Specifier's comments: Can be used without Dynamic set. Shear loads are very small, hence no benefit of Dynamic set.

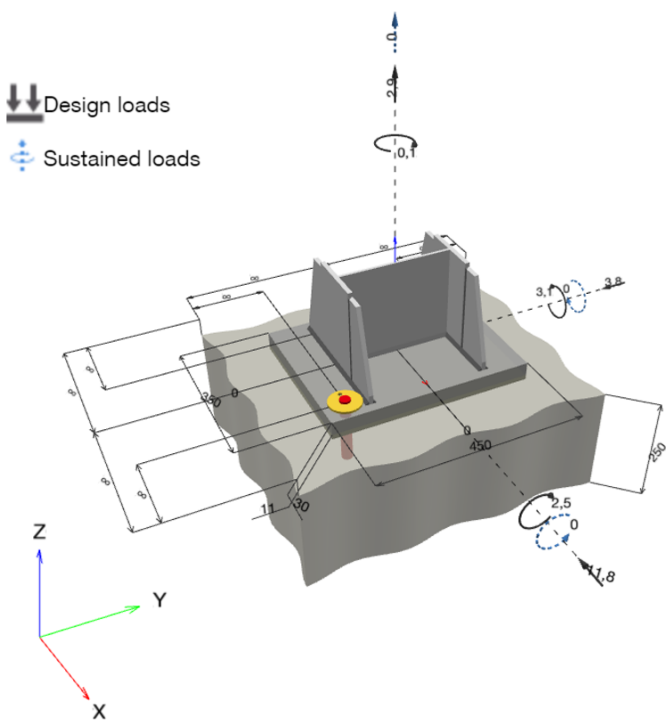
1 Anchor Design

1.1 Input data

Anchor type and size:	**HIT-HY 200-A + HAS-U 8.8 M24**
Return period (service life in years):	50
Item number:	2223889 HAS-U 8.8 M24x300 (insert) / 2022696 HIT-HY 200-A (mortar)
Hilti Filling Set or any suitable annular gap filling solution	
Effective embedment depth:	$h_{ef,act}$ = 100.0 mm ($h_{ef,limit}$ = - mm)
Material:	8.8
Approval No.:	ETA 11/0493
Issued I Valid:	10.12.2021 | -
Proof:	Engineering judgement SOFA BOND - based on ETAG BOND testing
Stand-off installation:	without clamping (anchor); restraint level (baseplate): 1.50; e_b = 11.0 mm; t = 30.0 mm
	Hilti Grout: CB-G EG, epoxy, $f_{c,Grout}$ = 120.00 N/mm^2
Baseplate^{CBFEM} :	l_x x l_y x t = 350.0 mm x 450.0 mm x 30.0 mm;
Profile:	IPE, IPE 270 ; (L x W x T x FT) = 270.0 mm x 135.0 mm x 6.6 mm x 10.2 mm
Base material:	cracked concrete, C30/37, $f_{c,cube}$ = 37.00 N/mm^2; h = 250.0 mm, Temp. short/long: 40/24 °C
Installation:	**Diamond cored hole with roughening, Installation condition: Dry**
Reinforcement:	Reinforcement spacing < 150 mm (any Ø) or < 100 mm (Ø <= 10 mm)
	with longitudinal edge reinforcement d >= 12.0 [mm]
	Reinforcement to control splitting according to EOTA TR 029, 5.2.2.6 present.

^{CBFEM} - The anchor calculation is based on a component-based Finite Element Method (CBFEM)

Geometry [mm] & Loading [kN, kNm]



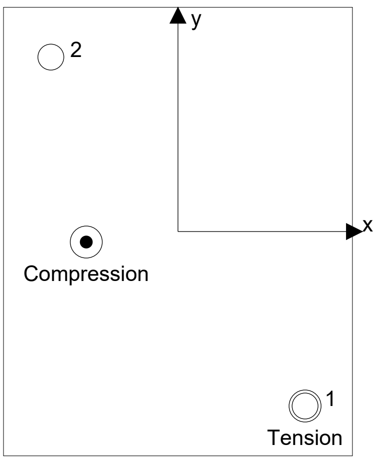
1.1.1 Load combination

Case	Description	Forces [kN] / Moments [kNm]	Seismic	Fire	Max. Util. Anchor [%]
1	(1) Static +1,35*Static Terminal	$N = -14.300$; $V_x = 1.000$; $V_y = -0.300$; $M_x = -1.300$; $M_y = -1.200$; $M_z = 0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	5
2	(2) Static +1,35*Static Terminal	$N = -14.300$; $V_x = 3.600$; $V_y = -0.300$; $M_x = -1.600$; $M_y = -1.800$; $M_z = -0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	15
3	(5) Static +1,35*Static Terminal	$N = -54.500$; $V_x = -3.600$; $V_y = 3.500$; $M_x = -0.200$; $M_y = 1.800$; $M_z = 0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	5
4	(6) Static +1,35*Static Terminal	$N = -14.300$; $V_x = -1.000$; $V_y = -0.300$; $M_x = -0.200$; $M_y = 1.200$; $M_z = -0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	4
5	(1) Static + Dynamic Termin (Short circuit)	$N = 2.900$; $V_x = 3.000$; $V_y = -1.900$; $M_x = -2.500$; $M_y = -2.500$; $M_z = 0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	46
6	(2) Static + Dynamic Termin (Short circuit)	$N = 2.900$; $V_x = 5.600$; $V_y = -1.900$; $M_x = -2.500$; $M_y = -3.100$; $M_z = -0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	52
7	(5) Static + Dynamic Termin (Short circuit)	$N = -71.700$; $V_x = -5.600$; $V_y = 5.100$; $M_x = -1.100$; $M_y = 3.100$; $M_z = 0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	7
8	(6) Static + Dynamic Termin (Short circuit)	$N = 0.000$; $V_x = 0.000$; $V_y = -1.900$; $M_x = -1.100$; $M_y = 2.500$; $M_z = -0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	48
9	Decisive combination 6 with shear loads doubled	$N = 2.900$; $V_x = -11.800$; $V_y = -3.800$; $M_x = -2.500$; $M_y = -3.100$; $M_z = -0.100$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	52

1.2 Load case/Resulting anchor forces

Hammer Drilling is allowed, too

Controlling load case: 9 Decisive combination 6 with shear loads doubled



Anchor reactions [kN]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	14.956	2.815	2.603	-1.071
2	0.000	3.110	2.997	-0.829

resulting tension force in (x/y)=(127.5/-175.0): 14.956 [kN]
resulting compression force in (x/y)=(-92.0/-10.5): 12.704 [kN]

Anchor forces are calculated based on a component-based Finite Element Method (CBFEM)

1.3 Tension load (EOTA TR 029, Section 5.2.2)

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Status
Steel failure*	14.956	188.267	8	OK
Combined pullout-concrete cone failure**	14.956	44.434	34	OK
Concrete Breakout failure**	14.956	29.197	52	OK
Splitting failure**	N/A	N/A	N/A	N/A

* highest loaded anchor   **anchor group (anchors in tension)

1.3.1 Steel failure

$N_{Rk,s}$ [kN]	$\gamma_{M,s}$	$N_{Rd,s}$ [kN]	N_{Sd} [kN]
282.400	1.500	188.267	14.956

1.3.2 Combined pullout-concrete cone failure

$A_{p,N}$ [mm^2]	$A^0_{p,N}$ [mm^2]	$\tau_{Rk,ucr,25}$ [N/mm^2]	$s_{cr,Np}$ [mm]	$c_{cr,Np}$ [mm]	c_{min} [mm]
90,000	90,000	18.00	300.0	150.0	∞

ψ_c	$\tau_{Rk,cr}$ [N/mm^2]	k	$\psi^0_{g,Np}$	$\psi_{g,Np}$
1.040	8.84	2.300	1.000	1.000

$e_{c1,N}$ [mm]	$\psi_{ec1,Np}$	$e_{c2,N}$ [mm]	$\psi_{ec2,Np}$	$\psi_{s,Np}$	$\psi_{re,Np}$
0.0	1.000	0.0	1.000	1.000	1.000

$N^0_{Rk,p}$ [kN]	$N_{Rk,p}$ [kN]	$\gamma_{M,p}$	$N_{Rd,p}$ [kN]	N_{Sd} [kN]
66.651	66.651	1.500	44.434	14.956

Group anchor ID
1

1.3.3 Concrete Breakout failure

$A_{c,N}$ [mm^2]	$A^0_{c,N}$ [mm^2]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]
90,000	90,000	150.0	300.0

$e_{c1,N}$ [mm]	$\psi_{ec1,N}$	$e_{c2,N}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0.0	1.000	0.0	1.000	1.000	1.000

k_1	$N^0_{Rk,c}$ [kN]	$\gamma_{M,c}$	$N_{Rd,c}$ [kN]	N_{Sd} [kN]
7.200	43.796	1.500	29.197	14.956

Group anchor ID
1

1.4 Shear load (EOTA TR 029, Section 5.2.3)

to assume that Hilti Dynamic Set is not used the governing shear loads are doubled. For tension Loads dynamic set has no influence.

	Load [kN]	Capacity [kN]	Utilization β_V [%]	Status
Steel failure (without lever arm)*	3.110	112.960	3	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout failure**	3.110	58.395	6	OK
Concrete edge failure in direction **	N/A	N/A	N/A	N/A

* highest loaded anchor **anchor group (relevant anchors)

1.4.1 Steel failure (without lever arm)

$V_{Rk,s}$ [kN]	$\gamma_{M,s}$	$V_{Rd,s}$ [kN]	V_{Sd} [kN]
141.200	1.250	112.960	3.110

1.4.2 Pryout failure (concrete cone relevant)

$A_{c,N}$ [mm^2]	$A^0_{c,N}$ [mm^2]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	k-factor
90,000	90,000	150.0	300.0	2.000

$e_{c1,V}$ [mm]	$\psi_{ec1,N}$	$e_{c2,V}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0.0	1.000	0.0	1.000	1.000	1.000

$N^0_{Rk,c}$ [kN]	$\gamma_{M,c,p}$	$V_{Rd,cp}$ [kN]	V_{Sd} [kN]
43.796	1.500	58.395	3.110

Group anchor ID
2

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

Steel failure

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.512	0.053	1.500	38	OK

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

1.6 Warnings

- The anchor design methods in PROFIS Engineering require rigid baseplates as per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the baseplate are not considered - the baseplate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required baseplate thickness with CBFEM to limit the stress of the baseplate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Engineering. 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.
- Drilled 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.
- The design method SOFA 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 Filling set) or by other suitable means
- The compliance with current standards (e.g. EN 1993, AS 4100:1998, etc.) is the responsibility of the user
- An SLS-check is not performed for SOFA and has to be provided by the user!
- The anchor design methods in PROFIS Engineering require rigid baseplates, as per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means that the baseplate should be sufficiently rigid to prevent load re-distribution to the anchors due to elastic/plastic displacements. The user accepts that the baseplate is considered close to rigid by engineering judgment."
- The characteristic bond resistances depend on the return period (service life in years): 50

1.7 Installation data

Baseplate, steel: S 355; E = 210,000.00 N/mm^2; f_{yk} = 355.00 N/mm^2
Profile: IPE, IPE 270 ; (L x W x T x FT) = 270.0 mm x 135.0 mm x 6.6 mm x 10.2 mm
Hole diameter in the fixture: d_f = 26.0 mm
Plate thickness (input): 30.0 mm

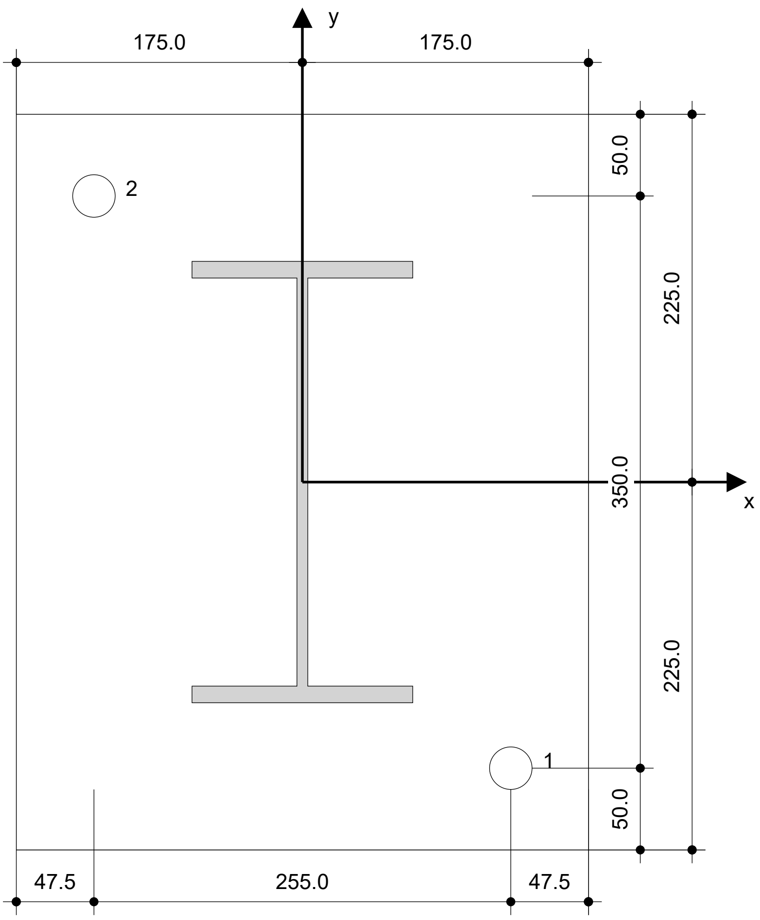
Drilling method: Core drilled + Roughening tool
Cleaning: Compressed air cleaning of the drilled hole according to instructions for use is required

Anchor type and size: HIT-HY 200-A + HAS-U 8.8 M24
Item number: 2223889 HAS-U 8.8 M24x300 (insert) / 2022696 HIT-HY 200-A (mortar)
Maximum installation torque: 200 Nm
Hole diameter in the base material: 28.0 mm
Hole depth in the base material: 100.0 mm
Minimum thickness of the base material: 156.0 mm

Hilti HAS-U threaded rod with HIT-HY 200 injection mortar with 100 mm embedment h_ef, M24, Steel galvanized, Core drilled (with Roughening Tool) installation per ETA 11/0493, with annular gaps filled with Hilti Filling Set or any suitable gap solutions

1.7.1 Recommended accessories

Drilling	Cleaning	Setting
• Diamond core rig • Roughening tool	• Compressed air with required accessories to blow from the bottom of the hole	• Dispenser including cassette and mixer • Hilti Filling Set • Torque wrench



Coordinates Anchor [mm]

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	127.5	-175.0	-	-	-	-
2	-127.5	175.0	-	-	-	-

2 Baseplate design

2.1 Input data

Baseplate:	Shape: Rectangular l_x x l_y x t = 350.0 mm x 450.0 mm x 30.0 mm Calculation: CBFEM Material: S 355; F_y = 355.00 N/mm²; ε_{lim} = 5.00%
Anchor type and size:	HIT-HY 200-A + HAS-U 8.8 M24, h_{ef} = 100.0 mm
Anchor stiffness:	The anchor is modelled considering stiffness values determined from load displacement curves tested in an independent laboratory. Please note that no simple replacement of the anchor is possible as the anchor stiffness has a major impact on the load distribution results.
Design method:	EN based design using component-based FEM
Stand-off installation:	e_b = 11.0 mm (Stand-off with grouting); t = 30.0 mm
Profile:	IPE 270 ; (L x W x T x FT) = 270.0 mm x 135.0 mm x 6.6 mm x 10.2 mm Material: S 355; F_y = 355.00 N/mm²; ε_{lim} = 5.00% Eccentricity x: 0.0 mm Eccentricity y: 0.0 mm
Base material:	Cracked concrete; C30/37; $f_{c,cyl}$ = 30.00 N/mm²; h = 250.0 mm; E = 33,000.00 N/mm²; G = 13,750.00 N/mm²; v = 0.20
Welds (profile to baseplate):	Type of redistribution: Plastic Material: S 355
Stiffeners:	Geometry: Chamfered; size = l_x x l_y x t = 200.0 mm x 87.0 mm x 10.0 mm Material: S 355; F_y = 355.00 N/mm²; ε_{lim} = 5.00%
Welds (stiffeners to profile/baseplate):	Type of redistribution: Plastic Material: S 355
Mesh size:	Number of elements on edge: 8 Min. size of element: 10.0 mm Max size of element: 50.0 mm

2.2 Summary

	Description	Profile		Stiffeners		Baseplate			Welds [%]	Concrete [%]
		σ_{Ed} [N/mm²]	ε_{Pl} [%]	σ_{Ed} [N/mm²]	ε_{Pl} [%]	σ_{Ed} [N/mm²]	ε_{Pl} [%]	Hole bearing [%]		
1	(1) Static +1,35*Static Terminal	26.15	0.00	13.19	0.00	3.78	0.00	1	4	1
2	(2) Static +1,35*Static Terminal	55.39	0.00	18.20	0.00	4.41	0.00	1	4	2
3	(5) Static +1,35*Static Terminal	61.95	0.00	23.88	0.00	6.75	0.00	1	6	3
4	(6) Static +1,35*Static Terminal	25.34	0.00	11.71	0.00	2.98	0.00	1	3	1
5	**(1) Static + Dynamic Termin (Short circuit)**	63.99	0.00	24.82	0.00	14.00	0.00	1	**8**	5
6	(2) Static + Dynamic Termin (Short circuit)	86.09	0.00	33.45	0.00	16.70	0.00	1	8	4
7	**(5) Static + Dynamic Termin (Short circuit)**	**95.31**	**0.00**	**35.49**	**0.00**	9.31	0.00	1	8	4
8	**(6) Static + Dynamic Termin (Short circuit)**	44.00	0.00	23.99	0.00	**22.76**	**0.00**	**1**	7	**6**
9	Decisive	58.84	0.00	26.14	0.00	19.99	0.00	2	8	4

combination 6 with shear loads doubled

2.3 Baseplate plate classification

Results below are displayed for the decisive load combinations: (6) Static + Dynamic Termin (Short circuit)

Anchor tension forces	Equivalent rigid baseplate (CBFEM)	Component-based Finite Element Method (CBFEM) baseplate
Anchor 1	6.302 kN	11.688 kN
Anchor 2	11.824 kN	13.726 kN

User accepted to consider the selected baseplate as rigid by his/her engineering judgement. This means the anchor design guidelines can be applied.

2.4 Profile/Stiffeners/Plate

Profile and stiffeners are verified at the level of the steel to concrete connection. The connection design does not replace the steel design for critical cross sections, which should be performed outside of PROFIS Engineering.

2.4.1 Equivalent stress and plastic strain

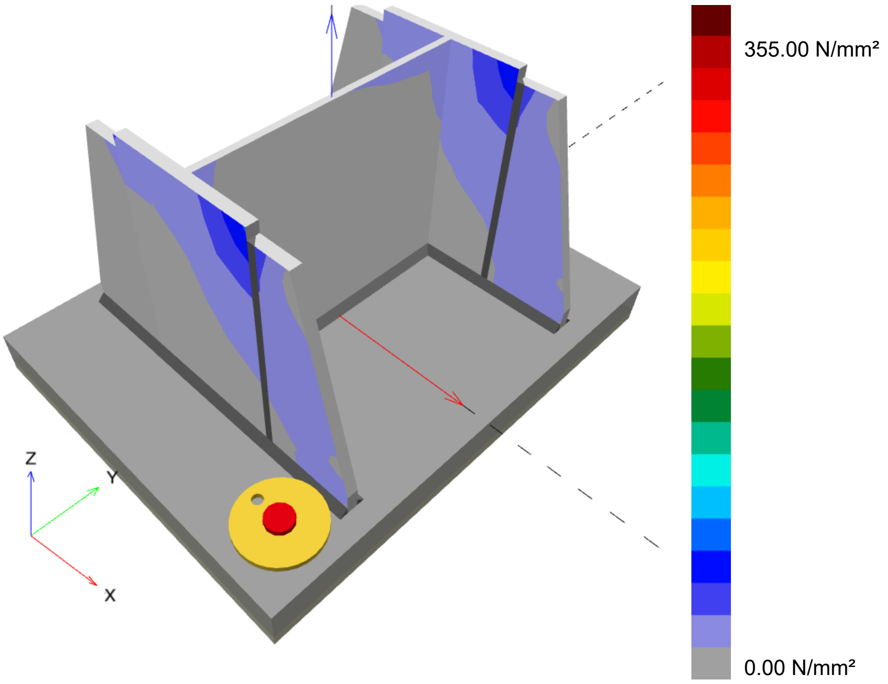
Limit state criteria as per EN1993-1-5 Annex C.8, (1) 2.

Results

Part	Load combination	Material	σ_{Ed} [N/mm²]	ε_{Pl} [%]	f_y [N/mm²]	γ_{M0}	f_y/γ_{M0} [N/mm²]	ε_{lim} [%]	Status
Plate	(6) Static + Dynamic Termin (Short circuit)	S 355	22.76	0.00	355.00	1.00	355.00	5.00	OK
Profile	(6) Static + Dynamic Termin (Short circuit)	S 355	89.78	0.00	355.00	1.00	355.00	5.00	OK
Profile	(6) Static + Dynamic Termin (Short circuit)	S 355	95.31	0.00	355.00	1.00	355.00	5.00	OK
Profile	(6) Static + Dynamic Termin (Short circuit)	S 355	25.30	0.00	355.00	1.00	355.00	5.00	OK
Stiffenera	(6) Static + Dynamic Termin (Short circuit)	S 355	34.95	0.00	355.00	1.00	355.00	5.00	OK
Stiffenerb	(6) Static + Dynamic Termin (Short circuit)	S 355	13.40	0.00	355.00	1.00	355.00	5.00	OK
Stiffenerc	(6) Static + Dynamic Termin (Short circuit)	S 355	35.49	0.00	355.00	1.00	355.00	5.00	OK
Stiffenerd	(6) Static + Dynamic Termin (Short circuit)	S 355	16.02	0.00	355.00	1.00	355.00	5.00	OK

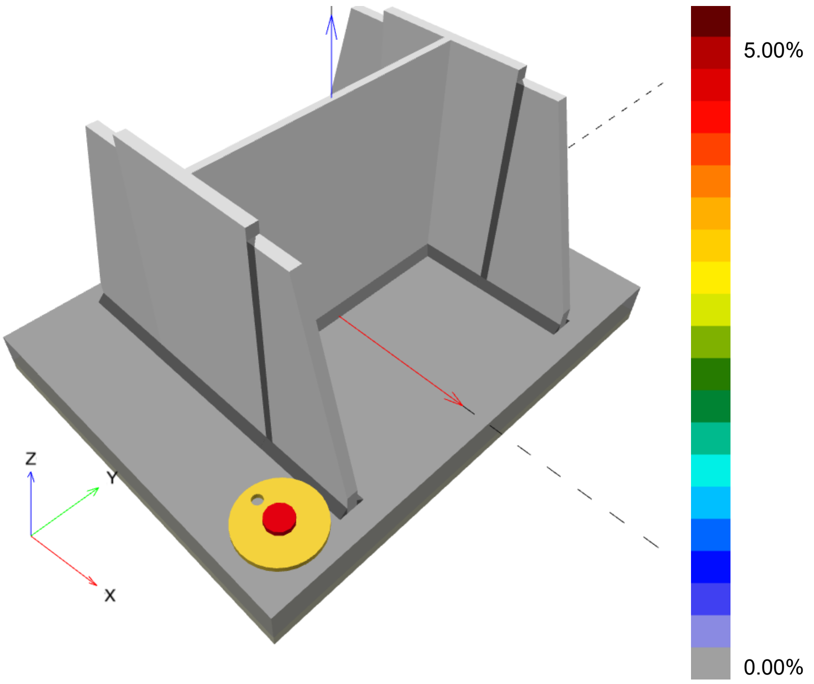
2.4.1.1 Equivalent stress

Results below are displayed for the decisive load combination: 7 - (5) Static + Dynamic Termin (Short circuit)



2.4.1.2 Plastic strain

Results below are displayed for the decisive load combination: 1 - (1) Static +1,35*Static Terminal



2.4.2 Hole bearing

Decisive load combination: 8 - (6) Static + Dynamic Termin (Short circuit)

Plate hole bearing resistance, EN1993-1 - 8 section 3.6.1:

Results

	V_{Ed} [kN]	$F_{b,Rd}$ [kN]	Utilisation [%]	Status
Anchor 1	1.075	705.600	1	OK
Anchor 2	0.872	466.049	1	OK

2.5 Welds

Profiles are modelled without taking the corner radius into account. Special rules for welding (e.g. for cold-formed profiles ...) are not taken into account by the software.

2.5.1 Baseplate to profile

Decisive load combination: 5 - (1) Static + Dynamic Termin (Short circuit)

Weld design, EN1993-1-8 section 4.5.3.2

Minimum web weld thickness (a_{min}): 5.0 mm

Minimum flange weld thickness (a_{min}): 5.0 mm

Results

Item	Edge	a [mm]	L [mm]	$\sigma_{w,Ed}$ [N/mm²]	$\sigma_{w,Rd}$ [N/mm²]	ε_{Pl} [%]	$\sigma_{\perp}$ [N/mm²]	$\sigma_{\perp,Rd}$ [N/mm²]	Utilisation [%]	Utilisation$_c$ [%]	Status
Anchor plate	Member 1-bfl 1	◢5.0◣	135.0	3.75	435.56	0.00	1.18	352.80	1	1	OK
Anchor plate	Member 1-bfl	◢5.0◣	135.0	7.78	435.56	0.00	0.90	352.80	2	2	OK
Anchor plate	Member 1-tfl 1	◢5.0◣	135.0	10.81	435.56	0.00	5.84	352.80	3	2	OK
Anchor plate	Member 1-tfl	◢5.0◣	135.0	11.94	435.56	0.00	1.55	352.80	3	2	OK
Anchor plate	Member 1-w 1	◢5.0◣	259.8	6.69	435.56	0.00	-0.70	352.80	2	1	OK
Anchor plate	Member 1-w	◢5.0◣	259.8	5.99	435.56	0.00	0.13	352.80	2	1	OK

2.5.2 Stiffeners to profile/baseplate

Decisive load combination: 5 - (1) Static + Dynamic Termin (Short circuit)

Weld design, EN1993-1-8 section 4.5.3.2

Minimum stiffener to plate weld thickness (a_{min}): 5.0 mm

Results

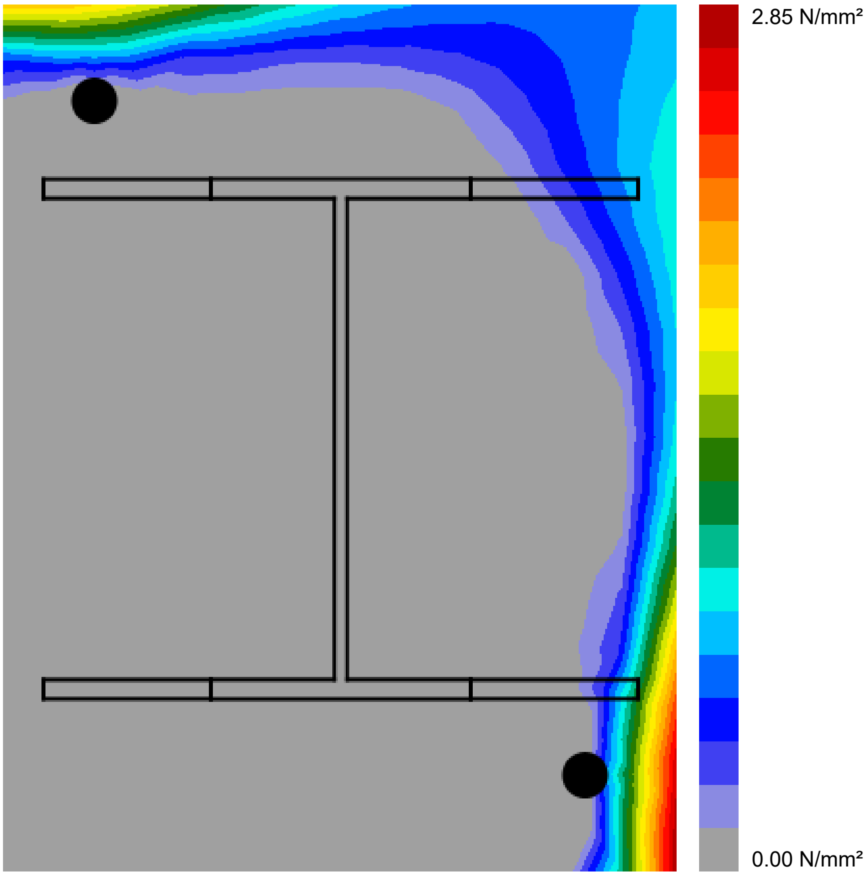
Item	Edge	a [mm]	L [mm]	$\sigma_{w,Ed}$ [N/mm²]	$\sigma_{w,Rd}$ [N/mm²]	ε_{Pl} [%]	$\sigma_{\perp}$ [N/mm²]	$\sigma_{\perp,Rd}$ [N/mm²]	Utilisation [%]	Utilisation$_c$ [%]	Status
Anchor plate	Stiffenera	◢5.0◣	87.0	4.50	435.56	0.00	1.37	352.80	2	1	OK
Anchor plate	Stiffenera 1	◢5.0◣	87.0	5.61	435.56	0.00	1.54	352.80	2	1	OK
Anchor plate	Stiffenerb	◢5.0◣	87.0	30.30	435.56	0.00	-12.23	352.80	7	4	OK
Anchor plate	Stiffenerb 1	◢5.0◣	87.0	31.91	435.56	0.00	-13.68	352.80	8	4	OK
Anchor plate	Stiffenerc	◢5.0◣	87.0	23.53	435.56	0.00	12.86	352.80	6	5	OK
Anchor plate	Stiffenerc 1	◢5.0◣	87.0	20.03	435.56	0.00	6.23	352.80	5	3	OK
Anchor plate	Stiffenerd	◢5.0◣	87.0	6.29	435.56	0.00	-0.83	352.80	2	1	OK
Anchor plate	Stiffenerd 1	◢5.0◣	87.0	3.08	435.56	0.00	-0.25	352.80	1	1	OK

2.6 Concrete

Decisive load combination: 8 - (6) Static + Dynamic Termin (Short circuit)

According to EN1992-1-1 section 6.7(4), the concrete should have sufficient reinforcement to take into account the tensile forces that develop due to the fixture attachment. The definition of the reinforcement in the concrete is not within the scope of PROFIS Engineering.

2.6.1 Compression in concrete under the baseplate



2.6.2 Verification of compression in concrete under the baseplate around the profile as per EN1992-1 section 6.7 and EN1993-1-8, section 6.2.5

Results

σ [N/mm²]	f_{jd} [N/mm²]	Utilisation [%]	Status
1.92	34.17	6	OK

2.7 Symbol explanation

a	Throat thickness of weld
a_{min}	Minimum weld thickness
ε_{lim}	Limit plastic strain
ε_{Pl}	Plastic strain from CBFEM results
$F_{b,Rd}$	Plate bearing resistance EN 1993-1-8 tab. 3.4
f_{jd}	The ultimate bearing strength of the concrete block
f_y	Yield strength
γ_{M0}	Steel safety factor gamma M0
L	Length of weld
σ	Average stress in concrete
$\sigma_{\perp}$	Perpendicular stress
$\sigma_{\perp,Rd}$	Perpendicular stress resistance
σ_{Ed}	Equivalent stress
$\sigma_{w,Ed}$	Equivalent stress
$\sigma_{w,Rd}$	Equivalent stress resistance
$Utilisation_c$	Weld capacity utilisation
V_{Ed}	Anchor shear force

2.8 Warnings

- By using the CBFEM calculation functionality of PROFIS Engineering you may act outside the applicable design codes and your specified baseplate may not behave rigidly. Please, have the results validated by a professional designer and/or structural engineer to ensure suitability and adequacy for your specific jurisdiction and project requirements.
- The anchor is modelled considering stiffness values determined from load displacement curves tested in an independent laboratory. Please note that no simple replacement of the anchor is possible as the anchor stiffness has a major impact on the load distribution results.

3 Summary of results

Design of the baseplate, anchor, welds and other elements are based on CBFEM (component based finite element method) and Eurocode regulations.

	Load combination	Max. utilisation	Status
Anchors	Decisive combination 6 with shear loads doubled	52%	OK
Baseplate	(6) Static + Dynamic Termin (Short circuit)	7%	OK
Welds	(1) Static + Dynamic Termin (Short circuit)	8%	OK
Stiffeners	(5) Static + Dynamic Termin (Short circuit)	10%	OK
Concrete	(6) Static + Dynamic Termin (Short circuit)	6%	OK
Profile	(5) Static + Dynamic Termin (Short circuit)	27%	OK

Fastening meets the design criteria!

4 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.