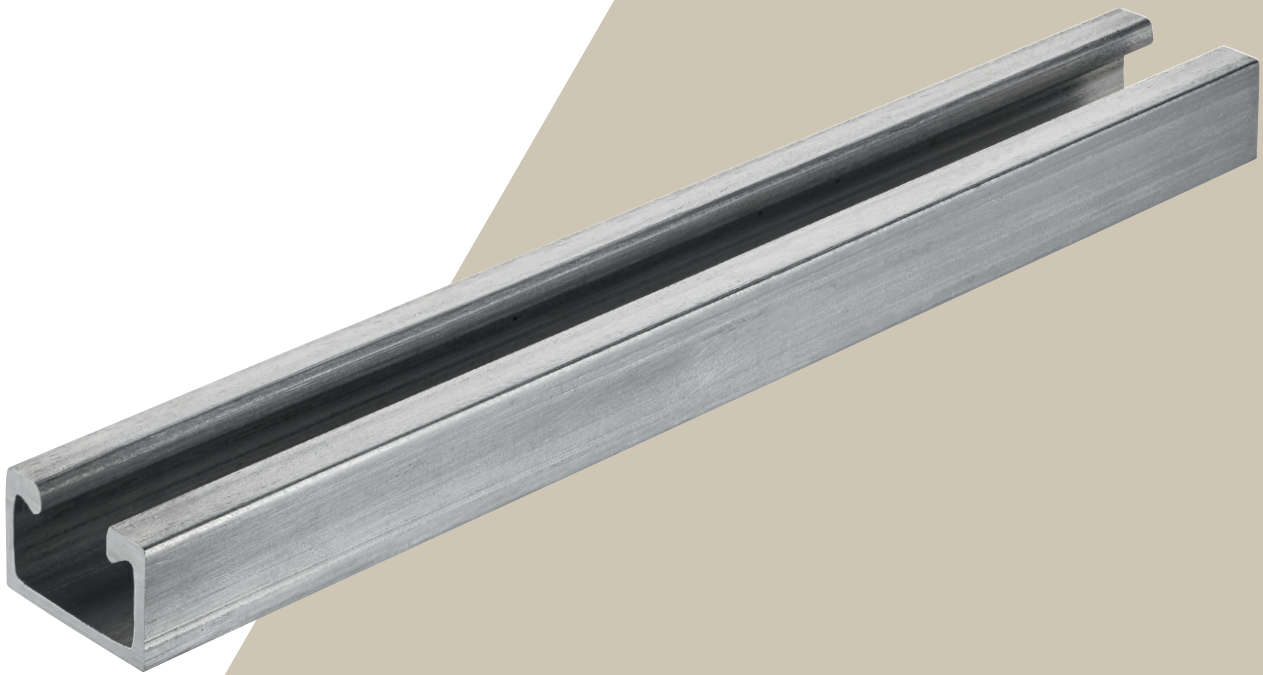




HMC(-T) MOUNTING CHANNELS

Technical Datasheet
August 2021, Version 1.0



SELECTOR FOR MOUNTING CHANNELS

Type		HMC mounting channels			HMC-T serrated mounting channels
		HMC 40/22	HMC 50/30	HMC 52/34	HMC-T 29/20
Channel bolt type & bolt size	HBC	M10-M16	M12-M20	M12-M20	-
	HBC-N	M16	M16-M20		-
	HBC-T	-			M12
Technical data	European Technical Assessment (ETA)	■	■	■	■
	Static 2D	■	■	■	■
	Static 3D (carbon and blank steel only)	■	■	■	■
	Seismic	-	-	-	-
	Fatigue	-	-	-	-
	Fire	-	-	-	-
Specification	Hot-dip galvanized (HDG)	■	■	■	■
	Blank steel	■	■	■	■
	Stainless steel A4	■	■	■	-
PROFIS Anchor Channel software		-			

■ ETA approved

PRODUCT OVERVIEW

HMC(-T) mounting channels			
HMC-T 29/20	HMC 40/22	HMC 50/30	HMC 52/34
HBC-T 29/30	HBC-40/22 and HBC-40/22-N	HBC-50/30 and HBC-50/30-N	HBC-50/30 and HBC-50/30-N

Base material	Load conditions		
Steel	Static/ quasi-static	Static 2D loading	Static 3D loading

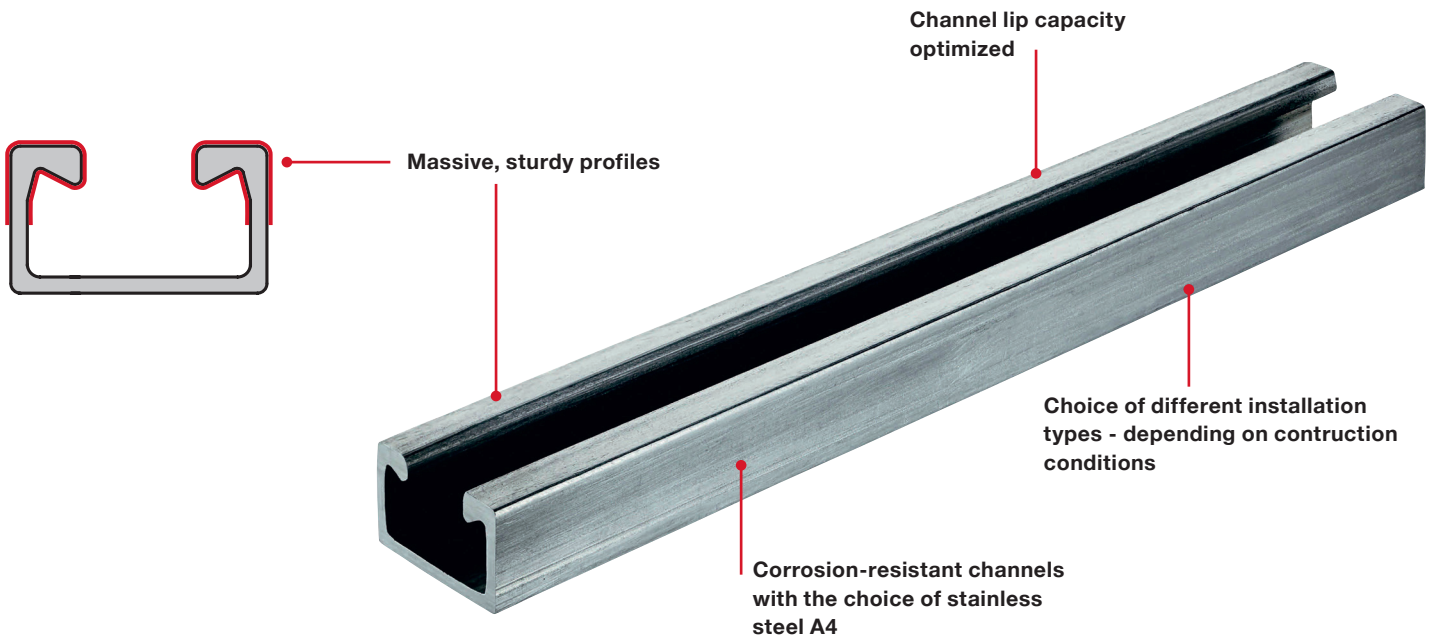
Other Information		
European Technical Assessment (ETA)	CE conformity	Corrosion resistance

Approvals & Hilti technical data

Description	Issuing Authority	No.
European Technical Assessment (ETA) covering 2D, 3D static	CSTB	ETA-21/0522

PRODUCT FEATURES

HMC(-T) mounting channel

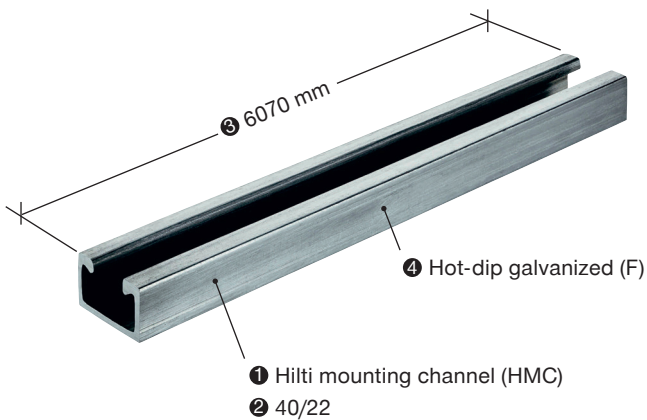


Nomenclature of HMC(-T) mounting channels

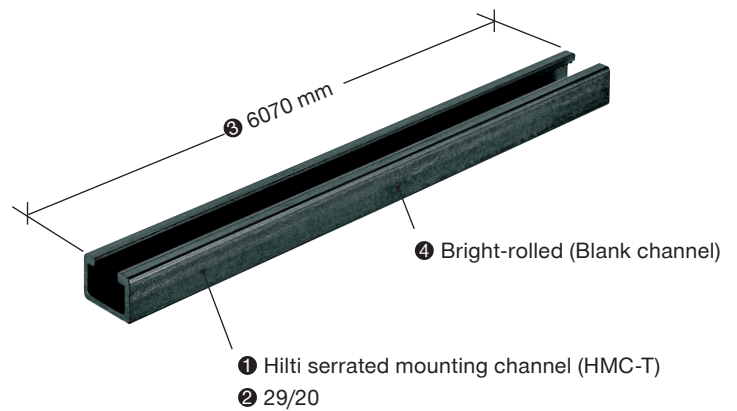
① Hilti mounting channel	② Profile type and size	③ Channel length [mm]	④ Material finish
HMC	40/22	6070	F (HDG), blank channel or A4 (stainless steel)
HMC-T	29/20	6070	F (HDG) or blank channel

Examples: ① Channel type ② Profile type/size ③ Length ④ Material finish

HMC 40/22 6070 F

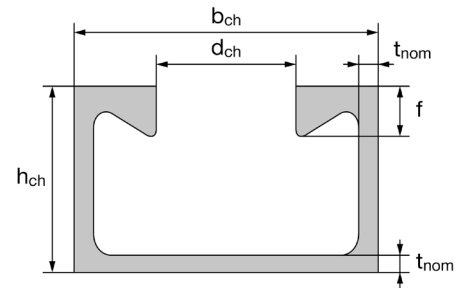


HMC-T 29/20 6070 B



Dimensions of mounting channel profile

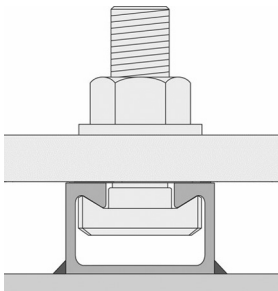
Mounting channel	b_{ch}	h_{ch}	t_{nom}	d_{ch}	f	I_y
	[mm]					[mm ⁴]
HMC-T 29/20	29,0	20,0	2,5	14	5.0	10056
HMC 40/22	40.1	23.0	2.7	18.0	6.0	21504
HMC 50/30	49.6	30.0	3.2	22.5	8.1	57781
HMC 52/34	52.5	34,0	4.0	22.5	11.5	97606



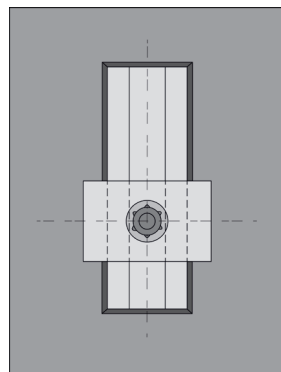
Installation types

Fillet-welded mounting channels

Type 1



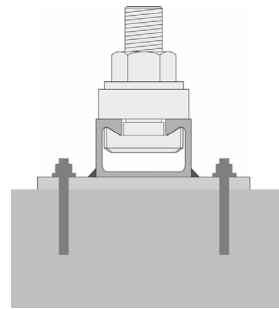
Cross section



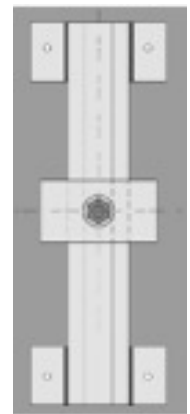
Top view

Post-installed mounting channels

Type 2



Cross section



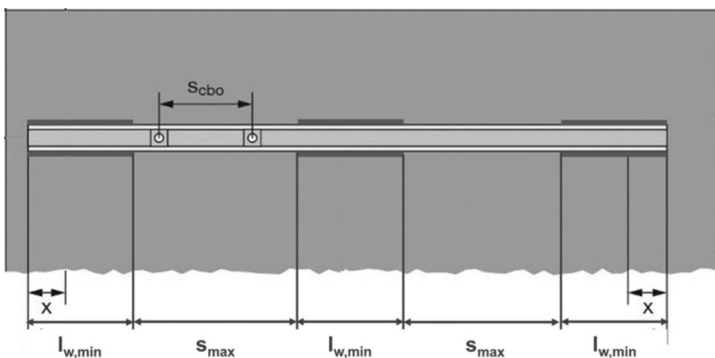
Top view

Note: Weld design and the design of the mounting channels must be performed by the responsible structural engineer

Installation parameters for mounting channels

Mounting channel		HMC-T 29/20	HMC 40/22	HMC 50/30	HMC 52/34
Maximum spacing between welds	s_{max}	250			
End spacing/Load application	x_{min}	25 ¹⁾			35
Minimum channel length	$l_{ch,min}$	70	100		
Minimum welding length	$l_{w,min}$	70	100		

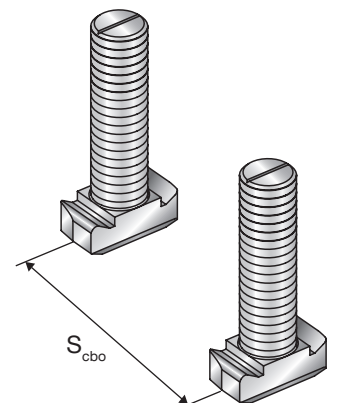
¹⁾ The end spacing may be increased from 25 to 35 mm



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



Material of mounting channels and channel bolts

Component	Carbon steel				Stainless steel
	Mechanical properties		Coating		Mechanical properties
1	2a	2b	2c	2d	3
Channel profile	1.0038, 1.0044, 1.0045 according to EN 10025: 2005 1.0976, 1.0979 according to EN 10149: 2013	No Coating	Hot-dip galvanized $\geq 50 \mu\text{m}$ according to EN ISO 10684: 2004/AC: 2009		1.4362, 1.4401 1.4404, 1.4571, 1.4578 according to EN 10088: 2005
Channel bolt	Steel grade 4.6 and 8.8 according to EN ISO 898-1: 2013	Electroplated according to EN ISO 4042: 1999	Hot dip galvanized $\geq 50 \mu\text{m}$ according to EN ISO 10684: 2004/AC: 2009		Grade 50 or 70 according to EN ISO 3506: 2009
Plain washer ¹⁾ according to ISO 7089: 2000 and ISO 7093-1: 2000	Hardness class A $\geq 200 \text{ HV}$	Electroplated according to EN ISO 4042: 1999	Hot dip galvanized $\geq 50 \mu\text{m}$ according to EN ISO 10684: 2004/AC: 2009		1.4401, 1.4404 1.4571, 1.4578 according to EN 10088: 2005
Hexagonal nut according to ISO 4032: 2012 or DIN 934: 1987-10 ²⁾	Property class 5 or 8 according to EN ISO 898-2: 2012	Electroplated according to EN ISO 4042: 1999	Hot dip galvanized $\geq 50 \mu\text{m}$ according to EN ISO 10684: 2004/AC: 2009		Property class 50, 70 or 80 according to EN ISO 3506: 2009

¹⁾ In scope of delivery only for notched bolts

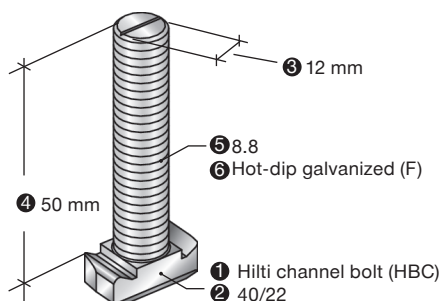
²⁾ Hexagonal nuts according to DIN 934: 1987-10 for channel bolts made from carbon steel (4.6) and stainless steel

Nomenclature of channel bolts

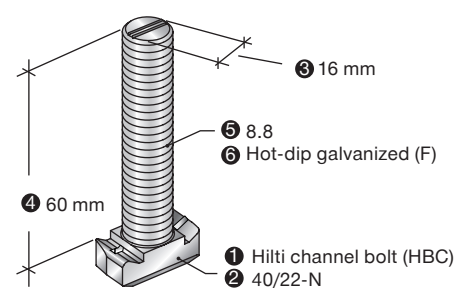
① Hilti channel bolt	② Bolt type	③ Diameter	④ Bolt length [mm]	⑤ Steel grade	⑥ Finish or material
HBC	40/22	M12	50	8.8 or A4-70	F (HDG) or A4 (stainless steel)
HBC	40/22-N	M16	60	8.8	F (HDG)
HBC-T	29/20	M12	60	8.8	F (HDG)

Examples: ① Channel bolt ② Bolt type ③ Diameter ④ Bolt length ⑤ Steel grade ⑥ Finish or material

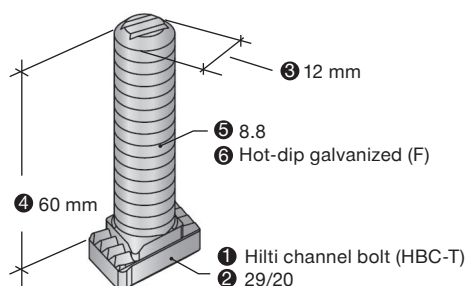
HBC-40/22 M12x50 8.8F
(standard bolt)



HBC-40/22-N M16x60 8.8F
(notched bolt)



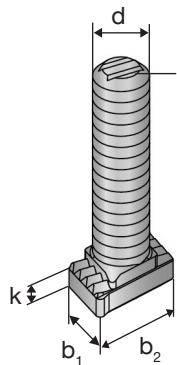
HBC-T-29/20 M12x60 8.8F
(serrated bolt)



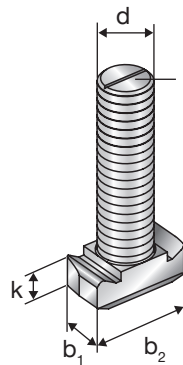
Dimensions of channel bolts

Mounting channel	Channel bolt type	Channel and bolt material	Dimensions			
			b ₁	b ₂	k	d
			[mm]			
HMC-T 29/20	HBC-T 29/20	HDG	13.5	23.0	8.0	12
HMC 40/22	HBC-40/22	HDG, A4	14.0	33.0	10.5	10
					11.5	12
	HBC-40/22-N	HDG	17.0	33.0	11.5	16
HMC 50/30	HBC-50/30	HDG, A4	17.0	42.0	14.5	12
					15.5	16
	HBC-50/30-N	HDG	21.0	42.0	15.5	16
					20	20

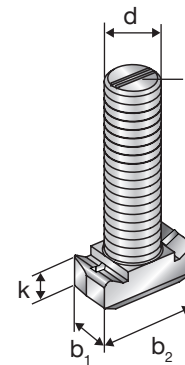
Channel bolts



HBC-T-29/20



HBC-40/22, HBC-50/30



HBC-40/22-N, HBC-50/30-N

Channel bolts steel grade and corrosion class

Channel bolt	Carbon steel ¹⁾		Stainless steel ¹⁾	
	4.6	8.8	A4-50	A4-70
f _{uk} [N/mm ²]	400	800 / 830 ²⁾	500	700
f _{yk} [N/mm ²]	240	640 / 660 ²⁾	210	450
Corrosion class	G ³⁾ F ⁴⁾		R ⁵⁾	

¹⁾ Material properties according to table on page 6

²⁾ Material properties according to EN ISO 898-1: 2013

³⁾ Electroplated

⁴⁾ Hot-dip galvanized

⁵⁾ Stainless steel

STEEL FAILURE MODES – STATIC RESISTANCE UNDER TENSION, PERPENDICULAR AND LONGITUDINAL SHEAR



Static/
quasi-static

Resistance values under tension loads - steel failure

Mounting channel			HMC-T 29/20	HMC 40/22	HMC 50/30	HMC 52/34
Steel failure: Local flexure of channel lips						
Characteristic or design spacing of the channel bolts	$s_{i,N}$	[mm]	58.0	80.2	99.2	105.0
Characteristic resistance	$N_{Rk,s,l}^0$	[kN]	25.8	36.5	55.8	87
Design resistance	$N_{Rd,s,l}^0$	[kN]	14.3	20.1	31	48.3
Steel failure: Flexure of channel						
Characteristic bending resistance of channel	M_{Pl}	[kN]	417	868	1724	2627
Design resistance	M_{Rd}	[kN]	363	755	1499	2284

Displacements under tension load

Mounting channel		HMC-T 29/20	HMC 40/22	HMC 50/30	HMC 52/34
Tension load	N [kN]	9.3	13.3	22.1	34.5
Short-term displacement ¹⁾	δ_{N0} [mm]	0.6	0.9	1.0	1.4
Long-term displacement ¹⁾	$\delta_{N\infty}$ [mm]	1.3	1.7	2.1	2.9

¹⁾ Displacements in midspan of the mounting channel, including slip of channel bolt, deformation of channel lips, bending of the channel



Static/
quasi-static

Characteristic resistance under shear load - steel failure of mounting channel

Mounting channel		HMC-T 29/20	HMC 40/22	HMC 50/30	HMC 52/34	
Steel failure: Connection between channel lips and channel bolt under shear load in direction of the longitudinal axis of the channel for blank channels						
Characteristic resistance	$V^0_{Rk,s,l,x}$ [kN]	HBC-T 29/20 M12 8.8F	20.0	-	-	-
		HBC-40/22-N M16 8.8F	-	10.5	-	-
		HBC-50/30-N M16 8.8F	-	-	17.1	17.1
		HBC-50/30-N M20 8.8F	-	-	21.6	21.6
Design resistance	$V^0_{Rd,s,l,x}$ [kN]	HBC-T 29/20 M12 8.8F	11.1	-	-	-
		HBC-40/22-N M16 8.8F	-	5.8	-	-
		HBC-50/30-N M16 8.8F	-	-	9.5	9.5
		HBC-50/30-N M20 8.8F	-	-	12.0	12.0
Steel failure: Connection between channel lips and channel bolt under shear load in direction of the longitudinal axis of the channel for HDG channels						
Characteristic resistance	$V^0_{Rk,s,l,x}$	HBC-T 29/20 M12 8.8F	14.1	-	-	-
		HBC-40/22-N M16 8.8F	-	8.2	-	-
		HBC-50/30-N M16 8.8F	-	-	13.6	13.6
		HBC-50/30-N M20 8.8F	-	-	15.9	15.9
Design resistance	$V^0_{Rd,s,l,x}$ [kN]	HBC-T 29/20 M12 8.8F	7.8	-	-	-
		HBC-40/22-N M16 8.8F	-	3.3	-	-
		HBC-50/30-N M16 8.8F	-	-	6.3	6.3
		HBC-50/30-N M20 8.8F	-	-	8.8	8.8

¹⁾In absence of other national regulations



Static/
quasi-static

Resistance values under tension and shear load – steel failure of channel bolts

Channel bolt diameter				M10	M12	M16	M20	
Steel failure								
Characteristic resistance (tension load)	$N_{Rk,s}$ [kN]	HBC-T-29/20	8.8	1) ¹⁾	67.4	1) ¹⁾	1) ¹⁾	
		HBC-40/22	4.6	23.2	1) ¹⁾			
			8.8	1) ¹⁾	67.4	125.6	1) ¹⁾	
			A4-70 ²⁾	40.6	59.0	109.1		
		HBC-40/22-N	8.8	1) ¹⁾		125.6	1) ¹⁾	
		HBC-50/30	4.6	1) ¹⁾				
			8.8	1) ¹⁾	67.4	125.6	129.2	
			A4-70 ²⁾		59.0	109.9	121.2	
		HBC-50/30-N	8.8	1) ¹⁾		125.6	129.2	
		Design resistance (tension load)	$N_{Rd,s}$ [kN]	HBC-T-29/20	8.8	1) ¹⁾	44.9	1) ¹⁾
HBC-40/22	4.6			11.6	1) ¹⁾			
	8.8			1) ¹⁾	44.9	83.7	1) ¹⁾	
	A4-70 ²⁾			21.7	31.6	58.3		
HBC-40/22-N	8.8			1) ¹⁾		83.7	1) ¹⁾	
HBC-50/30	4.6			1) ¹⁾				
	8.8			1) ¹⁾	44.9	83.7	86.1	
	A4-70 ²⁾				31.6	58.3	64.8	
HBC-50/30-N	8.8			1) ¹⁾		83.7	86.1	
Characteristic resistance (shear load)	$V_{Rk,s}$ [kN]			HBC-T-29/20	8.8	1) ¹⁾	33.7	1) ¹⁾
		HBC-40/22	4.6	13.9	1) ¹⁾			
			8.8	23.2	33.7	62.8	1) ¹⁾	
			A4-70 ²⁾	24.4	35.4	65.9		
		HBC-40/22-N	8.8	1) ¹⁾		62.8	1) ¹⁾	
		HBC-50/30	4.6	1) ¹⁾				
			8.8	1) ¹⁾	33.7	62.8	98.0	
			A4-70 ²⁾		35.4	65.9	102.9	
		HBC-50/30-N	8.8	1) ¹⁾		62.8	98.0	
		Design resistance (shear load)	$V_{Rd,s}$ [kN]	HBC-T-29/20	8.8	1) ¹⁾	26.96	1) ¹⁾
HBC-40/22	4.6			8.3	1) ¹⁾			
	8.8			18.6	27.0	50.24	1) ¹⁾	
	A4-70 ²⁾			15.6	22.7	52.72		
HBC-40/22-N	8.8			1) ¹⁾		50.24	1) ¹⁾	
HBC-50/30	4.6			1) ¹⁾				
	8.8			1) ¹⁾	27.0	50.24	78.4	
	A4-70 ²⁾				22.7	42.24	66.0	
HBC-50/30-N	8.8			1) ¹⁾		50.24	62.8	

¹⁾ In absence of other national regulations

²⁾ Materials according to Table on page 6

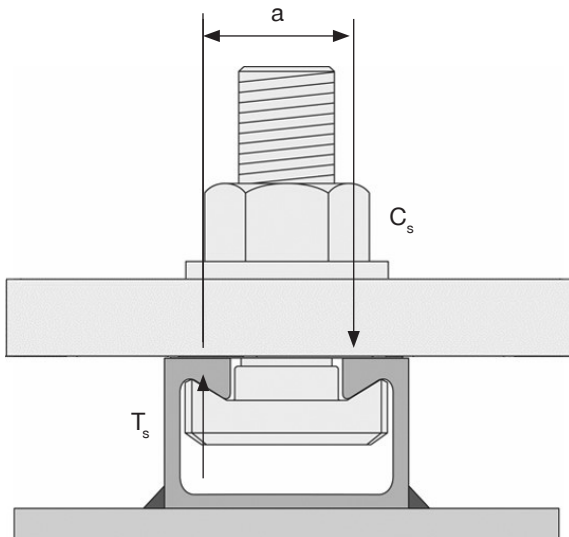
Resistance values under shear load with lever arm – steel failure of channel bolts

Channel bolt diameter			M10	M12	M16	M20		
Steel failure								
Characteristic flexural resistance	$M_{Rk,s}^0$ ⁵⁾	[Nm]	HBC-29/20	4.6	29.9 ²⁾	³⁾		
			HBC-40/22(-N)	8.8	59.8	104.8	266.4	519.3
			HBC-50/30(-N)	A4-70 ²⁾	52.3	91.7	233.1	³⁾
Design flexural resistance	$M_{Rd,s}^0$ ⁵⁾	[Nm]	HBC-29/20	4.6	17.9	³⁾		
			HBC-40/22(-N)	8.8	47.8	83.8	213.1	415.44
			HBC-50/30(-N)	A4-70 ²⁾	33.5	58.8	149.4	³⁾
Internal lever arm	a	[kN]	HBC-T-29/20	³⁾	17.0	³⁾		
			HBC-40/22(-N)	24.3	25.7	27.3	³⁾	
			HBC-50/30(-N)	³⁾	29.9	31.7	33.9	

¹⁾ In absence of other national regulations

²⁾ Materials according to Table on page 6, Annex A6

³⁾ Product not available



T_s = tension force acting on the channel lip

C_s = compression force acting on the channel lip

$$M_{Rk,s}^0 \leq 0,5 \cdot N_{Rk,s,l} \cdot a$$

$$M_{Rk,s}^0 \leq 0,5 \cdot N_{Rk,s} \cdot a$$

a = internal lever arm

Displacements under perpendicular shear

Mounting channel			HMC-T 29/20	HMC 40/22	HMC 50/30	HMC 52/34
Shear load	V_y	[kN]	7.9	12.7	27.8	27.3
Short-term displacement ¹⁾	$\delta_{v0,y}$	[mm]	1.1	2.8	3.4	3.9
Long-term displacement ¹⁾	$\delta_{v\infty,y}$	[mm]	1.6	4.2	5.1	5.8
Shear load	V_x	[kN]	4.9	4.8	7.4	-
Short-term displacement ¹⁾	$\delta_{v0,x}$	[mm]	0.3	0.6	0.5	-
Long-term displacement ¹⁾	$\delta_{v\infty,x}$	[mm]	0.6	0.8	0.8	-

¹⁾ Displacements in midspan of the mounting channel, including slip of channel bolt, deformation of channel lips



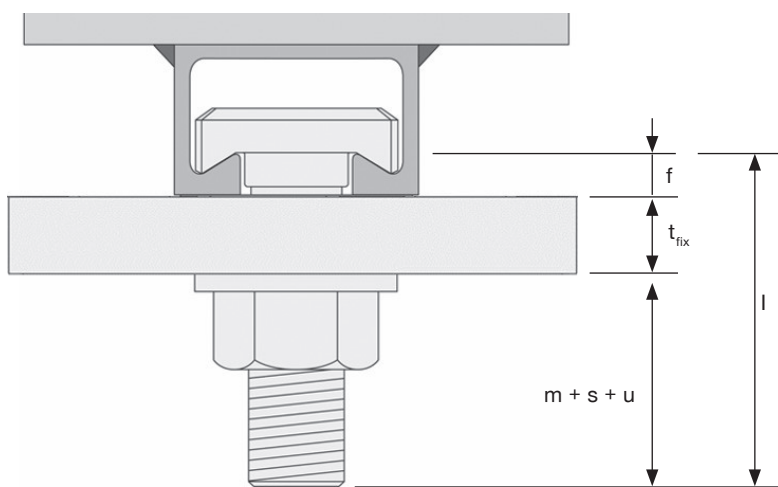
Static/
quasi-static

Characteristic resistances under combined tension and shear load

Mounting channel			HMC-T 29/20	HMC 40/22	HMC 50/30	HMC 52/34	
Steel failure: Local flexure of channel lips and flexure of channel							
Product factor	k_{13}	[-]	Values according to EN 1992-4:2018, Section 7.4.3.1				

Determination of required T-Bolt length

Profile	Production	Height of channel lip (f) [mm]	T-Bolt type	m+s+u [mm]			
				M10	M12	M16	M20
[-]		[mm]	[-]	M10	M12	M16	M20
HMC-T 29/20	hot-rolled	5	HBC-T-29/20	-	17.3	-	-
HMC 40/22	hot-rolled	6	HBC-40/20	13.9	17.3	21.8	-
HMC 40/22	hot-rolled	6	HBC-40/22-N	-	-	21.8	-
HMC 50/30	hot-rolled	8	HBC-50/30	-	17.3	21.8	27.0
HMC 50/30	hot-rolled	8	HBC-50/30-N	-	-	21.8	27.0



- l = nominal length of channel bolt
- t_{fix} = fastenable thickness (Thickness of the attached part)
- f = height of channel lip
- m = thickness of the nut (ISO 4032)
- s = thickness of the washer
- u = channel bolt projection

Note: Round the bolt length to the nearest standard channel bolt

Required T-Bolt length $l_{req} = t_{fix} + f + (m+s+u)$

INSTALLATION INSTRUCTIONS

Installation instructions for HMC(-T) mounting channels

1) Correct selection of mounting channel in accordance with the design specification.

2) If cutting of the mounting channel is necessary, the channels can be cut to a minimum length of 100 mm for the following profiles:

- HMC-T 29/20
- HMC 40/22
- HMC 50/30
- HMC 52/34

CE
 21
Hilti AG
 FL-9494 Schaan
 Hilti Werke
 2451-CPR-EAD-2021.0001.001
 ETA-21/0522
 Notified body 2451
 EAD 330667-01-0602
 www.hilti.group

1

HMC(-T) xx/yy ▶ **2 3a 3b**
 HMC(-T) xx/yy PI ▶ **3c**

3a) Fully welded: To fix the mounting channel weld the profile to the steel part over the entire length. The welds have to be designed in accordance to EN 1993-1-8. The welding has to be performed by a certified welder.

2

min. 100mm

3b) Partially welded: To fix the mounting channel weld the beginning and the end of the profile to the steel part. distance between two welds must not exceed 250 mm. The welds have to be designed in accordance to EN 1993-1-8. The welding has to be performed by a certified welder.

3b

ETA

$S_{max} \leq 250mm$

$l_{w,min}$

3a

3c) Post-installed: In order to install the post-installed mounting channels, please check the ETA requirements for the chosen anchors.

3c

ETA

$S_{max} \leq 250mm$

$l_{w,min}$

Installation instructions for HBC-T 29/20 channel bolts

1) Select Hilti channel bolt type HBC in accordance with the design specification.

2) Place the channel bolt in the channel and lock the channel bolt in the channel by turning it 90 degrees.

3) Verify alignment of the bolt with the groove.

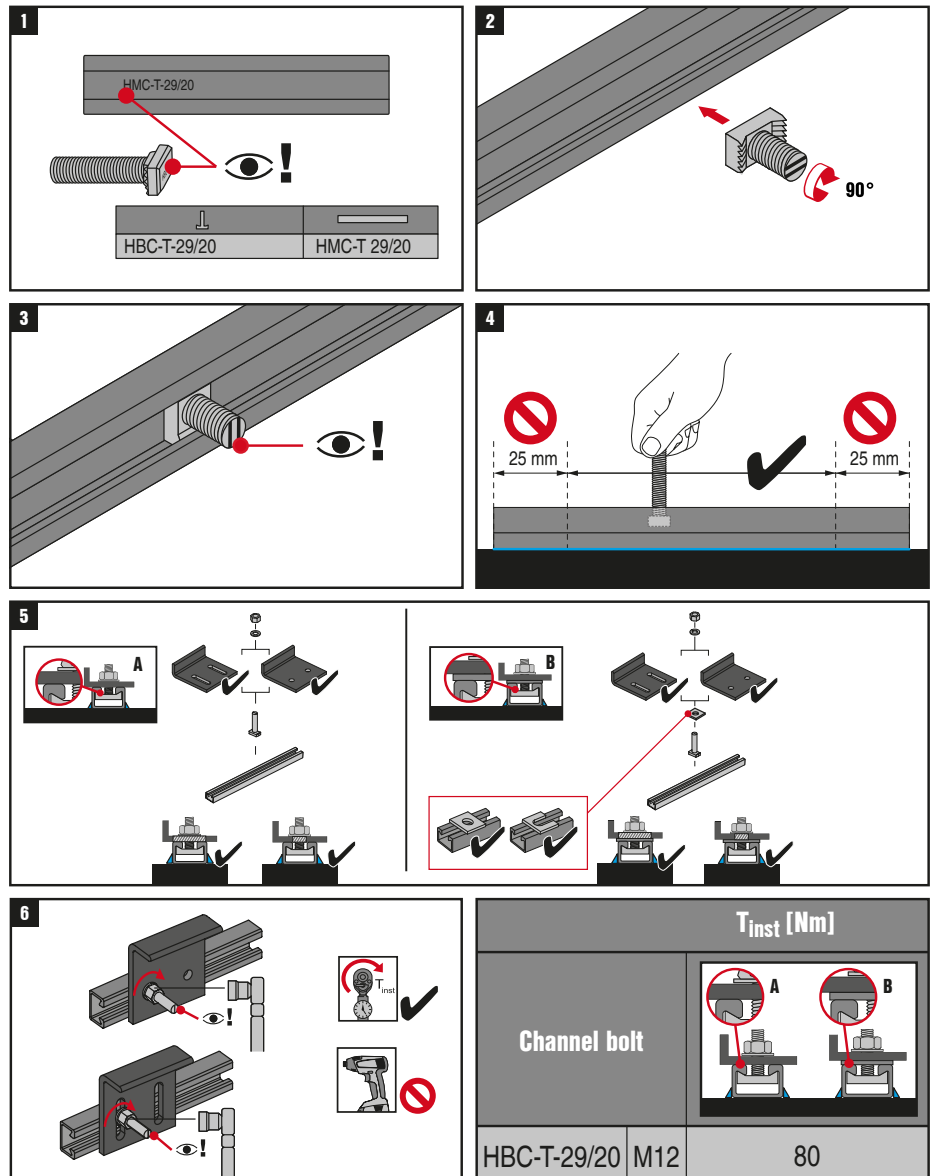
4) Verify that the channel bolt is not located closer than 25 mm from the channel edge.

5) Install the fixture distinguishing between installation type A and installation type B.

- For installation type A the fixture is in contact with the channel profile.
- For installation type B the fixture is in contact with a suitable steel element. The fixture is fastened to the anchor channel by a suitable steel element. The steel element shall have sufficient stiffness to avoid deformation of the channel lips.

7) Apply the installation torque T_{inst} to the channel bolt with a calibrated torque wrench. Do not exceed the value T_{inst} distinguishing between installation type A and installation type B.

Select the correct installation torque T_{inst} according to material, channel type, channel bolt diameter, and installation type.



Installation instructions for HBC channel bolts

1) Select Hilti channel bolt type HBC in accordance with the design specification.

2) Place the channel bolt in the channel and lock the channel bolt in the channel by turning it 90 degrees.

3) Verify alignment of the bolt with the groove.

4) Verify that the channel bolt is not located closer than 25 mm from the channel edge.

5) Do not cut channel bolts.

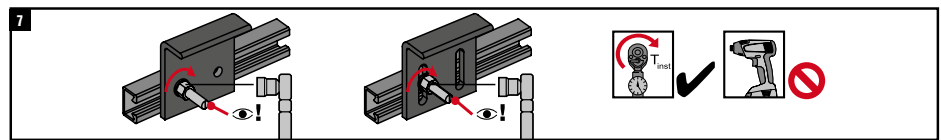
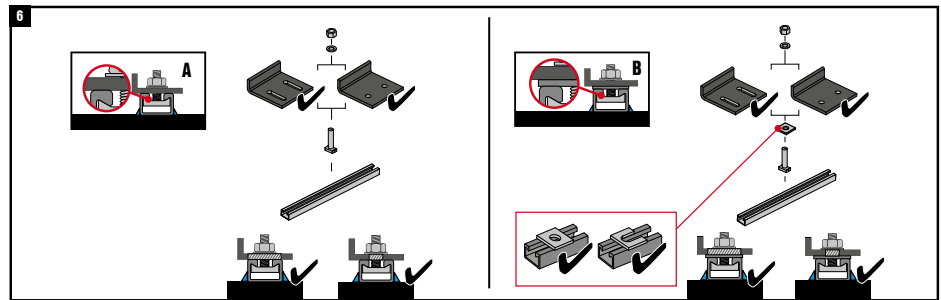
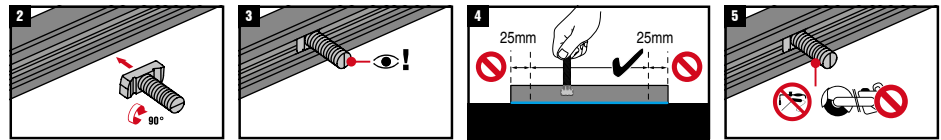
6) Install the fixture distinguishing between installation type A and installation type B.

- For installation type A the fixture is in contact with the channel profile.
- For installation type B the fixture is in contact with a suitable steel element. The fixture is fastened to the anchor channel by suitable steel element. The steel element shall have sufficient stiffness helping to avoid deformation of the channel lips.

7) Apply the installation torque T_{inst} to the channel bolt with a calibrated torque wrench. Do not exceed the value T_{inst} distinguishing between installation type A and installation type B.

Select the correct installation torque T_{inst} according to material, channel type, channel bolt diameter, and installation type.

	HBC-40/22	HMC 40/22
	HBC-50/30	HMC 50/30, HMC 52/34



Channel bolt		T_{inst} [Nm]			
		A		B	
		4.6, 8.8, A4-70	4.6	8.8	A4-70
HBC-40/22	M10	15	13	15	22
	M12	25		45	50
	M16	30		100	90
HBC-50/30	M12	25	-	45	50
	M16	55		100	130
	M20	55		360	250

Installation instructions for HBC-X-N T bolts

1) Select Hilti channel bolt type HBC in accordance with the design specification.

2) Place the channel bolt in the channel and lock the channel bolt in the channel by turning it 90 degrees.

3) Verify alignment of the bolt with the groove.

4) Verify that the channel bolt is not located closer than 25 mm from the channel edge.

5) Do not cut channel bolts.

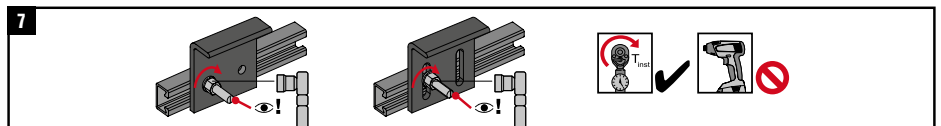
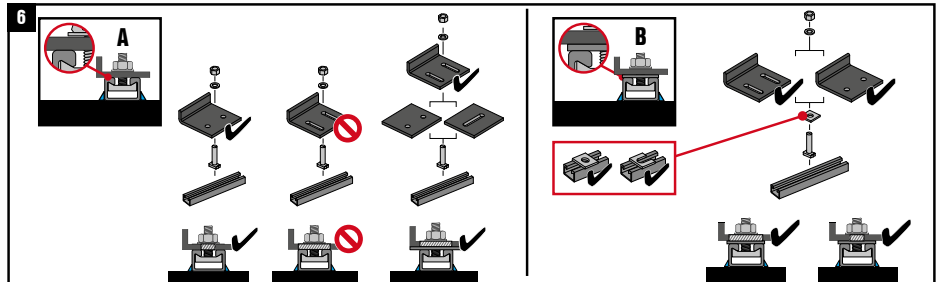
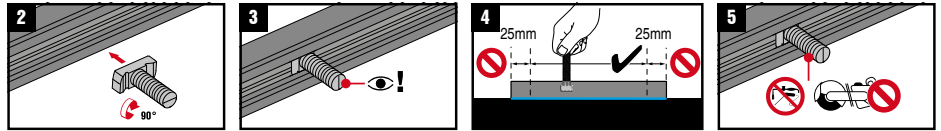
6) Install the fixture distinguishing between installation type A and installation type B.

- For installation type A the fixture is in contact with the channel profile.
- For installation type B the fixture is in contact with a suitable steel element. The fixture is fastened to the anchor channel by a suitable steel element. The steel element shall have sufficient stiffness to avoid deformation of the channel lips.

7) Apply the installation torque T_{inst} to the channel bolt with a calibrated torque wrench. Do not exceed the value T_{inst} distinguishing between installation type A and installation type B. Complete removal and reinstallation of the channel bolt HBC-X-N is not allowed.

Select the correct installation torque T_{inst} according to material, channel type, channel bolt diameter, and installation type.

		HBC-40/22-N	HMC 40/22
		HBC-50/30-N	HMC 50/30, HMC 52/34



Mounting Channel	Channel Bolt	T_{inst} [Nm]	
		A	B
		8.8	
HMC 40/22	HBC-40/22-N M16	160	
HMC 50/30, HMC 52/34	HBC-50/30-N M16	185	
HMC 50/30, HMC 52/34	HBC-50/30-N M20	320	



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