



PRODUCT TECHNICAL DATASHEET

Shear connector HUS4-H

Concrete-to-concrete
Update: May-26



Shear connector HUS4-H

for Shear-friction applications and Concrete Overlay design (EOTA TR 066)

Shear connector HUS4-H



Shear
Connector
HUS4-H
(8 to 16 G02)

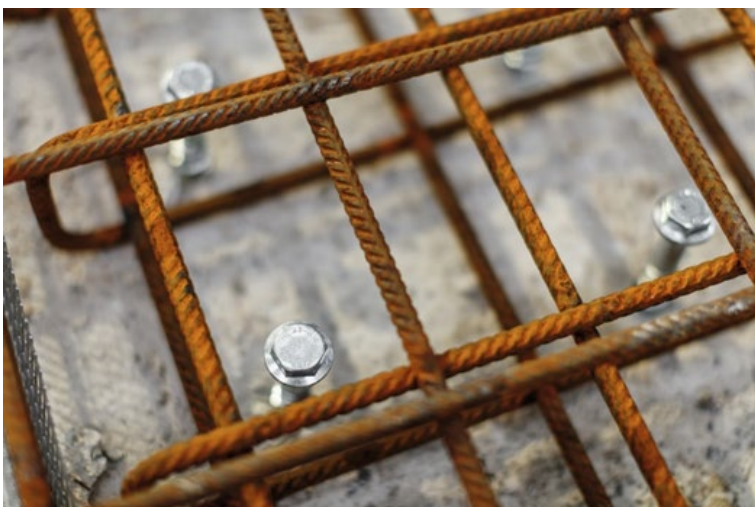
Benefits

- Easy to use: No need to prepare the anchor rod before setting
- Fast work progress: Setting and height levelling are carried out in a single work step
- Shear connector can be loaded immediately
- Reliable design: Structure appears monolithic after use of HUS4-H



Application

- Renovation: reinforcement and repair of bridges, tunnels and high-rise buildings
- Concrete-concrete composite
- Repair of bridges, concrete roadways and underground car parks
- Increasing the payloads of bridges



Base material		Load conditions	
Concrete (uncracked)	Concrete (cracked)	Static / quasi-static	Seismic, C1,C2
Drilling, cleaning, setting		Other information	
Hammer drilled holes	Hollow drill-bit drilling	PROFIS Engineering software	Shear friction applications and concrete overlays

Linked Approvals/Certificates and Instructions for use

Linked Approvals / Certificates

Approval no	Application / loading condition	Authority / Laboratory	Date of issue
ETA- 21/0969	Static/quasi-static and seismic	DIBt, Berlin	02-03-2026

Instructions for use (IFU)

Anchor size	8	10	12	14	16 G02
HUS4-H	IFU HUS4-H				

Link to Hilti Webpage

HUS4-H	

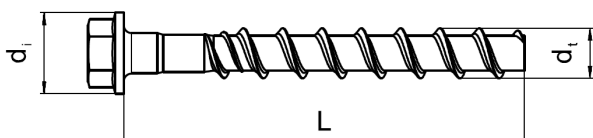
Mechanical properties and dimensions Shear Connector HUS4-H

Mechanical properties and dimensions of the HUS4-H are standardized and can be taken from the ETA

Fastener special dimensions

Fastener dimensions and marking HUS4-H

Anchor size		8	10	12	14	16 G02
Type	HUS4	H	H	H	H	H
Outer diameter of screw thread	d_t [mm]	10,50	12,70	14,70	16,70	19,20
Diameter of integrated washer	d_i [mm]	17,50	20,50	23,60	29,00	32,60
Length of the screw (min/max)	L [mm]	100/150	100/305	100/150	130/150	140/205

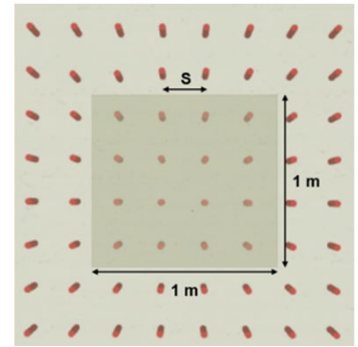


HUS4: Hilti Universal Screw 4th generation
H: Hexagonal head
10: Screw diameter
100: nominal length of the screw

Static and quasi-static design based on ETA 21/0969 according to EOTA TR 066

All data in this section applies to:

- Correct setting (see setting instruction)
- Hammer drilled holes, hammer drilled holes with Hilti hollow drill bit for size 12 to 14 (TE-CD)
- Below calculated values based on 1 m² grid pattern of connectors given in the table below, No edge influence is consider in design
- Minimum base material thickness (see setting details)
- Cracked concrete
- The new concrete / overlay must exhibit a higher strength
- Roughness levels as defined in EOTA TR 066
- The design with shear connectors follows equation (2.11) of EOTA TR 066
- No design shear stress given in cases where minimum reinforcement ratio is not met
- The concrete strength class given in the following tables refer to the existing concrete member.
- The design with "no connectors" follows equation (2.9) of EOTA TR 066 (Note: Provide minimum reinforcement)



For specific design cases refer to [PROFIS Engineering](#).

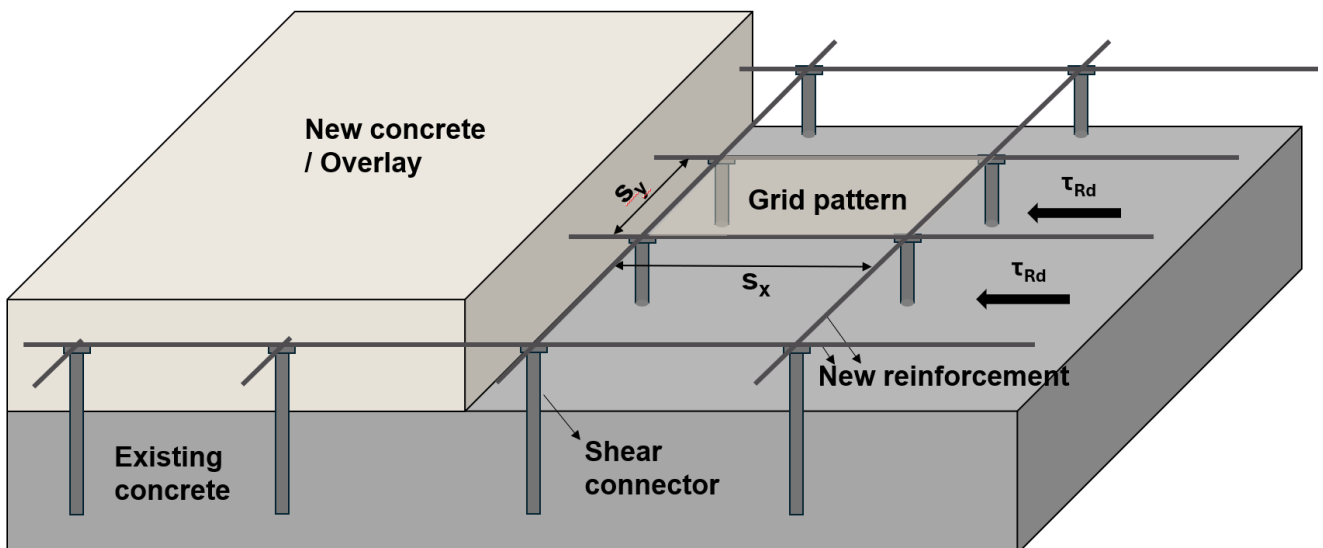


Figure showing grid pattern and shear stress in overlay application with HUS4-H

Connector HUS4-H 8x120

Embedment depth in existing concrete, $h_{nom,ex} = 60$ mm, Effective embedment depth, $h_{ef,ov} = 60$ mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,04%	0,08%	0,12%	0,48%
Design resistance for very rough interface ($R_t \geq 3,0$ mm)				
Existing concrete: C20/25 New concrete: C25/30	-	0,63	0,69	0,99
Existing concrete: C30/37 New concrete: C40/50	-	0,73	0,80	1,17
Existing concrete: C45/55 New concrete: C50/60	-	-	0,95	1,43

Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	t_{Rd} [N/mm ²]	-	0,36	0,41
Existing concrete: C30/37 New concrete: C40/50		-	0,42	0,48
Existing concrete: C45/55 New concrete: C50/60		-	-	0,56
Existing concrete: C45/55 New concrete: C50/60				1,01
Design resistance for smooth interface ($0 \text{ mm} \leq R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	t_{Rd} [N/mm ²]	-	0,09	0,15
Existing concrete: C30/37 New concrete: C40/50		-	0,11	0,18
Existing concrete: C45/55 New concrete: C50/60		-	-	0,22
Existing concrete: C45/55 New concrete: C50/60				0,74

Connector HUS4-H 10x130

Embedment depth in existing concrete, $h_{nom,ex} = 75 \text{ mm}$, Effective embedment depth, $h_{ef,ov} = 55 \text{ mm}$

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,06%	0,08%	0,17%	0,69%
Design resistance for very rough interface ($R_t \geq 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,62	0,68	0,75	1,14
Existing concrete: C30/37 New concrete: C40/50	t_{Rd} [N/mm ²]	-	0,78	0,88
Existing concrete: C45/55 New concrete: C50/60		-	0,93	1,05
Existing concrete: C45/55 New concrete: C50/60				1,65
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	t_{Rd} [N/mm ²]	0,34	0,40	0,47
Existing concrete: C30/37 New concrete: C40/50		-	0,46	0,55
Existing concrete: C45/55 New concrete: C50/60		-	0,54	0,65
Existing concrete: C45/55 New concrete: C50/60				1,23
Design resistance for smooth interface ($0 \text{ mm} \leq R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	t_{Rd} [N/mm ²]	0,08	0,14	0,21
Existing concrete: C30/37 New concrete: C40/50		-	0,17	0,26
Existing concrete: C45/55 New concrete: C50/60		-	0,21	0,32
Existing concrete: C45/55 New concrete: C50/60				1,02

Connector HUS4-H 12x130

Embedment depth in existing concrete, $h_{nom,ex} = 80$ mm, Effective embedment depth, $h_{ef,ov} = 50$ mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,09%	0,16%	0,26%	1,03%
Design resistance for very rough interface ($R_t \geq 3,0$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,64	0,71	0,81	1,37
Existing concrete: C30/37 New concrete: C40/50	0,74	0,83	0,95	1,63
Existing concrete: C45/55 New concrete: C50/60	0,86	0,98	1,13	1,99
Design resistance for rough interface ($1,5$ mm $\leq R_t < 3,0$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,36	0,43	0,53	1,08
Existing concrete: C30/37 New concrete: C40/50	0,42	0,51	0,62	1,30
Existing concrete: C45/55 New concrete: C50/60	0,49	0,60	0,73	1,57
Design resistance for smooth interface (0 mm $\leq R_t < 1,5$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,10	0,18	0,28	0,96
Existing concrete: C30/37 New concrete: C40/50	0,13	0,22	0,35	1,17
Existing concrete: C45/55 New concrete: C50/60	0,15	0,27	0,42	1,44

Connector HUS4-H 14x130

Embedment depth in existing concrete, $h_{nom,ex} = 85$ mm, Effective embedment depth, $h_{ef,ov} = 45$ mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,13%	0,22%	0,35%	1,40%
Design resistance for very rough interface ($R_t \geq 3,0$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,65	0,74	0,85	1,59
Existing concrete: C30/37 New concrete: C40/50	0,76	0,87	1,00	1,91
Existing concrete: C45/55 New concrete: C50/60	0,89	1,02	1,19	2,33
Design resistance for rough interface ($1,5$ mm $\leq R_t < 3,0$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,38	0,46	0,57	1,31
Existing concrete: C30/37 New concrete: C40/50	0,44	0,55	0,68	1,58
Existing concrete: C45/55 New concrete: C50/60	0,52	0,64	0,80	1,91
Design resistance for smooth interface (0 mm $\leq R_t < 1,5$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,12	0,22	0,34	1,24
Existing concrete: C30/37 New concrete: C40/50	0,15	0,27	0,42	1,52
Existing concrete: C45/55 New concrete: C50/60	0,18	0,33	0,51	1,86

Connector HUS4-H 16x185 G02

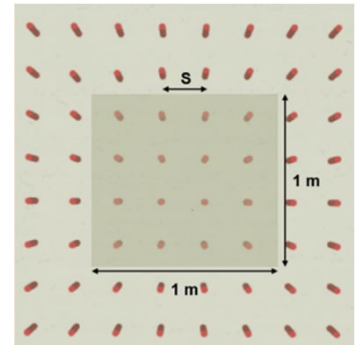
Embedment depth in existing concrete, $h_{nom,ex} = 110$ mm, Effective embedment depth, $h_{ef,ov} = 75$ mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,16%	0,28%	0,43%	1,73%
Design resistance for very rough interface ($R_t \geq 3,0$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,71	0,85	0,95	1,93
Existing concrete: C30/37 New concrete: C40/50	0,83	0,99	1,13	2,32
Existing concrete: C45/55 New concrete: C50/60	0,98	1,20	1,36	2,82
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,44	0,56	0,67	1,65
Existing concrete: C30/37 New concrete: C40/50	0,51	0,67	0,80	1,99
Existing concrete: C45/55 New concrete: C50/60	0,60	0,79	0,96	2,42
Design resistance for smooth interface ($0 \text{ mm} \leq R_t < 1,5$ mm)				
Existing concrete: C20/25 New concrete: C25/30	0,18	0,33	0,46	1,65
Existing concrete: C30/37 New concrete: C40/50	0,22	0,40	0,57	2,02
Existing concrete: C45/55 New concrete: C50/60	0,27	0,49	0,69	2,48

Seismic loading based on ETA 21/0969. Design according to EOTA TR 066

All data in this section applies to:

- Correct setting (see setting instruction)
- Hammer drilled holes, hammer drilled holes with Hilti hollow drill bit for size $\square 12$ to $\square 14$ (TE-CD)
- Below calculated values based on 1m X 1m grid pattern of connectors given in the table below, No edge influence is consider in design
- Minimum base material thickness (see setting details)
- Cracked concrete
- The new concrete / overlay must exhibit a higher strength
- Roughness levels as defined in EOTA TR 066
- The design with shear connectors follows equation (2.11) of EOTA TR 066
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For specific design cases refer to [PROFIS Engineering](#).

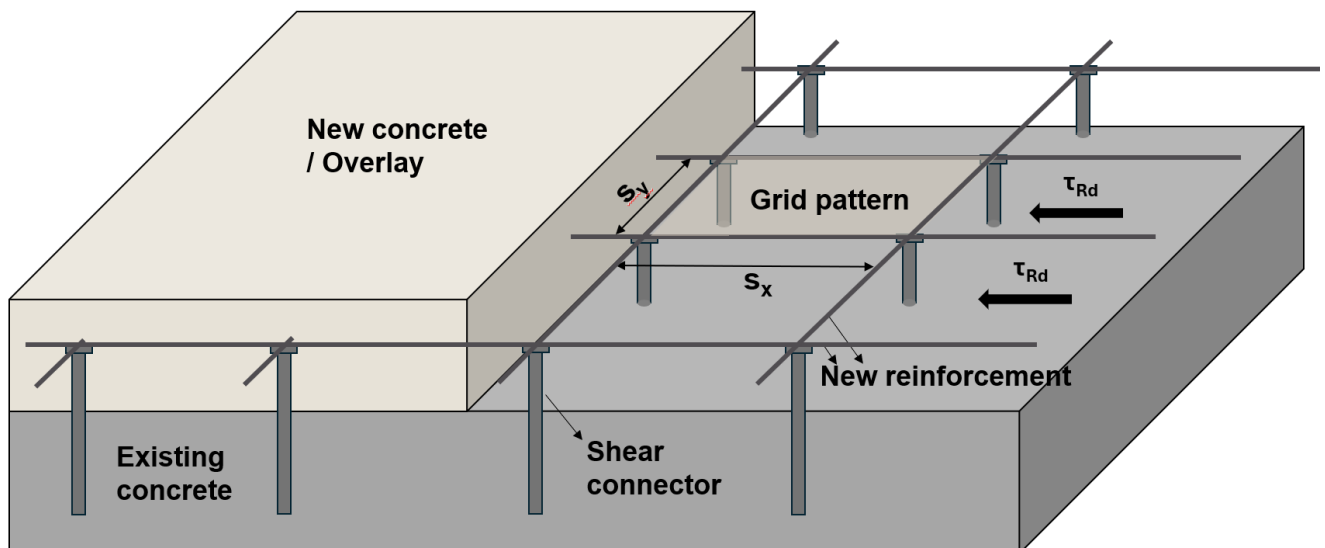


Figure showing grid pattern and shear stress in overlay application with HUS4-H

Design resistances for seismic category C1

Connector HUS4-H 8x120

Embedment depth in existing concrete, $h_{nom,ex} = 60$ mm, Effective embedment depth, $h_{ef,ov} = 60$ mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,04%	0,08%	0,12%	0,48%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	-	0,22	0,27	0,43
Existing concrete: C30/37 New concrete: C40/50	-	0,29	0,34	0,58
Existing concrete: C45/55 New concrete: C50/60	-	-	0,45	0,78

Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)						
Existing concrete: C20/25 New concrete: C25/30		t_{Rd} [N/mm ²]	-	0,16	0,20	0,38
Existing concrete: C30/37 New concrete: C40/50			-	0,21	0,26	0,50
Existing concrete: C45/55 New concrete: C50/60			-	-	0,34	0,66

Design resistances for seismic category C1

Connector HUS4-H 10x130

Embedment depth in existing concrete, $h_{nom,ex} = 75 \text{ mm}$, Effective embedment depth, $h_{ef,ov} = 55 \text{ mm}$

Grid pattern of connectors, s _x x s _y [mm]		350 x 350	300 x 300	200 x 200	100 x 100	
No. of connectors per 1 m ²		9	16	25	100	
Reinforcement ratio		0,06%	0,11%	0,17%	0,69%	
Design resistance for rough interface (1,5 mm ≤ R _t < 3,0 mm)						
Existing concrete: C20/25 New concrete: C25/30		t _{Rd} [N/mm ²]	0,22	0,28	0,34	0,55
Existing concrete: C30/37 New concrete: C40/50			-	0,36	0,44	0,72
Existing concrete: C45/55 New concrete: C50/60			-	0,47	0,57	0,96
Design resistance for smooth interface (R _t < 1,5 mm)						
Existing concrete: C20/25 New concrete: C25/30		t _{Rd} [N/mm ²]	0,16	0,21	0,27	0,52
Existing concrete: C30/37 New concrete: C40/50			-	0,27	0,34	0,67
Existing concrete: C45/55 New concrete: C50/60			-	0,35	0,44	0,86

Design resistances for seismic category C1

Connector HUS4-H 12x130

Embedment depth in existing concrete, $h_{nom,ex} = 80 \text{ mm}$, Effective embedment depth, $h_{ef,ov} = 50 \text{ mm}$

Grid pattern of connectors, s _x x s _y [mm]	350 x 350	300 x 300	200 x 200	100 x 100	
No. of connectors per 1 m ²	9	16	25	100	
Reinforcement ratio	0,09%	0,16%	0,26%	1.03%	
Design resistance for rough interface (1,5 mm ≤ R _t < 3,0 mm)					
Existing concrete: C20/25 New concrete: C25/30	t _{Rd} [N/mm ²]	0,23	0,30	0,38	0,67
Existing concrete: C30/37 New concrete: C40/50		0,30	0,39	0,49	0,87
Existing concrete: C45/55 New concrete: C50/60		0,40	0,51	0,63	1,14
Design resistance for smooth interface (R _t < 1,5 mm)					
Existing concrete: C20/25 New concrete: C25/30	t _{Rd} [N/mm ²]	0,18	0,24	0,31	0,67
Existing concrete: C30/37 New concrete: C40/50		0,23	0,31	0,39	0,85
Existing concrete: C45/55 New concrete: C50/60		0,30	0,40	0,50	1,09

Design resistances for seismic category C1

Connector HUS4-H 14x130

Embedment depth in existing concrete, $h_{nom,ex}$ = 85 mm, Effective embedment depth, $h_{ef,ov}$ = 45 mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,13%	0,22%	0,35%	1,40%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,24	0,32	0,40	0,79
Existing concrete: C30/37 New concrete: C40/50	0,33	0,43	0,54	1,02
Existing concrete: C45/55 New concrete: C50/60	0,42	0,55	0,69	1,32
Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,19	0,26	0,34	0,82
Existing concrete: C30/37 New concrete: C40/50	0,25	0,34	0,45	1,03
Existing concrete: C45/55 New concrete: C50/60	0,32	0,44	0,57	1,31

Design resistances for seismic category C1

Connector HUS4-H 16x185 G02

Embedment depth in existing concrete, $h_{nom,ex}$ = 110 mm, Effective embedment depth, $h_{ef,ov}$ = 75 mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,16%	0,28%	0,43%	1,73%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,30	0,40	0,44	0,97
Existing concrete: C30/37 New concrete: C40/50	0,39	0,51	0,59	1,23
Existing concrete: C45/55 New concrete: C50/60	0,50	0,66	0,79	1,58
Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,24	0,33	0,39	1,04
Existing concrete: C30/37 New concrete: C40/50	0,30	0,42	0,51	1,30
Existing concrete: C45/55 New concrete: C50/60	0,39	0,54	0,67	1,64

Design resistances for seismic category C2

Connector HUS4-H 8x120

Embedment depth in existing concrete, $h_{nom,ex}$ = 60 mm, Effective embedment depth, $h_{ef,ov}$ = 60 mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,06%	0,11%	0,17%	0,69%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	-	0,10	0,13	0,33
Existing concrete: C30/37 New concrete: C40/50	-	0,13	0,17	0,42
Existing concrete: C45/55 New concrete: C50/60	-	-	0,22	0,53
Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	-	0,13	0,16	0,36
Existing concrete: C30/37 New concrete: C40/50	-	0,17	0,21	0,46
Existing concrete: C45/55 New concrete: C50/60	-	-	0,27	0,58

Design resistances for seismic category C2

Connector HUS4-H 10x130

Embedment depth in existing concrete, $h_{nom,ex}$ = 75 mm, Effective embedment depth, $h_{ef,ov}$ = 55 mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,06%	0,11%	0,17%	0,69%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,11	0,15	0,19	0,50
Existing concrete: C30/37 New concrete: C40/50	-	0,19	0,25	0,63
Existing concrete: C45/55 New concrete: C50/60	-	0,24	0,32	0,80
Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,14	0,19	0,23	0,53
Existing concrete: C30/37 New concrete: C40/50	-	0,24	0,30	0,67
Existing concrete: C45/55 New concrete: C50/60	-	0,31	0,39	0,85

Design resistances for seismic category C2

Connector HUS4-H 12x130

Embedment depth in existing concrete, $h_{nom,ex}$ = 80 mm, Effective embedment depth, $h_{ef,ov}$ = 50 mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,04%	0,09%	0,12%	0,27%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,15	0,21	0,27	0,67
Existing concrete: C30/37 New concrete: C40/50	0,19	0,26	0,34	0,85
Existing concrete: C45/55 New concrete: C50/60	0,25	0,34	0,44	1,09
Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,19	0,25	0,32	0,67
Existing concrete: C30/37 New concrete: C40/50	0,25	0,33	0,41	0,87
Existing concrete: C45/55 New concrete: C50/60	0,32	0,42	0,53	1,14

Design resistances for seismic category C2

Connector HUS4-H 14x130

Embedment depth in existing concrete, $h_{nom,ex}$ = 85 mm, Effective embedment depth, $h_{ef,ov}$ = 45 mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,04%	0,09%	0,12%	0,27%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,17	0,23	0,31	0,82
Existing concrete: C30/37 New concrete: C40/50	0,21	0,30	0,39	1,03
Existing concrete: C45/55 New concrete: C50/60	0,27	0,38	0,50	1,31
Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,21	0,28	0,35	0,79
Existing concrete: C30/37 New concrete: C40/50	0,27	0,36	0,45	1,02
Existing concrete: C45/55 New concrete: C50/60	0,35	0,46	0,58	1,32

Design resistances for seismic category C2

Connector HUS4-H 16x185 G02

Embedment depth in existing concrete, $h_{nom,ex} = 110$ mm, Effective embedment depth, $h_{ef,ov} = 75$ mm

Grid pattern of connectors, $s_x \times s_y$ [mm]	350 x 350	300 x 300	200 x 200	100 x 100
No. of connectors per 1 m ²	9	16	25	100
Reinforcement ratio	0,04%	0,09%	0,12%	0,27%
Design resistance for rough interface ($1,5 \text{ mm} \leq R_t < 3,0 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,27	0,36	0,44	0,97
Existing concrete: C30/37 New concrete: C40/50	0,35	0,46	0,59	1,23
Existing concrete: C45/55 New concrete: C50/60	0,45	0,59	0,76	1,58
Design resistance for smooth interface ($R_t < 1,5 \text{ mm}$)				
Existing concrete: C20/25 New concrete: C25/30	0,22	0,31	0,39	1,04
Existing concrete: C30/37 New concrete: C40/50	0,28	0,39	0,51	1,30
Existing concrete: C45/55 New concrete: C50/60	0,35	0,49	0,66	1,64

Setting information

Setting details for Hilti HUS4-H in existing concrete

Connector HUS4-H size 8 to 12

Connector HUS4-H			8			10			12		
Nominal embedment depth	[mm]	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}	
		40	60	70	55	75	85	60	80	100	
Nominal diameter of drill bit	d_0	[mm]	8			10			12		
Wrench size HEX head	S	[mm]	13			15			17		
Depth of drill hole for cleaned hole hammer drilling	$h_1 \geq$	[mm]	$h_{nom} + 10 \text{ mm}$								
			50	70	80	65	85	95	70	90	110
Depth of drill hole for uncleaned hole hammer drilling	$h_1 \geq$	[mm]	$h_{nom} + 25 \text{ mm}$			$h_{nom} + 30 \text{ mm}$			$h_{nom} + 35 \text{ mm}$		
			66	85	95	85	105	115	95	115	135
Minimum base material thickness	$h_{min,ex} \geq$	[mm]	$h_1 + 30 \text{ mm}$								
			80	100	120	100	130	140	110	130	150
Minimum spacing	$S_{min,ex} \geq$	[mm]	35			40			50		
Minimum edge distance	$C_{min,ex} \geq$	[mm]	35			40			50		

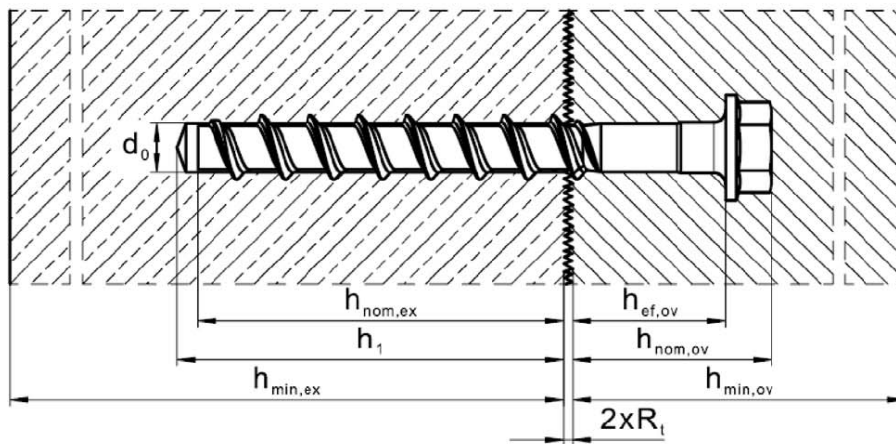
Setting details for Hilti HUS4-H in new concrete / overlay

Connector HUS4-H size 8 to 12

Connector HUS4-H		8	10	12
Effective embedment depth	$\min h_{ef,ov}$	40		
	$\max h_{ef,ov}$	$L - h_{nom,ex} - 2 \cdot R_t^{1)}$		
Overall embedment depth	$h_{nom,ov}$	$h_{ef,ov} + t_h$		
Minimum thickness of concrete overlay	$h_{min,ov} \geq$	$h_{nom,ov} + C_{nom}^{2)}$		
Minimum spacing	$S_{min,ov} \geq$	40	45	50
Minimum edge distance	$C_{min,ov} \geq$	$10 + C_{nom}^{2)}$	$15 + C_{nom}^{2)}$	$15 + C_{nom}^{2)}$

¹⁾ R_t : Roughness according to EOTA TR 066

²⁾ C_{nom} : Nominal concrete cover according to EN 1992-1-1:2004 +AC:2010



Setting details for Hilti HUS4-H in existing concrete

Connector HUS4-H size 14 to 16

Connector HUS4-H		14			16 G02		
Nominal embedment depth	[mm]	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
		65	85	100	85	110	130
Nominal diameter of drill bit	d_0 [mm]	14			16		
Wrench size HEX head	S	17			24		
Depth of drill hole for cleaned hole hammer drilling	$h_1 \geq$ [mm]	$h_{nom} + 10 \text{ mm}$					
		75	95	110	95	120	140
Depth of drill hole for uncleaned hole hammer drilling	$h_1 \geq$ [mm]	$h_{nom} + 40 \text{ mm}$			$h_{nom} + 40 \text{ mm}$		
		105	125	155	125	150	170
Minimum base material thickness	$h_{min,ex} \geq$ [mm]	$h_1 + 30 \text{ mm}$					
		120	160	200	130	155	175
Minimum spacing	$S_{min,ex} \geq$ [mm]	60			70		
Minimum edge distance	$C_{min,ex} \geq$ [mm]	60			65		

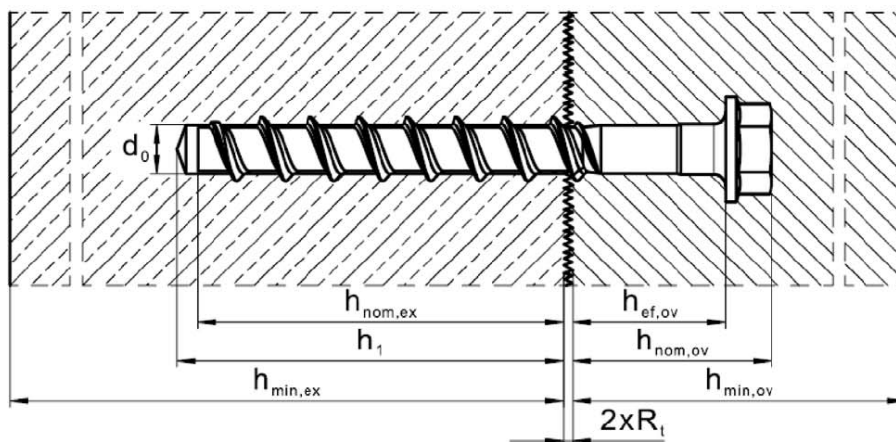
Setting details for Hilti HUS4-H in new concrete / overlay

Connector HUS4-H size 14 to 16

Connector HUS4-H		14	16 G02
Effective embedment depth	$\min h_{ef,ov}$ [mm]	40	
	$\max h_{ef,ov}$ [mm]	$L - h_{nom,ex} - 2 \cdot R_t^{1)}$	
Overall embedment	$h_{nom,ov}$ [mm]	$h_{ef,ov} + t_h$	
Minimum thickness of concrete overlay	$h_{min,ov} \geq$ [mm]	$h_{nom,ov} + c_{nom}^{2)}$	
Minimum spacing	$S_{min,ov} \geq$ [mm]	50	65
Minimum edge	$C_{min,ov} \geq$ [mm]	$15 + c_{nom}^{2)}$	$20 + c_{nom}^{2)}$

¹⁾ R_t : Roughness according to EOTA TR 066

²⁾ c_{nom} : Nominal concrete cover according to EN 1992-1-1:2004 +AC:2010



Drilling and Installation equipment ¹⁾

For detailed setting information on installation ,see instructions for use given with the product.

Rotary Hammers (Corded and Cordless)		TE 2 - TE 30
Other tools		Impact wrench with SIW 4 and SIW 6 (use recommended socket/driver bit)
		Hammer drill bit TE-CX, TE-C
		Hollow drill bit TE-CD
		Blow out pump