

# Hilti HAC Cast-In Anchor Channel

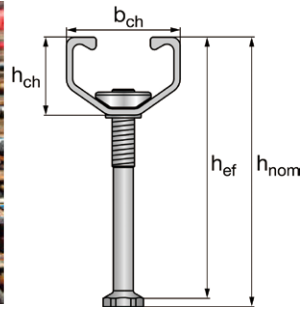
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## Anchor channel HAC



### APPLICATIONS

- Fastening curtain wall brackets
- Fastening elevator guide rail brackets for lift car and counter-weight
- Fastening elevator slide door and landing sill
- Fastening M&E system with demanding requirements in terms of flexibility and dust or noise reduction e.g. data center

### ADVANTAGES

- Innovative V-shape provides high load resistance and close edge distances
- Faster installation of building services than with traditional anchor fastening method
- Dustless and noiseless fastening method
- Flexibility of use throughout the whole building life cycle

### Technical data

Base material	Concrete
Environmental conditions	Indoor, damp conditions
Material composition	Steel, Hot-dip galvanized

## HAC 40

Order Now



Ordering designation	Length, l <sub>ch</sub>	Number of anchors	Anchor distance	Standard embedment depth, h <sub>ef</sub>	Sales pack quantity	Item number
HAC-40 91/200 F	200 mm	2	150 mm	91 mm	1 pc	2122491 <sup>1)</sup>
HAC-40 91/250 F	250 mm	2	150 mm	91 mm	1 pc	2122492 <sup>1)</sup>
HAC-40 91/350 F	350 mm	3	150 mm	91 mm	1 pc	2122493
HAC-40 91/550 F	550 mm	3	250 mm	91 mm	1 pc	2122495
HAC-40 91/800 F	800 mm	4	250 mm	91 mm	1 pc	2122496 <sup>1)</sup>
HAC-40 91/1050 F	1050 mm	5	250 mm	91 mm	1 pc	2122497 <sup>1)</sup>
HAC-40 91/1300 F	1300 mm	6	250 mm	91 mm	1 pc	2122498 <sup>1)</sup>
HAC-40 91/1550 F	1550 mm	7	250 mm	91 mm	1 pc	2122499 <sup>1)</sup>
HAC-40 91/1800 F	1800 mm	8	250 mm	91 mm	1 pc	2122530 <sup>1)</sup>
HAC-40 91/2050 F	2050 mm	9	250 mm	91 mm	1 pc	2122531 <sup>1)</sup>
HAC-40 91/2300 F	2300 mm	10	250 mm	91 mm	1 pc	2122532 <sup>1)</sup>
HAC-40 91/5800 F	5800 mm	24	250 mm	91 mm	1 pc	2122536 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

## HAC 50

Order Now



Ordering designation	Length, l <sub>ch</sub>	Number of anchors	Anchor distance	Standard embedment depth, h <sub>ef</sub>	Sales pack quantity	Item number
HAC-50 106/200 F	200 mm	2	150 mm	106 mm	1 pc	2122537 <sup>1)</sup>
HAC-50 106/250 F	250 mm	2	150 mm	106 mm	1 pc	2122538 <sup>1)</sup>
HAC-50 106/300 F	300 mm	2	150 mm	106 mm	1 pc	2107511 <sup>1)</sup>
HAC-50 106/350 F	350 mm	3	150 mm	106 mm	1 pc	2122539
HAC-50 106/450 F	450 mm	3	200 mm	106 mm	1 pc	2122540 <sup>1)</sup>
HAC-50 106/550 F	550 mm	3	250 mm	106 mm	1 pc	2122541 <sup>1)</sup>
HAC-50 106/1050 F	1050 mm	5	250 mm	106 mm	1 pc	2122543 <sup>1)</sup>
HAC-50 106/2300 F	2300 mm	10	250 mm	106 mm	1 pc	2122548 <sup>1)</sup>
HAC-50 106/5800 F	5800 mm	24	250 mm	106 mm	1 pc	2122553 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Order Now



## HAC 60

Ordering designation	Length, $l_{ch}$	Number of anchors	Anchor distance	Standard embedment depth, $h_{ef}$	Sales pack quantity	Item number
HAC-60 148/300 F	300 mm	2	150 mm	148 mm	1 pc	431850 <sup>1)</sup>
HAC-60 148/350 F	350 mm	3	150 mm	148 mm	1 pc	431851
HAC-60 148/450 F	450 mm	3	200 mm	148 mm	1 pc	431852 <sup>1)</sup>
HAC-60 148/550 F	550 mm	3	250 mm	148 mm	1 pc	431853 <sup>1)</sup>
HAC-60 148/1050 F	1050 mm	5	250 mm	148 mm	1 pc	431854 <sup>1)</sup>
HAC-60 148/2300 F	2300 mm	10	250 mm	148 mm	1 pc	431855 <sup>1)</sup>
HAC-60 148/5800 F	5800 mm	24	250 mm	148 mm	1 pc	431856 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

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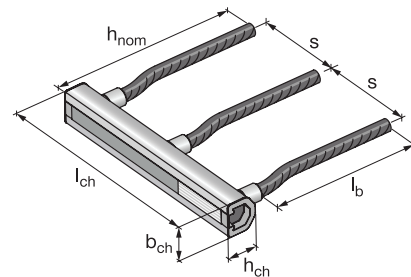


## HAC 70

Ordering designation	Length, $l_{ch}$	Number of anchors	Anchor distance	Standard embedment depth, $h_{ef}$	Sales pack quantity	Item number
HAC-70 175/300 F	300 mm	2	150 mm	175 mm	1 pc	431860 <sup>1)</sup>
HAC-70 175/350 F	350 mm	3	150 mm	175 mm	1 pc	431861
HAC-70 175/450 F	450 mm	3	200 mm	175 mm	1 pc	431862
HAC-70 175/550 F	550 mm	3	250 mm	175 mm	1 pc	431863 <sup>1)</sup>
HAC-70 175/800 F	800 mm	4	250 mm	175 mm	1 pc	2139027 <sup>1)</sup>
HAC-70 175/1050 F	1050 mm	5	250 mm	175 mm	1 pc	431864 <sup>1)</sup>
HAC-70 175/2300 F	2300 mm	10	250 mm	175 mm	1 pc	431865 <sup>1)</sup>
HAC-70 175/5800 F	5800 mm	24	250 mm	175 mm	1 pc	431866 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

## Anchor Channel – Corner Fixing HAC-CRFoS



## APPLICATIONS

- Fastening curtain wall brackets in corner

## ADVANTAGES

- No welding is required during the installation
- Design in pair for easy installation into formwork (traditional welded corner has difficulty to be inserted into the rebar cage)
- New type of protective, environmentally friendly foam insert (LDPE) and end caps seal the channel effectively, preventing concrete slurry from entering the channel

## Technical data

Environmental conditions	Indoor, damp conditions
Material composition	Steel, Hot-dip galvanized (channel)

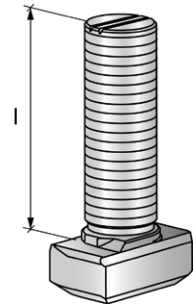
Order Now



Ordering designation	Channel – Profile Height, $h_{ch}$	Channel – Profile Width, $b_{ch}$	Length, $l_{ch}$	Number of rebar	Rebar Leg Diameter	Rebar length, $l_b$	Effective embedment depth, $h_{nom}$	Sales pack quantity	Item number
HAC-70 444/350 F CRFoS	40 mm	45.4 mm	350 mm	3	Y16	380 mm	444 mm	1 pc	2070268

Please visit Hilti website for the latest item numbers and related products

### T-head bolt HBC-C

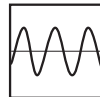


#### APPLICATIONS

- For use with HAC-40 to HAC-70 anchor channels

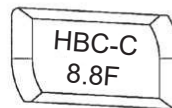
#### ADVANTAGES

- Simplification of the range available Only one universal bolt type needed to cover HAC-40 to HAC-70 anchor channels
- European approval according to latest technical specifications
- Dustless and noiseless fastening method



### Hot-dip galvanized HBC-C

Technical data	
Environmental conditions	Indoor, damp conditions
Material composition	Steel, 8.8 grade, hot-dip galvanized (min. 45 µm)
Material, corrosion	Steel, sherardized / hot-dip galvanized



(e.g. HBC-C 8.8F)



Order Now



Ordering designation	Anchor size	Useable thread length*	Bolt length, l	Sales pack quantity	Item number
HBC-C M12x60 8.8F	M12	35.2 mm	60 mm	100 pc	2095646
HBC-C M12x80 8.8F	M12	55.2 mm	80 mm	100 pc	2095647
HBC-C M12x100 8.8F	M12	75.2 mm	100 mm	100 pc	2095648 <sup>1)</sup>
HBC-C M16x60 8.8F	M16	30.7 mm	60 mm	100 pc	2095650
HBC-C M16x80 8.8F	M16	50.7 mm	80 mm	50 pc	2095651
HBC-C M16x100 8.8F	M16	70.7 mm	100 mm	50 pc	2095652
HBC-C M20x60 8.8F	M20	25.5 mm	60 mm	50 pc	2095653 <sup>1)</sup>
HBC-C M20x80 8.8F	M20	45.5 mm	80 mm	50 pc	2095654 <sup>1)</sup>
HBC-C M20x100 8.8F	M20	65.5 mm	100 mm	50 pc	2095655 <sup>1)</sup>

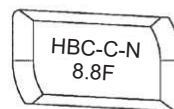
<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

\* Usable thread length measures the bolt length protruded after inserted the HBC-C into the HAC channel

Please visit Hilti website for the latest item numbers and related products

## Hot-dip galvanized notched bolt HBC-C-N

Technical data	
Environmental conditions	Indoor, damp conditions
Tooth configuration	Notched
Material, corrosion	Steel, sherardized / hot-dip galvanized



(e.g. HBC-C-N 8.8F)

**Order Now**



Ordering designation	Anchor size	Useable thread length *	Bolt length, l	Sales pack quantity	Item number
HBC-C-N M16x60 8.8F	M16	35.2 mm	60 mm	1 pc	2237140 <sup>1)</sup>
HBC-C-N M16x80 8.8F	M16	55.2 mm	80 mm	25 pc	2237141
HBC-C-N M16x100 8.8F	M16	75.2 mm	100 mm	25 pc	2237142 <sup>1)</sup>
HBC-C-N M16x150 8.8F	M16	125.2 mm	150 mm	25 pc	2237143 <sup>1)</sup>
HBC-C-N M20x60 8.8F	M20	25.5 mm	60 mm	50 pc	2237144 <sup>1)</sup>
HBC-C-N M20x80 8.8F	M20	45.5 mm	80 mm	50 pc	2237145 <sup>1)</sup>
HBC-C-N M20x100 8.8F	M20	65.5 mm	100 mm	50 pc	2237146 <sup>1)</sup>
HBC-C-N M20x150 8.8F	M20	115.5 mm	150 mm	25 pc	2237137 <sup>1)</sup>

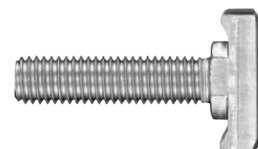
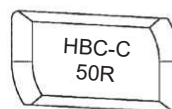
<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

\* Usable thread length measures the bolt length protruded after inserted the HBC-C into the HAC channel

Please visit Hilti website for the latest item numbers and related products

## Stainless steel HBC-C

Technical data	
Environmental conditions	Outdoor
Material composition	Steel, A4-50
Material, corrosion	Steel, stainless



(e.g. HBC-C 50R)

**Order Now**



Ordering designation	Anchor size	Useable thread length*	Bolt length, l	Sales pack quantity	Item number
HBC-C M12x50 50R	M12	25.2 mm	50 mm	25 pc	2095685 <sup>1)</sup>
HBC-C M12x80 50R	M12	55.2 mm	80 mm	25 pc	2095686 <sup>1)</sup>
HBC-C M16x80 50R	M16	50.7 mm	80 mm	25 pc	2095690 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

\* Usable thread length measures the bolt length protruded after inserted the HBC-C into the HAC channel

Please visit Hilti website for the latest item numbers and related products

# Hilti Anchor Channel Specification

HAC	HAC 40	HAC 50	HAC 60	HAC 70
Material of channel	Carbon steel S235, EN 10025-2	Carbon steel S235, EN 10025-2	Carbon steel S235, EN 10025-2	Carbon steel S235, EN 10025-2
Coating thickness	Hot-dip gal. $\geq 55\mu\text{m}$ , EN ISO 1461: 2009 -10	Hot-dip gal. $\geq 55\mu\text{m}$ , EN ISO 1461: 2009 - 10	Hot-dip gal. $\geq 70\mu\text{m}$ , EN ISO 1461: 2009 - 10	Hot-dip gal. $\geq 70\mu\text{m}$ , EN ISO 1461: 2009 - 10
Channel width	40.9mm	41.9mm	43.4mm	45.4mm
Channel height	28mm	31mm	35.5mm	40mm
Embedment depth	91mm	106mm	148mm	175mm
Recommended tensile load <sup>(1)</sup>	Depends on different Edge distance $c_1$ [mm]	Depends on different Edge distance $c_1$ [mm]	Depends on different Edge distance $c_1$ [mm]	Depends on different Edge distance $c_1$ [mm]
Recommended shear load <sup>(1)</sup>				

<sup>(1)</sup> Please refer to P.8-11 to find specific edge distance to get the suitable tensile load and shear load.

## HBC-C & HBC-C-N

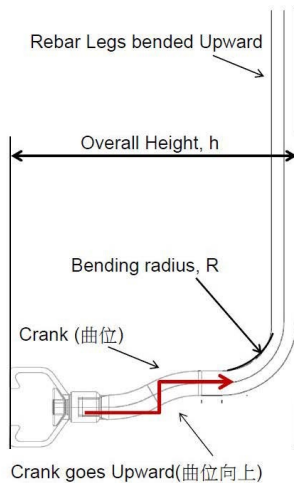
	Grade 8.8	Stainless steel, A4-50
Material of T Bolt	Carbon steel grade 8.8, EN ISO 898-1	Stainless steel, A4-50
Coating thickness	hot-dip gal. $\geq 45\mu\text{m}$ , ISO 1461:1999	N/A

## HAC-CRFoS

### Item No.: #3534712

HAC-70 444/350 F CRFoS (3Up+Up)

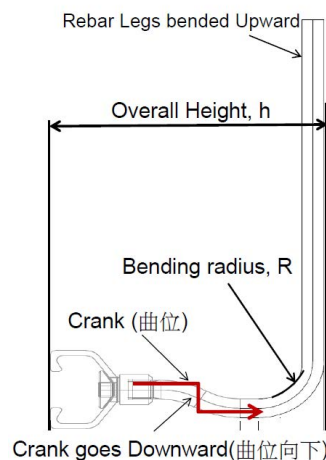
3 Rebar Legs bended  
Rebar Legs bended Upward  
h = 170 mm  
R = 48 mm  
Crank goes Upward



### Item No.: #3534913

HAC-70 444/350 F CRFoS (3Up+Down)

3 Rebar Legs bended  
Rebar Legs bended Upward  
h = 178 mm  
R = 48 mm  
Crank goes Downward

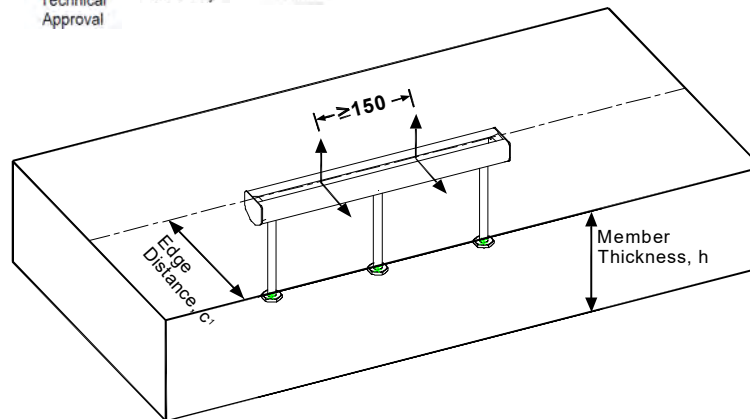


Please consult Hilti technical advisory for detail HAC F CRFoS design

# HAC-40 Basic Loading Data (Paired Load)



- All data given in this section according ETA-11/0006, issue 2011-02-08 and follow the design code CEN/TS.
- Channel length: 350mm with 3 anchors (legs)
- Embedment depth,  $h_{ef} = 91\text{mm}$ .
- T-head bolts spacing  $\geq 150\text{mm}$ , choose of bolt size according to bolt selection chart.
- Linear interpolation is now allowed. Consult Hilti technical advisory for loading with different edge distance or member thickness.
- Concrete C35/45, Cylindrical strength =  $35\text{N/mm}^2$ , Cubic strength =  $45\text{N/mm}^2$ . Consult Hilti technical advisory for loading with different concrete grade.
- The recommended load with overall global safety factor  $\gamma_{global} = 3$ . Loads may vary according to the safety factor requirement from national regulations.
- Quick selection of channel only. Consult Hilti technical advisory for combined load checking.
- Parallel paired channel spacing =  $2 \times$  edge distance  $c_1$
- For detail design, please see HAC design manual.



## HAC 40

### Characteristic Resistance in cracked concrete C35/45

		Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
		125	150	200	250	300	
Tension	[kN]	50.0	50.0	50.0	50.0	50.0	200
Shear	[kN]	54.7	60.0	70.0	70.0	70.0	
Tension	[kN]	50.0	50.0	50.0	50.0	50.0	150
Shear	[kN]	42.0	46.0	53.3	59.5	65.0	
Tension	[kN]	47.4	47.4	47.4	47.4	47.4	125
Shear	[kN]	35.7	39.0	45.0	50.5	55.3	
Tension	[kN]	42.4	42.4	42.4	42.4	42.4	100
Shear	[kN]	29.2	32.0	37.0	41.5	42.0	
Tension	[kN]	36.7	36.7	36.7	36.7	36.7	75
Shear	[kN]	22.8	25.0	28.8	29.2	29.2	
Tension	[kN]	30.0	30.0	30.0	30.0	30.0	50
Shear	[kN]	16.1	17.7	18.0	18.0	18.0	

### Recommended Load in cracked concrete C35/45

		Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
		125	150	200	250	300	
Tension	[kN]	16.7	16.7	16.7	16.7	16.7	200
Shear	[kN]	18.2	20.0	23.3	23.3	23.3	
Tension	[kN]	16.7	16.7	16.7	16.7	16.7	150
Shear	[kN]	14.0	15.3	17.8	19.8	21.7	
Tension	[kN]	15.8	15.8	15.8	15.8	15.8	125
Shear	[kN]	11.9	13.0	15.0	16.8	18.4	
Tension	[kN]	14.1	14.1	14.1	14.1	14.1	100
Shear	[kN]	9.7	10.7	12.3	13.8	14.0	
Tension	[kN]	12.2	12.2	12.2	12.2	12.2	75
Shear	[kN]	7.6	8.3	9.6	9.7	9.7	
Tension	[kN]	10.0	10.0	10.0	10.0	10.0	50
Shear	[kN]	5.4	5.9	6.0	6.0	6.0	

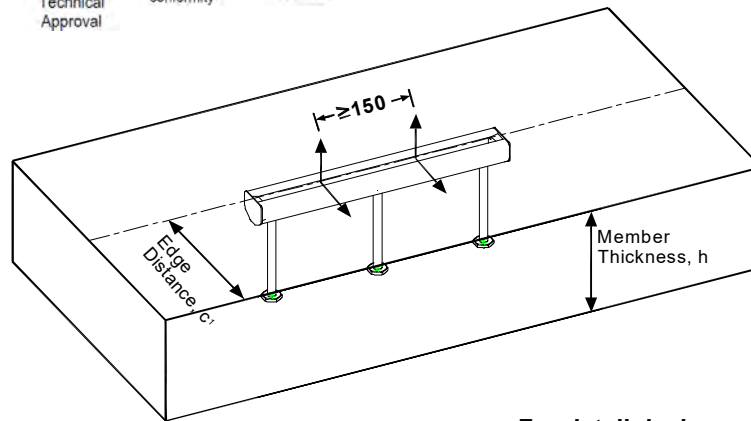
The above loading data is calculated based on specific design criteria. It is suggested to use Hilti Profis anchor channel software for detail design.  
Download link: [http://download.hilti.biz/data/techlib/profis\\_anchorchannel/HiltiPROFISAnchorChannelFullVersion.exe](http://download.hilti.biz/data/techlib/profis_anchorchannel/HiltiPROFISAnchorChannelFullVersion.exe)



# HAC-50 Basic Loading Data (Paired Load)



- All data given in this section according ETA-11/0006, issue 2011-02-08 and follow the design code CEN/TS.
- Channel length: 350mm with 3 anchors (legs)
- Embedment depth,  $h_{ef} = 106\text{mm}$ .
- T-head bolts spacing  $\geq 150\text{mm}$ , choose of bolt size according to bolt selection chart.
- Linear interpolation is now allowed. Consult Hilti technical advisory for loading with different edge distance or member thickness.
- Concrete C35/45, Cylindrical strength =  $35\text{N/mm}^2$ , Cubic strength =  $45\text{N/mm}^2$ , Consult Hilti technical advisory for loading with different concrete grade.
- The recommended load with overall global safety factor  $\gamma_{global}$ , 3. Loads may vary according to the safety factor requirement from national regulations.
- Quick selection of channel only. Consult Hilti technical advisory for combined load checking.
- Parallel paired channel spacing =  $2 \times$  edge distance  $c_1$
- For detail design, please see HAC design manual.



## HAC 50

For detail design, see HAC design manual

### Characteristic Resistance in cracked concrete C35/45

	Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
	125	150	200	250	300	
Tension [kN]	70.0	70.0	70.0	70.0	70.0	300
Shear [kN]	80.0	87.8	101.0	102.0	102.0	
Tension [kN]	70.0	70.0	70.0	70.0	70.0	200
Shear [kN]	54.5	59.8	69.0	77.0	84.7	
Tension [kN]	64.5	64.5	64.5	64.5	64.5	150
Shear [kN]	41.7	45.8	53.0	59.0	64.8	
Tension [kN]	59.1	59.1	59.1	59.1	59.1	125
Shear [kN]	35.4	38.8	44.8	50.0	55.0	
Tension [kN]	52.8	52.8	52.8	52.8	52.8	100
Shear [kN]	29.0	31.8	36.7	41.0	42.0	
Tension [kN]	45.7	45.7	45.7	45.7	45.7	75
Shear [kN]	22.5	24.6	28.5	29.3	29.3	

### Recommended Load in cracked concrete C35/45

	Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
	125	150	200	250	300	
Tension [kN]	23.3	23.3	23.3	23.3	23.3	300
Shear [kN]	26.7	29.3	33.7	34.0	34.0	
Tension [kN]	23.3	23.3	23.3	23.3	23.3	200
Shear [kN]	18.2	19.9	23.0	25.7	28.2	
Tension [kN]	21.5	21.5	21.5	21.5	21.5	150
Shear [kN]	13.9	15.3	17.7	19.7	21.6	
Tension [kN]	19.7	19.7	19.7	19.7	19.7	125
Shear [kN]	11.8	12.9	14.9	16.7	18.3	
Tension [kN]	17.6	17.6	17.6	17.6	17.6	100
Shear [kN]	9.7	10.6	12.2	13.7	14.0	
Tension [kN]	15.2	15.2	15.2	15.2	15.2	75
Shear [kN]	7.5	8.2	9.5	9.8	9.8	

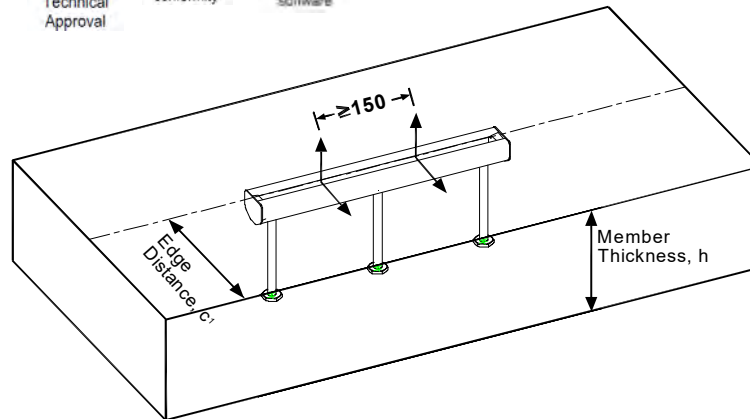
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# HAC-60 Basic Loading Data (Paired Load)



- All data given in this section according ETA-11/0006, issue 2011-02-08 and follow the design code CEN/TS.
- Channel length: 350mm with 3 anchors (legs)
- Embedment depth,  $h_{ef} = 148\text{mm}$ .
- T-head bolts spacing  $\geq 150\text{mm}$ , choose of bolt size according to bolt selection chart.
- Linear interpolation is now allowed. Consult Hilti technical advisory for loading with different edge distance or member thickness.
- Concrete C35/45, Cylindrical strength =  $35\text{N/mm}^2$ , Cubic strength =  $45\text{N/mm}^2$ , Consult Hilti technical advisory for loading with different concrete grade.
- The recommended load with overall global safety factor  $\gamma_{global}$ , 3. Loads may vary according to the safety factor requirement from national regulations.
- Quick selection of channel only. Consult Hilti technical advisory for combined load checking.
- Parallel paired channel spacing =  $2 \times$  edge distance  $c_1$
- For detail design, please see HAC design manual.



## HAC 60

### Characteristic Resistance in cracked concrete C35/45

		Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
		170	200	250	300	350	
Tension	[kN]	103.5	103.5	103.5	103.5	103.5	350
Shear	[kN]	107.5	116.5	125.0	125.0	125.0	
Tension	[kN]	103.5	103.5	103.5	103.5	103.5	250
Shear	[kN]	78.0	84.5	94.5	103.5	112.0	
Tension	[kN]	103.5	103.5	103.5	103.5	103.5	200
Shear	[kN]	63.0	68.5	76.5	84.0	90.5	
Tension	[kN]	98.0	98.0	98.0	98.0	98.0	150
Shear	[kN]	48.3	52.2	58.4	64.0	69.0	
Tension	[kN]	89.5	89.5	89.5	89.5	89.5	125
Shear	[kN]	40.7	44.2	49.5	54.2	56.0	
Tension	[kN]	80.0	80.0	80.0	80.0	80.0	100
Shear	[kN]	33.3	36.0	40.3	42.0	42.0	

### Recommended Load in cracked concrete C35/45

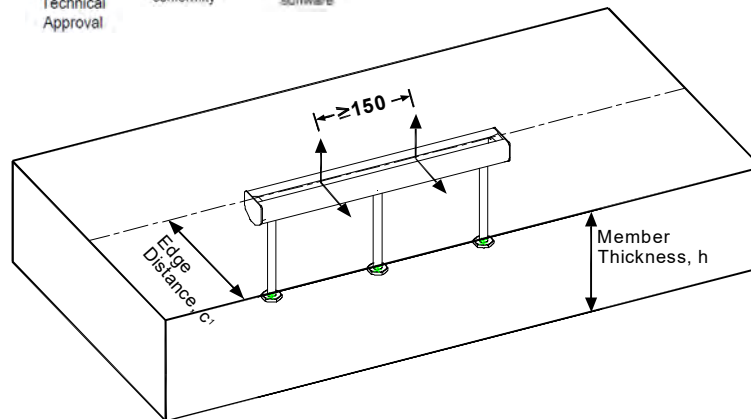
		Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
		170	200	250	300	350	
Tension	[kN]	34.5	34.5	34.5	34.5	34.5	350
Shear	[kN]	35.8	38.8	41.7	41.7	41.7	
Tension	[kN]	34.5	34.5	34.5	34.5	34.5	250
Shear	[kN]	26.0	28.2	31.5	34.5	37.3	
Tension	[kN]	34.5	34.5	34.5	34.5	34.5	200
Shear	[kN]	21.0	22.8	25.5	28.0	30.2	
Tension	[kN]	32.7	32.7	32.7	32.7	32.7	150
Shear	[kN]	16.1	17.4	19.5	21.3	23.0	
Tension	[kN]	29.8	29.8	29.8	29.8	29.8	125
Shear	[kN]	13.6	14.7	16.5	18.1	18.7	
Tension	[kN]	26.7	26.7	26.7	26.7	26.7	100
Shear	[kN]	11.1	12.0	13.4	14.0	14.0	

The above loading data is calculated based on specific design criteria. It is suggested to use Hilti Profis anchor channel software for detail design.  
Download link: [http://download.hilti.biz/data/techlib/profis\\_anchorchannel/HiltiPROFISAnchorChannelFullVersion.exe](http://download.hilti.biz/data/techlib/profis_anchorchannel/HiltiPROFISAnchorChannelFullVersion.exe)

# HAC-70 Basic Loading Data (Paired Load)



- All data given in this section according ETA-11/0006, issue 2011-02-08 and follow the design code CEN/TS.
- Channel length: 350mm with 3 anchors (legs)
- Embedment depth,  $h_{ef} = 175\text{mm}$ .
- T-head bolts spacing  $\geq 150\text{mm}$ , choose of bolt size according to bolt selection chart.
- Linear interpolation is now allowed. Consult Hilti technical advisory for loading with different edge distance or member thickness.
- Concrete C35/45, Cylindrical strength =  $35\text{N/mm}^2$ , Cubic strength =  $45\text{N/mm}^2$ , Consult Hilti technical advisory for loading with different concrete grade.
- The recommended load with overall global safety factor,  $\gamma_{global} = 3$ . Loads may vary according to the safety factor requirement from national regulations.
- Quick selection of channel only. Consult Hilti technical advisory for combined load checking.
- Parallel paired channel spacing =  $2 \times \text{edge distance } c_1$
- For detail design, please see HAC design manual.



## HAC 70

### Characteristic Resistance in cracked concrete C35/45

	Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
	200	250	300	350	400	
Tension [kN]	146.0	146.0	146.0	146.0	146.0	350
Shear [kN]	116.0	125.0	125.0	125.0	125.0	
Tension [kN]	146.0	146.0	146.0	146.0	146.0	250
Shear [kN]	84.0	94.0	103.0	111.0	118.5	
Tension [kN]	144.0	144.0	144.0	144.0	144.0	200
Shear [kN]	68.0	76.0	83.0	89.5	96.0	
Tension [kN]	125.0	125.0	125.0	125.0	125.0	150
Shear [kN]	51.7	57.7	63.2	68.4	71.0	
Tension [kN]	114.0	114.0	114.0	114.0	114.0	125
Shear [kN]	43.5	48.8	53.4	56.0	56.0	
Tension [kN]	102.0	102.0	102.0	102.0	102.0	100
Shear [kN]	35.5	39.7	42.0	42.0	42.0	

### Recommended Load in cracked concrete C35/45

	Concrete member thickness, h [mm]					Edge distance, $c_1$ [mm]
	200	250	300	350	400	
Tension [kN]	48.7	48.7	48.7	48.7	48.7	350
Shear [kN]	38.7	41.7	41.7	41.7	41.7	
Tension [kN]	48.7	48.7	48.7	48.7	48.7	250
Shear [kN]	28.0	31.3	34.3	37.0	39.5	
Tension [kN]	48.0	48.0	48.0	48.0	48.0	200
Shear [kN]	22.7	25.3	27.7	29.8	32.0	
Tension [kN]	41.7	41.7	41.7	41.7	41.7	150
Shear [kN]	17.2	19.2	21.1	22.8	23.7	
Tension [kN]	38.0	38.0	38.0	38.0	38.0	125
Shear [kN]	14.5	16.3	17.8	18.7	18.7	
Tension [kN]	34.0	34.0	34.0	34.0	34.0	100
Shear [kN]	11.8	13.2	14.0	14.0	14.0	

The above loading data is calculated based on specific design criteria. It is suggested to use Hilti Profis anchor channel software for detail design.  
Download link: [http://download.hilti.biz/data/techlib/profis\\_anchorchannel/HiltiPROFISAnchorChannelFullVersion.exe](http://download.hilti.biz/data/techlib/profis_anchorchannel/HiltiPROFISAnchorChannelFullVersion.exe)

# Hilti Anchor Channel T-Head Bolt Basic Loading Data

- All data for HBC-C & HBC-C-N Bolt given in this section according ETA-11/0006, issue 2011-02-08 and follow the design code CEN/TS
- The recommended load with overall global safety factor,  $\gamma_{\text{global}}$ , 3. Loads may vary according to the safety factor requirement from national regulations.
- For detail design, please see HAC design manual

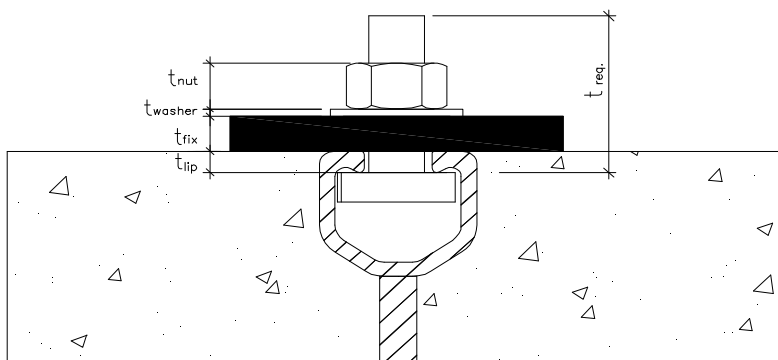


## HBC-C & HBC-C-N Bolt Characteristic Resistance (single bolt)

		M12	M16	M20	Material
Tension	[kN]	67.4	125.6	174.3	8.8
Shear	[kN]	33.7	62.8	101.7	
Tension	[kN]	42.2	78.5	122.5	A4-50
Shear	[kN]	25.3	47.1	73.5	

## Recommended Load (single bolt)

		M12	M16	M20	Material
Tension	[kN]	22.5	41.9	65.3	8.8
Shear	[kN]	11.2	20.9	32.6	
Tension	[kN]	14.1	26.2	40.8	A4-50
Shear	[kN]	8.4	15.7	24.5	



$$L_{\text{req.}} = t_{\text{lip}} + t_{\text{fix}} + t_{\text{nut}} + t_{\text{washer}} + 3 - 5 \text{ no. of threads} *$$

\* - 3 - 5 nos. of thread is the common practice.

Model	$t_{\text{lip}}$ [mm]
HAC 40	4.5
HAC 50	5.3
HAC 60	6.3
HAC 70	7.4

Nut	$t_{\text{nut}}$ [mm]
for M12	9
for M16	14
for M20	17

Washer	$t_{\text{washer}}$ [mm]
M12	~ 3
M16	~ 4
M20	~ 6

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-11/0006**  
**of 24 October 2022**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Hilti anchor channels (HAC) with channel bolts (HBC)

Product family  
to which the construction product belongs

Anchor channels

Manufacturer

Hilti AG  
Feldkircherstraße 100  
9494 Schaan  
FÜRSTENTUM LIECHTENSTEIN

Manufacturing plant

Hilti Werke

This European Technical Assessment  
contains

40 pages including 3 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

EAD 330008-04-0601, Edition 06/2022

This version replaces

ETA-11/0006 issued on 27 September 2019

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## Specific Part

### 1 Technical description of the product

The Hilti anchor channel (HAC) with channel bolts (HBC) is a system consisting of V-shaped channel profile of carbon steel and at least two metal anchors non-detachably fixed to the channel back and channel bolts.

The anchor channel is embedded surface-flush in the concrete. Hilti channel bolts with appropriate hexagon nuts and washers are fixed to the channel.

The product description is given in Annex A.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the anchor channel is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor channel of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance under tension load (static and quasi-static loading)	
- Resistance to steel failure of anchors	$N_{Rk,s,a}$ see Annex C1 and C2
- Resistance to steel failure of the connection between anchors and channel	$N_{Rk,s,c}$ see Annex C1 and C2
- Resistance to steel failure of channel lips and subsequently pull-out of channel bolt	$N_{Rk,s,l}^0$ ; $s_{l,N}$ see Annex C1 and C2
- Resistance to steel failure of channel bolt	$N_{Rk,s}$ see Annex C9
- Resistance to steel failure by exceeding the bending strength of the channel	$s_{max}$ see Annex B3 $M_{Rk,s,flex}$ see Annex C1 and C2
- Maximum installation torque to avoid damage during installation	$T_{inst,g}$ ; $T_{inst,s}$ see Annex B5
- Resistance to pull-out failure of the anchor	$N_{Rk,p}$ see Annex C3 and C4
- Resistance to concrete cone failure	$h_{ef}$ see Annex B3 and B4 $k_{cr,N}$ ; $k_{ucr,N}$ see Annex C3 and C4
- Minimum edge distances, spacing and member thickness to avoid concrete splitting during installation	$s_{min}$ ; $c_{min}$ ; $h_{min}$ see Annex B3 and B4
- Characteristic edge distance and spacing to avoid splitting of concrete under load	$s_{cr,sp}$ ; $c_{cr,sp}$ see Annex C3 and C4
- Resistance to blowout failure - bearing area of anchor head	$A_h$ see Annex A4

Essential characteristic	Performance
<p>Characteristic resistance under shear load (static and quasi-static loading)</p> <ul style="list-style-type: none"> <li>- Resistance to steel failure of channel bolt under shear loading without lever arm</li> <li>- Resistance to steel failure by bending of the channel bolt under shear load with lever arm</li> <li>- Resistance to steel failure of channel lips, steel failure of connection between anchor and channel and steel failure of anchor (shear load in transverse direction)</li> <li>- Resistance to steel failure of connection between channel lips and channel bolt (shear load in longitudinal channel axis)</li> <li>- Factor for sensitivity to installation (longitudinal shear)</li> <li>- Resistance to steel failure of the anchor (longitudinal shear)</li> <li>- Resistance to steel failure of connection between anchor and channel (longitudinal shear)</li> <li>- Resistance to concrete pry-out failure</li> <li>- Resistance to concrete edge failure</li> </ul>	<p><math>V_{Rk,s}</math> see Annex C9</p> <p><math>M_{Rk,s}^0</math> see Annex C10</p> <p><math>V_{Rk,s,l,y}^0 ; S_{l,v} ; V_{Rk,s,c,y} ; V_{Rk,s,a,y}</math> see Annex C5 and C6</p> <p><math>V_{Rk,s,l,x}</math> see Annex C7</p> <p><math>\gamma_{inst}</math> see Annex C7</p> <p><math>V_{Rk,s,a,x}</math> see Annex C5 and C6</p> <p><math>V_{Rk,s,c,x}</math> see Annex C5 and C6</p> <p><math>k_8</math> see Annex C7</p> <p><math>k_{cr,v} ; k_{ucr,v}</math> see Annex C7</p>
<p>Characteristic resistance under combined tension and shear load (static and quasi-static load)</p> <ul style="list-style-type: none"> <li>- Resistance to steel failure of the anchor channel</li> </ul>	<p><math>k_{13} ; k_{14}</math> see Annex C8</p>
<p>Characteristic resistance under fatigue tension loading</p> <ul style="list-style-type: none"> <li>- Fatigue resistance to steel failure of the whole system (continuous or tri-linear function, test method A1, A2)</li> <li>- Fatigue limit resistance to steel failure of the whole system (test method B)</li> <li>- Fatigue resistance to concrete related failure (exponential function, test method A1, A2)</li> <li>- Fatigue limit resistance to concrete related failure (test method B)</li> </ul>	<p><math>\Delta N_{Rk,s,0,n}</math> (<math>n = 1</math> to <math>n = \infty</math>) see Annex C11</p> <p><math>\Delta N_{Rk,s,0,\infty}</math> see Annex C12</p> <p><math>\Delta N_{Rk,c,0,n} ; \Delta N_{Rk,p,0,n}</math> (<math>n = 1</math> to <math>n = \infty</math>) see Annex C12</p> <p><math>\Delta N_{Rk,c,0,\infty} ; \Delta N_{Rk,p,0,\infty}</math> see Annex C12</p>



Essential characteristic	Performance
Characteristic resistance under seismic loading (seismic performance category C1) <ul style="list-style-type: none"> <li>- Resistance to steel failure under seismic tension loading (seismic performance category C1)</li> <li>- Resistance to steel failure under seismic shear loading for shear load in transverse direction (seismic performance category C1)</li> <li>- Resistance to steel failure under seismic shear loading for shear load in longitudinal channel axis (seismic performance category C1)</li> </ul>	$N_{Rk,s,a.eq}$ ; $N_{Rk,s,c.eq}$ ; $N^0_{Rk,s,l.eq}$ ; $N_{Rk,s.eq}$ ; $M_{Rk,s,flex.eq}$ see Annex C13 and C16  $V_{Rk,s.eq}$ ; $V^0_{Rk,s,l,y.eq}$ ; $V_{Rk,s,c,y.eq}$ ; $V_{Rk,s,a,y.eq}$ see Annex C14 and C16  $V_{Rk,s,l,x.eq}$ ; $V_{Rk,s,a,x.eq}$ ; $V_{Rk,s,c,x.eq}$ see Annex C14 and C15
Characteristic resistance under static and quasi-static tension and/or shear loading <ul style="list-style-type: none"> <li>- Displacements (static and quasi-static load)</li> </ul>	$\delta_{N0}$ ; $\delta_{N\infty}$ see Annex C5 $\delta_{V,y,0}$ ; $\delta_{V,y,\infty}$ ; $\delta_{V,x,0}$ ; $\delta_{V,x,\infty}$ see Annex C8

### 3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C17 and C18

### 3.3 Other essential characteristics

Essential characteristic	Performance
Durability	See Annex B1

## 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 330008-04-0601, the applicable European legal act is: [2000/273/EC].

The system to be applied is: 1

## 5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

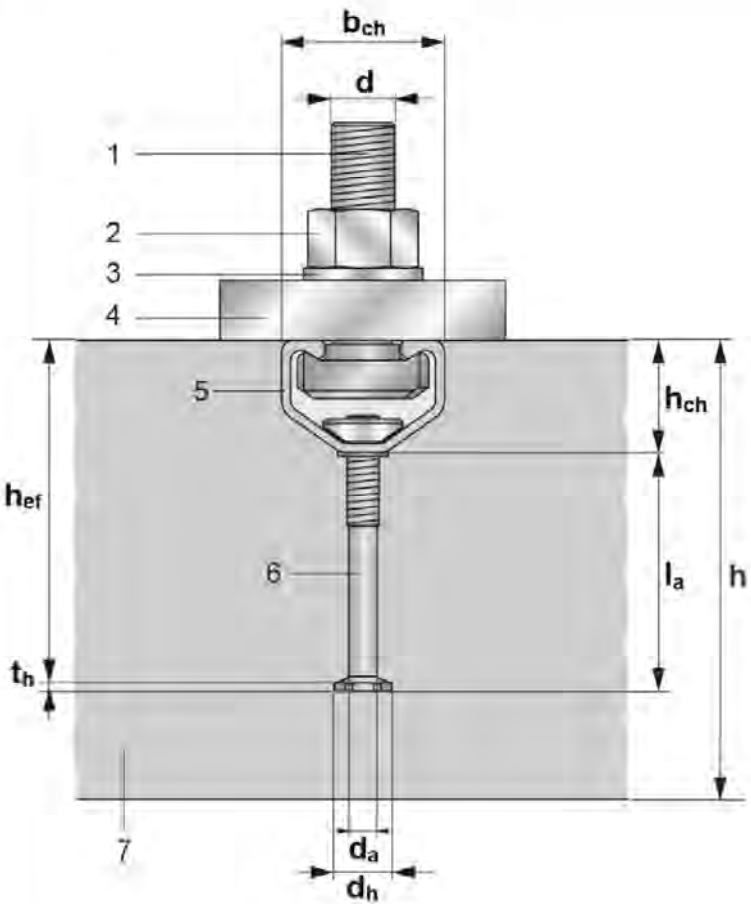
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 24 October 2022 by Deutsches Institut für Bautechnik

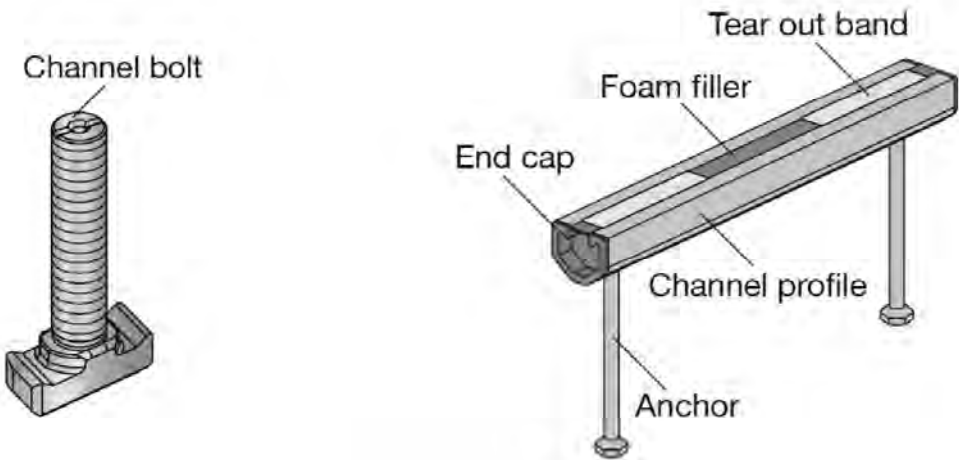
Dipl.-Ing. Beatrix Wittstock  
Head of Section

beglaubigt:  
Müller

Product and installation condition



- Key**
- 1 channel bolt
  - 2 hexagonal nut
  - 3 washer
  - 4 fixture
  - 5 channel profile
  - 6 anchor
  - 7 concrete member

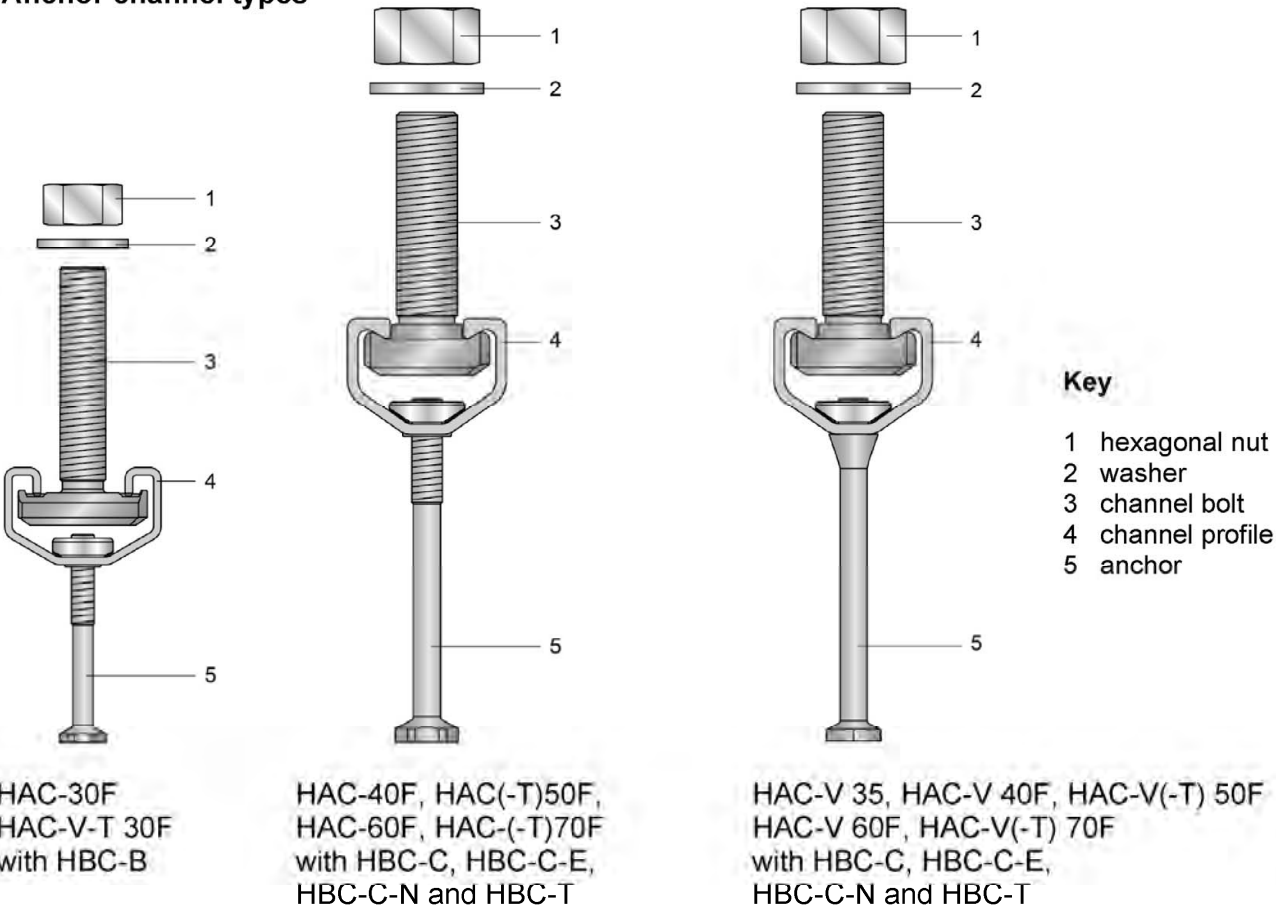


Hilti anchor channels (HAC) with channel bolts (HBC)

**Product Description**  
Installed condition

Annex A1

Anchor channel types



Marking of the Hilti anchor channel:  
HAC-(T)XZ Y/W

- HAC = Identifying mark of the manufacturer (Hilti Anchor Channel)
- T = Additional marking for serrated channels
- X = Size of the channel
- Z = Corrosion class
- Y = Min effective embedment depth
- W = Channel length



(e.g. HAC-40F 91/300)



- 40 = Anchor channel size 40
- F = Hot dip galvanized
- 91  $h_{ef}$  = 91 mm minimum effective embedment depth (Identification letter "a" marked on the anchor)
- 300  $l_{ch}$  = 300 mm channel length

Hilti anchor channels (HAC) with channel bolts (HBC)

**Product Description**  
Anchor channel types and marking

Annex A2

**Table 1: Anchor marking (identification letter) and relative minimum effective embedment depth**

Anchor channel		HAC-V-T 30	HAC-V 35	HAC-V 40		HAC-V(-T) 50		HAC-V 60		HAC-V(-T) 70	
Min. effective embedment depth	[mm]	68	91	91	110	71	106	148	183	175	295
Anchor marking		z	a	a	b	c	e	f	n	k	l

### Marking of the Hilti channel bolt: HBC-X(-N) YZ

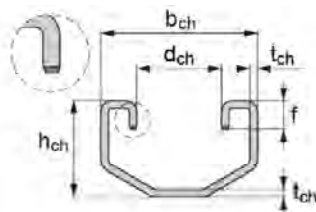
HBC = Identifying mark of the manufacturer  
(Hilti Bolt Channel)  
X = Type of channel bolt  
N = Additional marking for notching bolt  
Y = Steel grade  
Z = Corrosion class



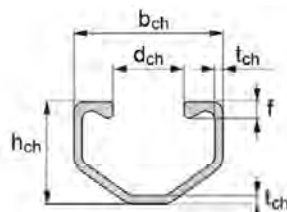
(e.g. HBC-C 8.8F)

C = Channel bolt type (see Table 4)  
8.8 = Steel grade  
F = Hot dip galvanized

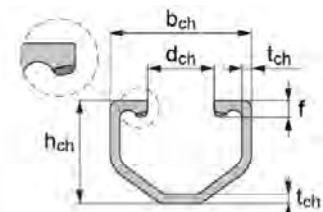
### Anchor Channels



HAC-30, HAC-V-T 30  
(serrated)



HAC-40, HAC-50, HAC-60, HAC-  
70, HAC-V 35, HAC-V 40, HAC-V  
50, HAC-V 60, HAC-V 70



HAC-T 50, HAC-T 70,  
HAC-V-T 50, HAC-V-T 70  
(serrated)

**Table 2: Dimensions of channel profile**

Anchor channel	b <sub>ch</sub>	h <sub>ch</sub>	t <sub>ch</sub>	d <sub>ch</sub>	f	I <sub>y</sub>
	[mm]					[mm <sup>4</sup> ]
HAC-30, HAC-V-T 30	41,3	25,6	2,00	22,3	7,5	15349
HAC-V 35, HAC-40, HAC-V 40	40,9	28,0	2,25	19,5	4,5	21463
HAC-50, HAC-V 50	41,9	31,0	2,75	19,5	5,3	33125
HAC-T50, HAC-V-T 50	41,9	31,0	2,75	19,5	5,2	32049
HAC-60, HAC-V 60	43,4	35,5	3,50	19,5	6,3	57930
HAC- 70, HAC-V 70	45,4	40,0	4,50	19,5	7,4	95457
HAC-T70, HAC-V-T70	45,4	40,0	4,50	19,5	7,1	92192

### Hilti anchor channels (HAC) with channel bolts (HBC)

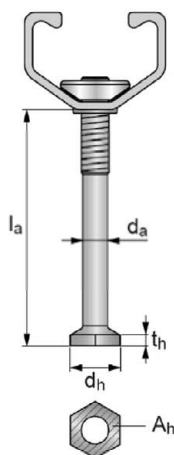
**Product Description**  
Anchor channels (HAC)

Annex A3

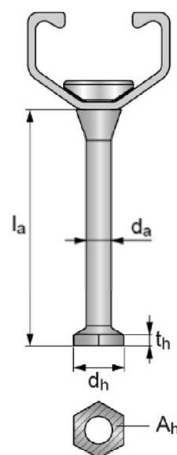
**Table 3: Dimensions of anchor (welded or bolted to the channel profile)**

Anchor channel	$d_a$	$d_h$	$t_h$	min $l_a$	Head area $A_h$
	[mm]				[mm <sup>2</sup> ]
HAC-30, HAC-V-T 30	5,4	11,5	2,0	44,4	89
HAC-V 35, HAC-40, HAC-V 40	7,2	17,5	3,0	66,0	209
HAC-50, HAC-V 50	9,0	19,5	3,5	78,5	258
HAC-T50, HAC-V-T 50	9,0	19,5	3,5	78,5	258
HAC-60, HAC-V 60	9,0	19,5	4,5	117,0	258
HAC- 70, HAC-V 70	10,9	23,0	5,0	140,0	356
HAC-T70, HAC-V-T70	10,9	23,0	5,0	140,0	356

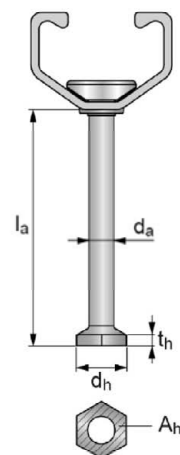
**HAC with bolted anchor**



**HAC-V with bolted anchor**



**welded anchor**



**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Product Description**  
Anchor channels (HAC)

Annex A4

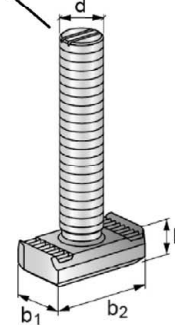
## Channel bolts

Table 4: Dimensions of channel bolt

Anchor channel	Channel bolt type	Steel grade	Dimensions			
			b <sub>1</sub>	b <sub>2</sub>	k	d
			[mm]			
HAC- 30 HAC-V-T 30	HBC-B	4.6, A4-50	19,0	34,0	9,2	10
						12
HAC-40 HAC-50 HAC-V 35 HAC-V 40 HAC-V 50	HBC-C-E	4.6, 8.8, A4-50	14,0	33,0	10,4	12
			17,0		13,4	16
HAC-40 HAC-50 HAC-60 HAC-70 HAC-V 35 HAC-V 40 HAC-V 50 HAC-V 60 HAC-V 70	HBC-C	4.6, 8.8, A4-50	14,0	33,0	10,4	10
						12
			18,5		11,4	16
					13,9	20
	HBC-C-N	8.8	18,5	33,0	11,4	12
						16
13,9					20	
HAC-T 50 HAC-T 70 HAC-V-T 50 HAC-V-T 70	HBC-T	8.8	18,5	35,4	12,0	12
						16
						20

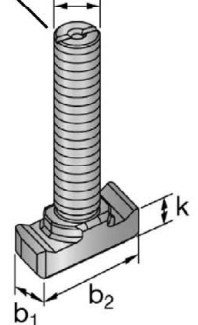
HBC-B

Single groove for marking the position



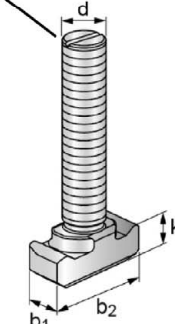
HBC-C-E

Single groove for marking the position



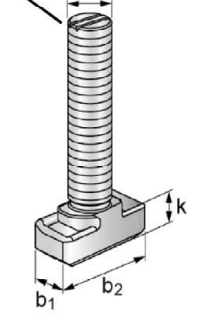
HBC-C

Single groove for marking the position



HBC-C-N

Double groove for marking the position



<sup>1)</sup> Material properties according to Annex A5

Table 5: Steel grade and corrosion protection

Channel Bolt	Carbon steel <sup>1)</sup>		Stainless steel <sup>2)</sup>
Steel grade	4.6	8.8	A4-50
f <sub>uk</sub> [N/mm <sup>2</sup> ]	400	800 / 830 <sup>2)</sup>	500
f <sub>yk</sub> [N/mm <sup>2</sup> ]	240	640 / 660 <sup>2)</sup>	210
Corrosion protection	G <sup>3)</sup> F <sup>4)</sup>		R

<sup>1)</sup> Material properties according to Annex A5

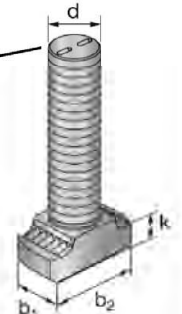
<sup>2)</sup> Material properties according to EN ISO 898-1:2013

<sup>3)</sup> Electroplated

<sup>4)</sup> Hot dip galvanized

HBC-T

Single groove for marking the position



Hilti anchor channels (HAC) with channel bolts (HBC)

Product Description  
Channel bolts (HBC)

Annex A5



**Table 6: Materials**

Component	Carbon steel			Stainless steel
	Material properties	Coating		Material properties
1	2a	2b	2c	3
Channel Profile	Carbon steel according to EN 10025-2: 2019	Hot dip galvanized $\geq 55 \mu\text{m}$ <sup>1)</sup> Hot dip galvanized $\geq 70 \mu\text{m}$ <sup>2)</sup> according to EN ISO 1461: 2009		-
Rivet	Carbon steel	Hot dip galvanized $\geq 45 \mu\text{m}$ <sup>5)</sup> according to EN ISO 1461: 2009		-
Anchor	Carbon steel	Hot dip galvanized $\geq 45 \mu\text{m}$ <sup>5)</sup> according to EN ISO 1461: 2009		-
Channel bolt	Steel grade 4.6 and 8.8 according to EN ISO 898-1: 2013	Electroplated $\geq 8 \mu\text{m}$ according to DIN EN ISO 4042: 2018	Hot dip galvanized $\geq 45 \mu\text{m}$ <sup>5)</sup> according to EN ISO 1461: 2009	Steel grade 50 according to EN ISO 3506-1: 2020  1.4401 / 1.4404 / 1.4571 / 1.4362 / 1.4578 / 1.4439
Plain washer <sup>3)</sup> according to EN ISO 7089: 2000 and EN ISO 7093-1: 2000	Hardness class A $\geq 200$ HV	Electroplated $\geq 8 \mu\text{m}$	Hot dip galvanized $\geq 45 \mu\text{m}$ <sup>5)</sup>	Hardness class A $\geq 200$ HV  1.4401 / 1.4404 / 1.4571 / 1.4362 / 1.4578 / 1.4439
Hexagonal nut according to EN ISO 4032: 2012 or DIN 934: 1987-10 <sup>4)</sup>	Property class 8 according to EN ISO 898-2: 2012	Electroplated $\geq 8 \mu\text{m}$	Hot dip galvanized $\geq 45 \mu\text{m}$ <sup>5)</sup>	Property class 70 according to EN ISO 3506-2: 2020  1.4401 / 1.4404 / 1.4571 / 1.4362 / 1.4578 / 1.4439

<sup>1)</sup> For HAC-30F, HAC-V-T 30F, HAC-V 35F, HAC-40F, HAC-V 40F, HAC(-T) 50F and HAC-V(-T) 50F.

<sup>2)</sup> For HAC-60F, HAC-V 60F, HAC(-T)70F and HAC-V(-T) 70F.

<sup>3)</sup> Not in scope of delivery.

<sup>4)</sup> Hexagonal nuts according to DIN 934: 1987-10 for channel bolts made from carbon steel (4.6) and stainless steel.

<sup>5)</sup> Hot dip galvanized according to EN ISO 1461: 2009.

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Product Description**  
Materials

Annex A6



## Specifications of intended use

### Anchor channels and channel bolts subject to:

- Static and quasi-static tension and shear perpendicular to the longitudinal axis of the channel for HAC and HAC-V in combination with HBC-C and HBC-C-E as well as static and quasi-static tension, shear perpendicular to the longitudinal axis of the channel and shear in the direction of the longitudinal axis of the channel for HAC and HAC-V in combination with HBC-B, HBC-C-N and HAC-T and HAC-V-T in combination with HBC-T.
- Fatigue cyclic tension loads.
- Seismic tension, seismic shear perpendicular to the longitudinal axis of the channel and seismic shear in the direction of the longitudinal axis of the channel (seismic performance category C1).
- Fire exposure: only for concrete class C20/25 to C50/60.

### Base materials:

- Reinforced or unreinforced normal weight concrete according to EN 206-1: 2000.
- Strength classes C12/15 to C90/105 according to EN 206-1: 2000.
- Cracked or uncracked concrete.

### Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (anchor channels and channel bolts according to Annex A6, Table 6, column 2 and 3).
- Structures subject to internal conditions with usual humidity (e.g. kitchen, bath and laundry in residential buildings, exceptional permanent damp conditions and application under water) (anchor channels and channel bolts according to Annex A6, Table 6, column 2c and 3).
- According to EN 1993-1-4:2006+A2:2015 relating to corrosion resistance class CRC III (channel bolts, washers and nuts made of stainless steel number 1.4401, 1.4404, 1.4571, 1.4362 und 1.4578 according to Annex A6, Table 6, column 3).
- According to EN 1993-1-4:2006+A2:2015 relating to corrosion resistance class CRC IV (channel bolts, washers and nuts made of stainless steel number 1.4439 according to Annex A6, Table 6, column 3).

### Design:

- Anchor channels are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor channel and channel bolts are indicated on the design drawings (e.g. position of the anchor channel relative to the reinforcement or to supports).
- For static and quasi-static loading as well as seismic loading (performance category C1) and fire exposure the anchor channels are designed in accordance with EOTA TR 047 "Design of Anchor Channels", May 2021 or EN 1992-4: 2018.
- For fatigue loading the anchor channels are designed in accordance with EOTA TR 050 "Calculation Method for the Performance of Anchor Channels under Fatigue Loading", October 2018.
- The characteristic resistances are calculated with the minimum effective embedment depth.

## Hilti anchor channels (HAC) with channel bolts (HBC)

### Intended Use Specifications

Annex B1

#### Installation:

- The installation of anchor channels is carried out by appropriately qualified personnel under the supervision of the person responsible for the technical matters on site.
- Use of the anchor channels only as supplied by the manufacturer - without any manipulations, repositioning or exchanging of channel components.
- Cutting of anchor channels is allowed only if pieces according to Annex B3, Table 7 and 8 as well as Annex B4, Table 9 are generated including end spacing and minimum channel length and only to be used in dry internal conditions.
- Installation in accordance with the installation instructions given in Annexes B7, B8, B9, B10 and B11.
- The anchor channels are fixed on the formwork, reinforcement or auxiliary construction such that no movement of the channels will occur during the time of laying the reinforcement and of placing and compacting the concrete.
- The concrete under the head of the anchors are properly compacted. The channels are protected from penetration of concrete into the internal space of the channels.
- Washer may be chosen according to Annex A6 and provided separately by the user.
- Orientating the channel bolt (groove according to Annex B8, B9, B10 and B11) rectangular to the channel axis.
- The required installation torques given in Annex B5 must be applied and must not be exceeded.

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Intended Use  
Specifications**

Annex B2

**Table 7: Installation parameters for anchor channel HAC**

Anchor channel			HAC-30	HAC-40	HAC-50	HAC-T50	HAC-60	HAC-70	HAC-T70	
Min. effective embedment depth	$h_{ef,min}$	[mm]	68	91	106	106	148	175	175	
Min. spacing	$s_{min}$		50	100						
Maximum spacing	$s_{max}$		250							
End spacing	x		25							
Min. channel length	$l_{min}$		100	150						
Min edge distance	$c_{min}$		50					75		
Minimum thickness of concrete member	$h_{min}$		80	105	125	125	168	196	196	
			$h_{ef} + t_h + c_{nom}^{1)}$							

<sup>1)</sup>  $c_{nom}$  according to EN 1992-1-1:2004 + AC: 2010

**Table 8: Installation parameters for anchor channel HAC-V**

Anchor channel			HAC-V-T 30	HAC-V 35	HAC-V 40	
Min. effective embedment depth	$h_{\text{ef,min}}$	[mm]	68	91	91	110
Min. spacing	$s_{\text{min}}$		50	100		
Maximum spacing	$s_{\text{max}}$		250			
End spacing	$x$		25			
Min. channel length	$l_{\text{min}}$		100	150		
Min edge distance	$c_{\text{min}}$		50			
Minimum thickness of concrete member	$h_{\text{min}}$		80	105	105	125
			$h_{\text{ef}} + t_{\text{h}} + c_{\text{nom}}^{1)}$			

<sup>1)</sup>  $c_{nom}$  according to EN 1992-1-1:2004 + AC: 2010

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Intended Use**

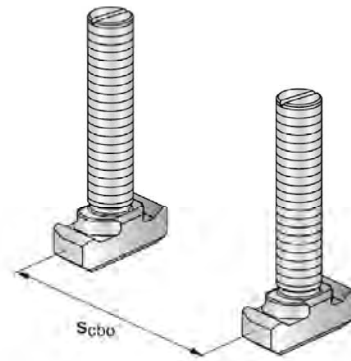
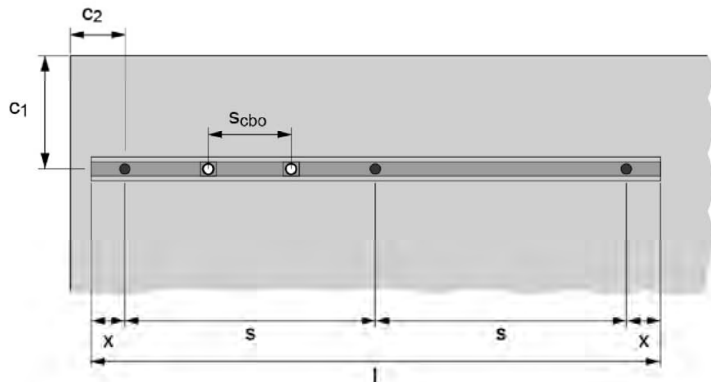
Installation parameters for anchor channels (HAC) and channel bolts (HBC)

Annex B3

**Table 9: Installation parameters for anchor channel HAC-V**

Anchor channel			HAC-V(-T) 50				HAC-V 60		HAC-V(-T) 70		
Min. effective embedment depth	$h_{\text{ef,min}}$	[mm]	71			106	148	183	175	295	
Min. spacing	$s_{\text{min}}$		100	150		100	100				
Maximum spacing	$s_{\text{max}}$			250							
End spacing	$x$		25								
Min. channel length	$l_{\text{min}}$		150	200		150	150				
Min edge distance	$c_{\text{min}}$		50	50	100	50	75	63,5	75	63,5	
Minimum thickness of concrete member	$h_{\text{min}}$		125	125	90	125	168	400	196	400	
			$h_{\text{ef}} + t_{\text{h}} + c_{\text{nom}} \text{ } ^1)$								

<sup>1)</sup>  $c_{nom}$  according to EN 1992-1-1:2004 + AC: 2010



**Table 10: Minimum spacing for channel bolts**

Channel bolt			M10	M12	M16	M20
Minimum spacing between channel bolts	$s_{cbo,min}$	[mm]	50	60	80	100

$s_{cbo}$  = center to center spacing between channel bolts ( $s_{cbo,min} = 5d$ )

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Intended Use**

Installation parameters for anchor channels (HAC) and channel bolts (HBC)

Annex B4

**Table 11: Required installation torque  $T_{\text{inst}}$  for HBC-B**

Channel bolt		$T_{\text{inst}}$ [Nm] <sup>1)</sup>	
		General $T_{\text{inst,g}}$	Steel-steel contact $T_{\text{inst,s}}$
		HAC-30, HAC-V-T 30	HAC-30, HAC-V-T 30
M10	4.6, A4-50	15	15
M12	4.6, A4-50	25	25

**Table 12: Required installation torque  $T_{\text{inst}}$  for HBC-C and HBC-C-E**

Channel bolt		$T_{\text{inst}}$ [Nm] <sup>1)</sup>							
		General $T_{\text{inst,g}}$				Steel-steel contact $T_{\text{inst,s}}$			
		HAC-V35 HAC-40 HAC-V40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70	HAC-V35 HAC-40 HAC-V40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70
M10	4.6, A4-50	15				15			
	8.8	15				48			
M12	4.6, A4-50	25				25			
	8.8	25				75			
M16	4.6, A4-50	60				60			
	8.8	60				185			
M20	4.6, A4-50	70	105	120		120			
	8.8	70	105	120		320			

**Table 13: Required installation torque  $T_{\text{inst}}$  for HBC-C-N**

Channel bolt		$T_{\text{inst}}$ [Nm] <sup>1)</sup>							
		General $T_{\text{inst,g}}$				Steel-steel contact $T_{\text{inst,s}}$			
		HAC-V35 HAC-40 HAC-V40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70	HAC-V35 HAC-40 HAC-V40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70
M12	8.8	75				75			
M16	8.8	185				185			
M20	8.8	-	320			-	320		

**Table 14: Required installation torque  $T_{\text{inst}}$  for HBC-T**

Channel bolt		$T_{\text{inst}}$ [Nm] <sup>1)</sup>			
		General $T_{\text{inst,g}}$		Steel-steel contact $T_{\text{inst,s}}$	
		HAC-T50 HAC-V-T50	HAC-T70 HAC-V-T70	HAC-T50 HAC-V-T50	HAC-T70 HAC-V-T70
M12	8.8	75		75	
M16	8.8	100		185	
M20	8.8	120		320	

<sup>1)</sup>  $T_{\text{inst}}$  must not be exceeded.

**Hilti anchor channels (HAC) with channel bolts (HBC)**

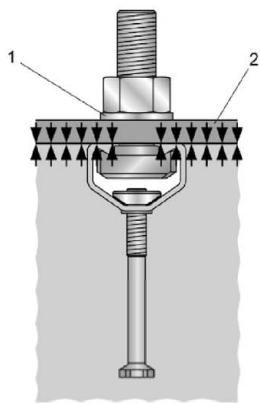
**Intended Use**

Installation parameters for channel bolts (HBC)

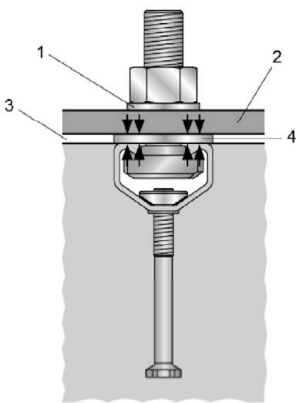
Annex B5

**General:** The fixture is in contact with the channel profile and the concrete surface

**Steel-steel contact:** The fixture is not in contact with the concrete surface. The fixture is fastened to the anchor channel by suitable steel part (e.g. washer).



- Key**
- 1 washer
  - 2 fixture
  - 3 gap
  - 4 suitable steel part



Hilti anchor channels (HAC) with channel bolts (HBC)

**Intended Use**  
Installation parameters for channel bolts (HBC)

Annex B6



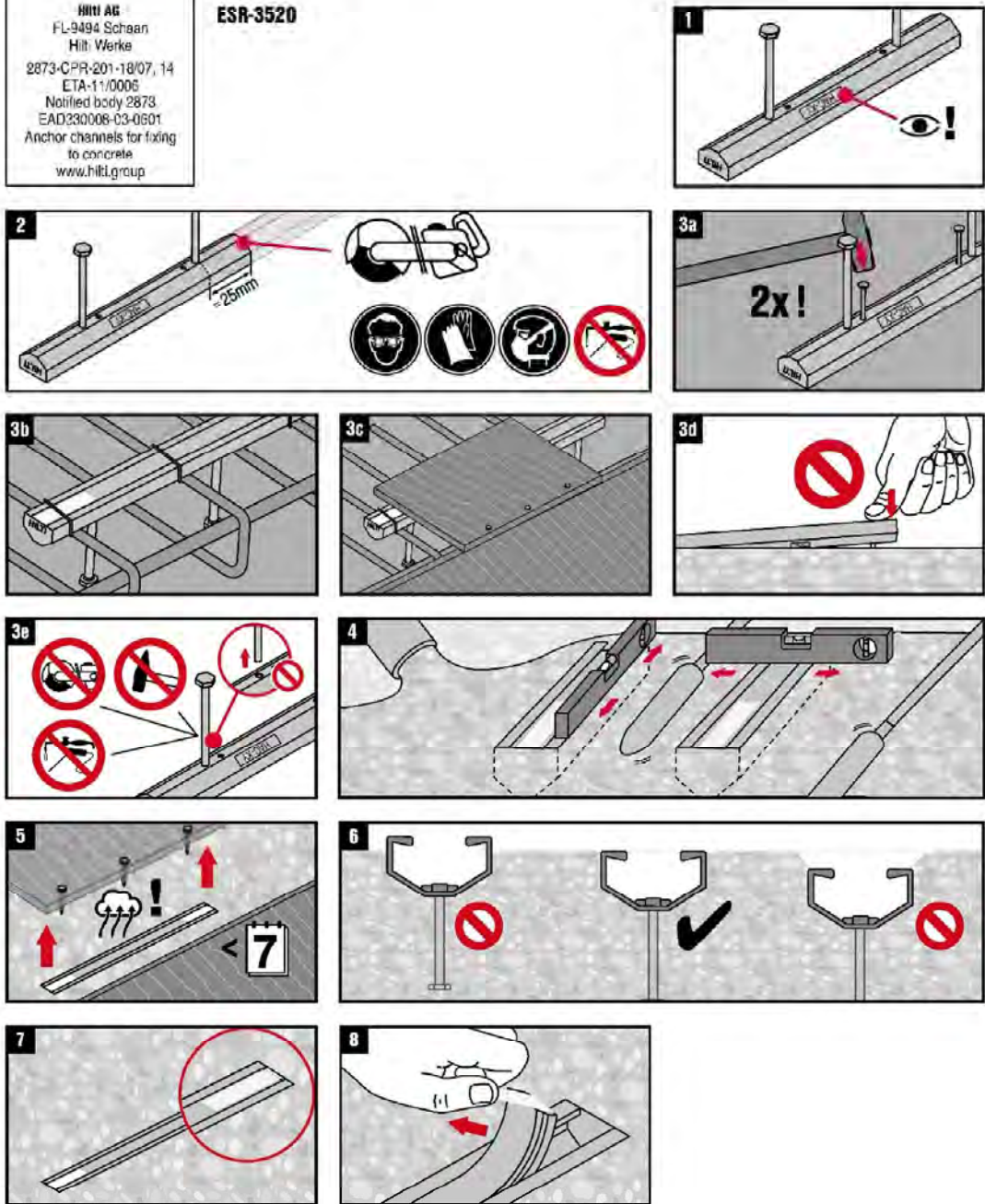


HAC-(M)-(T)

**CE**  
Hilti AG  
FL-9494 Schaan  
Hilti Werke  
2873-CPR-201-18/07, 14  
ETA-11/0006  
Notified body 2873  
EAD330008-03-0601  
Anchor channels for fixing  
to concrete  
www.hilti.group

**ICC**  
**ES**  
**ESR-3520**

2016302-07.2021



Hilti anchor channels (HAC) with channel bolts (HBC)

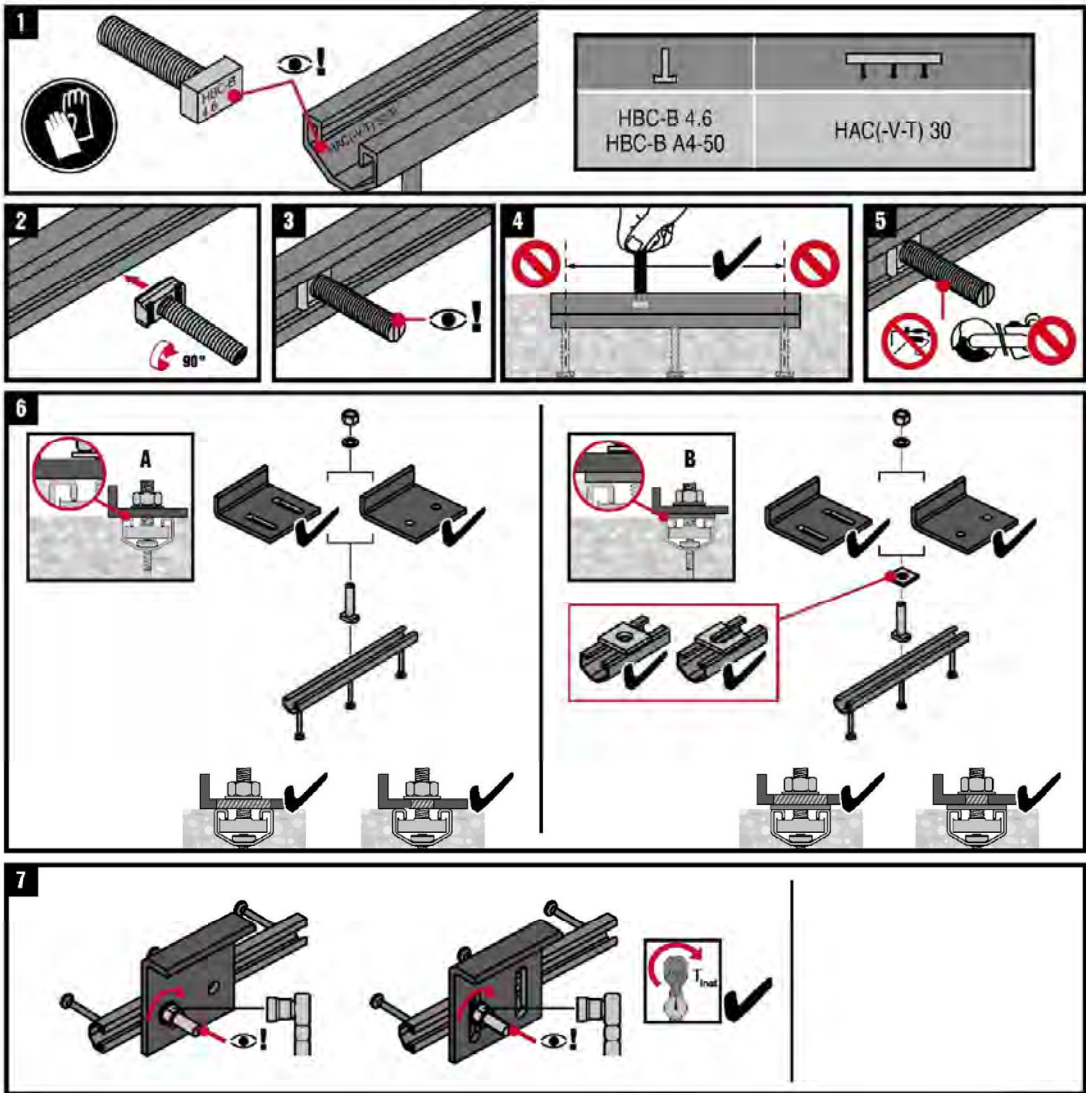
**Intended Use**  
Installation instructions for anchor channels (HAC and HAC-T)

Annex B7





HBC-B



2214763 A3-07.2021

		$T_{inst}$	
		A	B
		HAC(-V-T)-30	HAC(-V-T)-30
M10	4.6, A4-50	15 Nm / 11 ft-lb	15 Nm / 11 ft-lb
M12	4.6, A4-50	25 Nm / 19 ft-lb	25 Nm / 19 ft-lb

$T_{inst}$  is the installation torque that shall be applied with a torque wrench and must not be exceeded.

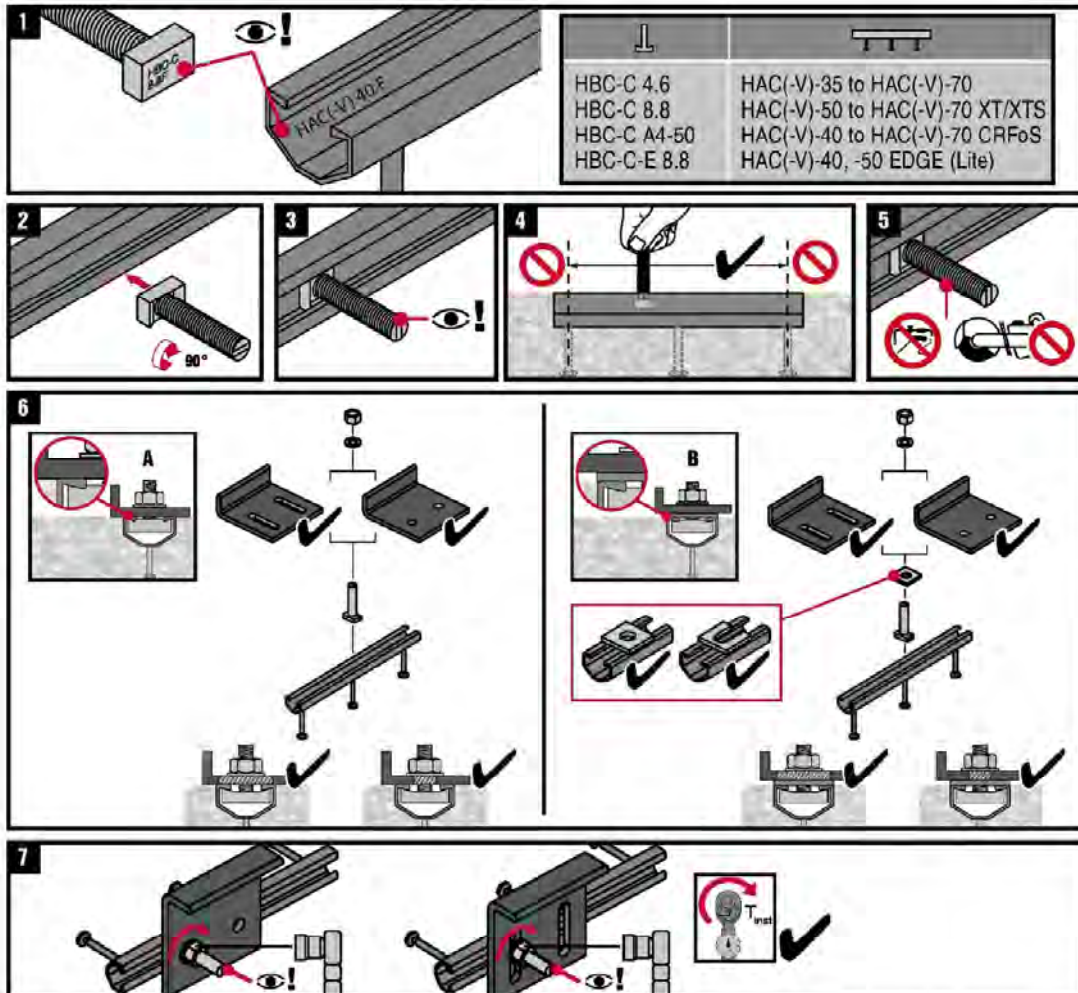
Hilti anchor channels (HAC) with channel bolts (HBC)

Intended Use  
Installation parameters for channel bolts (HBC-B)

Annex B8



/ HBC-C



437419 B4-07.2021

		T <sub>inst</sub>					T <sub>inst</sub>				
		A					B				
		HAC(-V)-35	HAC(-V)-40	HAC(-V)-50	HAC(-V)-60	HAC(-V)-70	HAC(-V)-35	HAC(-V)-40	HAC(-V)-50	HAC(-V)-60	HAC(-V)-70
M10	4.6, A4-50			15 Nm / 11 ft-lb					15 Nm / 11 ft-lb		
	8.8			15 Nm / 11 ft-lb					49 Nm / 35 ft-lb		
M12	4.6, A4-50			25 Nm / 19 ft-lb					25 Nm / 19 ft-lb		
	8.8			25 Nm / 19 ft-lb					75 Nm / 55 ft-lb		
M16	4.6, A4-50			60 Nm / 44 ft-lb					60 Nm / 44 ft-lb		
	8.8			60 Nm / 44 ft-lb					185 Nm / 136 ft-lb		
M20	4.6, A4-50	70 Nm / 52 ft-lb		105 Nm / 78 ft-lb	120 Nm / 89 ft-lb				120 Nm / 89 ft-lb		
	8.8	70 Nm / 52 ft-lb		105 Nm / 78 ft-lb	120 Nm / 89 ft-lb				320 Nm / 236 ft-lb		

T<sub>inst</sub> is the installation torque that shall be applied with a torque wrench and must not be exceeded.

## Hilti anchor channels (HAC) with channel bolts (HBC)

### Intended Use

Installation parameters for channel bolts (HBC-C and HBC-C-E)

Annex B9



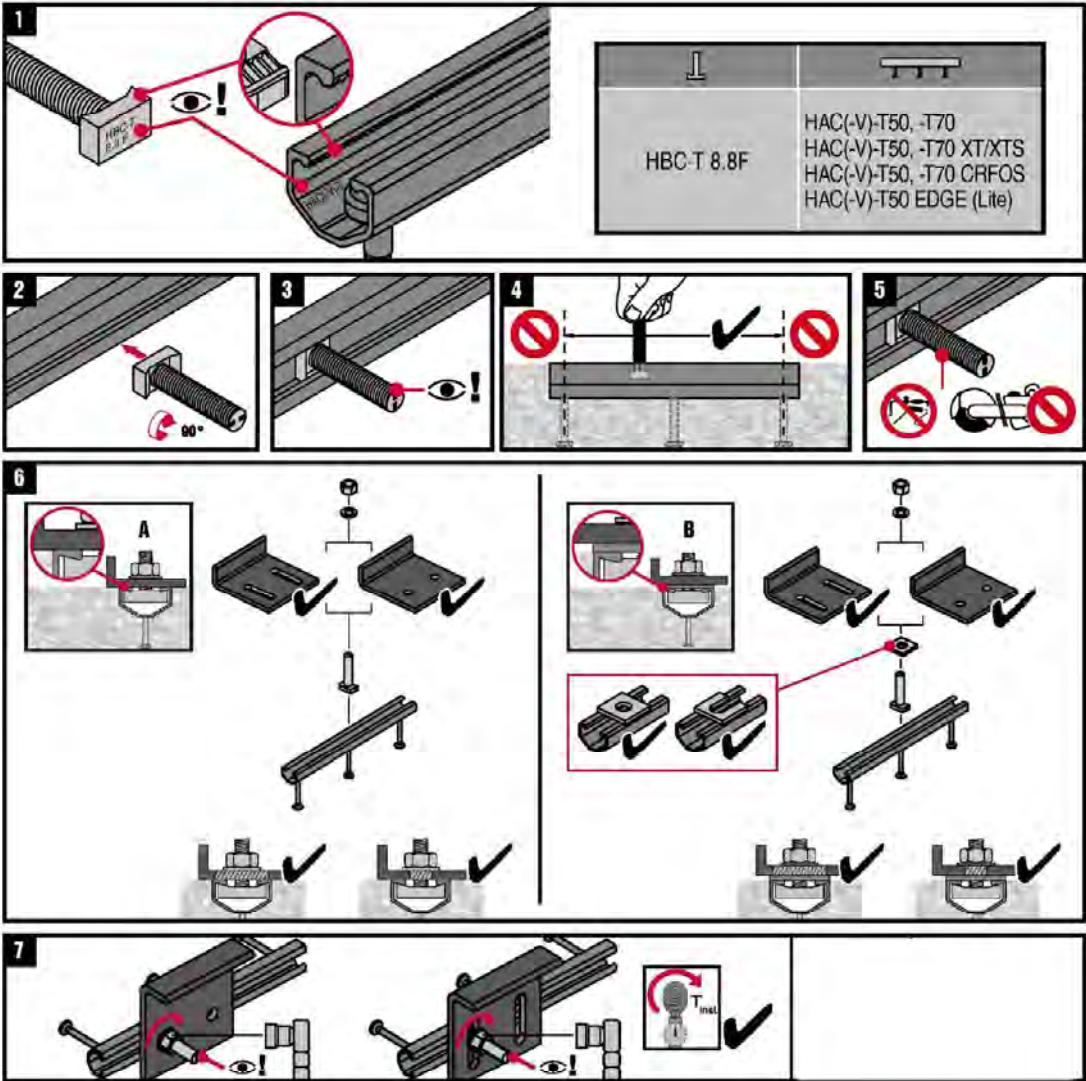


HBC-C-N

1



HBC-T



2155164 A4-07.2021

		$T_{inst}$			
		HAC(-V)-T50	HAC(-V)-T70	HAC(-V)-T50	HAC(-V)-T70
M12	8.8	75 Nm / 55 ft-lb		75 Nm / 55 ft-lb	
M16	8.8	100 Nm / 74 ft-lb		185 Nm / 136 ft-lb	
M20	8.8	120 Nm / 89 ft-lb		320 Nm / 236 ft-lb	

$T_{inst}$  is the installation torque that shall be applied with a torque wrench and must not be exceeded.

Hilti anchor channels (HAC) with channel bolts (HBC)

Intended Use  
Installation instructions for channel bolts (HBC-T)

Annex B11

**Table 15: Characteristic resistances under tension load – steel failure of anchor channel HAC**

Anchor channel		HAC-30	HAC-40	HAC-50	HAC-T50	HAC-60	HAC-70	HAC-T70
Steel failure: Anchor								
Characteristic resistance	N <sub>Rk,s,a</sub> [kN]	18,2	33,1	52,5	52,5	52,5	76,3	76,3
Partial factor	γ <sub>Ms</sub> <sup>1)</sup>	1,8						
Steel failure: Connection between anchor and channel								
Characteristic resistance	N <sub>Rk,s,c</sub> [kN]	18,2	25,0	35,0	35,0	50,1	71,0	71,0
Partial factor	γ <sub>Ms,ca</sub> <sup>1)</sup>	1,8						
Steel failure: Local flexure of channel lips								
Characteristic spacing of channel bolts for N <sub>Rk,s,l</sub>	s <sub>l,N</sub> [mm]	83	82	84	84	87	91	91
Characteristic resistance	N <sup>0</sup> <sub>Rk,s,l</sub> [kN]	19,9	25,0	35,0	35,0	50,1	71,0	71,0
Partial factor	γ <sub>Ms,l</sub> <sup>1)</sup>	1,8						

<sup>1)</sup> In absence of other national regulations.

**Table 16: Characteristic flexural resistance of HAC channel under tension load**

Anchor channel		HAC-30	HAC-40	HAC-50	HAC-T50	HAC-60	HAC-70	HAC-T70
<b>Steel failure: Flexure of channel</b>								
Characteristic flexural resistance of channel	$M_{Rk,s,flex}$ [Nm]	HBC-B	755	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>
		HBC-C	- <sup>2)</sup>	1136	1596	- <sup>2)</sup>	2187	3160
		HBC-C-E	- <sup>2)</sup>	1136	1596	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>
		HBC-C-N	- <sup>2)</sup>	980	1345	- <sup>2)</sup>	2156	3005
		HBC-T	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	1596	- <sup>2)</sup>	2975
Partial factor	$\gamma_{Ms,flex}^{1)}$	1,15						

<sup>1)</sup> In absence of other national regulations.

<sup>2)</sup> No performance assessed

## Hilti anchor channels (HAC) with channel bolts (HBC)

### Performance

Characteristic resistances of anchor channels (HAC) under tension load – Steel failure

Annex C1



**Table 17: Characteristic resistances under tension load – steel failure of anchor channel HAC-V**

Anchor channel		HAC-V-T 30	HAC-V 35	HAC-V 40	HAC-V 50	HAC-V-T 50	HAC-V 60	HAC-V 70	HAC-V-T 70
Steel failure: Anchor									
Characteristic resistance	N <sub>Rk,s,a</sub> [kN]	18,2	31,4	31,4	55,0		55,0	75,0	
Partial factor	γ <sub>Ms</sub> <sup>1)</sup>	1,8							
Steel failure: Connection between anchor and channel									
Characteristic resistance	N <sub>Rk,s,c</sub> [kN]	18,2	31,4	31,4	42,0		55,0	71,0	75,0
Partial factor	γ <sub>Ms,ca</sub> <sup>1)</sup>	1,8							
Steel failure: Local flexure of channel lips									
Characteristic spacing of channel bolts for N <sub>Rk,s,l</sub>	s <sub>l,N</sub> [mm]	83	82	82	84		87	91	
Characteristic resistance	N <sup>0</sup> <sub>Rk,s,l</sub> [kN]	19,9	31,4	31,4	41,0		55,0	71,0	
Partial factor	γ <sub>Ms,l</sub> <sup>1)</sup>	1,8							

<sup>1)</sup> In absence of other national regulations.

**Table 18: Characteristic flexural resistance of HAC-V channel under tension load**

Anchor channel		HAC-V-T 30	HAC-V 35	HAC-V 40	HAC-V 50	HAC-V-T 50	HAC-V 60	HAC-V 70	HAC-V-T 70
<b>Steel failure: Flexure of channel</b>									
Characteristic static flexural resistance of channel	$M_{Rk,s,flex}$ [Nm]	HBC-B	786	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>
		HBC-C	- <sup>2)</sup>	1318	1318	1853	- <sup>2)</sup>	2538	3668
		HBC-C-E	- <sup>2)</sup>	1318	1318	1853	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>
		HBC-C-N	- <sup>2)</sup>	1137	1137	1551	- <sup>2)</sup>	2503	3488
		HBC-T	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	- <sup>2)</sup>	1853	- <sup>2)</sup>	3455
Partial factor	$\gamma_{Ms,flex}^{1)}$	1,15							

<sup>1)</sup> In absence of other national regulations.

<sup>2)</sup> No performance assessed

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Characteristic resistances of anchor channels (HAC-V) under tension load – steel failure

Annex C2

**Table 19: Characteristic resistances under tension load – concrete failure of anchor channel HAC**

Anchor channel		HAC-30	HAC-40	HAC-50	HAC-T50	HAC-60	HAC-70	HAC-T70	
Concrete failure: Pull-out failure									
Characteristic resistance in cracked concrete C12/15		N <sub>Rk,p</sub> [kN]	8,0	18,8	23,2	23,2	23,2	32,0	32,0
Characteristic resistance in uncracked concrete C12/15			11,2	26,3	32,5	32,5	32,5	44,9	44,9
Factor for N <sub>Rk,p</sub> = N <sub>Rk,p(C12/15)</sub> ·Ψ <sub>c</sub>	C16/20	Ψ <sub>c</sub>	1,33						
	C20/25		1,67						
	C25/30		2,08						
	C30/37		2,50						
	C35/45		2,92						
	C40/50		3,33						
	C45/55		3,75						
	C50/60		4,17						
	C55/67		4,58						
	≥ C60/75		5,00						
Partial factor		$\gamma_{Mp}$ = $\gamma_{Mc}^{1)}$	1,5						
Concrete failure: Concrete cone failure									
Product factor k <sub>1</sub>	cracked	k <sub>cr,N</sub>	7,7	8,0	8,2	8,2	8,6	8,9	8,9
	un-cracked	k <sub>ucr,N</sub>	11,0	11,5	11,7	11,7	12,3	12,7	12,7
Partial factor		$\gamma_{Mc}^{1)}$	1,5						
Concrete failure: Splitting									
Characteristic edge distance		C <sub>cr,sp</sub> [mm]	204	273	318	318	444	525	525
Characteristic spacing		S <sub>cr,sp</sub> [mm]	408	546	636	636	888	1050	1050
Partial factor		$\gamma_{Msp}$ = $\gamma_{Mc}^{1)}$	1,5						

<sup>1)</sup> In absence of other national regulations.

#### Hilti anchor channels (HAC) with channel bolts (HBC)

##### Performance

Characteristic resistances of anchor channels (HAC) under tension load – concrete failure

Annex C3



**Table 20: Characteristic resistances under tension load – concrete failure of anchor channel HAC-V**

Anchor channel		HAC-V-T 30	HAC-V 35	HAC-V 40	HAC-V(-T) 50	HAC-V 60	HAC-V(-T) 70					
Concrete failure: Pull-out failure												
Characteristic resistance in cracked concrete C12/15		N <sub>Rk,p</sub> [kN]	8,0	18,8	18,8	23,2	23,2		32,0			
Characteristic resistance in uncracked concrete C12/15			11,2	26,3	26,3	32,5	32,5		44,9			
Factor for N <sub>Rk,p</sub> = N <sub>Rk,p</sub> (C12/15) ·Ψ <sub>c</sub>	C16/20	Ψ <sub>c</sub>	1,33									
	C20/25		1,67									
	C25/30		2,08									
	C30/37		2,50									
	C35/45		2,92									
	C40/50		3,33									
	C45/55		3,75									
	C50/60		4,17									
	C55/67		4,58									
	≥ C60/75		5,00									
Partial factor		γ <sub>Mp</sub> = γ <sub>Mc</sub> <sup>1)</sup>	1,5									
Concrete failure: Concrete cone failure												
Min. effective embedment depth		h <sub>ef</sub> [mm]	68	91	91	110	71	106	148	183	175	295
Product factor k <sub>1</sub>	cracked	k <sub>cr,N</sub>	7,7	8,0	8,0	8,3	8,9	8,2	8,6	8,9	8,9	9,6
	un-cracked	k <sub>ucr,N</sub>	11,0	11,5	11,5	11,8	12,7	11,7	12,3	12,7	12,6	13,7
Partial factor		γ <sub>Mc</sub> <sup>1)</sup>	1,5									
Concrete failure: Splitting												
Characteristic edge distance		C <sub>cr,sp</sub> [mm]	204	273	273	330	213	318	444	549	525	885
Characteristic spacing		S <sub>cr,sp</sub> [mm]	408	546	546	660	426	636	888	1098	1050	1770
Partial factor		γ <sub>Msp</sub> = γ <sub>Mc</sub> <sup>1)</sup>	1,5									

<sup>1)</sup> In absence of other national regulations.

### Hilti anchor channels (HAC) with channel bolts (HBC)

#### Performance

Characteristic resistances of anchor channels (HAC-V) under shear load – concrete failure

Annex C4

**Table 21: Displacements under tension load**

Anchor channel		HAC-30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-T50 HAC-V-T 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70	HAC-T70 HAC-V-T 70
Tension load	N [kN]	6,6	11,3	11,3	14,3	14,7	18,8	26,6	25,2
Short-term displacement <sup>1)</sup>	$\delta_{N0}$ [mm]	1,6	1,7	1,7	1,1	1,7	1,1	1,0	1,5
Long-term displacement <sup>1)</sup>	$\delta_{N\infty}$ [mm]	3,2	3,4	3,4	2,2	3,4	2,2	2,0	3,0

<sup>1)</sup> Displacements in midspan of the anchor channel, including slip of channel bolt, deformation of channel lips, bending of the channel and slip of the anchor channel in concrete.

**Table 22: Characteristic resistances under shear load – steel failure of anchor channel HAC**

Anchor channel		HAC-30	HAC-40	HAC-(T) 50	HAC-60	HAC-(T) 70
Steel failure: Anchor						
Characteristic static resistance	$V_{Rk,s,a,y}$ [kN]	23,7	39,6	53,6	77,3	114,8
	$V_{Rk,s,a,x}$ [kN]	10,2	18,4	29,0	29,0	41,9
Partial factor	$\gamma_{Ms}^{1)}$	1,5				
Steel failure: Connection between anchor and channel						
Characteristic static resistance	$V_{Rk,s,c,y}$ [kN]	23,7	39,6	53,6	77,3	114,8
	$V_{Rk,s,c,x}$ [kN]	9,1	12,5	17,5	25,1	35,5
Partial factor	$\gamma_{Ms,ca}^{1)}$	1,8				
Steel failure: Local flexure of channel lips under shear load perpendicular to the longitudinal axis of the channel						
Characteristic spacing of channel bolts for $V_{Rk,s,l}$	$s_{l,V}$ [mm]	83	82	84	87	91
Characteristic static resistance	$V_{Rk,s,l,y}^0$ [kN]	23,7	34,9	47,5	72,2	95,8
Partial factor	$\gamma_{Ms,l}^{1)}$	1,8				

<sup>1)</sup> In absence of other national regulations.

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Displacements under tension load

Characteristic resistances of anchor channels (HAC) under shear load – steel failure

Annex C5

**Table 23: Characteristic resistances under shear load – steel failure of anchor channel HAC-V**

Anchor channel		HAC-V-T 30	HAC-V 35 HAC-V 40	HAC-V 50	HAC-V-T 50	HAC-V 60	HAC-V 70	HAC-V-T 70
Steel failure: Anchor								
Characteristic static resistance	V <sub>Rk,s,a,y</sub> [kN]	26,9	42,5	57,5	57,9	82,9	116,5	114,8
	V <sub>Rk,s,a,x</sub> [kN]	9,1	15,7	27,5	27,5	25,5	37,5	37,5
Partial factor	γ <sub>Ms</sub> <sup>1)</sup>	1,5						
Steel failure: Connection between anchor and channel								
Characteristic static resistance	V <sub>Rk,s,c,y</sub> [kN]	26,9	42,5	57,5	57,9	82,9	116,5	114,8
	V <sub>Rk,s,c,x</sub> [kN]	9,1	15,7	27,5	27,5	25,5	37,5	37,5
Partial factor	γ <sub>Ms,ca</sub> <sup>1)</sup>	1,8						
Steel failure: Local flexure of channel lips under shear load perpendicular to the longitudinal axis of the channel								
Characteristic spacing of channel bolts for V <sub>Rk,s,l</sub>	s <sub>l,v</sub> [mm]	83	82	84	84	87	91	
Characteristic static resistance	V <sup>0</sup> <sub>Rk,s,l,y</sub> [kN]	27,7	37,4	55,0	60,5	82,9	102,9	118,8
Partial factor	γ <sub>Ms,l</sub> <sup>1)</sup>	1,8						

<sup>1)</sup> In absence of other national regulations.

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Characteristic resistances of anchor channels (HAC-V) under shear load – steel failure

Annex C6

**Table 24: Characteristic resistances under shear load in direction of the longitudinal axis of the channel – steel failure of anchor channel**

Anchor channel			HAC-30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-T50 HAC-V-T 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70	HAC-T70 HAC-V-T 70	
Steel failure: Connection between channel lips and channel bolt											
Characteristic resistance	V <sub>Rk,s,l,x</sub> [kN]	HBC-B M12 4.6	3,5	- <sup>1)</sup>			- <sup>1)</sup>	- <sup>1)</sup>		- <sup>1)</sup>	
		HBC-C-N M12 8.8	- <sup>1)</sup>	8,5	8,5	8,5		- <sup>1)</sup>	8,5		8,5
		HBC-C-N M16 8.8		19,7	19,7	19,7			19,7		19,7
		HBC-C-N M20 8.8		- <sup>1)</sup>	- <sup>1)</sup>	24,1			24,1		24,1
		HBC-T M12 8.8		- <sup>1)</sup>	- <sup>1)</sup>	- <sup>1)</sup>	15,1	- <sup>1)</sup>	- <sup>1)</sup>	15,1	
		HBC-T M16 8.8					20,1			20,1	
		HBC-T M20 8.8					20,1			20,1	
Installation factor		γ <sub>inst</sub>	1,4				1,2	1,4		1,2	

<sup>1)</sup> No performance assessed

**Table 25: Characteristic resistances under shear load – concrete failure**

Anchor channel		HAC-30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-V(-T) 50	HAC-(T)50 HAC-V(-T) 50	HAC-60 HAC-V 60	HAC-(T)70 HAC-V(-T) 70	
Concrete failure: Pry out failure									
Product factor		k <sub>8</sub>	2,0						
Partial factor		γ <sub>Mc</sub> <sup>1)</sup>	1,5						
Concrete failure: Concrete edge failure									
Min. effective embedment depth		h <sub>ef</sub> [mm]	68	91	91/110	71	106	149/183	175/295
Product factor k <sub>12</sub>	cracked concrete	k <sub>cr,V</sub>	7,5	7,5	7,5	4,5	7,5	7,5	7,5
	uncracked concrete	k <sub>ucr,V</sub>	10,5	10,5	10,5	6,3	10,5	10,5	10,5
Partial factor		γ <sub>Mc</sub> <sup>1)</sup>	1,5						

<sup>1)</sup> In absence of other national regulations

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Characteristic resistances of anchor channels under shear load

Annex C7

**Table 26: Displacements under shear load perpendicular to longitudinal axis of the channel**

Anchor channel		HAC-30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-T50 HAC-V-T 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70	HAC-T70 HAC-V-T 70
Shear load	$V_y$ [kN]	8,0	13,9	13,9	18,9	21,0	29,0	38,0	45,6
Short-term displacement <sup>1)</sup>	$\delta_{V,y,0}$ [mm]	1,0	1,0	1,0	1,5	2,7	1,5	1,5	2,4
Long-term displacement <sup>1)</sup>	$\delta_{V,y,\infty}$ [mm]	1,5	1,5	1,5	2,3	4,1	2,3	2,3	3,6

<sup>1)</sup> Displacements in midspan of the anchor channel, including slip of channel bolt, deformation of channel lips and slip of the anchor channel in concrete.

**Table 27: Displacements under shear load in direction of the longitudinal axis of the channel**

Anchor channel			HAC-30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-T50 HAC-V-T 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70	HAC-T70 HAC-V-T 70
Channel bolt			HBC-B	HBC-C-N			HBC-T	HBC-C-N		HBC-T
Shear load	$V_x$ [kN]	M12	1,4	3,4			6,7	3,4		6,7
		M16	- <sup>2)</sup>	7,8			8,9	7,8		8,9
		M20		- <sup>2)</sup>		9,6	8,9	9,6		8,9
Short-term displacement <sup>1)</sup>	$\delta_{V,x,0}$ [mm]	M12	0,1	0,05			1,4	0,05		1,4
		M16	- <sup>2)</sup>	0,4			1,7	0,4		1,7
		M20		- <sup>2)</sup>		0,1	1,7	0,1		1,7
Short-term displacement <sup>1)</sup>	$\delta_{V,x,\infty}$ [mm]	M12	0,2	0,1			2,1	0,1		2,1
		M16	- <sup>2)</sup>	0,6			2,5	0,6		2,5
		M20		- <sup>2)</sup>		0,2	2,5	0,2		2,5

<sup>1)</sup> Displacements of the anchor channel, including slip of channel bolt, deformation of channel lips and slip of the anchor channel in concrete.

<sup>2)</sup> No performance assessed

**Table 28: Characteristic resistances under combined tension and shear load**

Anchor channel		HAC-30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-T50 HAC-V-T 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70	HAC-T70 HAC-V-T 70
Steel failure: Local flexure of channel lips and flexure of channel									
Product factor	k <sub>13</sub>	Values according to EN 1992-4: 2018, Section 7.4.3.1							
Steel failure: Anchor and connection between anchor and channel									
Product factor	k <sub>14</sub>	Values according to EN 1992-4: 2018, Section 7.4.3.1							

## Hilti anchor channels (HAC) with channel bolts (HBC)

### Performance

Displacements under shear load.

Characteristic resistances under combined tension and shear load

Annex C8

**Table 29: Characteristic resistances under tension and shear load – steel failure of Hilti channel bolts HBC-B, HBC-C, HBC-C-E, HBC-C-N and HBC-T**

Channel bolt diameter					M10	M12	M16	M20
Steel failure								
Characteristic resistance	N <sub>Rk,s</sub> <sup>2)</sup>	[kN]	HBC-B	4.6	23,2	33,7	– <sup>4)</sup>	– <sup>4)</sup>
				A4-50 <sup>1)</sup>	29,0	42,2	– <sup>4)</sup>	– <sup>4)</sup>
			HBC-C HBC-C-E	4.6	23,2	33,7	62,8	98,0
				8.8	46,4	67,4	125,6	174,3
				A4-50 <sup>1)</sup>	29,0	42,2	78,5	122,5
			HBC-C-N	8.8	– <sup>4)</sup>	67,4	125,6	174,3
			HBC-T	8.8	– <sup>4)</sup>	67,4	125,6	177,4
Partial factor		γ <sub>Ms</sub> <sup>3)</sup>	4.6	2,0				
			8.8	1,5				
			A4-50 <sup>1)</sup>	2,86				
Characteristic resistance	V <sub>Rk,s</sub> <sup>2)</sup>	[kN]	HBC-B	4.6	13,9	20,2	– <sup>4)</sup>	– <sup>4)</sup>
				A4-50 <sup>1)</sup>	17,4	25,3	– <sup>4)</sup>	– <sup>4)</sup>
			HBC-C HBC-C-E	4.6	13,9	20,2	37,7	58,8
				8.8	23,2	33,7	62,8	101,7
				A4-50 <sup>1)</sup>	17,4	25,3	47,1	73,5
			HBC-C-N	8.8	– <sup>4)</sup>	33,7	62,8	101,7
			HBC-T	8.8	– <sup>4)</sup>	33,7	62,8	101,7
Partial factor		γ <sub>Ms</sub> <sup>3)</sup>	4.6	1,67				
			8.8	1,25			1,5	
			A4-50 <sup>1)</sup>	2,38				

<sup>1)</sup> Materials according to Table 5, Annex A5

<sup>2)</sup> In conformity with EN ISO 898-1:2013

<sup>3)</sup> In absence of other national regulations

<sup>4)</sup> No performance assessed

#### Hilti anchor channels (HAC) with channel bolts (HBC)

#### Performance

Characteristic resistances of channel bolts under tension and shear load

Annex C9



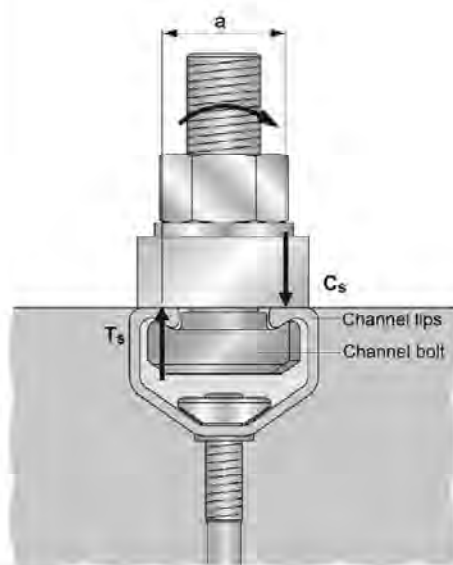
**Table 30: Characteristic resistances under shear load with lever arm – steel failure of Hilti channel bolts HBC-B, HBC-C, HBC-C-E, HBC-C-N and HBC-T**

Channel bolt diameter					M10	M12	M16	M20
Steel failure								
Characteristic flexure resistance	$M^0_{Rk,s}$ <sup>3)</sup>	[Nm]	HBC-B	4.6	29,9	52,4	– <sup>3)</sup>	– <sup>3)</sup>
				A4-50 <sup>1)</sup>	37,4	65,5	– <sup>3)</sup>	– <sup>3)</sup>
			HBC-C HBC-C-E	4.6	29,9	52,4	133,2	259,6
				8.8	59,8	104,8	266,4	538,7
				A4-50 <sup>1)</sup>	37,4	65,5	166,5	324,5
			HBC-C-N	8.8	– <sup>3)</sup>	104,8	266,4	538,7
			HBC-T	8.8	– <sup>3)</sup>	104,8	266,4	538,7
Partial factor		$\gamma_{Ms}$ <sup>2)</sup>	4.6	1,67				
			8.8	1,25				
			A4-50 <sup>1)</sup>	2,38				
Internal lever arm	a	[mm]	HBC-B	4.6, A4-50	25	27	– <sup>3)</sup>	– <sup>3)</sup>
			HBC-C HBC-C-E	4.6, 8.8, A4-50	24	26	28	30
			HBC-C-N	8.8	– <sup>3)</sup> )	26	28	30
			HBC-T	8.8	– <sup>3)</sup>	26	28	30

<sup>1)</sup> Materials according to Table 5, Annex A5.

<sup>2)</sup> In absence of other national regulations.

<sup>3)</sup> No performance assessed



<sup>3)</sup> The characteristic flexure resistance according to Table 23 is limited as follows:

$$M^0_{Rk,s} \leq 0,5 \cdot N_{Rk,s,l} \cdot a \quad (N_{Rk,s,l} \text{ according to Table 15 and 17})$$

and

$$M^0_{Rk,s} \leq 0,5 \cdot N_{Rk,s} \cdot a \quad (N_{Rk,s} \text{ according to Table 29})$$

a = internal lever arm according Table 30

$T_s$  = tension force acting on the channel lips

$C_s$  = compression force acting on the channel lips

#### Hilti anchor channels (HAC) with channel bolts (HBC)

#### Performance

Characteristic resistances of channel bolts under shear load with lever arm

Annex C10

**Table 31: Combination of anchor channels and channel bolts under fatigue tension load (Design method I or II for test method A1 and A2 according to EOTA TR050, October 2018)**

Anchor channel	Channel bolt type	Diameter	Steel grade	Corrosion protection
HAC-30 HAC-V-T 30	HBC-B	M10	4.6	G <sup>1)</sup> F <sup>2)</sup>
		M12		
HAC-V 35 HAC-40 HAC-V 40	HBC-C	M12	4.6	
		M16	8.8	
		M20		
HAC-50 HAC-V 50		M16	4.6	
		M20	8.8	
HAC-60 HAC-V 60		M16	4.6	
		M20	8.8	
HAC-70 HAC-V 70		M20	4.6	
			8.8	

<sup>1)</sup> Electroplated

<sup>2)</sup> Hot-dip galvanized

**Table 32: Characteristic resistances under fatigue tension load - steel failure with n load cycles without static preload ( $N_{Ed} = 0$ ) (Design method I according to EOTA TR050, October 2018)**

Anchor channel		HAC- 30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70
Steel failure	n	$\Delta N_{Rk,s,0,n}$ [kN]					
Characteristic resistances under fatigue tension load without static preload	$\leq 10^6$	1,76	1,57	1,57	2,66	3,54	6,44
	$\leq 3 \cdot 10^6$	1,60	1,50	1,50	2,60	3,50	6,40
	$\leq 10^7$						
	$\leq 3 \cdot 10^7$						
	$\leq 6 \cdot 10^7$						
	$> 6 \cdot 10^7$						

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Characteristic resistances under fatigue cyclic tension load according to test method A1 and A2

Annex C11

**Table 33: Reduction factor  $\eta_{c,fat}$  with n load cycles without static preload ( $N_{Ed} = 0$ )**  
(Design method I or II for test method A1 and A2 according to EOTA TR050, October 2018)

Anchor channel		HAC- 30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70
<b>Pull-out failure</b>	n	$\eta_{c,fat} [-]$					
<b>Concrete cone failure</b>							
Reduction factor for	$\leq 10^6$	0,600					
$\Delta N_{Rk,p;0;n} = \eta_{c,fat} \cdot N_{Rk,p}$	$\leq 3 \cdot 10^6$	0,571					
$\Delta N_{Rk,c;0;n} = \eta_{c,fat} \cdot N_{Rk,c}$	$\leq 10^7$	0,542					
with $N_{Rk,p}$ according to Annex C3 and C4 and $N_{Rk,c}$ calculated according to EOTA TR 047, March 2018 or EN 1992-4: 2018	$\leq 3 \cdot 10^7$	0,516					
	$\leq 6 \cdot 10^7$	0,500					
	$> 6 \cdot 10^7$						

**Table 34: Characteristic resistances under fatigue tension load with  $n \rightarrow \infty$  load cycles without static preload ( $N_{Ed} = 0$ )** (Design method II according to EOTA TR050, October 2018)

Anchor channel		HAC- 30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70
<b>Steel failure</b>							
$\Delta N_{Rk,s;0;\infty}$	[kN]	1,6	1,5	1,5	2,6	3,5	6,4
<b>Concrete cone and pull-out failure</b>							
$\eta_{c,fat}$	[-]	0,5					

For the reduction of the characteristic resistances given in Tables 32 and 33 in the transition zone from the static resistance to the fatigue limit resistance the partial safety factors are calculated as follows:

$$\gamma_{M,fat,n} = \gamma_{M,fat} + (\gamma_M - \gamma_{M,fat}) \cdot (\Delta N_{Rk,n} - \Delta N_{Rk,\infty}) / (N_{Rk} - \Delta N_{Rk,\infty})$$

In absence of other national regulations, the following safety factors  $\gamma_M$  and  $\gamma_{M,fat}$  are recommended for design method I according to EOTA TR 050, October 2018:

$\gamma_M$  according Annex C1

$$\gamma_{M,fat} = 1,35$$

In absence of other national regulations, the following safety factor  $\gamma_{M,fat}$  is recommended for design method II (Table 34) according to EOTA TR 050, October 2018:

$$\gamma_{M,fat} = 1,35$$

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Characteristic resistances under fatigue cyclic tension load according to test method A1 and A2

Annex C12

**Table 35: Combination of anchor channels and channel bolts under seismic load  
(performance category C1)**

Anchor channel	Channel bolt type	Diameter	Steel grade	Corrosion protection
HAC-V-T 30	HBC-B	M12	4.6	G <sup>1)</sup> F <sup>2)</sup>
HAC-V 35 HAC-V 40	HBC-C-N	M12	4.6	
		M16		
M12				
M16				
M20				
HAC-V 50 HAC-V 60 HAC-V-T 70	HBC-T	M12	8.8	
		M16		
M20				

<sup>1)</sup> Electroplated

<sup>2)</sup> Hot-dip galvanized

**Table 36: Characteristic resistances under seismic tension load – steel failure of anchor channel HAC-V**

Anchor channel		HAC-V-T 30	HAC-V 35	HAC-V 40	HAC-V 50	HAC-V-T 50	HAC-V 60	HAC-V 70	HAC-V-T 70
Steel failure: Anchor									
Characteristic resistance	N <sub>Rk,s,a,eq</sub> [kN]	18,2	31,4	31,4	55,0		55,0	75,0	
Partial factor	γ <sub>Ms,eq</sub> <sup>1)</sup>	1,8							
Steel failure: Connection between anchor and channel									
Characteristic resistance	N <sub>Rk,s,c,eq</sub> [kN]	18,2	31,4	31,4	40,0	42,0	40,0	71,0	75,0
Partial factor	γ <sub>Ms,ca,eq</sub> <sup>1)</sup>	1,8							
Steel failure: Local flexure of channel lips									
Characteristic resistance	N <sup>0</sup> <sub>Rk,s,l,eq</sub> [kN]	19,9	31,4	31,4	40,0	41,0	40,0	71,0	
Partial factor	γ <sub>Ms,l,eq</sub> <sup>1)</sup>	1,8							

<sup>1)</sup> In absence of other national regulations.

#### Hilti anchor channels (HAC) with channel bolts (HBC)

#### Performance

Characteristic resistances of anchor channel under seismic tension load  
(performance category C1)

Annex C13

**Table 37: Characteristic flexural resistance of HAC-V channel under seismic tension load**

Anchor channel			HAC-V-T 30	HAC-V 35	HAC-V 40	HAC-V 50	HAC-V-T 50	HAC-V 60	HAC-V 70	HAC-V-T 70
Steel failure: Flexure of channel										
Characteristic flexural resistance of channel	M <sub>Rk,s,flex,eq</sub> [Nm]	HBC-B	786	_ 2)	_ 2)	_ 2)	_ 2)	_ 2)	_ 2)	_ 2)
		HBC-C	_ 2)	1318	1318	1853	_ 2)	2538	3668	_ 2)
		HBC-C-E	_ 2)	1318	1318	1853	_ 2)	_ 2)	_ 2)	_ 2)
		HBC-C-N	_ 2)	1137	1137	1551	_ 2)	2503	3488	_ 2)
		HBC-T	_ 2)	_ 2)	_ 2)	_ 2)	1853	_ 2)	_ 2)	3455
Partial factor		γ <sub>Ms,flex,eq</sub> <sup>1)</sup>		1,15						

<sup>1)</sup> In absence of other national regulations.

<sup>2)</sup> No performance assessed.

**Table 38: Characteristic resistances under seismic shear load – steel failure of anchor channel HAC-V**

Anchor channel		HAC-V-T 30	HAC-V 35 HAC-V 40	HAC-V 50	HAC-V-T 50	HAC-V 60	HAC-V 70	HAC-V-T 70
Steel failure: Anchor								
Characteristic resistance	$V_{Rk,s,a,y,eq}$ [kN]	26,9	42,5	57,5	57,9	57,5	116,5	114,8
	$V_{Rk,s,a,x,eq}$ [kN]	9,1	15,7	27,5	27,5	25,5	37,5	37,5
Partial factor	$\gamma_{Ms,eq}$ <sup>1)</sup>	1,5						
Steel failure: Connection between anchor and channel								
Characteristic resistance	$V_{Rk,s,c,y,eq}$ [kN]	26,9	42,5	57,5	57,9	57,5	116,5	114,8
	$V_{Rk,s,c,x,eq}$ [kN]	9,1	15,7	27,5	27,5	25,5	37,5	37,5
Partial factor	$\gamma_{Ms,ca,eq}$ <sup>1)</sup>	1,8						
Steel failure: Local flexure of channel lips under shear load perpendicular to the longitudinal axis of the channel								
Characteristic resistance	$V_{Rk,s,l,y,eq}^0$ [kN]	27,7	37,4	55,0	60,5	55,0	102,9	118,8
Partial factor	$\gamma_{Ms,l,eq}$ <sup>1)</sup>	1,8						

<sup>1)</sup> In absence of other national regulations.

#### Hilti anchor channels (HAC) with channel bolts (HBC)

##### Performance

Characteristic resistances of anchor channel under seismic tension and seismic shear load (performance category C1)

Annex C14

**Table 39: Characteristic resistances under seismic shear load in direction of the longitudinal axis of the channel – steel failure of anchor channel HAC-V**

Anchor channel			HAC-V-T 30	HAC-V 35 HAC-V 40	HAC-V 50	HAC-V-T 50	HAC-V 60	HAC-V 70	HAC-V-T 70
Steel failure: Connection between channel lips and channel bolt									
Characteristic resistance	V <sub>Rk,s,l,x,eq</sub> [kN]	HBC-B M12 4.6	3,5	– <sup>1)</sup>	– <sup>1)</sup>	– <sup>1)</sup>	– <sup>1)</sup>		– <sup>1)</sup>
		HBC-C-N M12 8.8	– <sup>1)</sup>	8,5	8,5		8,5	8,5	
		HBC-C-N M16 8.8		19,7	19,7		19,7	19,7	
		HBC-C-N M20 8.8		– <sup>1)</sup>	24,1		24,1	24,1	
		HBC-T M12 8.8		– <sup>1)</sup>	– <sup>1)</sup>	15,1	– <sup>1)</sup>	– <sup>1)</sup>	15,1
		HBC-T M16 8.8				20,1			20,1
		HBC-T M20 8.8	20,1			20,1			
Installation factor		γ <sub>inst,eq</sub>	1,4			1,2	1,4		1,2

<sup>1)</sup> No performance assessed.

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Characteristic resistances of anchor channel under seismic shear load in direction of the longitudinal axis of the channel (performance category C1)

Annex C15



**Table 40: Characteristic resistances under seismic tension and seismic shear load – steel failure of Hilti channel bolts HBC-B, HBC-C-N and HBC-T**

Channel bolt diameter					M12	M16	M20
Steel failure							
Characteristic resistance	$N_{Rk,s,eq}^{1)}$	[kN]	HBC-B	4.6	33,7	– <sup>3)</sup>	– <sup>3)</sup>
			HBC-C-N	8.8	67,4	125,6	174,3
			HBC-T	8.8	67,4	125,6	177,4
Partial factor		$\gamma_{Ms,eq}^{3)}$		4.6	2,0	– <sup>3)</sup>	
				8.8	1,5		
Characteristic resistance	$V_{Rk,s,eq}^{1)}$	[kN]	HBC-B	4.6	20,2	– <sup>3)</sup>	– <sup>3)</sup>
			HBC-C-N	8.8	33,7	62,8	101,7
			HBC-T	8.8	33,7	62,8	101,7
Partial factor		$\gamma_{Ms,eq}^{2)}$		4.6	1,67	– <sup>3)</sup>	
				8.8	1,25		1,5

<sup>1)</sup> In conformity with EN ISO 898-1:2013

<sup>2)</sup> In absence of other national regulations

<sup>3)</sup> No performance assessed

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

Characteristic resistances of channel bolts under seismic tension and seismic shear load (performance category C1)

Annex C16

**Table 41: Characteristic resistance under fire exposure – steel failure**

Channel bolt					M10	M12	M16	M20
Steel failure of anchor, connection between anchor and channel, local flexure of channel lip								
Characteristic resistance under fire exposure	HAC-30 HAC-V-T 30	R60	$N_{Rk,s,fi}$ = $V_{Rk,s,fi}$	[kN]	1,3	1,8	_ 2)	_ 2)
		R90			0,9	1,1		
		R120			0,7	0,8		
	HAC-V 35	R60			1,7	2,4	2,4	2,4
		R90			1,3	1,8	1,8	1,8
		R120			1,0	1,5	1,5	1,5
	HAC-40 HAC-V 40	R60			1,7	2,4	2,4	2,4
		R90			1,3	1,8	1,8	1,8
		R120			1,0	1,5	1,5	1,5
	HAC-50 HAC-V 50	R60			1,7	2,4	4,0	4,0
		R90			1,3	1,8	2,4	2,4
		R120			1,0	1,5	1,6	1,6
	HAC-60 HAC-V 60	R60			1,7	2,4	4,0	4,7
		R90			1,3	1,8	2,4	3,0
		R120			1,0	1,5	1,6	2,1
	HAC-70 HAC-V 70	R60			1,7	2,4	4,0	4,7
		R90			1,3	1,8	2,4	3,0
		R120			1,0	1,5	1,6	2,1
Partial safety factor			$\gamma_{Ms,fi}$ <sup>1)</sup>	[-]	1,0			

<sup>1)</sup> In absence of other national regulations.

<sup>2)</sup> No performance assessed.

**Hilti anchor channels (HAC) with channel bolts (HBC)**

**Performance**

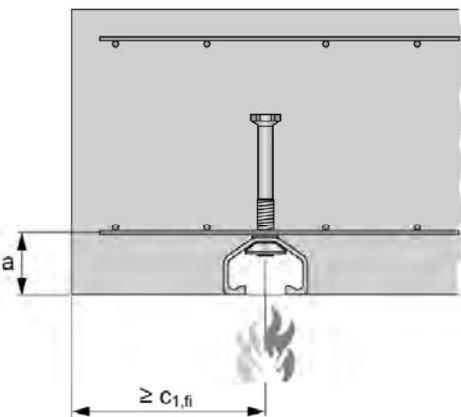
Characteristic resistances of anchor channels and channel bolts under fire exposure

Annex C17

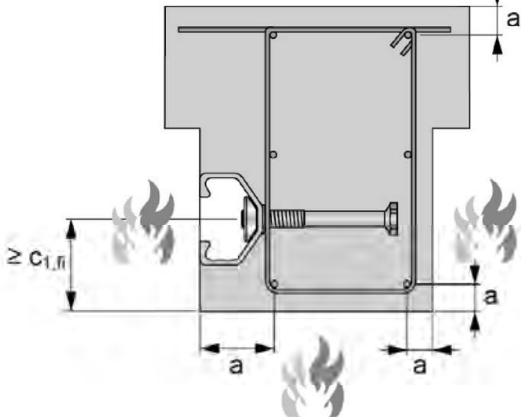
Table 42: Minimum axis distance

Anchor channel				HAC- 30 HAC-V-T 30	HAC-V 35	HAC-40 HAC-V 40	HAC-50 HAC-V 50	HAC-60 HAC-V 60	HAC-70 HAC-V 70
Min. axis distance	R60	a	[mm]	35	35	35	50	50	50
	R90			45	45	45			
	R120			60	60	60	60	65	70

Fire exposure from one side only



Fire exposure from more than one side



Hilti anchor channels (HAC) with channel bolts (HBC)

Performance

Characteristic resistances of anchor channels and channel bolts under fire exposure

Annex C18

Attn. : To whom it may concern

Date : 1 April 2025  
Ref. : 020/AN/SC/25

Subject : Country of Origin – Hilti HAC Anchor Channel

Dear Sir / Madam,

Enclosed please find the information of Hilti HAC Anchor Channel.

Brand Name : Hilti

Model Name : Hilti HAC-30/ HAC-40/ HAC-50/ HAC-60/ HAC-70

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Spencer Cheung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Spencer Cheung (+852 9732 1231)

Country of Origin : Germany

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at [hksales@hilti.com](mailto:hksales@hilti.com).

Yours faithfully,



Spencer Cheung  
Head of Product Leadership Strategy

**Hilti (Hong Kong) Ltd.**  
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223 Wai Yip Street | Kwun Tong  
Kowloon | Hong Kong  
P +852-8228 8118 | F +852-2954 1751  
[www.hilti.com.hk](http://www.hilti.com.hk)

Attn. : To whom it may concern

Date : 1 April 2025  
Ref. : 021/AN/SC/25

Subject : Country of Origin – Hilti HBC T-Head Bolt

Dear Sir / Madam,

Enclosed please find the information of Hilti HBC T-Head Bolt.

Brand Name : Hilti

Model Name : Hilti HBC/ HBC A4/ HBC-C/ HBC-C-N/ HBC-N T-Head Bolts

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Spencer Cheung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Spencer Cheung (+852 9732 1231)

Country of Origin : Taiwan

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at [hksales@hilti.com](mailto:hksales@hilti.com).

Yours faithfully,

*Spencer C.* 

Spencer Cheung  
Head of Product Leadership Strategy

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## HAC Cast-in Anchor Channel