

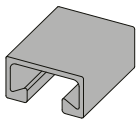
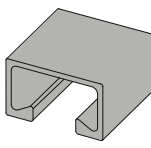
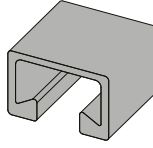
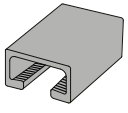


PEC Framing Channels

Technical Datasheet
September 2021



Selector for framing channels

| | | PEC framing channels | | | PEC serrated framing channels |
|--------------------------------|---|---|---|---|---|
| Type | | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 52/34 | PEC-MZ-CE 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 | - | - | - | - |
| Specification | Fire | - | - | - | - |
| | Hot-dip galvanized (HDG) | ■ | ■ | ■ | ■ |
| | Blank steel | ■ | ■ | ■ | ■ |
| | Stainless steel A4 | ■ | ■ | ■ | - |
| PROFIS Anchor Channel software | | | | - | |

■ ETA approved

Product overview

| PEC framing channels | | | |
|----------------------|---------------------------|---------------------------|---------------------------|
| PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 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 |

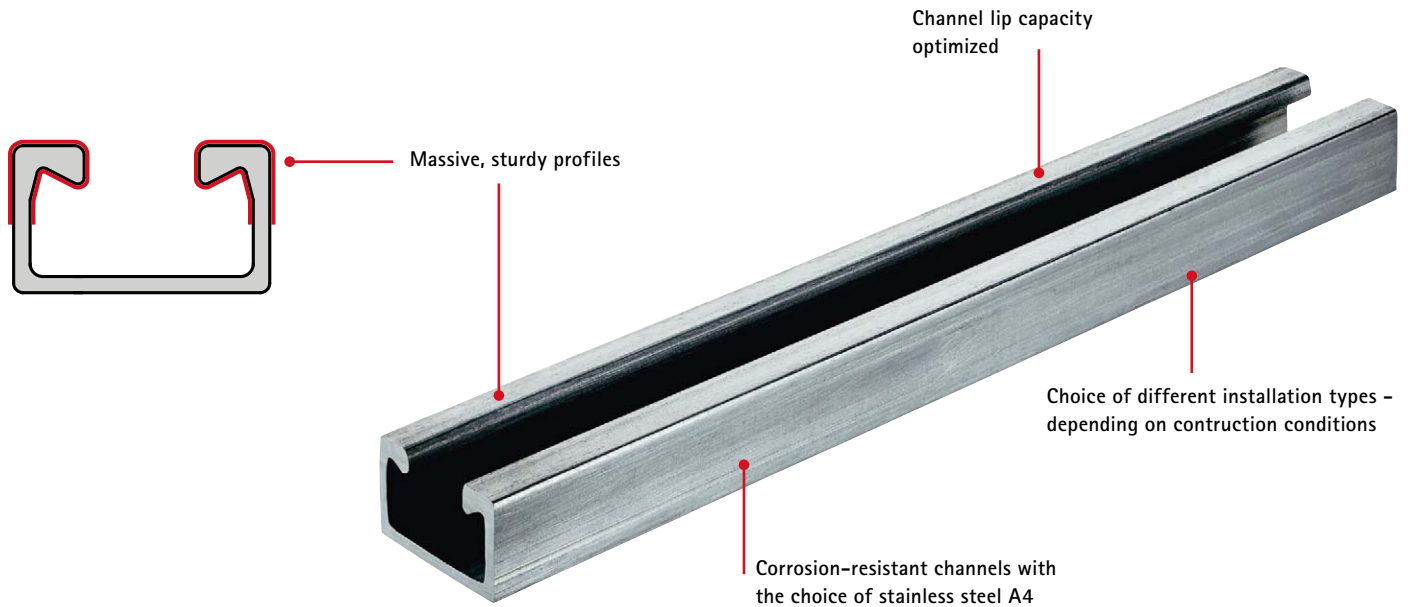
| Other Information | | |
|---|-------------------|--------------------------|
| European Technical Assessment (ETA) | CE conformity | Corrosion resistance |

Approvals



| Description | Issuing Authority | No. |
|--|-------------------|-------------|
| European Technical Assessment (ETA) covering 2D, 3D static | CSTB | ETA-21/0695 |

Product features

PEC framing channels

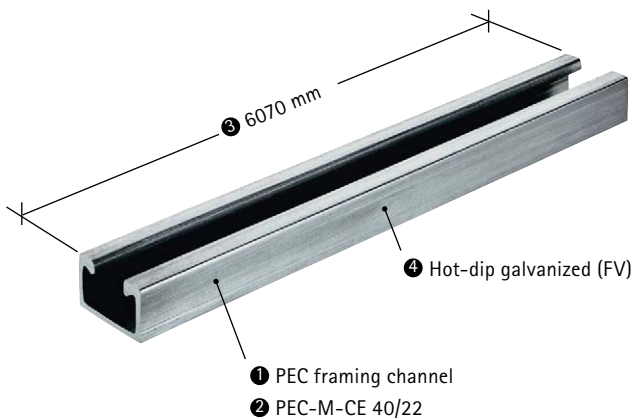


Nomenclature of PEC framing channels

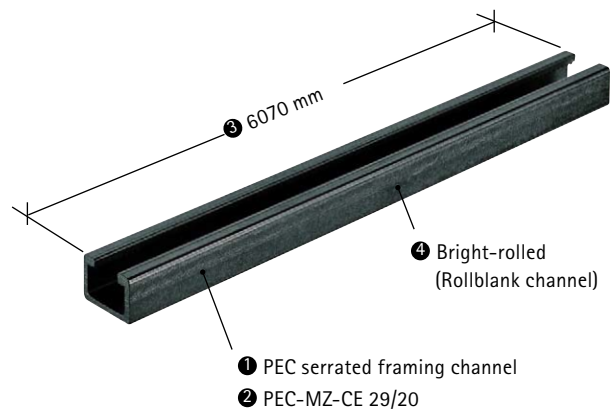
| ① PEC framing channel | ② Profile type and size | ③ Material finish | ④ Channel length [mm] |
|-----------------------|---|---|-----------------------|
| PEC-M-CE | 40/22  | FV (HDG), blank channel or A4 (stainless steel) | 6070 |
| PEC-MZ-CE | 29/20  | FV (HDG) or rollblank channel | 6070 |

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

PEC-M-CE-40/22-FV-6070

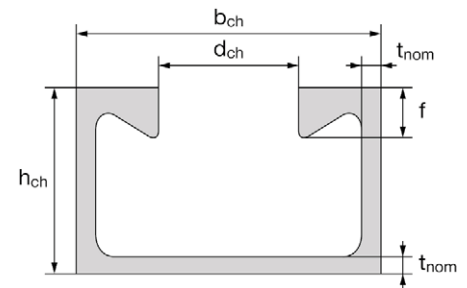


PEC-MZ-CE-29/20-WB-6070



Dimensions of channel profile

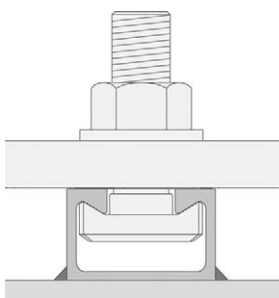
| Framing channel | b_{ch} | h_{ch} | t_{nom} | d_{ch} | f | I_y |
|-----------------|----------|----------|-----------|----------|------|--------------------|
| | [mm] | | | | | [mm ⁴] |
| PEC-MZ-CE 29/20 | 29,0 | 20,0 | 2,5 | 14 | 5.0 | 10056 |
| PEC-M-CE 40/22 | 40.1 | 23.0 | 2.7 | 18.0 | 6.0 | 21504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



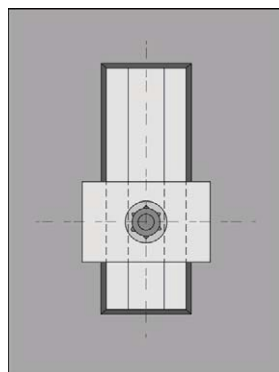
Installation types

Fillet-welded framing channels

Type 1



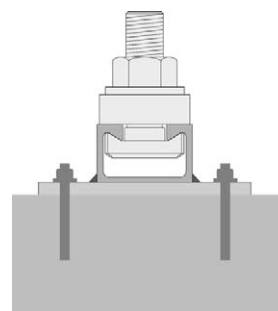
Cross section



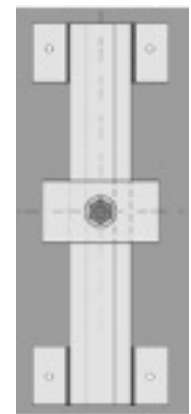
Top view

Post-installed framing channels

Type 2



Cross section

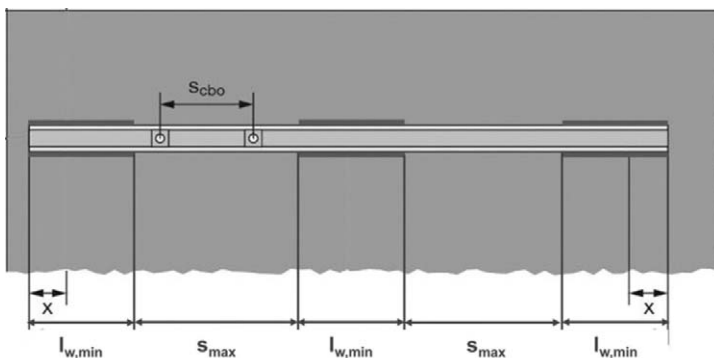


Top view

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

Installation parameters for framing channels

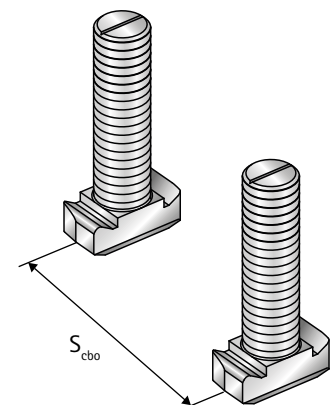
| Framing channel | | PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 52/34 |
|-------------------------------|--------------|-----------------|----------------|----------------|----------------|
| Maximum spacing between welds | s_{max} | 250 | | | |
| End spacing/Load application | x_{min} | 25 | | | 35 |
| Minimum channel length | $l_{ch,min}$ | 70 | 100 | | |
| Minimum welding length | $l_{w,min}$ | 70 | 100 | | |



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 framing channels and channel bolts

| Component | Carbon steel | | | | Stainless steel |
|---|--|--|---|----|--|
| | Mechanical properties | Coating | | | Mechanical properties |
| | 1 | 2a | 2b | 2c | 2d |
| 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

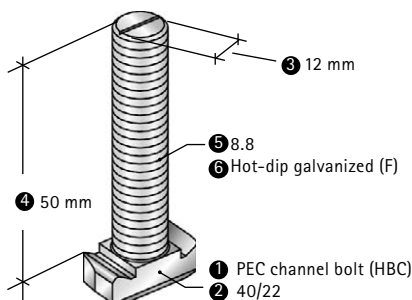
²⁾ Hexagonal nuts according to DIN 934: 1987-10 for channel bolts made from carbon steel (4.6) and stainless steel

Nomenclature of channel bolts

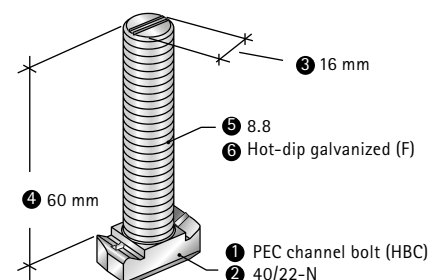
| ① PEC channel bolt | ② Bolt type | ③ Diameter | ④ Bolt length [mm] | ⑤ Steel grade | ⑥ Finish or material |
|--------------------|-------------|------------|--------------------|---------------|---------------------------------|
| HBC | 40/22 | M12 | 50 | 8.8 or A4-70 | F (HDG) or A4 (stainless steel)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

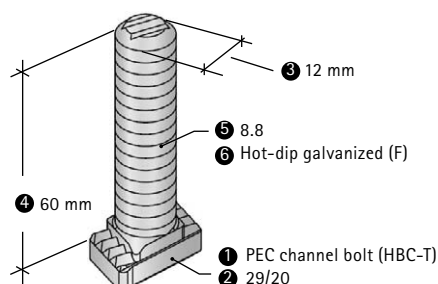
HBC-40/22 M12x50 8.8F
(standard bolt)



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



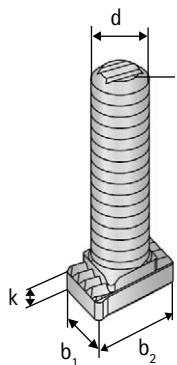
HBC-T-29/20 M12x60 8.8F
(serrated bolt)



Dimensions of channel bolts

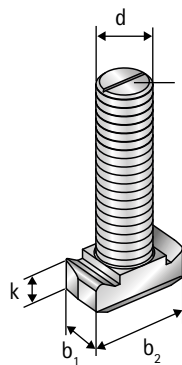
| Framing channel | Channel bolt type | Channel and bolt material | Dimensions | | | |
|-----------------|-------------------|---------------------------|----------------|----------------|------|----|
| | | | b ₁ | b ₂ | k | d |
| | | | [mm] | | | |
| PEC-MZ-CE 29/20 | HBC-T 29/20 | HDG | 13.5 | 23.0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

Channel bolts



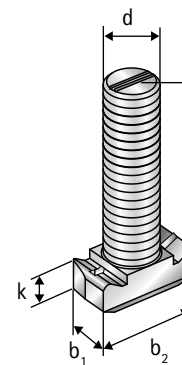
Groove for marking the position of serrated bolts

HBC-T-29/20



Groove for marking the position of standard bolts

HBC-40/22, HBC-50/30



Double groove for marking the position of notched bolts

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

| Framing channel | | | PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 52/34 |
|---|----------------|------|--------------------|-------------------|-------------------|-------------------|
| Steel failure: Local flexure of channel lips | | | | | | |
| Characteristic or design spacing of the channel bolts | $s_{l,N}$ | [mm] | 58.0 | 80.2 | 99.2 | 105.0 |
| Characteristic resistance | $N_{Rk,s,l}^0$ | [kN] | 25.8 | 36.2 | 55.8 | 87.0 |
| Design resistance | $N_{Rd,s,l}^0$ | [kN] | 14.3 | 20.1 | 31.0 | 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 loads – steel failure

| Framing channel | | PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 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 framing channel, including slip of channel bolt, deformation of channel lips, bending of the channel

Resistance values under shear load – steel failure

| Framing channel | | | PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 52/34 |
|---|----------------|------|--------------------|-------------------|-------------------|-------------------|
| Steel failure: Local flexure of channel lips | | | | | | |
| Characteristic or design spacing of the channel bolts | $s_{l,V}$ | [mm] | 100.0 | 100.0 | 128.0 | 100.0 |
| Characteristic resistance | $V_{Rk,s,l}^0$ | [kN] | 17.6 | 33.7 | 53.6 | 65.2 |
| Design resistance | $V_{Rd,s,l}^0$ | [kN] | 9.8 | 18.7 | 29.8 | 36.2 |

Displacements under perpendicular shear

| Framing channel | | | PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 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 framing channel, including slip of channel bolt, deformation of channel lips



Static/
quasi-static

Characteristic resistance under shear load – steel failure of framing channel

| Framing channel | | PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 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 |



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 |
| 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 |
| | | 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⁾ | 27.0 |
| HBC-40/22 | 4.6 | | | 8.3 | 1) ¹⁾ | | |
| | 8.8 | | | 18.6 | 27.0 | 50.2 | 1) ¹⁾ |
| | A4-70 ²⁾ | | | 15.6 | 22.7 | 42.2 | |
| HBC-40/22-N | 8.8 | | | 1) ¹⁾ | | 50.2 | 1) ¹⁾ |
| HBC-50/30 | 4.6 | | | 1) ¹⁾ | | | |
| | 8.8 | | | 1) ¹⁾ | 27.0 | 50.2 | 78.4 |
| | A4-70 ²⁾ | | | | 22.7 | 42.2 | 66.0 |
| HBC-50/30-N | 8.8 | | | 1) ¹⁾ | | 50.2 | 62.8 |

¹⁾ In absence of other national regulations

²⁾ Materials according to Table on page 6

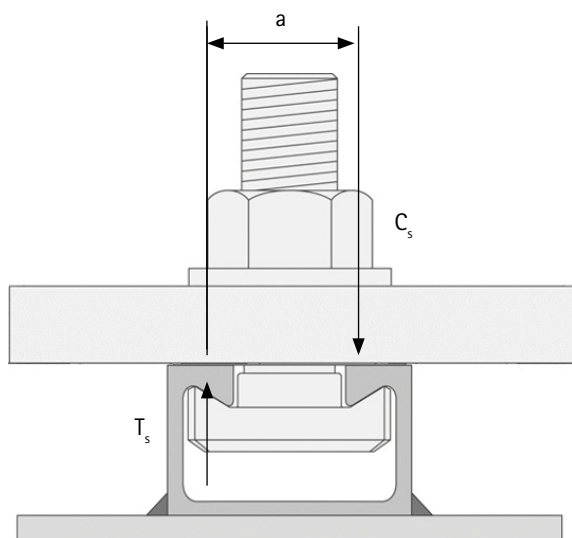
Resistance values under shear load with lever arm – steel failure of channel bolts

| Channel bolt diameter | | | M10 | M12 | M16 | M20 | |
|------------------------------------|-------------------|---------------|----------------------|--------------------|-------|-------|-------|
| Steel failure | | | | | | | |
| Characteristic flexural resistance | $M_{Rk,s}^0$ [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) | A 4-70 ²⁾ | 52.3 | 91.7 | 233.1 | 3) |
| Design flexural resistance | $M_{Rd,s}^0$ [Nm] | HBC-29/20 | 4.6 | 17.9 | 3) | | |
| | | HBC-40/22(-N) | 8.8 | 47.8 | 83.8 | 213.1 | 415.4 |
| | | HBC-50/30(-N) | A 4-70 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

Steel failure - combined loading



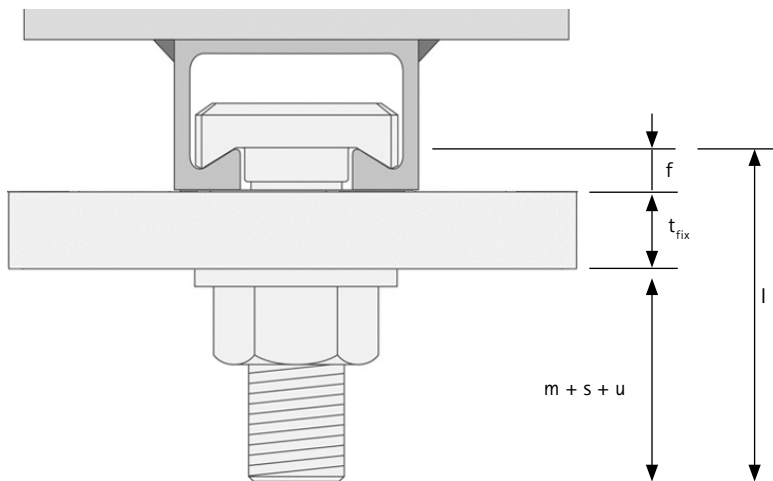
Static/
quasi-static

Characteristic resistances under combined tension and shear load

| Framing channel | PEC-MZ-CE 29/20 | PEC-M-CE 40/22 | PEC-M-CE 50/30 | PEC-M-CE 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 |
| [-] | | | [-] | | | | |
| PEC-MZ-CE 29/20 | hot-rolled | 5 | HBC-T-29/20 | - | 17.3 | - | - |
| PEC-M-CE 40/22 | hot-rolled | 6 | HBC-40/20 | 13.9 | 17.3 | 21.8 | - |
| PEC-M-CE 40/22 | hot-rolled | 6 | HBC-40/22-N | - | - | 21.8 | - |
| PEC-M-CE 50/30 | hot-rolled | 8 | HBC-50/30 | - | 17.3 | 21.8 | 27.0 |
| PEC-M-CE 50/30 | hot-rolled | 8 | HBC-50/30-N | - | - | 21.8 | 27.0 |



l = nominal length of channel bolt
 t_{fix} = fastener 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 $l_{req} = t_{fix} + f + (m+s+u)$

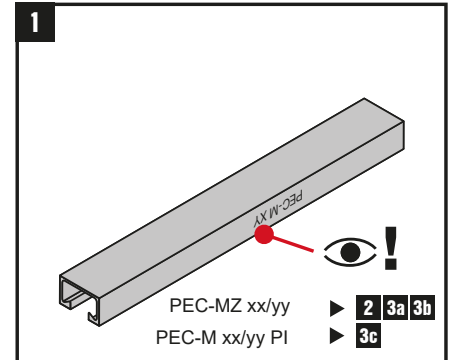
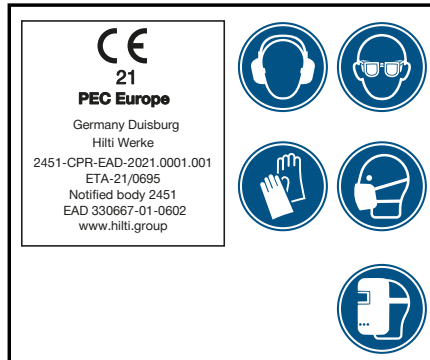
Installation instructions

Installation instructions for PEC framing channels

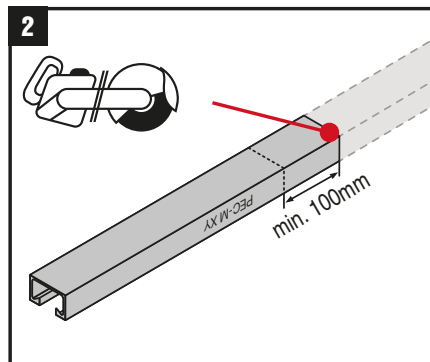
1) Correct selection of framing channel is accordance with the design specification.

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

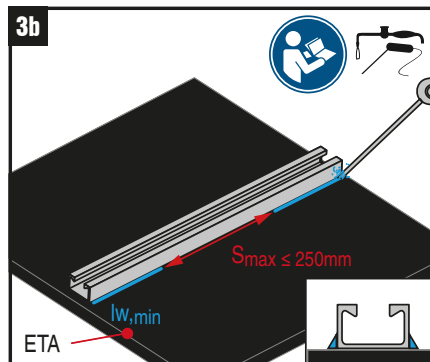
- PEC-MZ 29/20
- PEC-M 40/22
- PEC-M 50/30
- PEC-M 52/34



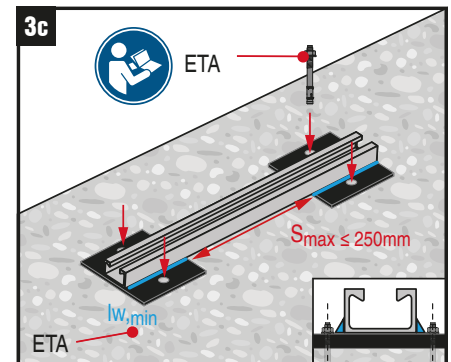
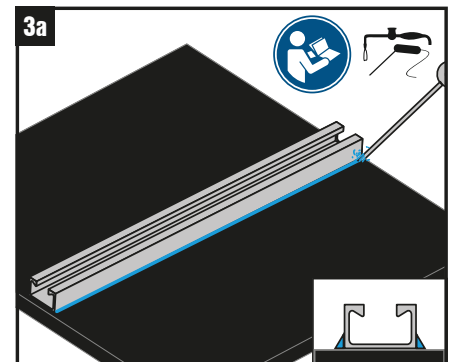
3a) **Fully welded:** To fix the framing channel weld the profile to the steel part over the entire length. The welds have to be designed in accordance to EN 1993-1-8. The welding has to be performed by a certified welder.



3b) **Partially welded:** To fix the framing 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.



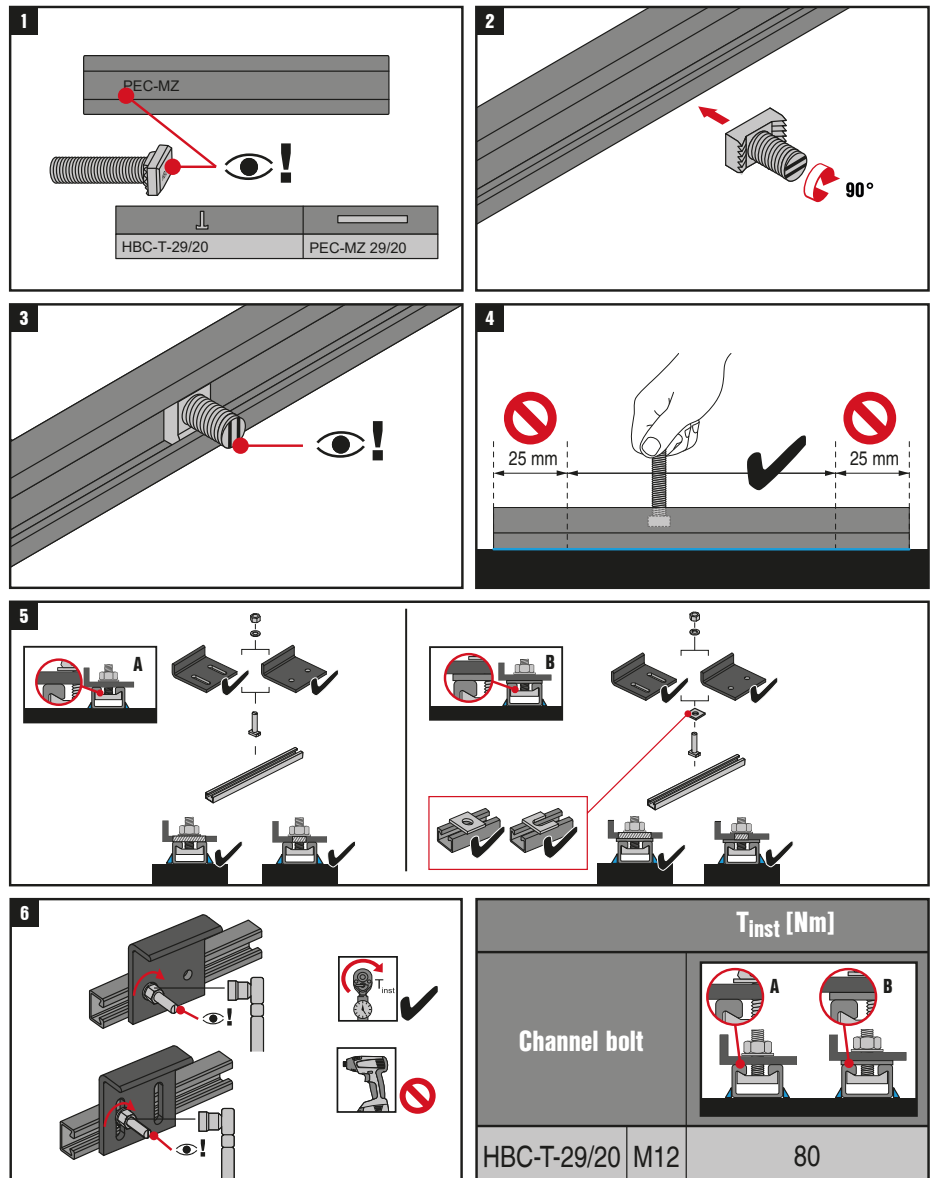
3c) **Post-installed:** In order to install the post-installed framing channels, please check the ETA requirements for the chosen anchors.



Installation instructions for HBC-T 29/20 channel bolts

- 1) Select PEC 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.
- 6) 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 PEC 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.

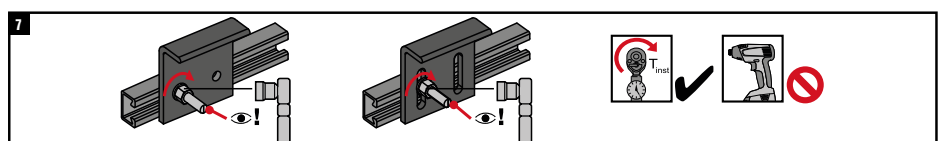
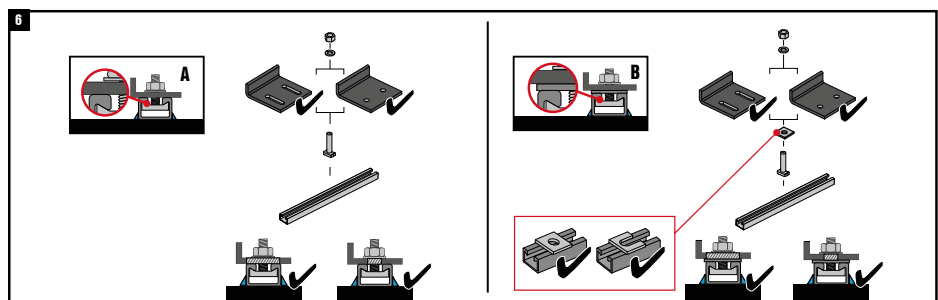
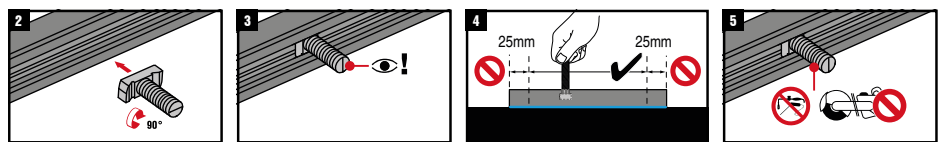
6) Install the fixture distinguishing between installation type A and installation type B.

- 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 | PEC-M 40/22 |
| | HBC-50/30 | PEC-M 50/30, PEC-M 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 PEC 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.

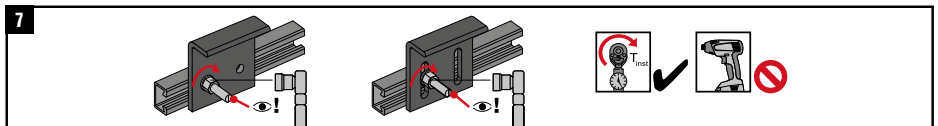
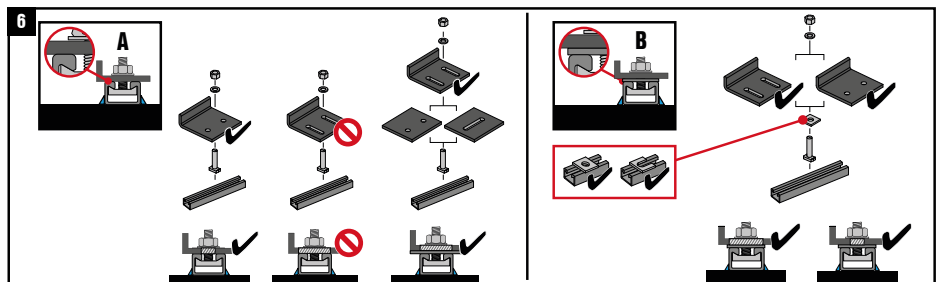
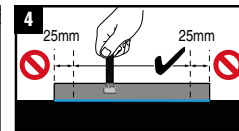
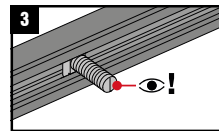
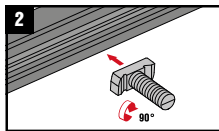
6) Install the fixture distinguishing between installation type A and installation type B.

- 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.

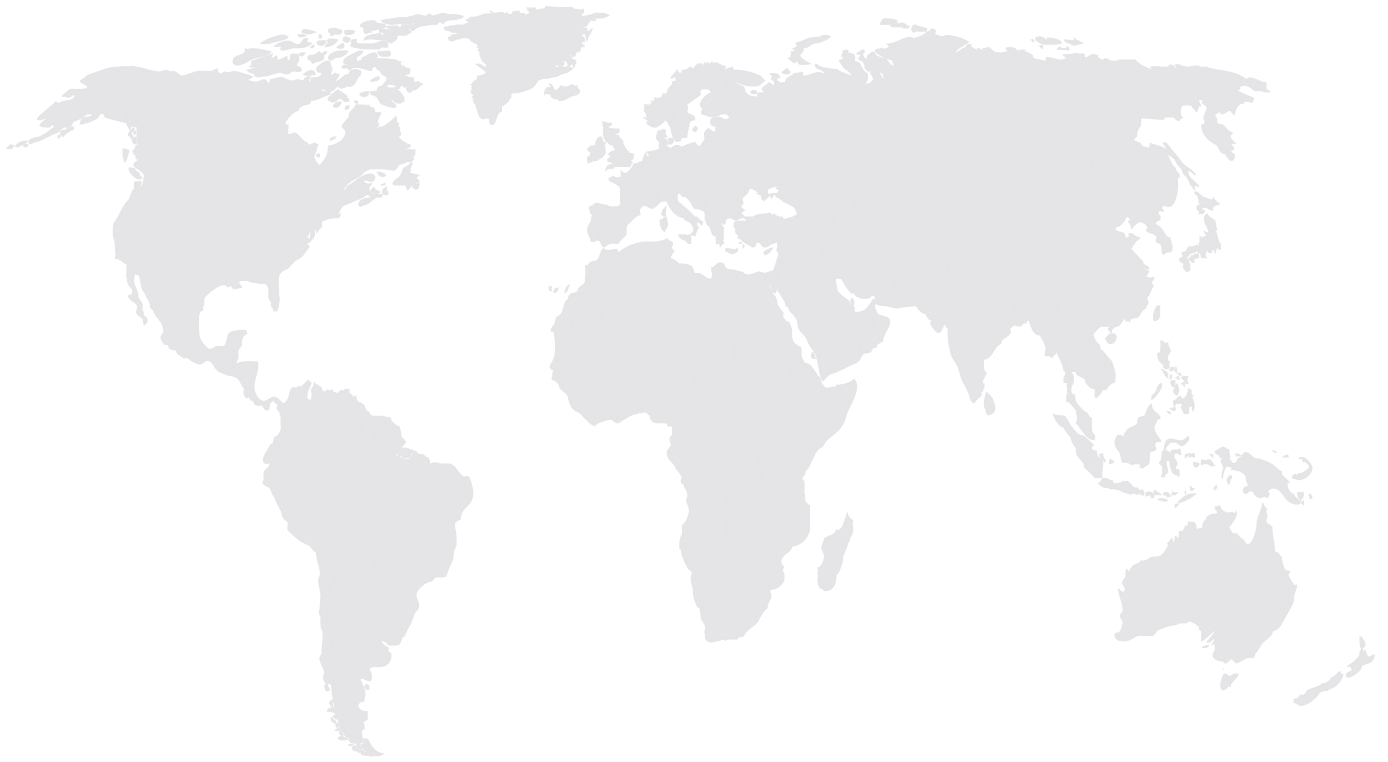
7) Apply the installation torque T_{inst} to the channel bolt with a calibrated torque wrench. Do not exceed the value T_{inst} distinguishing between installation type A and installation type B. Complete removal and reinstallation of the channel bolt HBC-X-N is not allowed.

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

| | | |
|--|-------------|--------------------------|
| | | |
| | HBC-40/22-N | PEC-M 40/22 |
| | HBC-50/30-N | PEC-M 50/30, PEC-M 52/34 |



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



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