HIT-HY 200-A V3 + HAS-U	Size	Embedment depth	Utilisation	Geometry
HIT-HY 200-A V3 + HAS-U A4	M8	60 mm	5,290%	✓
HIT-HY 200-A V3 + HAS-U A4	M10	60 mm	2,125%	✓
HIT-HY 200-A V3 + HAS-U A4	M12	70 mm	1,015%	✓
HIT-HY 200-A V3 + HAS-U A4	M16	80 mm	461%	✓
HIT-HY 200-A V3 + HAS-U A4	M20	321 mm	125%	✓
HIT-HY 200-A V3 + HAS-U A4	M24	359 mm	100%	✓
HIT-HY 200-A V3 + HAS-U A4	M27	213 mm	167%	✓
HIT-HY 200-A V3 + HAS-U A4	M30			✗

1 Input data

Anchor type and size:	**HIT-HY 200-A V3 + HAS-U A4 M24**
Return period (service life in years):	50
Item number:	2223933 HAS-U A4 M24x450 (insert) / 2378172 HIT-HY 200-A V3 (mortar)
Hilti Filling Set or any suitable annular gap filling solution	
Specification text:	Hilti HAS-U A4 threaded rod with HIT-HY 200-A V3 injection mortar with 380 mm embedment hef, M24, Stainless steel, Hammer drill bit installation per ETA 19/0601, with annular gaps filled with Hilti Filling Set or any suitable gap solutions,
Effective embedment depth:	$h_{ef,act}$ = 380.0 mm ($h_{ef,limit}$ = - mm)

3 Tension load (EN 1992-4, Section 7.2.1)

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Statu
Steel failure*	73.032	132.139	56	OK
Combined pullout-concrete cone failure**	73.032	88.880	83	OK
Concrete Breakout failure**	73.032	100.620	73	OK
Splitting failure**	73.032	95.878	77	OK

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

3.1 Steel failure

4 Shear load (EN 1992-4, Section 7.2.2)

	Load [kN]	Capacity [kN]	Utilization β_V [%]	Status
Steel failure (without lever arm)*	43.546	79.199	55	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout failure**	43.546	177.760	25	OK
Concrete edge failure in direction y-**	17.976	54.491	33	OK

* highest loaded anchor **anchor group (relevant anchors)
When the input edge distance is set to "infinity", edge breakout verification is not performed in that direction

5 Combined tension and shear loads (EN 1992-4, Section 7.2.3)

Steel failure

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.553	0.550	2.000	61	OK

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

Concrete failure

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.822	0.330	1.500	94	OK

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

Anchor type and size:	**HIT-HY 200-A V3 + HAS-U A4 M27**
Return period (service life in years):	50
Item number:	not available (insert) / 2378172 HIT-HY 200-A V3 (mortar)
Hilti Filling Set or any suitable annular gap filling solution	
Specification text:	Hilti HAS-U A4 threaded rod with HIT-HY 200-A V3 injection mortar with 380 mm embedment hef, M27, Stainless steel, Hammer drill bit installation per ETA 19/0601, with annular gaps filled with Hilti Filling Set or any suitable gap solutions,
Effective embedment depth:	$h_{ef,act}$ = 380.0 mm ($h_{ef,limit}$ = - mm)

3 Tension load (EN 1992-4, Section 7.2.1)

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Status
Steel failure*	73.959	80.245	93	OK
Combined pullout-concrete cone failure**	73.959	97.257	77	OK
Concrete Breakout failure**	73.959	100.620	74	OK
Splitting failure**	73.959	107.208	69	OK

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

4 Shear load (EN 1992-4, Section 7.2.2)

	Load [kN]	Capacity [kN]	Utilization β_V [%]	Status
Steel failure (without lever arm)*	43.546	48.214	91	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout failure**	43.546	194.513	23	OK
Concrete edge failure in direction y-**	17.976	50.496	36	OK

* highest loaded anchor **anchor group (relevant anchors)
When the input edge distance is set to "infinity", edge breakout verification is not performed in that direction

5 Combined tension and shear loads (EN 1992-4, Section 7.2.3)

Steel failure

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.922	0.903	2.000	167	not recommended

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

Concrete failure

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.760	0.356	1.500	88	OK

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