41 \text{ kNm}$$

$$\frac{b}{h} = \frac{100}{2,1} \quad W = \frac{100 * 2,1^2}{6} = 73,5 \text{ cm}^3$$

$$\sigma_{m,d} = \frac{M_{d,max}}{W} = \frac{41}{73,5} = 0,56 \frac{\text{kN}}{\text{cm}^2} < [f_{m,d} = 3,260 \text{ kN/cm}^2]$$

Kontrola na strig:

$$V_{d,max} = 0,5 \cdot q' \cdot L = 0,5 \cdot 8,18 \cdot 0,63 = 2,58 \text{ kN}$$

$$\tau_{d,max} = \frac{V_{d,max}}{A_s} = \frac{2,58}{140} = 0,018 \text{ kN/cm}^2 < [f_{v,d} = 0,115 \text{ kN/cm}^2]$$

Kontrola povesa:

$$I_y = \frac{100 \cdot 2,1^3}{12} = 77,18 \text{ cm}^4$$

$$w_{inst} = \frac{5 \cdot 8,18 \cdot 63^4}{384 \cdot 77,18 \cdot 3200 \cdot 100} = 0,07 \text{ cm} < [w_{inst,lim} = 63/300 = 0,21 \text{ cm}]$$

2 SEKUNDARNI NOSILEC IPE-100

POZ 2

2.1 OBTEŽBE

2.1.1 Vpliv lastne teže

Lastna teža vezanih plošč in inštalacij $g_1 = 0,25 \text{ kN/m}^2$

Lastna teža IPE-100 $g_2 = 0,081 \text{ kN/m}$

2.1.2. Spremenljiva obtežba –podest(kategorija E1):

koristna obtežba $q_{k1} = 5 \text{ kN/m}^2$ $Q_{k1} = 4,00 \text{ kN}$

2.2.Dimenzioniranje:

$$e = 0,63 \text{ m} \quad L = 2,32 \text{ m} \quad q' = (1,35 \cdot 0,5 + 1,5 \cdot 5,0) \cdot 0,63 = 5,15 \text{ kN/m'}$$

$$M_{y,ED} = \frac{q' \cdot L^2}{8} = \frac{5,15 \cdot 2,32^2}{8} = 3,46 \text{ kNm}$$

$$M_{y,Ed} = 346kNcm \quad (\text{upogib} - \text{močna os})$$

Material:

$$S\ 235, \varepsilon = \sqrt{\frac{235}{f_y [Mpa]}} = \sqrt{\frac{235}{235}} = 1,00$$

Izbira začetnih dimenzij prereza (elastično):

$$W_{y,potr} \geq \frac{M_{y,Ed} \gamma_{M0}}{f_y} = \frac{346kNcm \cdot 1,0}{23,5kN/cm^2} = 14,72cm^3$$

2.3 Kontrola kompaktnosti prereza

Stojina, upogib:

$$\frac{d}{t_w} = \frac{127mm}{5,0mm} = 25,4 < 72\varepsilon = 72 \cdot 1,00 = 72,00 - 1.\text{razred kompaktnosti}$$

Pasnica, tlak:

$$c = \frac{b}{2} - \frac{t_w}{2} - r = \frac{8,2cm}{2} - \frac{0,5cm}{2} - 0,9cm = 2,95cm$$

$$\frac{c}{t_f} = \frac{2,95cm}{0,74cm} = 4,01 < 33\varepsilon = 33 \cdot 1,00 = 33,00 - 1.\text{ razred kompaktnosti}$$

Iz navedenega sledi, da je prerez v 1. razredu kompaktnosti.

2.4 Kontrola nosilnosti prereza

$$M_{y,Ed} = 346kNcm < M_{pl,y,Rd} = \frac{W_{pl,y} f_y}{\gamma_{M0}} = \frac{39,4cm^3 \cdot 23,5kN/cm^2}{1,0} = 926kNcm$$

Izbrani prerez IPE-100 zadošča kontroli upogibne nosilnosti nosilca.

2.5 Strižna nosilnost

Glede kompaktnosti v strigu se stojine razvrščajo samo v dva razreda kompaktnosti – kompaktni in vitki:

$$\frac{h_w}{t_w} = \frac{127mm}{5mm} = 25,4 < \frac{72\varepsilon}{\eta} = \frac{72 \cdot 1,0}{1,2} = 60,0 \quad \text{-v strigu je stojina kompaktna}$$

Obremenitev (maksimalna vrednost po statičnem računu) : $V_{Ed} = \pm 5,97kN$

$$V_{pl,Rd} = \frac{A_v \cdot f_y}{\gamma_{M0} \cdot \sqrt{3}} = \frac{4,79 \text{ cm}^2 \cdot 23,5 \text{ kN / cm}^2}{1,0 \cdot \sqrt{3}} = 65,07 \text{ kN}$$

$$A_v = \max \begin{cases} A - 2bt_f + (t_w + 2r)t_f \\ \eta h_w t_w \end{cases}$$

$$A_v = \max \begin{cases} 10,3 \text{ cm}^2 - 2 \cdot 5,5 \text{ cm} \cdot 0,6 \text{ cm} + (0,4 + 2 \cdot 0,7) \text{ cm} \cdot 0,6 \text{ cm} = 4,79 \text{ cm}^2 \\ 1,2 \cdot 7,4 \text{ cm} \cdot 0,41 \text{ cm} = 3,64 \text{ cm}^2 \end{cases}$$

$$V_{Ed} = 5,97 \text{ kN} \leq V_{pl,Rd} = 65,07 \text{ kN}$$

Kontrola projektne elastične strižne nosilnosti $V_{b,Rd}$ se za kritično točko prečnega prereza preveri po enačbi:

$$\tau_{Ed} \leq \frac{f_y}{\sqrt{3} \cdot \gamma_{M0}}$$

Pri profilih se lahko strižna napetost v stojini izračuna s poenostavljenim izrazom:

$$\tau_{Ed} = \frac{V_{Ed}}{A_w}, \text{ če je } A_f / A_w \geq 0,6,$$

$$\frac{A_f}{A_w} = \frac{b \cdot t_f}{h_w t_w} = \frac{82 \text{ mm} \cdot 7,4 \text{ mm}}{127 \text{ mm} \cdot 5 \text{ mm}} = 0,96 > 0,6$$

$$\tau_{Ed} = \frac{V_{Ed}}{A_w} = \frac{V_{Ed}}{h_w t_w} = \frac{10,05 \text{ kN}}{12,7 \text{ cm} \cdot 0,5 \text{ cm}} = 1,58 \text{ kN / cm}^2$$

$$\tau_{Ed} = 1,58 \text{ kN / cm}^2 \leq \frac{f_y}{\sqrt{3} \cdot \gamma_{M0}} = \frac{23,5 \text{ kN / cm}^2}{\sqrt{3} \cdot 1,0} = 13,58 \text{ kN / cm}^2$$

2.6 Kontrola elastičnih deformacij nosilca

$$u_{Ed} = \frac{5 \cdot 5,15 \cdot 232^4}{384 \cdot 171 \cdot 21000 \cdot 100} = 0,54 \text{ cm} \leq u_{el,Rd} = \frac{L}{300} = \frac{232}{300} = 0,77 \text{ cm}$$

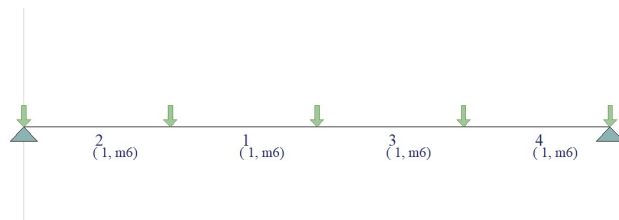
Spoj sekundarnega nosilca IPE-100 na primarni nosilec izvedemo s priključno pločevino debeline 10mm in 4 vijaki M10 (kvalitete 5.6). Priključne pločevine so polno varjene.

3 PRIMARNI NOSILEC IPE-140**POZ 3****3.1 OBTEŽBE****3.1.1 Vpliv lastne teže**

IPE-140

 $g_2 = 0,247 \text{ kN/m}$ **3.1.2. Spremenljiva obtežba –podest(kategorija E):**

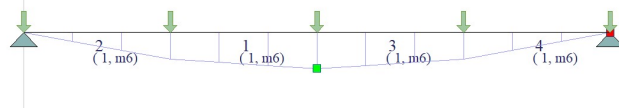
Akcije sekundarnih nosilcev

 $Q_{k1} = 12,00 \text{ kN}$ **3.2. Računski model****3.3 Ovojnice notranjih sil $M_{y,Ed}$, $Q_{y,Ed}$ za 11.obtežni primer: lastna teža +akcije sek.**

OP 11 Ovojnice upogibnih momentov

■ $M_{min} = -0,00 \text{ kNm}$
■ $M_{max} = 15,39 \text{ kNm}$

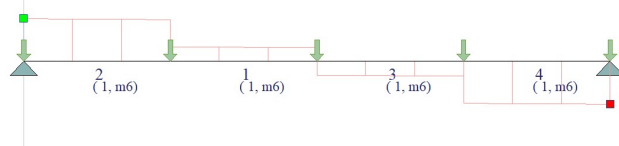
OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10
1.00	1.00								



OP 11 Ovojnice prečnih sil

■ $Q_{min} = -18,63 \text{ kN}$
■ $Q_{max} = 18,63 \text{ kN}$

OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10
1.00	1.00								



3.4 Dimenzioniranje

Obremenitev (maksimalne vrednosti po statičnem izračunu):

$$M_{y,Ed} = 1539 \text{ kNcm} \quad (\text{upogib} - \text{močna os})$$

Material:

$$S\ 235, \varepsilon = \sqrt{\frac{235}{f_y [\text{Mpa}]}} = \sqrt{\frac{235}{235}} = 1,00$$

Izbira začetnih dimenzij prereza (elastično):

$$W_{y,potr} \geq \frac{M_{y,Ed} \gamma_{M0}}{f_y} = \frac{1539 \text{ kNcm} \cdot 1,0}{23,5 \text{ kN/cm}^2} = 65,50 \text{ cm}^3$$

3.5 Kontrola kompaktnosti prereza

Stojina, upogib:

$$\frac{d}{t_w} = \frac{127 \text{ mm}}{5,0 \text{ mm}} = 25,4 < 72\varepsilon = 72 \cdot 1,00 = 72,00 - 1. \text{ razred kompaktnosti}$$

Pasnica, tlak:

$$c = \frac{b}{2} - \frac{t_w}{2} - r = \frac{8,2 \text{ cm}}{2} - \frac{0,5 \text{ cm}}{2} - 0,9 \text{ cm} = 2,95 \text{ cm}$$

$$\frac{c}{t_f} = \frac{2,95 \text{ cm}}{0,74 \text{ cm}} = 4,01 < 33\varepsilon = 33 \cdot 1,00 = 33,00 - 1. \text{ razred kompaktnosti}$$

Iz navedenega sledi, da je prerez v 1. razredu kompaktnosti.

3.6 Kontrola nosilnosti prereza

$$M_{y,Ed} = 1539 \text{ kNcm} < M_{pl,y,Rd} = \frac{W_{pl,y} f_y}{\gamma_{M0}} = \frac{88,4 \text{ cm}^3 \cdot 23,5 \text{ kN/cm}^2}{1,0} = 2077 \text{ kNcm}$$

Izbrani prerez IPE-140 zadošča kontroli upogibne nosilnosti nosilca.

3.7 Strižna nosilnost

Glede kompaktnosti v strigu se stojine razvrščajo samo v dva razreda kompaktnosti – kompaktni in vitki:

$$\frac{h_w}{t_w} = \frac{127 \text{ mm}}{5 \text{ mm}} = 25,4 < \frac{72\varepsilon}{\eta} = \frac{72 \cdot 1,0}{1,2} = 60,0 \quad \text{-v strigu je stojina kompaktna}$$

Obremenitev (maksimalna vrednost po statičnem računu) : $V_{Ed} = \pm 18,63kN$

$$V_{pl,Rd} = \frac{A_v \cdot f_y}{\gamma_{M0} \cdot \sqrt{3}} = \frac{9,05cm^2 \cdot 23,5kN/cm^2}{1,0 \cdot \sqrt{3}} = 122,9kN$$

$$A_v = \max \begin{cases} A - 2bt_f + (t_w + 2r)t_f \\ \eta h_w t_w \end{cases}$$

$$A_v = \max \begin{cases} 20,1cm^2 - 2 \cdot 8,2cm \cdot 0,74cm + (0,5 + 2 \cdot 0,9)cm \cdot 0,74cm = 9,05cm^2 \\ 1,2 \cdot 12,7cm \cdot 0,5cm = 7,62cm^2 \end{cases}$$

$$V_{Ed} = 18,46kN \leq V_{pl,Rd} = 122,9kN$$

Kontrola projektne elastične strižne nosilnosti $V_{b,Rd}$ se za kritično točko prečnega prereza preveri po enačbi:

$$\tau_{Ed} \leq \frac{f_y}{\sqrt{3} \cdot \gamma_{M0}}$$

Pri profilih se lahko strižna napetost v stojini izračuna s poenostavljenim izrazom:

$$\tau_{Ed} = \frac{V_{Ed}}{A_w}, \text{ če je } A_f / A_w \geq 0,6,$$

$$\frac{A_f}{A_w} = \frac{b \cdot t_f}{h_w t_w} = \frac{82mm \cdot 7,4mm}{127mm \cdot 5mm} = 0,96 > 0,6$$

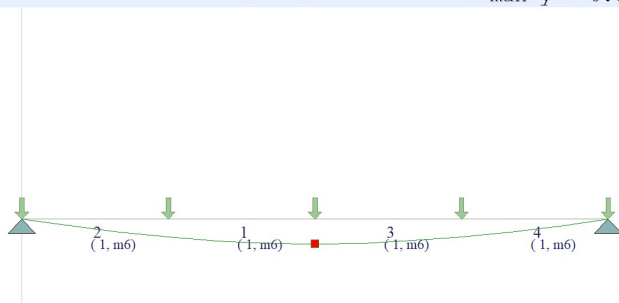
$$\tau_{Ed} = \frac{V_{Ed}}{A_w} = \frac{V_{Ed}}{h_w t_w} = \frac{18,46kN}{12,7cm \cdot 0,5cm} = 2,91kN/cm^2$$

$$\tau_{Ed} = 2,91kN/cm^2 \leq \frac{f_y}{\sqrt{3} \cdot \gamma_{M0}} = \frac{23,5kN/cm^2}{\sqrt{3} \cdot 1,0} = 13,58kN/cm^2$$

3.8 Kontrola elastičnih deformacij nosilca

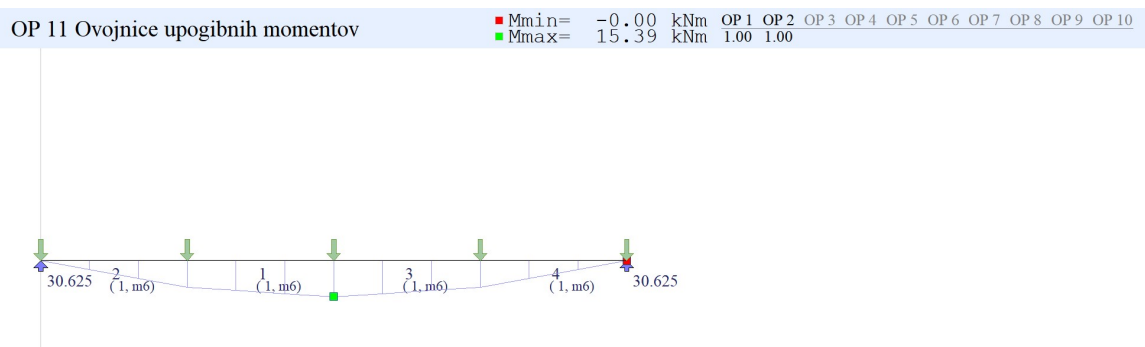
Obtezni Primer 11 Pomiki (x 12)

■ max x= 0,0000 m OP 1 OP 2 OP 3 OP 4 OP 5 OP 6 OP 7 OP 8 OP 9 OP 10
■ max y= -0,0084 m 1.00 1.00



$$u_{Ed} = 0,84cm \leq u_{el,Rd} = \frac{L}{300} = \frac{251}{300} = 0,84cm$$

3.9 Reakcije na podpore:



Primarni nosilec IPE-140 je pritrjen na jekleni steber 120/120/5s priključno pločevino 2x 240/240/10 in s 4 vijaki M12 (kvalitete 5.6). Priključne pločevine so polno varjene.

4 STEBER 120/120/5

POZ 4

Prerez kvadratne cevi 120/120/5se uvršča v 1.razred kompaktnosti, zato lahko uporabimo poenostavitev:

$$\frac{N_{Sd}}{N_{pl,Rd}} + \frac{M_{y,Sd}}{M_{pl,y,Rd}} + \frac{M_{z,Sd}}{M_{pl,z,Rd}} \leq 1,00$$

$$\frac{30,6}{533} + \frac{770}{1950} + \frac{770}{1950} = 0,06 + 0,39 + 0,39 = 0,84 \leq 1,00$$

$$0,06 + 0,39 + 0,39 \leq 1,00$$

$$0,84 \leq 1,00 \dots \text{prerez_zadošča_danim_kriterijem}$$

Spoj primarnega nosilca HEA-140 in stebra 120/120/8 izvedemo s priključno pločevino 240/240mm debeline 10mm in 4 vijaki M12 (kvalitete 5.6).

5 Sidranje jeklenih stebrov v ab talno ploščo

Uporabimo 2+2 mehanska sidra HIT-HY200+HIT-V(5.8) M16 (izračun prikazan v poročilu v prilogi). Globina sidranja 80mm, sidrna plošča je 280/280/15mm, sidrni beton mora segati še vsaj 100mm iz osi sidra. Položaj sider in način vgradnje je prikazan v poročilu.

6 Sidranje primarnega IPE-140 jeklenega nosilca v ab steber objekta

Uporabimo 2+2 kemična sidra HIT-HY 200+HIT-Z M16 (izračun prikazan v poročilu v prilogi). Globina sidranja je 160mm, sidrna plošča je 260/280/10mm, sidrni beton mora segati še vsaj 100mm iz osi sidra. Položaj sider in način vgradnje glej v poročilu.

7 Sidranje sekundarnega IPE-100 jeklenega nosilca v ab steber objekta

Uporabimo 2+2 kemična sidra HIT-HY 200+HIT-Z M16 (izračun prikazan v poročilu v prilogi). Globina sidranja je 96mm, sidrna plošča je 160/200/10mm, sidrni beton mora segati še vsaj 100mm iz osi sidra. Položaj sider in način vgradnje glej v poročilu.

8 Sidranje vrha jeklenega stebra 120/120/5 v ab steber objekta

Uporabimo 2+2 kemična sidra HIT-HY 200+HIT-Z M16 (izračun prikazan v poročilu v prilogi). Globina sidranja je 187mm, sidrna plošča je 240/190/10mm, sidrni beton mora segati še vsaj 100mm iz osi sidra. Položaj sider in način vgradnje glej v poročilu.

9. PREDELNA STENA Z AB VERTIKALNIMI IN HORIZONTALNIMI VEZMI

9.1 VERTIKALNE VEZI 20/20cm

Vzdolžna armatura: $4\Phi_R14$
Stremina: $\Phi_R8/15\text{cm}$

Vertikalne vezi so sidrane v talno ploščo in strešno konstrukcijo z lepljenimi sidri po sistemu SIKA Ancorfix ($4\Phi_R14$).

9.2 HORIZONTALNE VEZI 20/20cm

Vzdolžna armatura: $4\Phi_R14$
Stremina: $\Phi_R8/15\text{cm}$

Horizontalne vezi so izvedene v višini novega jeklenega platoja in so sidrane v obstoječe ab stebre in vertikalne vezi z lepljenimi sidri po sistemu SIKA Ancorfix ($4\Phi_R14$).

Specifier's comments:

1 Input data

Anchor type and diameter: HIT-HY 200 + HIT-V (5.8) M16

Seismic/Filling set or any suitable annular gap filling solution

Effective embedment depth: $h_{ef, opti} = 80 \text{ mm}$ ($h_{ef, limit} = 114 \text{ mm}$)

Material: 5.8

Evaluation Service Report: ETA 11/0493

Issued | Valid: 3. 02. 2017 | -

Proof: Design method ETAG BOND (EOTA TR 029)

Stand-off installation: $e_b = 0 \text{ mm}$ (no stand-off); $t = 15 \text{ mm}$

Anchor plate: $l_x \times l_y \times t = 280 \text{ mm} \times 280 \text{ mm} \times 15 \text{ mm}$; (Recommended plate thickness: not calculated)

Profile: Square hollow; $(L \times W \times T) = 120 \text{ mm} \times 120 \text{ mm} \times 5 \text{ mm}$

Base material: cracked concrete, C25/30, $f_{c, cube} = 30.00 \text{ N/mm}^2$; $h = 150 \text{ mm}$, Temp. short/long: 40/24 °C

Installation: **hammer drilled hole, Installation condition: Dry**

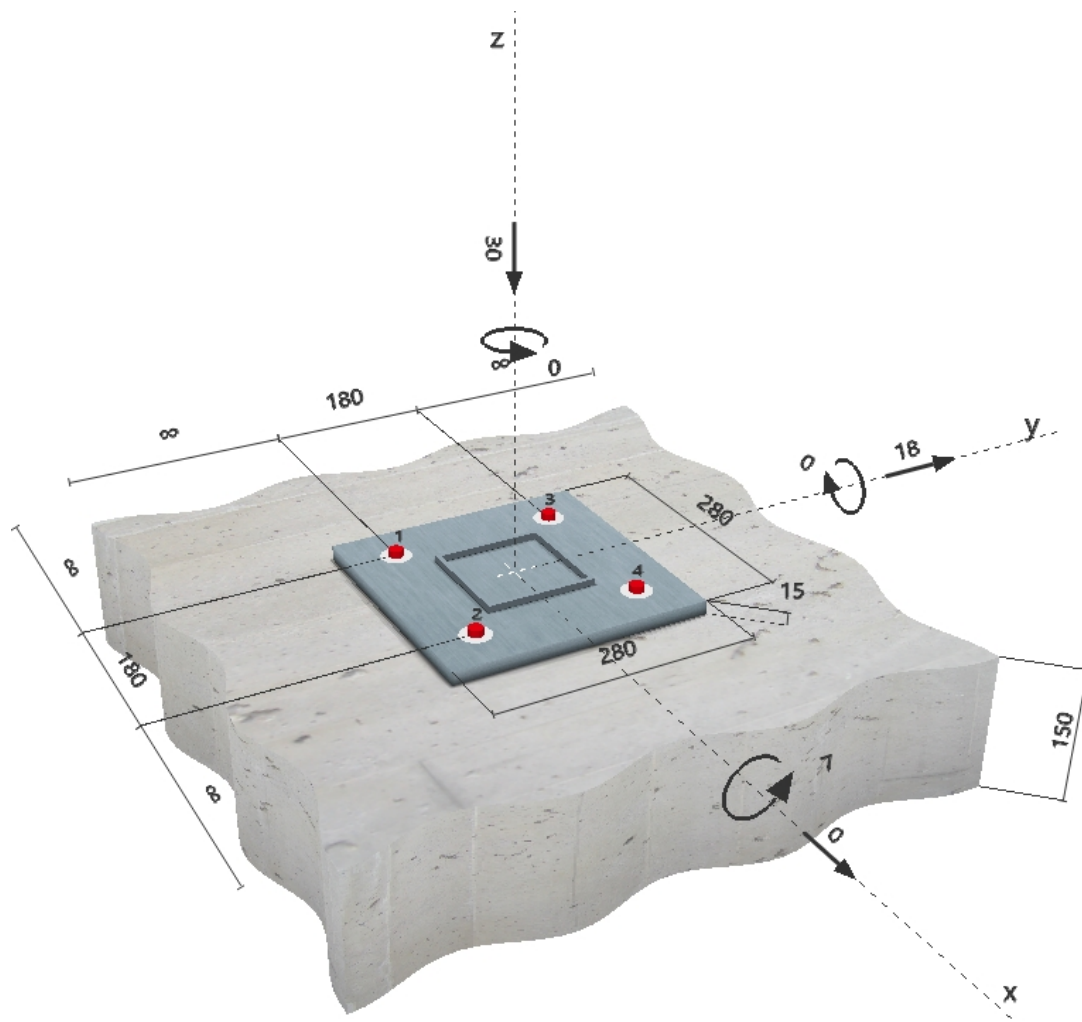
Reinforcement: no reinforcement or reinforcement spacing $\geq 150 \text{ mm}$ (any $\emptyset$) or $\geq 100 \text{ mm}$ ($\emptyset \leq 10 \text{ mm}$)

no longitudinal edge reinforcement

Reinforcement to control splitting according to EOTA TR 029, 5.2.2.6 present.



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2 Load case/Resulting anchor forces

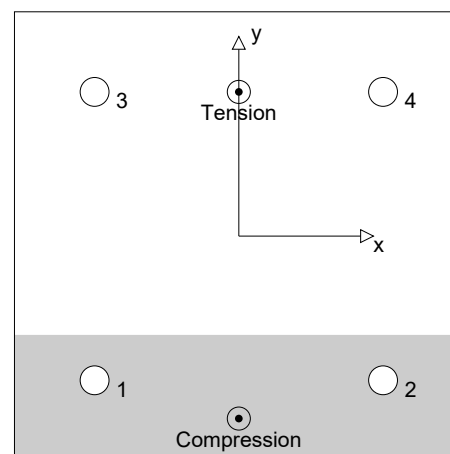
Load case: Design loads

Anchor reactions [kN]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	0.000	4.500	0.000	4.500
2	0.000	4.500	0.000	4.500
3	8.788	4.500	0.000	4.500
4	8.788	4.500	0.000	4.500

max. concrete compressive strain: 0.14 [‰]
 max. concrete compressive stress: 4.34 [N/mm²]
 resulting tension force in (x/y)=(0/90): 17.576 [kN]
 resulting compression force in (x/y)=(0/-114): 47.576 [kN]



3 Tension load (EOTA TR 029, Section 5.2.2)

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Status
Steel Strength*	8.788	52.667	17	OK
Combined pullout-concrete cone failure**	17.576	40.685	44	OK
Concrete Breakout Strength**	17.576	32.921	54	OK
Splitting failure**	N/A	N/A	N/A	N/A

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

$N_{Rk,s}$ [kN]	$\gamma_{M,s}$	$N_{Rd,s}$ [kN]	N_{Sd} [kN]
79.000	1.500	52.667	8.788

3.2 Combined pullout-concrete cone failure

$A_{p,N}$ [mm ²]	$A_{p,N}^0$ [mm ²]	$\tau_{Rk,ucr,25}$ [N/mm ²]	$s_{cr,Np}$ [mm]	$c_{cr,Np}$ [mm]	c_{min} [mm]
100800	57600	18.00	240	120	∞
ψ_c	$\tau_{Rk,cr}$ [N/mm ²]	k	$\psi_{g,Np}^0$	$\psi_{g,Np}$	
1.020	8.67	2.300	1.000	1.000	
$e_{c1,N}$ [mm]	$\psi_{ec1,Np}$	$e_{c2,N}$ [mm]	$\psi_{ec2,Np}$	$\psi_{s,Np}$	$\psi_{re,Np}$
0	1.000	0	1.000	1.000	1.000
$N_{Rk,p}^0$ [kN]	$N_{Rk,p}$ [kN]	$\gamma_{M,p}$	$N_{Rd,p}$ [kN]	N_{Sd} [kN]	
34.873	61.028	1.500	40.685	17.576	

3.3 Concrete Breakout Strength

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]		
100800	57600	120	240		
$e_{c1,N}$ [mm]	$\psi_{ec1,N}$	$e_{c2,N}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	1.000	1.000
k ₁	$N_{Rk,c}^0$ [kN]	$\gamma_{M,c}$	$N_{Rd,c}$ [kN]	N_{Sd} [kN]	
7.200	28.218	1.500	32.921	17.576	

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4 Shear load (EOTA TR 029, Section 5.2.3)

	Load [kN]	Capacity [kN]	Utilization β_v [%]	Status
Steel Strength (without lever arm)*	4.500	31.200	15	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	18.000	115.224	16	OK
Concrete edge failure in direction **	N/A	N/A	N/A	N/A

* anchor having the highest loading **anchor group (relevant anchors)

4.1 Steel Strength (without lever arm)

$V_{Rk,s}$ [kN]	$\gamma_{M,s}$	$V_{Rd,s}$ [kN]	V_{Sd} [kN]
39.000	1.250	31.200	4.500

4.2 Pryout Strength (Concrete Breakout Strength controls)

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	k-factor	k_1
176400	57600	120	240	2.000	7.200
$e_{c1,V}$ [mm]	$\psi_{ec1,N}$	$e_{c2,V}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	1.000	1.000
$N_{Rk,c}^0$ [kN]	$\gamma_{M,c,p}$	$V_{Rd,cp}$ [kN]	V_{Sd} [kN]		
28.218	1.500	115.224	18.000		

5 Combined tension and shear loads (EOTA TR 029, Section 5.2.4)

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.534	0.156	1.500	46	OK

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

6 Displacements (highest loaded anchor)

Short term loading:

N_{Sk}	=	6.510 [kN]	δ_N	=	0.113 [mm]
V_{Sk}	=	3.333 [kN]	δ_V	=	0.133 [mm]
			δ_{NV}	=	0.175 [mm]

Long term loading:

N_{Sk}	=	6.510 [kN]	δ_N	=	0.259 [mm]
V_{Sk}	=	3.333 [kN]	δ_V	=	0.200 [mm]
			δ_{NV}	=	0.327 [mm]

Comments: Tension displacements are valid with half of the required installation torque moment for uncracked concrete! Shear displacements are valid without friction between the concrete and the anchor plate! The gap due to the drilled hole and clearance hole tolerances are not included in this calculation!

The acceptable anchor displacements depend on the fastened construction and must be defined by the designer!

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7 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Checking the transfer of loads into the base material is required in accordance with EOTA TR 029, Section 7!
- The design is only valid if the clearance hole in the fixture is not larger than the value given in Table 4.1 of EOTA TR029! For larger diameters of the clearance hole see Chapter 1.1. of EOTA TR029!
- The design method ETAG (filled holes) assumes that no hole clearance between the anchors and the fixture is present. This can be achieved by filling the gap with mortar of sufficient compressive strength (e.g. by using the HILTI Seismic/Filling set) or by other suitable means
- The accessory list in this report is for the information of the user only. In any case, the instructions for use provided with the product have to be followed to ensure a proper installation.
- Bore hole cleaning must be performed according to instructions for use (blow twice with oil-free compressed air (min. 6 bar), brush twice, blow twice with oil-free compressed air (min. 6 bar)).
- Characteristic bond resistances depend on short- and long-term temperatures.
- Please contact Hilti to check feasibility of HIT-V rod supply.
- Edge reinforcement is not required to avoid splitting failure

Fastening meets the design criteria!

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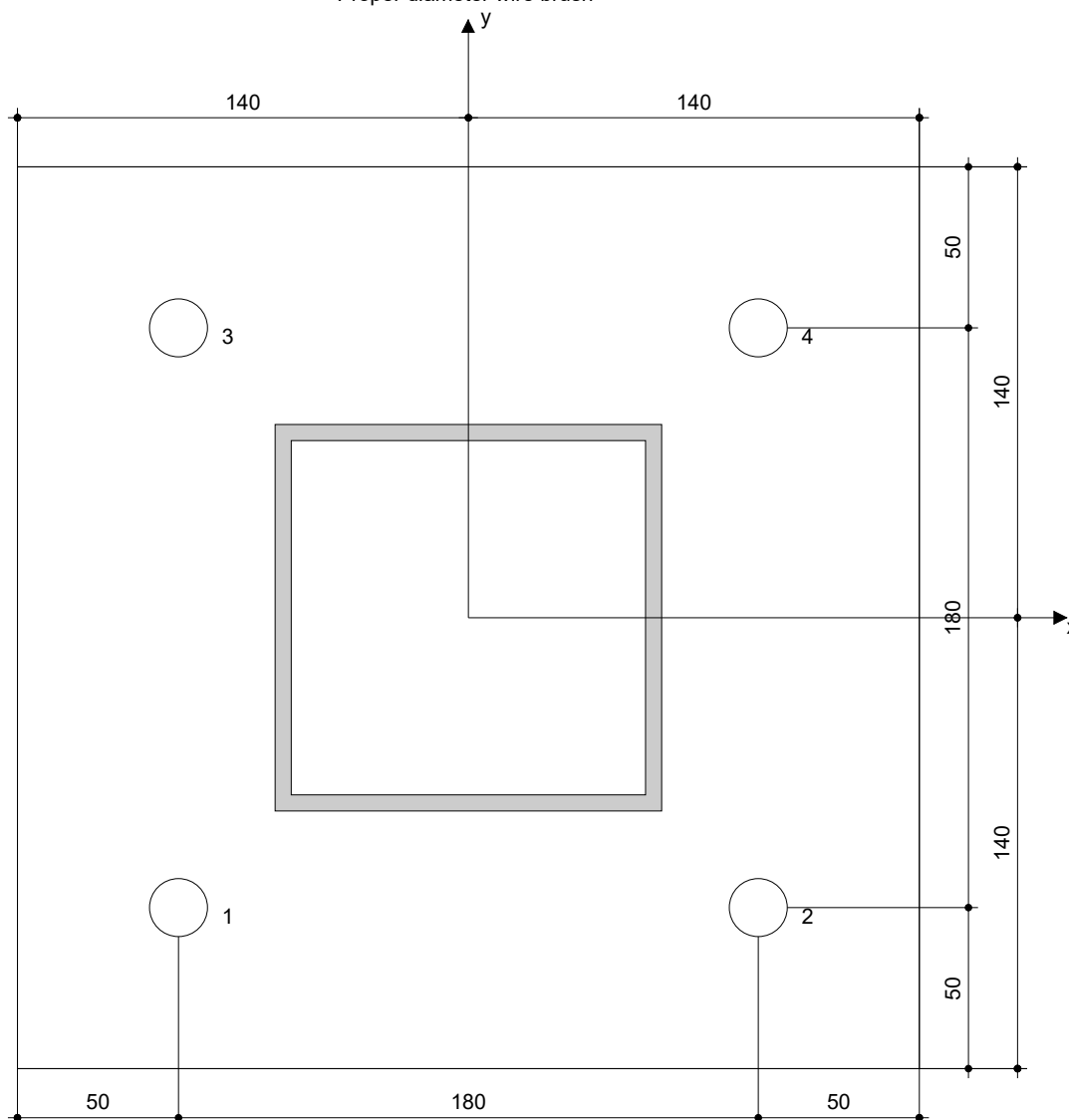
8 Installation data

Anchor plate, steel: -
 Profile: Square hollow; 120 x 120 x 5 mm
 Hole diameter in the fixture: $d_f = 18$ mm
 Plate thickness (input): 15 mm
 Recommended plate thickness: not calculated
 Drilling method: Hammer drilled
 Cleaning: Compressed air cleaning of the drilled hole according to instructions for use is required

Anchor type and diameter: HIT-HY 200 + HIT-V (5.8) M16
 Installation torque: 0.080 kNm
 Hole diameter in the base material: 18 mm
 Hole depth in the base material: 80 mm
 Minimum thickness of the base material: 116 mm

8.1 Recommended accessories

Drilling	Cleaning	Setting
- Suitable Rotary Hammer - Properly sized drill bit	- Compressed air with required accessories to blow from the bottom of the hole - Proper diameter wire brush	- Dispenser including cassette and mixer - Seismic/Filling set - Torque wrench



Coordinates Anchor [mm]

Anchor	x	y	C _{-x}	C _{+x}	C _{-y}	C _{+y}
1	-90	-90	-	-	-	-
2	90	-90	-	-	-	-
3	-90	90	-	-	-	-
4	90	90	-	-	-	-

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9 Remarks; Your Cooperation Duties

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- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

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Specifier's comments:

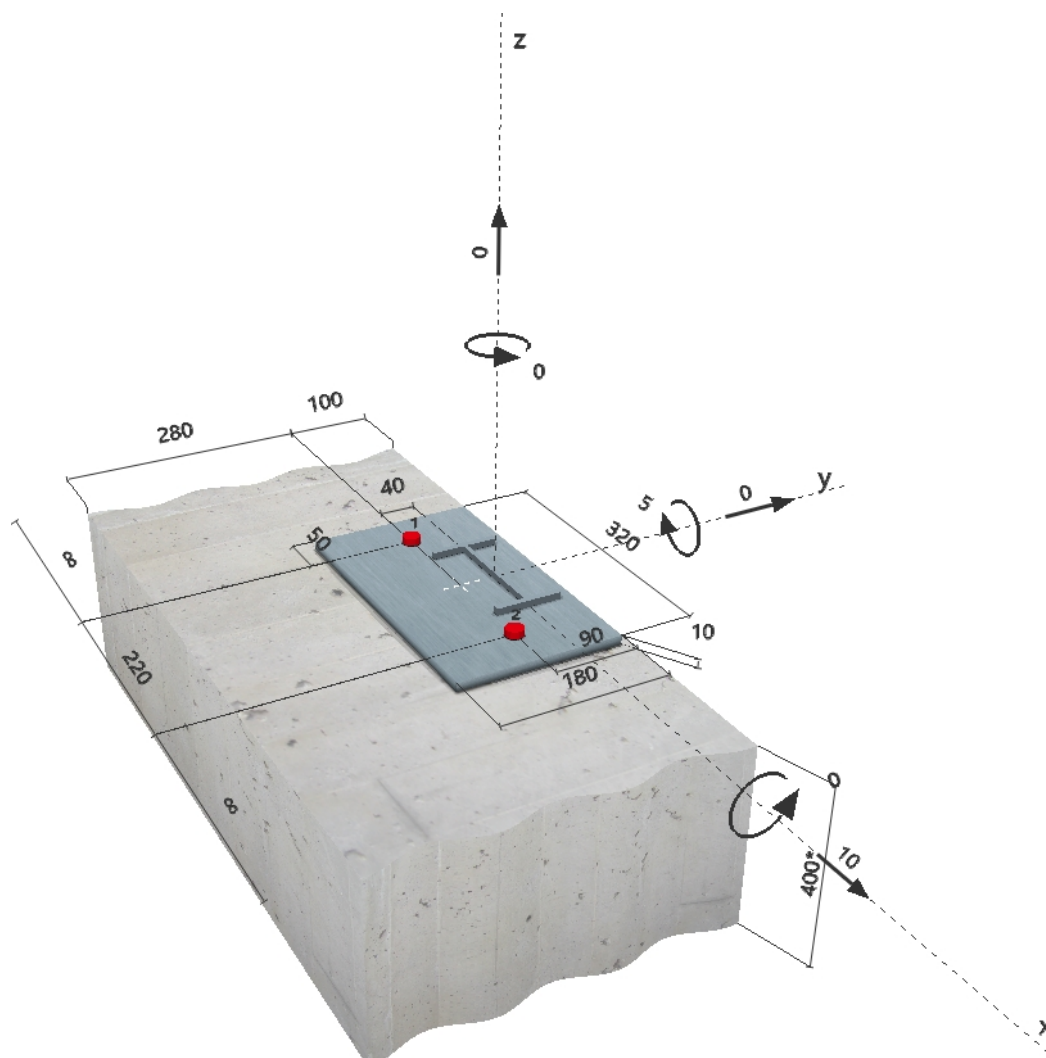
1 Input data

Anchor type and diameter:	HIT-HY 200 + HIT-Z M20
Effective embedment depth:	$h_{ef, opti} = 135 \text{ mm}$ ($h_{ef, limit} = 220 \text{ mm}$)
Material:	DIN EN ISO 4042
Evaluation Service Report:	ETA 12/0006
Issued Valid:	18. 08. 2016 -
Proof:	Design method ETAG BOND (EOTA TR 029)
Stand-off installation:	$e_b = 0 \text{ mm}$ (no stand-off); $t = 10 \text{ mm}$
Anchor plate:	$l_x \times l_y \times t = 320 \text{ mm} \times 180 \text{ mm} \times 10 \text{ mm}$; (Recommended plate thickness: not calculated)
Profile:	IPE; ($L \times W \times T \times FT$) = $140 \text{ mm} \times 73 \text{ mm} \times 5 \text{ mm} \times 7 \text{ mm}$
Base material:	cracked concrete, C25/30, $f_{c, cube} = 30.00 \text{ N/mm}^2$; $h = 400 \text{ mm}$, Temp. short/long: 40/24 °C
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	no reinforcement or reinforcement spacing $\geq 150 \text{ mm}$ (any $\emptyset$) or $\geq 100 \text{ mm}$ ($\emptyset \leq 10 \text{ mm}$) no longitudinal edge reinforcement Reinforcement to control splitting according to EOTA TR 029, 5.2.2.6 present.



SAFE-ET

Geometry [mm] & Loading [kN, kNm]



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2 Load case/Resulting anchor forces

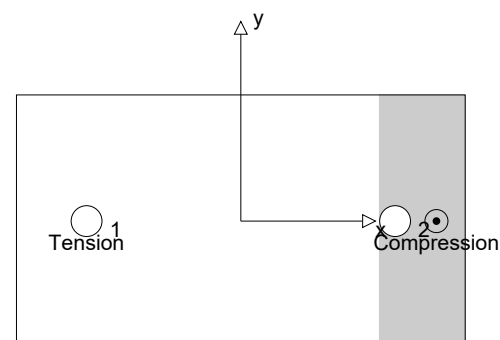
Load case: Design loads

Anchor reactions [kN]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	20.040	5.320	5.000	1.818
2	0.000	5.320	5.000	-1.818

max. concrete compressive strain: 0.12 [‰]
 max. concrete compressive stress: 3.62 [N/mm²]
 resulting tension force in (x/y)=(-110/0): 20.040 [kN]
 resulting compression force in (x/y)=(139/0): 20.040 [kN]



3 Tension load (EOTA TR 029, Section 5.2.2)

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Status
Steel Strength*	20.040	97.333	21	OK
Combined pullout-concrete cone failure**	20.040	69.115	29	OK
Concrete Breakout Strength**	20.040	26.124	77	OK
Splitting failure**	N/A	N/A	N/A	N/A

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

$N_{Rk,s}$ [kN]	$\gamma_{M,s}$	$N_{Rd,s}$ [kN]	N_{Sd} [kN]
146.000	1.500	97.333	20.040

3.2 Combined pullout-concrete cone failure

$A_{p,N}$ [mm ²]	$A_{p,N}^0$ [mm ²]	$\tau_{Rk,ucr,25}$ [N/mm ²]	$s_{cr,Np}$ [mm]	$c_{cr,Np}$ [mm]	c_{min} [mm]
75000	90000	24.00	300	150	100
$h_{ef,Helix}$ [mm]	ψ_c	$\tau_{Rk,cr}$ [N/mm ²]	k	$\psi_{g,Np}^0$	$\psi_{g,Np}$
100	1.000	22.00	2.300	1.000	1.000
$e_{c1,N}$ [mm]	$\psi_{ec1,Np}$	$e_{c2,N}$ [mm]	$\psi_{ec2,Np}$	$\psi_{s,Np}$	$\psi_{re,Np}$
0	1.000	0	1.000	0.900	1.000
$N_{Rk,p}^0$ [kN]	$N_{Rk,p}$ [kN]	$\gamma_{M,p}$	$N_{Rd,p}$ [kN]	N_{Sd} [kN]	
138.230	103.673	1.500	69.115	20.040	

3.3 Concrete Breakout Strength

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]		
122513	164025	203	405		
$e_{c1,N}$ [mm]	$\psi_{ec1,N}$	$e_{c2,N}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	0.848	1.000
k ₁	$N_{Rk,c}^0$ [kN]	$\gamma_{M,c}$	$N_{Rd,c}$ [kN]	N_{Sd} [kN]	
7.200	61.858	1.500	26.124	20.040	

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4 Shear load (EOTA TR 029, Section 5.2.3)

	Load [kN]	Capacity [kN]	Utilization β_v [%]	Status
Steel Strength (without lever arm)*	5.320	58.400	10	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength*	5.320	40.315	14	OK
Concrete edge failure in direction y+**	10.164	44.469	23	OK

* anchor having the highest loading **anchor group (relevant anchors)

4.1 Steel Strength (without lever arm)

$V_{Rk,s}$ [kN]	$\gamma_{M,s}$	$V_{Rd,s}$ [kN]	V_{Sd} [kN]
73.000	1.250	58.400	5.320

4.2 Pryout Strength (Concrete Breakout Strength controls)

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	k-factor	k_1
94531	164025	203	405	2.000	7.200
$e_{c1,V}$ [mm]	$\psi_{ec1,N}$	$e_{c2,V}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	0.848	1.000
$N_{Rk,c}^0$ [kN]	$\gamma_{M,c,p}$	$V_{Rd,cp}$ [kN]	V_{Sd} [kN]		
61.858	1.500	40.315	5.320		

4.3 Concrete edge failure in direction y+

h_{ef} [mm]	d_{nom} [mm]	k_1	α	β	
135	20.0	1.700	0.116	0.072	
c_1 [mm]	$A_{c,V}$ [mm ²]	$A_{c,V}^0$ [mm ²]			
100	78000	45000			
$\psi_{s,V}$	$\psi_{h,V}$	$\psi_{a,V}$	$e_{c,V}$ [mm]	$\psi_{ec,V}$	$\psi_{re,V}$
1.000	1.000	2.313	20	0.884	1.000
$V_{Rk,c}^0$ [kN]	$\gamma_{M,c}$	$V_{Rd,c}$ [kN]	V_{Sd} [kN]		
18.818	1.500	44.469	10.164		

5 Combined tension and shear loads (EOTA TR 029, Section 5.2.4)

β_N	β_v	α	Utilization $\beta_{N,v}$ [%]	Status
0.767	0.229	1.500	79	OK

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

6 Displacements (highest loaded anchor)

Short term loading:

N_{Sk}	=	14.845 [kN]	δ_N	=	0.123 [mm]
V_{Sk}	=	3.941 [kN]	δ_v	=	0.158 [mm]
			δ_{NV}	=	0.200 [mm]

Long term loading:

N_{Sk}	=	14.845 [kN]	δ_N	=	0.368 [mm]
V_{Sk}	=	3.941 [kN]	δ_v	=	0.236 [mm]
			δ_{NV}	=	0.437 [mm]

Comments: Tension displacements are valid with half of the required installation torque moment for uncracked concrete! Shear displacements are valid without friction between the concrete and the anchor plate! The gap due to the drilled hole and clearance hole tolerances are not included in this calculation!

The acceptable anchor displacements depend on the fastened construction and must be defined by the designer!

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7 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Checking the transfer of loads into the base material is required in accordance with EOTA TR 029, Section 7!
- The design is only valid if the clearance hole in the fixture is not larger than the value given in Table 4.1 of EOTA TR029! For larger diameters of the clearance hole see Chapter 1.1. of EOTA TR029!
- The accessory list in this report is for the information of the user only. In any case, the instructions for use provided with the product have to be followed to ensure a proper installation.
- Characteristic bond resistances depend on short- and long-term temperatures.
- Edge reinforcement is not required to avoid splitting failure

Fastening meets the design criteria!

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 DRAGONJA SKLADIŠČ
 IPE140-AB STEBER
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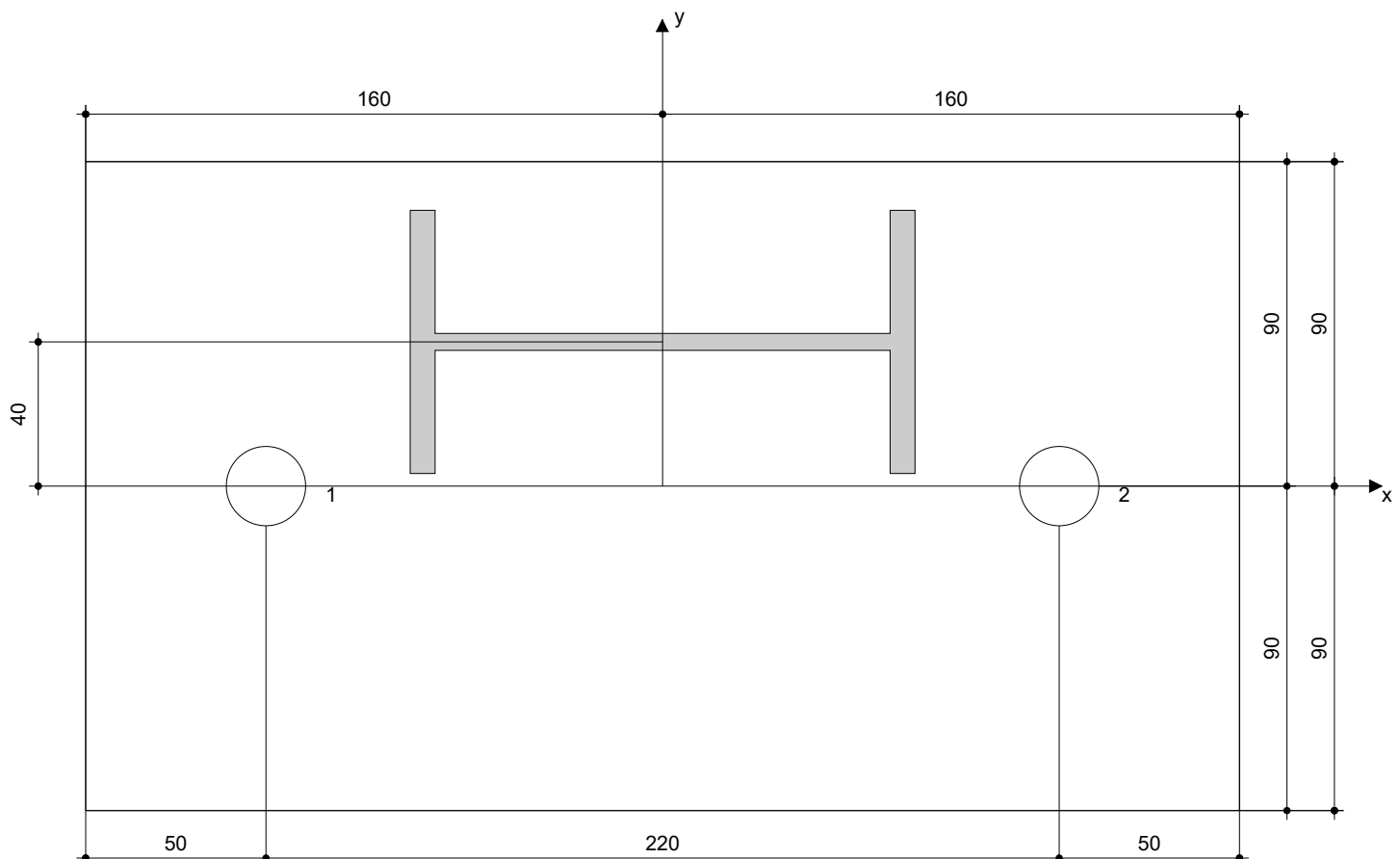
8 Installation data

Anchor plate, steel: -
 Profile: IPE; 140 x 73 x 5 x 7 mm
 Hole diameter in the fixture: $d_f = 22$ mm
 Plate thickness (input): 10 mm
 Recommended plate thickness: not calculated
 Drilling method: Hammer drilled
 Cleaning: No cleaning of the drilled hole is required

Anchor type and diameter: HIT-HY 200 + HIT-Z M20
 Installation torque: 0.150 kNm
 Hole diameter in the base material: 22 mm
 Hole depth in the base material: 190 mm
 Minimum thickness of the base material: 235 mm

8.1 Recommended accessories

Drilling	Cleaning	Setting
- Suitable Rotary Hammer - Properly sized drill bit	No accessory required	- Dispenser including cassette and mixer - Torque wrench



Coordinates Anchor [mm]

Anchor	x	y	C _{-x}	C _{+x}	C _{-y}	C _{+y}
1	-110	0	-	-	280	100
2	110	0	-	-	280	100

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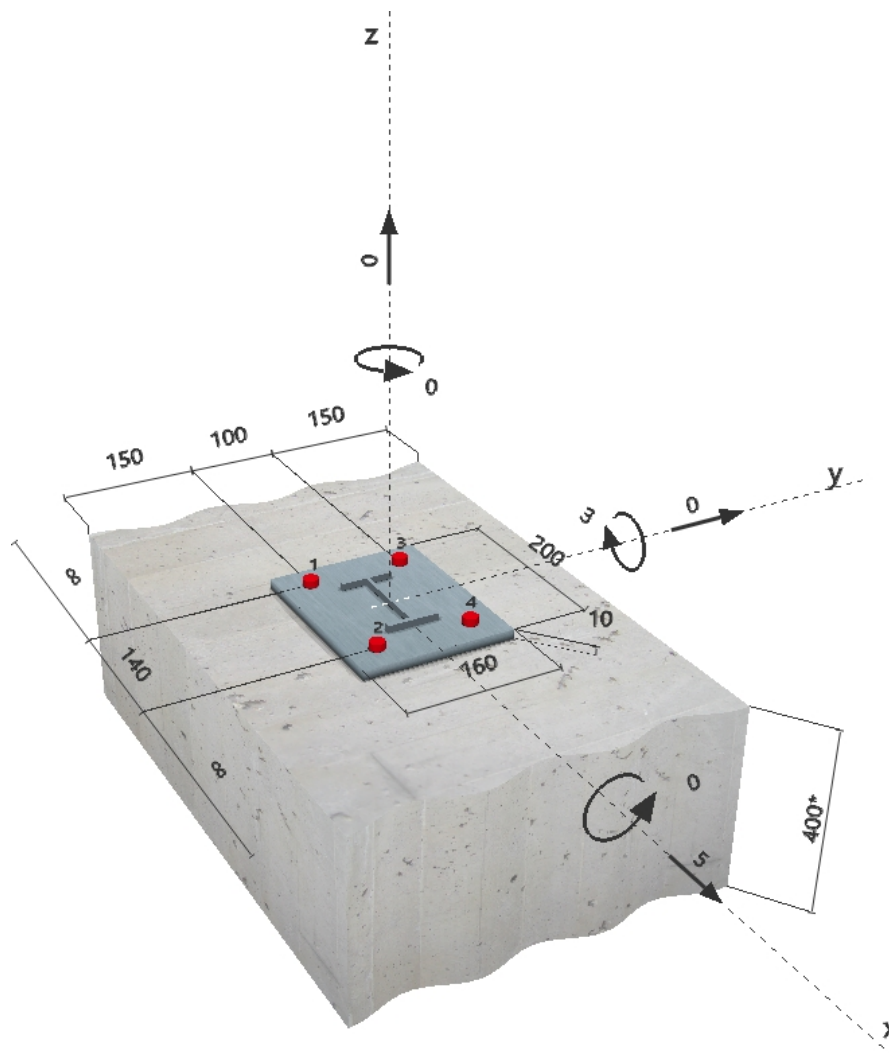
9 Remarks; Your Cooperation Duties

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- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

Specifier's comments:

1 Input data

Anchor type and diameter:	HIT-HY 200 + HIT-Z M16
Effective embedment depth:	$h_{ef,opti} = 96 \text{ mm}$ ($h_{ef,limit} = 192 \text{ mm}$)
Material:	DIN EN ISO 4042
Evaluation Service Report:	ETA 12/0006
Issued Valid:	18. 08. 2016 -
Proof:	Design method ETAG BOND (EOTA TR 029)
Stand-off installation:	$e_b = 0 \text{ mm}$ (no stand-off); $t = 10 \text{ mm}$
Anchor plate:	$l_x \times l_y \times t = 200 \text{ mm} \times 160 \text{ mm} \times 10 \text{ mm}$; (Recommended plate thickness: not calculated)
Profile:	IPE; ($L \times W \times T \times FT$) = $100 \text{ mm} \times 55 \text{ mm} \times 4 \text{ mm} \times 6 \text{ mm}$
Base material:	cracked concrete, C25/30, $f_{c,cube} = 30.00 \text{ N/mm}^2$; $h = 400 \text{ mm}$, Temp. short/long: 40/24 °C
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	no reinforcement or reinforcement spacing $\geq 150 \text{ mm}$ (any $\emptyset$) or $\geq 100 \text{ mm}$ ($\emptyset \leq 10 \text{ mm}$) no longitudinal edge reinforcement Reinforcement to control splitting according to EOTA TR 029, 5.2.2.6 present.


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2 Load case/Resulting anchor forces

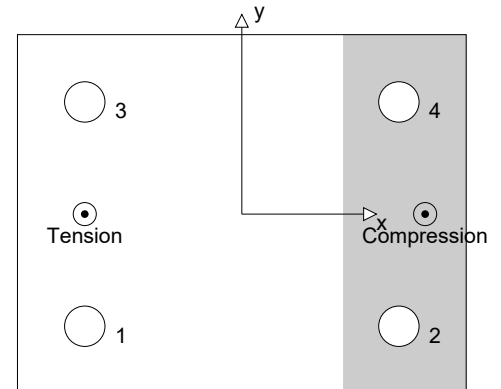
Load case: Design loads

Anchor reactions [kN]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	9.888	1.250	1.250	0.000
2	0.000	1.250	1.250	0.000
3	9.888	1.250	1.250	0.000
4	0.000	1.250	1.250	0.000

max. concrete compressive strain: 0.15 [%]
 max. concrete compressive stress: 4.50 [N/mm²]
 resulting tension force in (x/y)=(-70/0): 19.775 [kN]
 resulting compression force in (x/y)=(82/0): 19.775 [kN]



3 Tension load (EOTA TR 029, Section 5.2.2)

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Status
Steel Strength*	9.888	64.000	16	OK
Combined pullout-concrete cone failure**	19.775	95.348	21	OK
Concrete Breakout Strength**	19.775	33.316	60	OK
Splitting failure**	N/A	N/A	N/A	N/A

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

$N_{Rk,s}$ [kN]	$\gamma_{M,s}$	$N_{Rd,s}$ [kN]	N_{Sd} [kN]
96.000	1.500	64.000	9.888

3.2 Combined pullout-concrete cone failure

$A_{p,N}$ [mm ²]	$A_{p,N}^0$ [mm ²]	$\tau_{Rk,ucr,25}$ [N/mm ²]	$s_{cr,Np}$ [mm]	$c_{cr,Np}$ [mm]	c_{min} [mm]
111744	82944	24.00	288	144	150
$h_{ef,Helix}$ [mm]	ψ_c	$\tau_{Rk,cr}$ [N/mm ²]	k	$\psi_{g,Np}^0$	$\psi_{g,Np}$
96	1.000	22.00	2.300	1.000	1.000
$e_{c1,N}$ [mm]	$\psi_{ec1,Np}$	$e_{c2,N}$ [mm]	$\psi_{ec2,Np}$	$\psi_{s,Np}$	$\psi_{re,Np}$
0	1.000	0	1.000	1.000	1.000
$N_{Rk,p}^0$ [kN]	$N_{Rk,p}$ [kN]	$\gamma_{M,p}$	$N_{Rd,p}$ [kN]	N_{Sd} [kN]	
106.161	143.022	1.500	95.348	19.775	

3.3 Concrete Breakout Strength

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]		
111744	82944	144	288		
$e_{c1,N}$ [mm]	$\psi_{ec1,N}$	$e_{c2,N}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	1.000	1.000
k_1	$N_{Rk,c}^0$ [kN]	$\gamma_{M,c}$	$N_{Rd,c}$ [kN]	N_{Sd} [kN]	
7.200	37.094	1.500	33.316	19.775	

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4 Shear load (EOTA TR 029, Section 5.2.3)

	Load [kN]	Capacity [kN]	Utilization β_v [%]	Status
Steel Strength (without lever arm)*	1.250	38.400	4	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	5.000	99.021	6	OK
Concrete edge failure in direction y+**	2.500	62.469	5	OK

* anchor having the highest loading **anchor group (relevant anchors)

4.1 Steel Strength (without lever arm)

$V_{Rk,s}$ [kN]	$\gamma_{M,s}$	$V_{Rd,s}$ [kN]	V_{Sd} [kN]
48.000	1.250	38.400	1.250

4.2 Pryout Strength (Concrete Breakout Strength controls)

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	k-factor	k_1
166064	82944	144	288	2.000	7.200
$e_{c1,V}$ [mm]	$\psi_{ec1,N}$	$e_{c2,V}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	1.000	1.000
$N_{Rk,c}^0$ [kN]	$\gamma_{M,c,p}$	$V_{Rd,cp}$ [kN]	V_{Sd} [kN]		
37.094	1.500	99.021	5.000		

4.3 Concrete edge failure in direction y+

h_{ef} [mm]	d_{nom} [mm]	k_1	α	β	
96	16.0	1.700	0.080	0.064	
c_1 [mm]	$A_{c,V}$ [mm ²]	$A_{c,V}^0$ [mm ²]			
150	132750	101250			
$\psi_{s,V}$	$\psi_{h,V}$	$\psi_{\alpha,V}$	$e_{c,V}$ [mm]	$\psi_{ec,V}$	$\psi_{re,V}$
1.000	1.000	2.500	0	1.000	1.000
$V_{Rk,c}^0$ [kN]	$\gamma_{M,c}$	$V_{Rd,c}$ [kN]	V_{Sd} [kN]		
28.587	1.500	62.469	2.500		

5 Combined tension and shear loads (EOTA TR 029, Section 5.2.4)

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.594	0.050	1.500	47	OK

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

6 Displacements (highest loaded anchor)

Short term loading:

N_{Sk}	=	7.324 [kN]	δ_N	=	0.091 [mm]
V_{Sk}	=	0.926 [kN]	δ_V	=	0.037 [mm]
			δ_{NV}	=	0.098 [mm]

Long term loading:

N_{Sk}	=	7.324 [kN]	δ_N	=	0.319 [mm]
V_{Sk}	=	0.926 [kN]	δ_V	=	0.056 [mm]
			δ_{NV}	=	0.324 [mm]

Comments: Tension displacements are valid with half of the required installation torque moment for uncracked concrete! Shear displacements are valid without friction between the concrete and the anchor plate! The gap due to the drilled hole and clearance hole tolerances are not included in this calculation!

The acceptable anchor displacements depend on the fastened construction and must be defined by the designer!

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7 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Checking the transfer of loads into the base material is required in accordance with EOTA TR 029, Section 7!
- The design is only valid if the clearance hole in the fixture is not larger than the value given in Table 4.1 of EOTA TR029! For larger diameters of the clearance hole see Chapter 1.1. of EOTA TR029!
- The accessory list in this report is for the information of the user only. In any case, the instructions for use provided with the product have to be followed to ensure a proper installation.
- Characteristic bond resistances depend on short- and long-term temperatures.
- Edge reinforcement is not required to avoid splitting failure

Fastening meets the design criteria!

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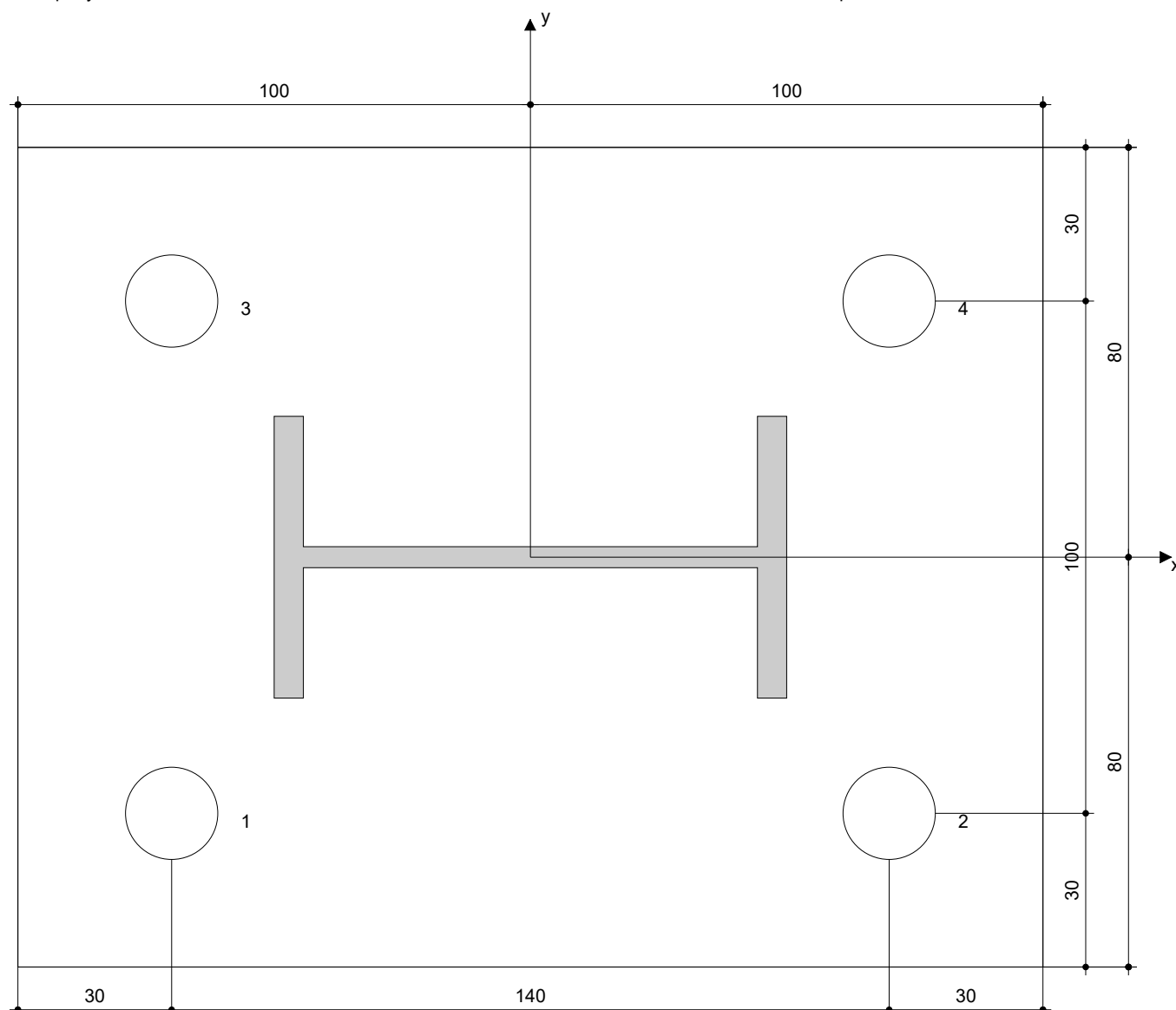
8 Installation data

Anchor plate, steel: -
 Profile: IPE; 100 x 55 x 4 x 6 mm
 Hole diameter in the fixture: $d_f = 18$ mm
 Plate thickness (input): 10 mm
 Recommended plate thickness: not calculated
 Drilling method: Hammer drilled
 Cleaning: No cleaning of the drilled hole is required

Anchor type and diameter: HIT-HY 200 + HIT-Z M16
 Installation torque: 0.080 kNm
 Hole diameter in the base material: 18 mm
 Hole depth in the base material: 160 mm
 Minimum thickness of the base material: 196 mm

8.1 Recommended accessories

Drilling	Cleaning	Setting
- Suitable Rotary Hammer - Properly sized drill bit	No accessory required	- Dispenser including cassette and mixer - Torque wrench



Coordinates Anchor [mm]

Anchor	x	y	C _{-x}	C _{+x}	C _{-y}	C _{+y}
1	-70	-50	-	-	150	250
2	70	-50	-	-	150	250
3	-70	50	-	-	250	150
4	70	50	-	-	250	150

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9 Remarks; Your Cooperation Duties

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- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

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Specifier's comments:

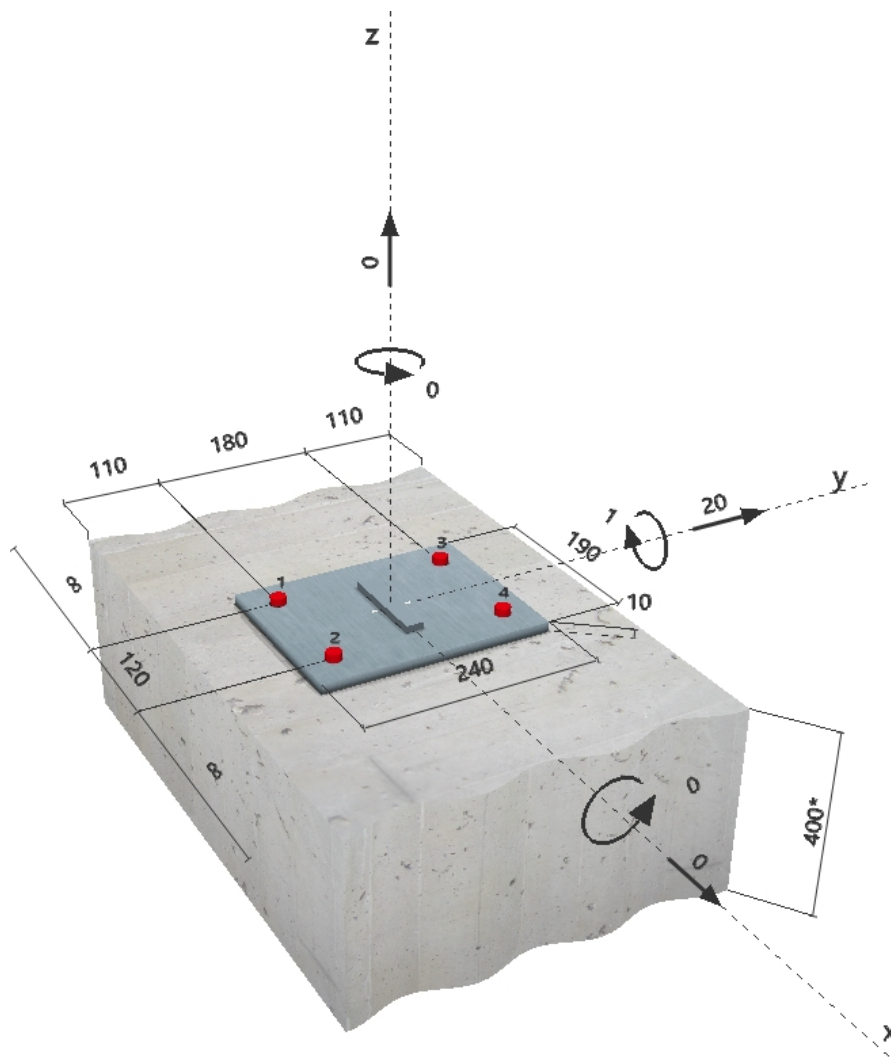
1 Input data

Anchor type and diameter:	HIT-HY 200 + HIT-Z M16
Effective embedment depth:	$h_{ef, opti} = 187 \text{ mm}$ ($h_{ef, limit} = 192 \text{ mm}$)
Material:	DIN EN ISO 4042
Evaluation Service Report:	ETA 12/0006
Issued Valid:	18. 08. 2016 -
Proof:	Design method ETAG BOND (EOTA TR 029)
Stand-off installation:	$e_b = 0 \text{ mm}$ (no stand-off); $t = 10 \text{ mm}$
Anchor plate:	$l_x \times l_y \times t = 190 \text{ mm} \times 240 \text{ mm} \times 10 \text{ mm}$; (Recommended plate thickness: not calculated)
Profile:	Flat bar; ($L \times W \times T$) = $100 \text{ mm} \times 18 \text{ mm} \times 0 \text{ mm}$
Base material:	cracked concrete, C25/30, $f_{c, cube} = 30.00 \text{ N/mm}^2$; $h = 400 \text{ mm}$, Temp. short/long: 40/24 °C
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	no reinforcement or reinforcement spacing $\geq 150 \text{ mm}$ (any $\emptyset$) or $\geq 100 \text{ mm}$ ($\emptyset \leq 10 \text{ mm}$) no longitudinal edge reinforcement Reinforcement to control splitting according to EOTA TR 029, 5.2.2.6 present.



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2 Load case/Resulting anchor forces

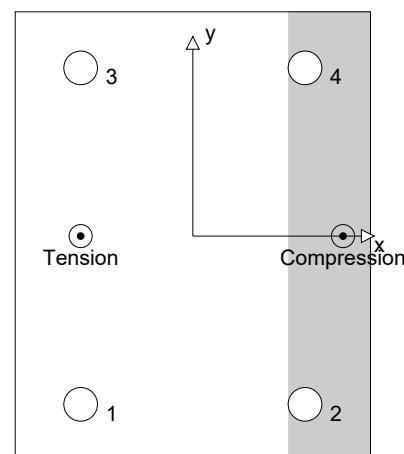
Load case: Design loads

Anchor reactions [kN]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	3.563	5.000	0.000	5.000
2	0.000	5.000	0.000	5.000
3	3.563	5.000	0.000	5.000
4	0.000	5.000	0.000	5.000

max. concrete compressive strain: 0.04 [%]
 max. concrete compressive stress: 1.35 [N/mm²]
 resulting tension force in (x/y)=(-60/0): 7.126 [kN]
 resulting compression force in (x/y)=(80/0): 7.126 [kN]



3 Tension load (EOTA TR 029, Section 5.2.2)

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Status
Steel Strength*	3.563	64.000	6	OK
Combined pullout-concrete cone failure**	7.126	91.334	8	OK
Concrete Breakout Strength**	7.126	39.195	19	OK
Splitting failure**	N/A	N/A	N/A	N/A

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

$N_{Rk,s}$ [kN]	$\gamma_{M,s}$	$N_{Rd,s}$ [kN]	N_{Sd} [kN]
96.000	1.500	64.000	3.563

3.2 Combined pullout-concrete cone failure

$A_{p,N}$ [mm ²]	$A_{p,N}^0$ [mm ²]	$\tau_{Rk,ucr,25}$ [N/mm ²]	$s_{cr,Np}$ [mm]	$c_{cr,Np}$ [mm]	c_{min} [mm]
115200	82944	24.00	288	144	110
$h_{ef,Helix}$ [mm]	ψ_c	$\tau_{Rk,cr}$ [N/mm ²]	k	$\psi_{g,Np}^0$	$\psi_{g,Np}$
96	1.000	22.00	2.300	1.000	1.000
$e_{c1,N}$ [mm]	$\psi_{ec1,Np}$	$e_{c2,N}$ [mm]	$\psi_{ec2,Np}$	$\psi_{s,Np}$	$\psi_{re,Np}$
0	1.000	0	1.000	0.929	1.000
$N_{Rk,p}^0$ [kN]	$N_{Rk,p}$ [kN]	$\gamma_{M,p}$	$N_{Rd,p}$ [kN]	N_{Sd} [kN]	
106.161	137.001	1.500	91.334	7.126	

3.3 Concrete Breakout Strength

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]		
224400	314721	281	561		
$e_{c1,N}$ [mm]	$\psi_{ec1,N}$	$e_{c2,N}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	0.818	1.000
k_1	$N_{Rk,c}^0$ [kN]	$\gamma_{M,c}$	$N_{Rd,c}$ [kN]	N_{Sd} [kN]	
7.200	100.845	1.500	39.195	7.126	

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4 Shear load (EOTA TR 029, Section 5.2.3)

	Load [kN]	Capacity [kN]	Utilization β_v [%]	Status
Steel Strength (without lever arm)*	5.000	38.400	14	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	20.000	95.157	22	OK
Concrete edge failure in direction y+**	20.000	20.008	100	OK

* anchor having the highest loading **anchor group (relevant anchors)

4.1 Steel Strength (without lever arm)

$V_{Rk,s}$ [kN]	$\gamma_{M,s}$	$V_{Rd,s}$ [kN]	V_{Sd} [kN]
48.000	1.250	38.400	5.000

4.2 Pryout Strength (Concrete Breakout Strength controls)

$A_{c,N}$ [mm ²]	$A_{c,N}^0$ [mm ²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	k-factor	k_1
272400	314721	281	561	2.000	7.200
$e_{c1,V}$ [mm]	$\psi_{ec1,N}$	$e_{c2,V}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0	1.000	0	1.000	0.818	1.000
$N_{Rk,c}^0$ [kN]	$\gamma_{M,c,p}$	$V_{Rd,cp}$ [kN]	V_{Sd} [kN]		
100.845	1.500	95.157	20.000		

4.3 Concrete edge failure in direction y+

h_{ef} [mm]	d_{nom} [mm]	k_1	α	β	
187	16.0	1.700	0.130	0.068	
c_1 [mm]	$A_{c,V}$ [mm ²]	$A_{c,V}^0$ [mm ²]			
110	74250	54450			
$\psi_{s,V}$	$\psi_{h,V}$	$\psi_{\alpha,V}$	$e_{c,V}$ [mm]	$\psi_{ec,V}$	$\psi_{re,V}$
1.000	1.000	1.000	0	1.000	1.000
$V_{Rk,c}^0$ [kN]	$\gamma_{M,c}$	$V_{Rd,c}$ [kN]	V_{Sd} [kN]		
22.009	1.500	20.008	20.000		

5 Combined tension and shear loads (EOTA TR 029, Section 5.2.4)

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.182	1.000	1.000	99	OK

$$(\beta_N + \beta_V) / 1.2 \leq 1.0$$

6 Displacements (highest loaded anchor)

Short term loading:

N_{Sk}	=	2.639 [kN]	δ_N	=	0.017 [mm]
V_{Sk}	=	7.407 [kN]	δ_V	=	0.296 [mm]
			δ_{NV}	=	0.297 [mm]

Long term loading:

N_{Sk}	=	2.639 [kN]	δ_N	=	0.059 [mm]
V_{Sk}	=	7.407 [kN]	δ_V	=	0.444 [mm]
			δ_{NV}	=	0.448 [mm]

Comments: Tension displacements are valid with half of the required installation torque moment for uncracked concrete! Shear displacements are valid without friction between the concrete and the anchor plate! The gap due to the drilled hole and clearance hole tolerances are not included in this calculation!

The acceptable anchor displacements depend on the fastened construction and must be defined by the designer!

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7 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Checking the transfer of loads into the base material is required in accordance with EOTA TR 029, Section 7!
- The design is only valid if the clearance hole in the fixture is not larger than the value given in Table 4.1 of EOTA TR029! For larger diameters of the clearance hole see Chapter 1.1. of EOTA TR029!
- The accessory list in this report is for the information of the user only. In any case, the instructions for use provided with the product have to be followed to ensure a proper installation.
- Characteristic bond resistances depend on short- and long-term temperatures.
- Edge reinforcement is not required to avoid splitting failure

Fastening meets the design criteria!

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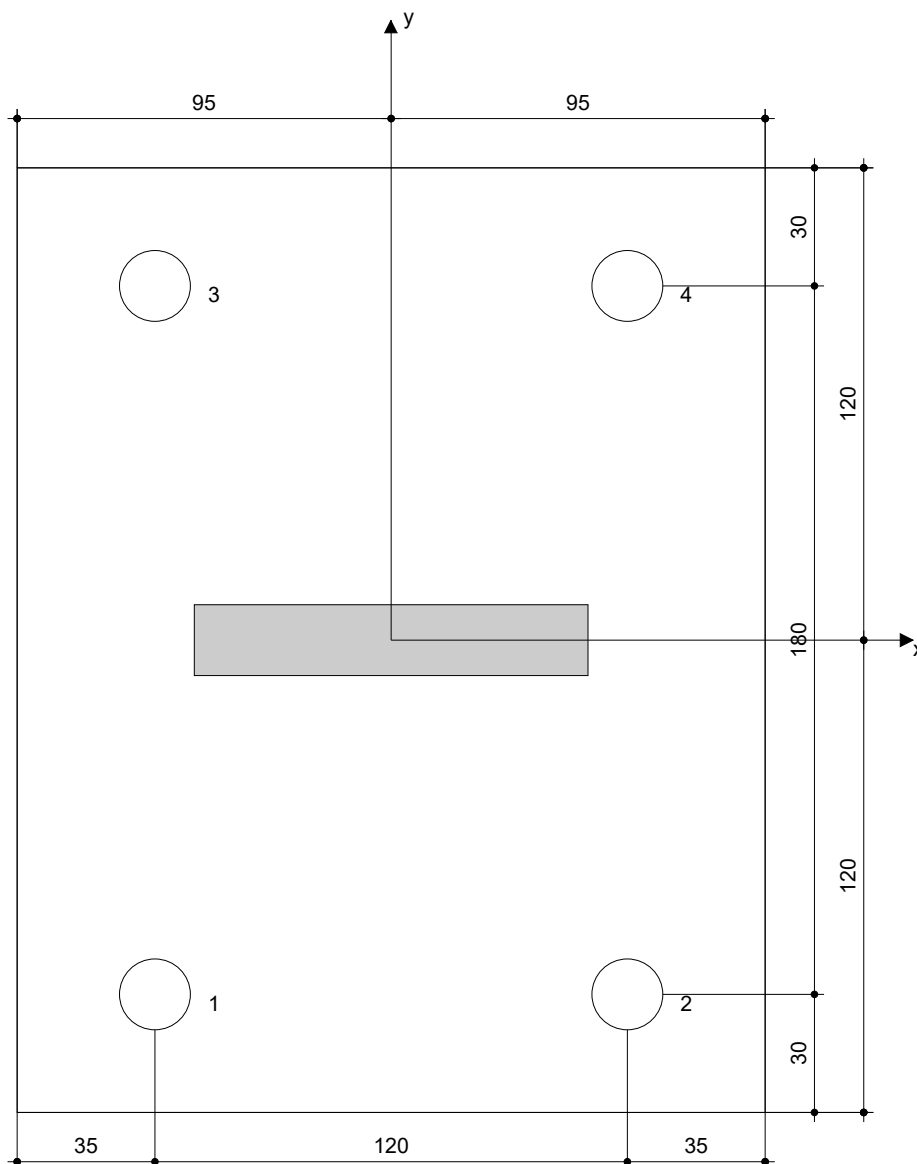
8 Installation data

Anchor plate, steel: -
 Profile: Flat bar; 100 x 18 x 0 mm
 Hole diameter in the fixture: $d_f = 18$ mm
 Plate thickness (input): 10 mm
 Recommended plate thickness: not calculated
 Drilling method: Hammer drilled
 Cleaning: No cleaning of the drilled hole is required

Anchor type and diameter: HIT-HY 200 + HIT-Z M16
 Installation torque: 0.080 kNm
 Hole diameter in the base material: 18 mm
 Hole depth in the base material: 251 mm
 Minimum thickness of the base material: 287 mm

8.1 Recommended accessories

Drilling	Cleaning	Setting
- Suitable Rotary Hammer - Properly sized drill bit	No accessory required	- Dispenser including cassette and mixer - Torque wrench



Coordinates Anchor [mm]

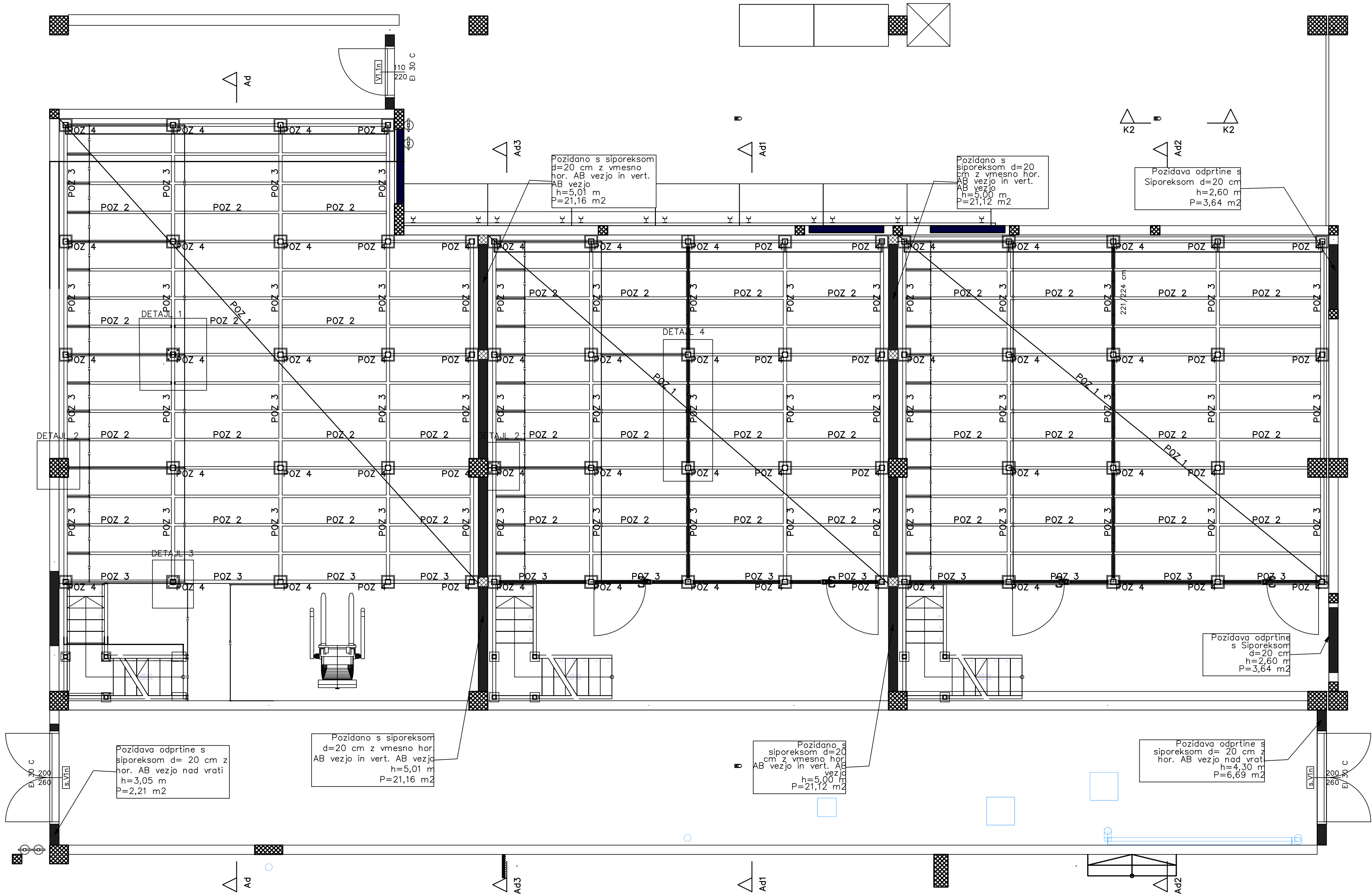
Anchor	x	y	C _{-x}	C _{+x}	C _{-y}	C _{+y}
1	-60	-90	-	-	110	290
2	60	-90	-	-	110	290
3	-60	90	-	-	290	110
4	60	90	-	-	290	110

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9 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.



Opombe:

Beton AB vezi C-30/37, XC4, S3, D32, zašč.plast a=3cm

Armatura S500

Specifikacija jeklene konstrukcije je prikazana v načrtu arhitekture

Kvaliteta materiala S235, SIST EN 10025

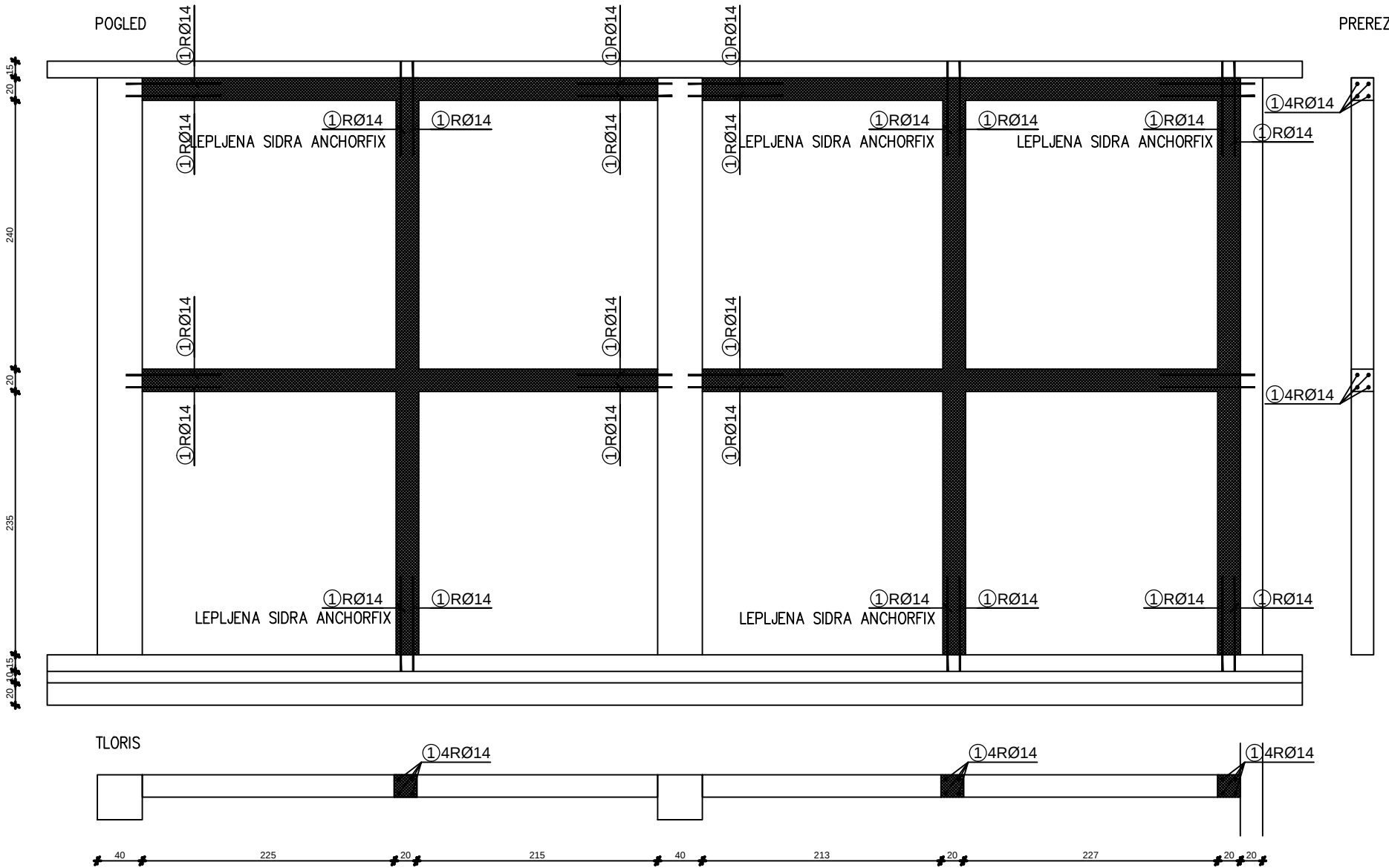
Kvaliteta vijčnega materiala najmanj 5.6

Kvaliteta zvarjenih spojev I po SIST EN 1090-2, montaža po SIST EN 1090-2

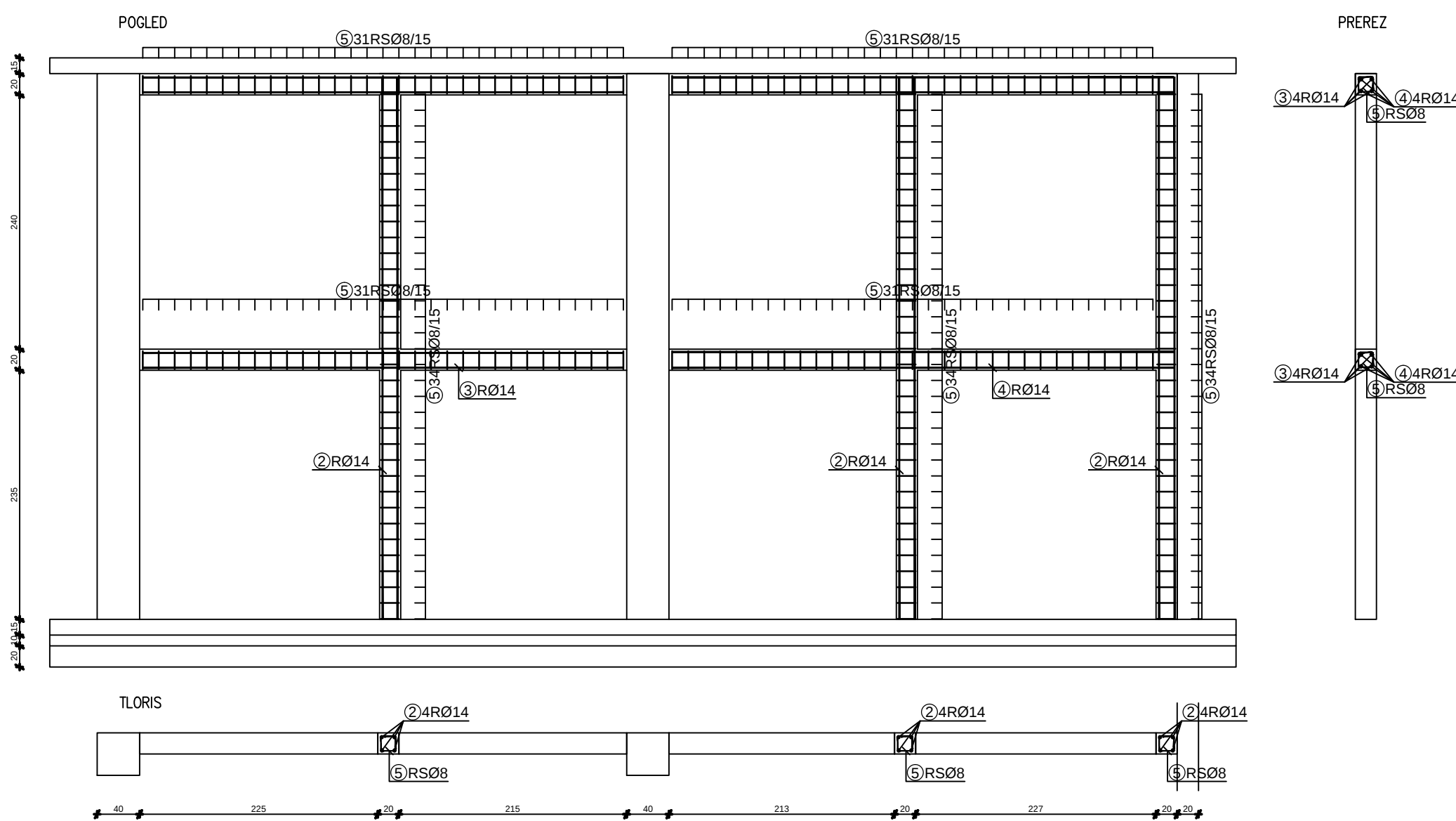
Antikorozijska zaščita, osnovna+finalna, minimalna debelina zaščite 150 mikronov

IZVAJALEC:  SVETOVANJE IN PROJEKTIRANJE REJEC MILAN s.p. Identifikacijska številka: 1576				INVESTITOR: OBČINA PIRAN TARTINJEV TRG 2, 6330 PIRAN	
VODJA PROJEKCIJSKEGA TIMA: MILAN TOMAC, u.d.i.o.				DEL OBJEKTA/SISTEM: UREDITEV SKLADIŠČ V STAVBI PREDDELAVE VZDRŽEVALNA DELA	
ODG.PROJEKTANT: REJEC MILAN, u.d.i.g.				VSEBINA/VNOSLOV RISBE: TLORIS JEKLENE KONSTRUKCIJE POZICIJSKI NAČRTI	
MERILO: 1:50				FAZA: VZDRŽEVALNA DELA	
DATUM: NOVEMBER 2025				ŠTEV. NAČRTA: 74/2025	
				ŠTEV. LISTA: 1	

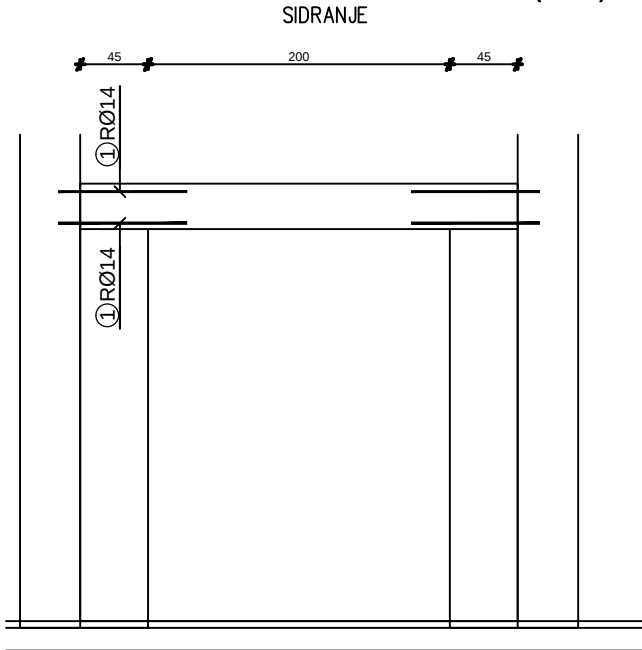
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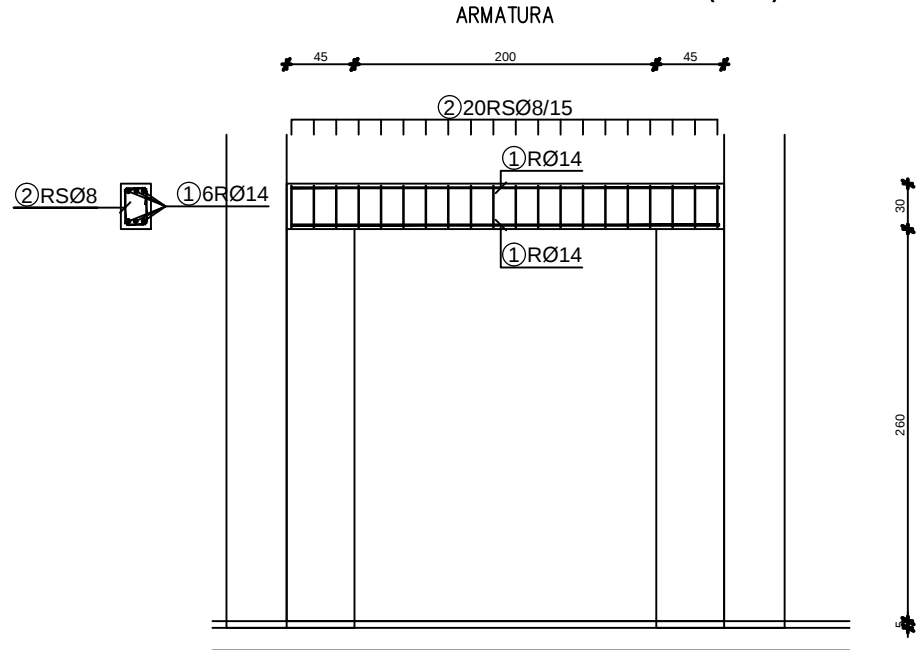
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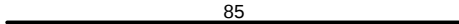
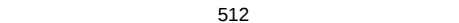
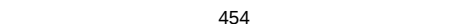
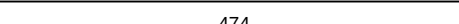
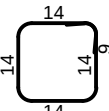
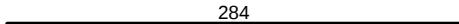
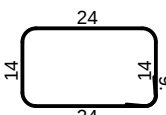


PREKLADA NAD VRATI (2X)



PREKLADA NAD VRATI (2X)

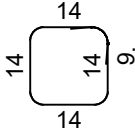
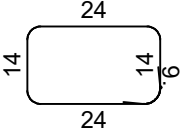


Palice - specifikacija						
ozn	oblika in mere [cm]	Ø	lg [m]	n [kos]	lgn [m]	Opomba
OJAČITVE PREDELNIH STEN (2 kos)						
1		14	0.85	144	122.40	
2		14	5.12	24	122.88	
3		14	4.54	16	72.64	
4		14	4.74	16	75.84	
5		8	0.74	452	334.48	
PREKLADA NAD VRATI (2 kos)						
1		14	2.84	12	34.08	
2		8	0.94	40	37.60	
Palice - izvleček						
Ø [mm]	lgn [m]	Teža enote [kg/m]		Teža [kg]		
S400						
8	372.08	0.41		152.18		
14	427.84	1.25		535.66		
Skupaj (S400)						687.84
Skupaj						687.84

Opombe:

Dimenzije preveriti na kraju samem!
Beton AB VEZI C-30/37, XC4, S3, D32, zašč.plast a=3cm
Armatura S500

IZVAJALEC:  SVETOVANJE IN PROJEKTIRANJE REJEC MILAN s.p.				INVESTITOR: OBČINA PIRAN TARTINIJEV TRG 2, 6330 PIRAN		
Identifikacijska številka 1376				DEL OBJEKTA/SISTEM: UREDITEV SKLADIŠČA V STAVBI PREDELAVE VZDRŽEVALNA DELA		
IME:		ID.ŠT.	PODPIS:	VSEBINA/ANALOV RISBE: OJAČITVE PREDELNIH STEN ARMATURA		
VODJA PROJEKTIRANJA:		MILAN TOMAC, u.d.i.a.		FAZA: VZDRŽEVALNA DELA		
ODG.PROJEKTANT:		REJEC MILAN, u.d.i.g.		MERILO: 1:50		
DATUM: NOVEMBER 2025		ŠTEV. NARČITA: 74/2025		ŠTEV. LISTA: 2		

Palice - specifikacija						
ozn	oblika in mere [cm]	Ø	lg [m]	n [kos]	lg _n [m]	Opomba
OJAČITVE PREDELNIH STEN (2 kos)						
1	85	14	0.85	144	122.40	
2	512	14	5.12	24	122.88	
3	454	14	4.54	16	72.64	
4	474	14	4.74	16	75.84	
5		8	0.74	452	334.48	
PREKLADA NAD VRATI (2 kos)						
1	284	14	2.84	12	34.08	
2		8	0.94	40	37.60	

Palice - izvleček			
Ø [mm]	lgn [m]	Teža enote [kg/m']	Teža [kg]
S400			
8	372.08	0.41	152.18
14	427.84	1.25	535.66
Skupaj (S400)			687.84
Skupaj			687.84