

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-18/0177  
of 20 July 2018

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 bracket MQK-41/3/300 with load introduction  
components

Product family  
to which the construction product belongs

Products related to installation systems supporting  
technical equipment for building services such as pipes,  
conduits, ducts and cables

Manufacturer

HILTI Corporation  
Feldkircherstraße 100  
9494 SCHAAN  
FÜRSTENTUM LIECHTENSTEIN

Manufacturing plant

L 1000511  
L 1000446  
L 1000405  
L 106663  
L 1069983

This European Technical Assessment  
contains

11 pages including 7 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 280016-00-0602

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## Specific part

### 1 Technical description of the product

Object of this European Technical Assessment is the Hilti bracket MQK-41/3/300 with load introduction components. The MQK-41/3/300 bracket consists of a steel baseplate with three elongated holes and a welded-on, thin-walled steel channel profile with parallel flanges and a connecting web. The elongated holes in the steel plate are arranged centrally on their longitudinal axis. The edges of the channel flanges are folded over. The flange faces are grooved to enable matching channel fixtures to be firmly interlocked to the channel. The channel web is slotted at regular intervals. Loads are applied to the channel profile of the bracket using the MQA-M12-B pipe ring saddle in conjunction with M12 threaded rod and M12 hexagonal nut. The MQA-M12-B pipe ring saddle consists of a nut and a steel clamping plate connected to each other with a spring element made of PET. The pipe ring saddle has a centred round opening. The opening in the nut is for receiving the threaded rod.

Annex A describes the dimensions and materials of the Hilti bracket MQK-41/3/300 with load introduction components.

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

The performance given in Section 3 can only be assumed if the Hilti bracket MQK-41/3/300 with load introduction components is used in compliance with the specifications and under boundary conditions set out in Annex B. The test and assessment methods on which this European Technical Assessment is based lead to an assumption of a working life of the Hilti bracket MQK-41/3/300 with load introduction components of at least 50 years in final use under ambient temperatures in indoor areas. 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.

In accordance with the European Assessment Document EAD 280016-00-0602, the product is intended to be used in

- a) installations for the support of sprinkler kits;
- b) installations for the support of other building service elements such as pipes, conduits, ducts and cables.

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

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

Essential characteristic	Performance
Reaction to fire: Steel	Class A1
Reaction to fire: Plastic parts	not relevant for fire growth in accordance with TR021 and therefore do not need to be classified

**3.2 Safety and accessibility in use (BWR 4)**

Essential characteristic	Performance
Shape	see Annex A
Dimensions	see Annex A
Material	see Annex A
Resistance and deformation at elevated temperatures determined for non-suspended cantilever kits without pipe clamps	see Annex C

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

In accordance with the European Assessment Document EAD 280016-00-0602, the following legal bases apply:

- In case of intended use a) specified in Section 2:  
Decision of the commission N° 1996/577/EC:  
System 1 applies for the assessment and verification of constancy of performance (AVCP).
- In case of intended use b) specified in Section 2:  
Decision of the commission N° 1999/472/EC:  
System 3 applies for the assessment and verification of constancy of performance (AVCP).

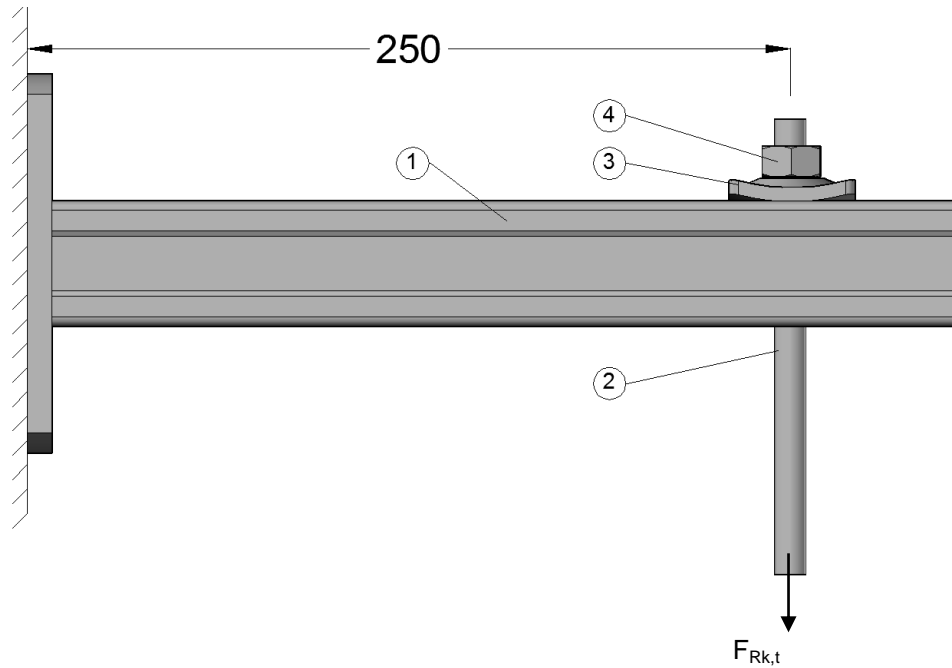
**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

The technical details necessary for the implementation of the system for the assessment and verification of constancy of performance are laid down in the control plan (confidential part of this European Technical Assessment) deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 20 July 2018 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow  
Head of Department

*beglaubigt:*  
Häßler



**Legend**

- 1 Bracket MQK-41/3/300
- 2 Threaded rod M12
- 3 Pipe ring saddle MQA-M12-B
- 4 Hexagon nut M12

**Annex**

- A2
- A2
- A3
- A2

Dimensions in mm

Figure A1: Hilti bracket MQK-41/3/300 with load introduction components

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Hilti bracket MQK-41/3/300 with load introduction components	Annex A1
Description of product (kit) Dimensions and materials	

Table A2.1: Dimensions and materials of the bracket MQK-41/3/300<sup>1)</sup>

Illustration	Designation	Item number	L [mm]	Material channel	Material plate
	MQK-41/3/300	370595	300	S235JR in accordance with EN 10025-2, zinc coated	S235JR in accordance with EN 10025-2, zinc coated

<sup>1)</sup> Bracket MQK-41/3/300 see ETA-18/0245

Table A2.2: Dimensions and materials of the threaded rods

Illustration	Designation	Item number	M thread	L [mm]	Material
	AM12x3000 4.8	216421	M12	3000	Strength class 4.8 in accordance with DIN 976-1, zinc coated
	AM12x2000 4.8	216420	M12	2000	
	AM12x1000 4.8	339797	M12	1000	

Table A2.3: Dimensions and materials of the hexagon nut

Illustration	Designation	Item number	M thread	W [mm]	H [mm]	Material
	M12 hexagon nut	216467	M12	19	10	Strength class 8 in accordance with ISO 4032, zinc coated

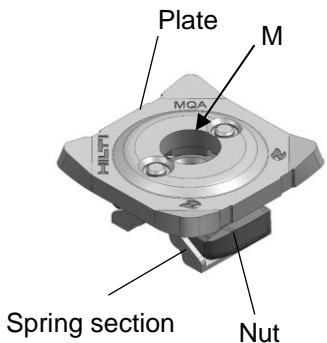
Dimensions in mm

Hilti bracket MQK-41/3/300 with load introduction components

Description of product (kit)  
Dimensions and materials of the components of the kit

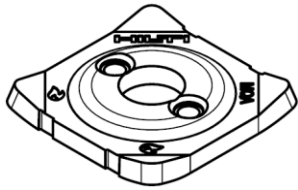
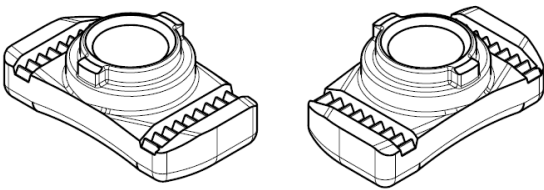
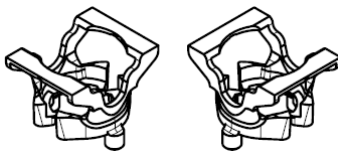
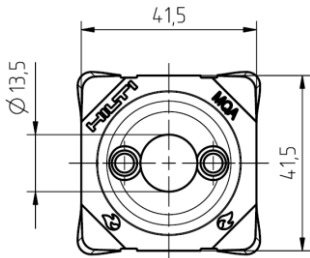
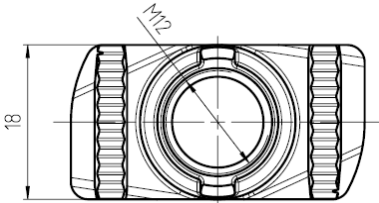
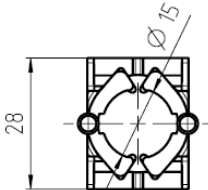
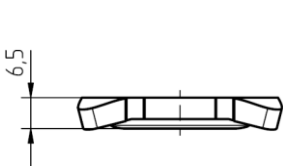
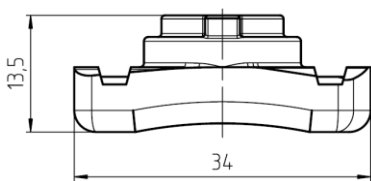
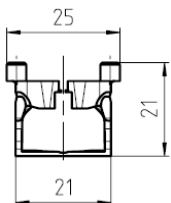
Annex A2

Table A3.1: Dimensions and materials of the pipe ring saddle

Illustration	Item number	Designation	M [mm]	Materials
	2199453	MQA-M12-B	12	<p>Plate: DD11 in accordance with EN 10111<sup>2)</sup>, zinc coated</p> <p>Nut: C4C in accordance with EN 10263-2, zinc coated</p> <p>Spring section: PET</p>

<sup>2)</sup> with  $235 \text{ N/mm}^2 \leq R_{eL} \leq 340 \text{ N/mm}^2$ , Method of deoxidation: fully killed

Table A3.2: Dimensions of the components of the pipe ring saddle MQA-M12-B

Plate	Nut	Spring section
		
		
		

Dimensions in mm

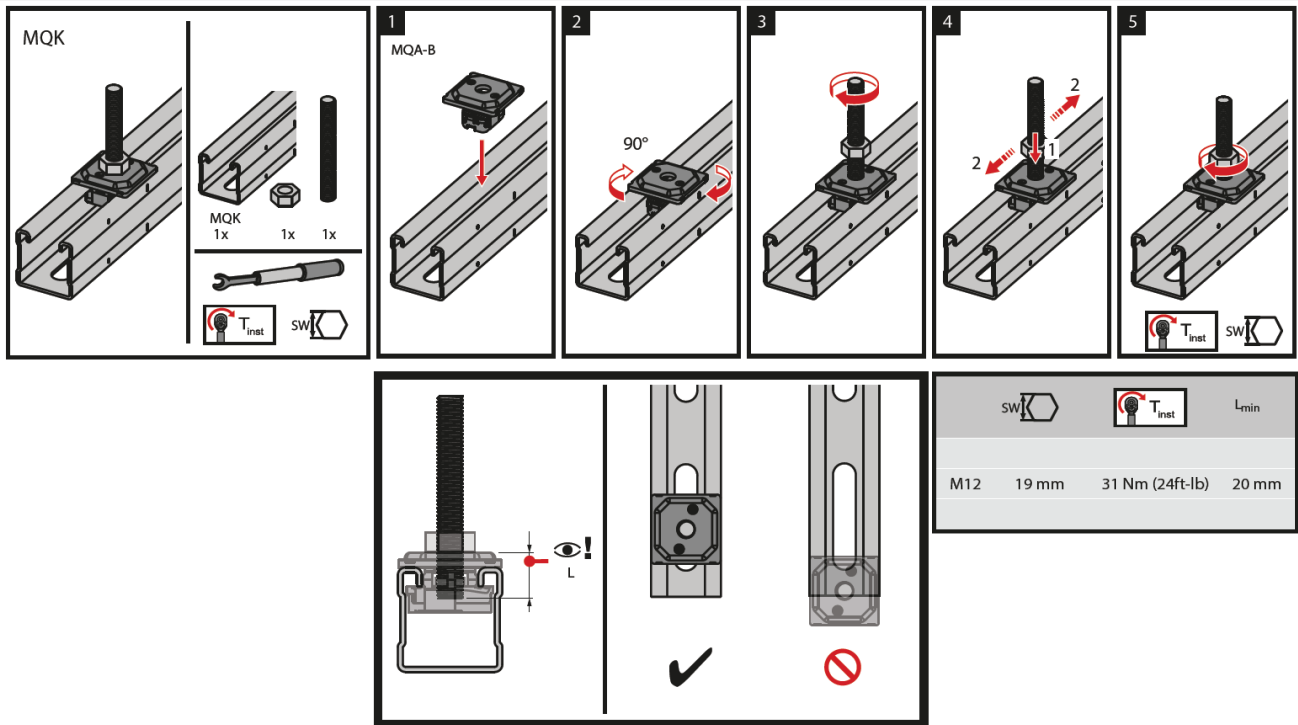
Hilti bracket MQK-41/3/300 with load introduction components

Description of product (kit)  
Dimensions and materials of the components of the kit

Annex A3

English translation prepared by DIBt

- Hilti bracket MQK-41/3/300 with load introduction components is used to transfer building services component loads such as ducts and equipment for sprinklers, water, heating, cooling, ventilation, electrical and other systems. Hilti bracket MQK-41/3/300 with load introduction components is performing this loadbearing function under the conditions described in Section 2 of this European Technical Assessment.
- The resistance at elevated temperatures applies for static and centric actions on the threaded rod according to Annex A1.
- The bracket is attached directly to the base material with the channel cross-section facing upwards. The fastening of the base connector to the base material is made with appropriate anchors. The anchoring used with the base material must be suitable and have a fireproof certificate.
- The resistance and deformation at elevated temperatures are referring to the boundary conditions of the standard temperature / time curve (STTC) in accordance with EN 1363-1.
- Prior to installation, it must be ensured that the component to be supported by the bracket, the anchoring of the bracket to the base material and the base material itself are suitable to withstand the resistance values of the installation system and that they have a fireproof certificate.
- Installation must be carried out by trained personnel and under the supervision of the site manager. The general assembly instructions of the manufacturer apply.
- The installation of the pipe ring saddle and the threaded rod is carried out according to the following principles:



Hilti bracket MQK-41/3/300 with load introduction components

Requirements for performance assessment

Annex B



Table C1.1: Resistance  $F_{Rk,t}$  of the bracket MQK-41/3/300 with load introduction components according to Annex A1 at elevated temperatures

$F_{Rk,30}$ [N]	$F_{Rk,60}$ [N]	$F_{Rk,90}$ [N]	$F_{Rk,120}$ [N]
284	NPA <sup>3)</sup>	NPA	NPA

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

Table C1.2: Resistance of the bracket MQK-41/3/300 with load introduction components according to Annex A1 at elevated temperatures. Parameter of the regression curve  $F_{Rk}(t) = c_3 (c_1 + c_2 / t)$  [N]

$c_1$ [-]	$c_2$ [-]	$c_3$ [-]	$t_{min}$ [minutes]	$t_{max}$ [minutes]
20.245	8503.067	0.936782	30	44

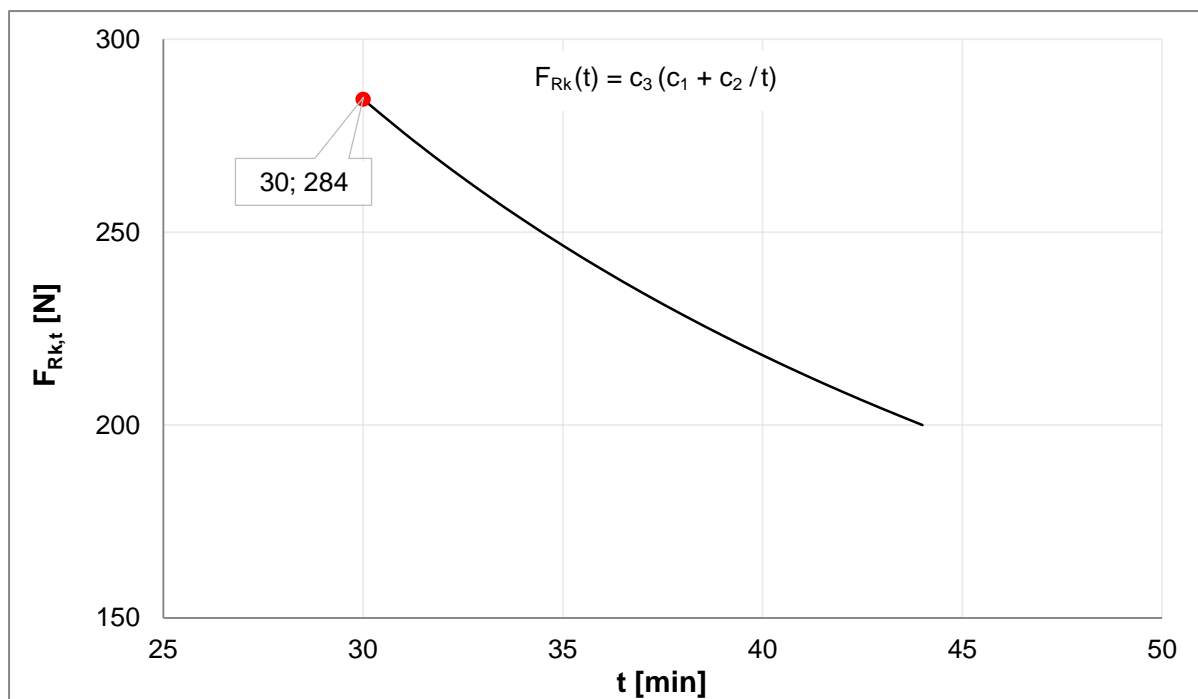


Figure C1: Regression curve according to Table C1.2

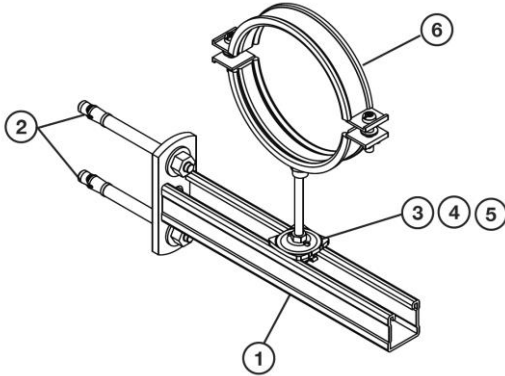
### Designation

- $F_{Rk,t}$  Resistance after an exposure time  $t$  to elevated temperatures
- $F_{Rk}(t)$  Resistance time function at elevated temperatures

Hilti bracket MQK-41/3/300 with load introduction components

Resistance at elevated temperatures

Annex C

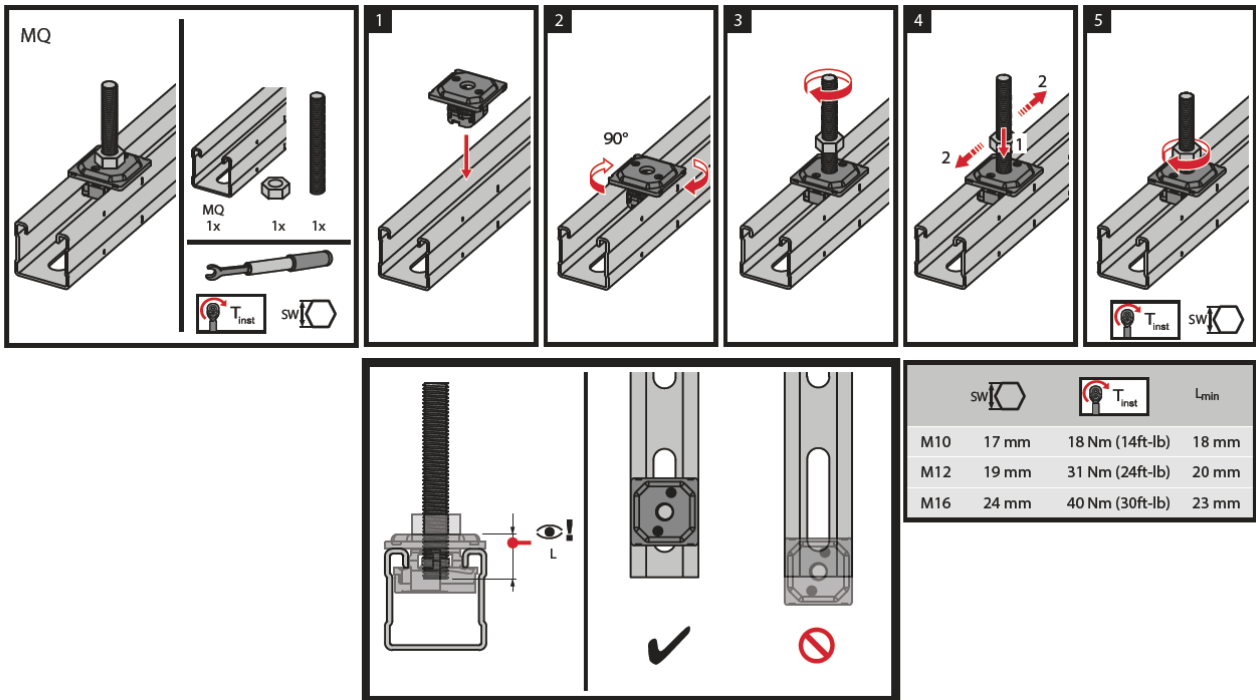


Bill of material / Stückliste						
Part of typical/ Applikationselement	Ref.	Opt.	Item no. / Artikel Nr.	Description / Bezeichnung		
Structure / Aufbau	Bracket / Konsole		1	370595	MQK-41/3/300	
	Fixation / Befestigung		2	A	2107848	HST2 M12x105 10 stud anchor
			2	B	2105718	HST3 M12x105 30/10 stud anchor
		2	C	2079912	HUS3-H 10x70 15/-/-	
Pipe Fixation / Rohr- fixierung	M10		3	2199452	MQA-B M10 piping saddle	
			4		216466	M10 hexagon nut
			5		339795	AM10x1000 4.8 threaded rod*
Pipe Ring / Rohrschelle	M10	A	6	20843 - 20896	MP-MI (from 3/8" to 6", with M10)	
		B	6	2172815 - 2172931	MP-L-I (10 to 170mm, with M10)	

Ref. 2 bis 6 nicht Bestandteil dieser ETA / Ref. 2 to 6 not integral part of this ETA.  
\* Threaded rod available in 1,2 & 3 meters / Gewindestange erhältlich in 1,2 & 3 Meter

Assembly Instruction of the Application / Gebrauchsanweisung der Applikation

3 / 4 / 5

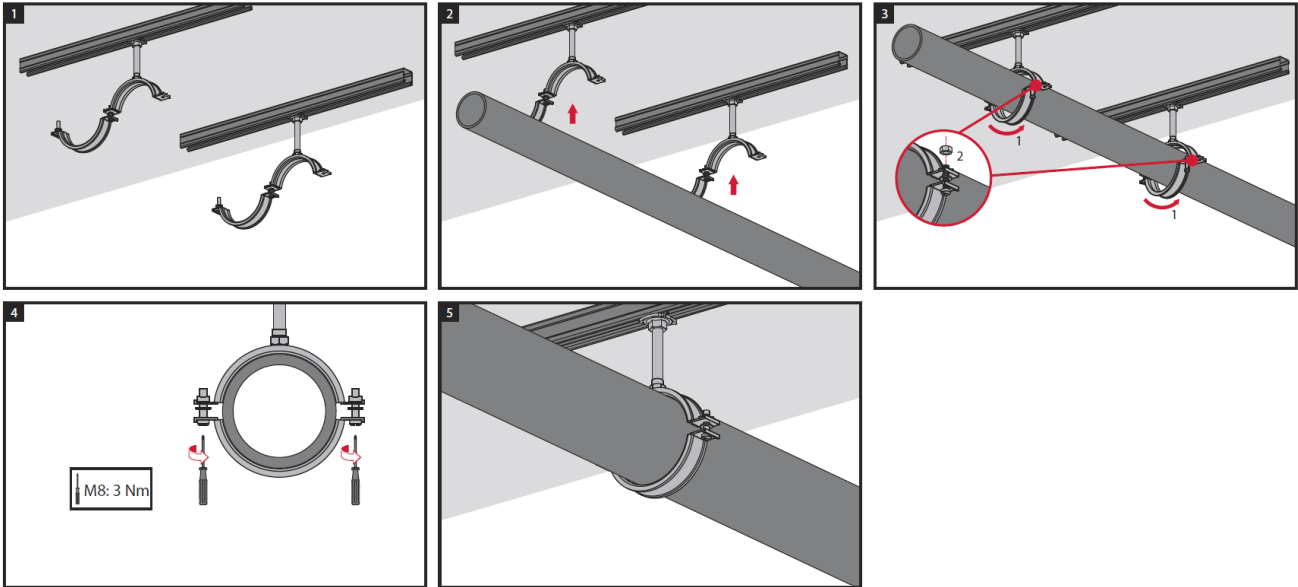


Hilti bracket MQK-41/3/300 with load introduction components

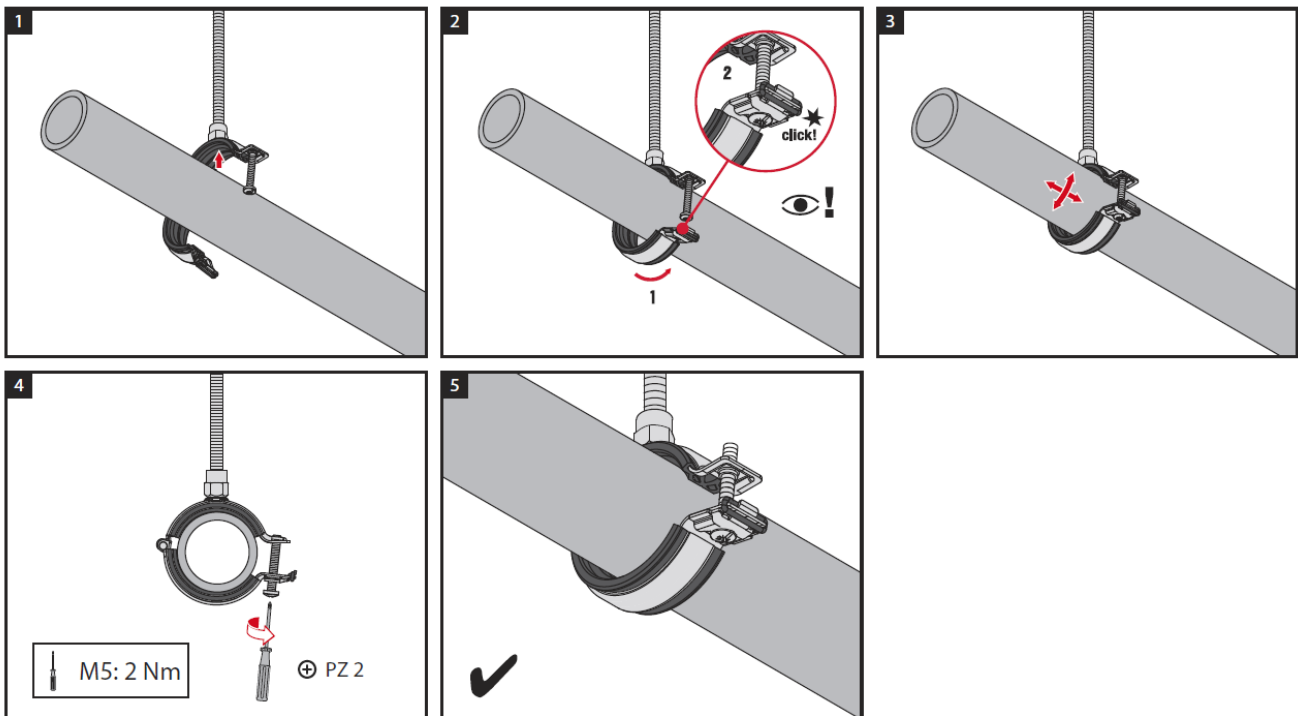
General assembly instructions

Annex D1  
(informative)

6 Option A



6 Option B



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Hilti bracket MQK-41/3/300 with load introduction components

General assembly instructions

Annex D2  
(informative)