

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

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European Technical Assessment

ETA-21/0155
of 10 May 2022

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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

fischer drilled plate HK 41 10,5 and HK 41 12,5

Product family
to which the construction product belongs

Products for installation systems for supporting technical
building equipment

Manufacturer

fischerwerke GmbH & Co. KG
Klaus-Fischer-Straße 1
72178 Waldachtal
DEUTSCHLAND

Manufacturing plant

fischer manufacturing plants

This European Technical Assessment
contains

10 pages including 6 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 fischer drilled plate HK 41 10,5 and HK 41 12,5.

The fischer drilled plate HK 41 10,5 and HK 41 12,5 are drilled plates made of rectangular stamped sheet steel with a centric hole of 10,5 mm or 12,5 mm in diameter. Two opposite edges of the plates are bent over.

Annex A describes the dimensions and materials of the product.

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 fischer drilled plate HK 41 10,5 and HK 41 12,5 are 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 fischer drilled plate HK 41 10,5 and HK 41 12,5 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.

In accordance with the European Assessment Document EAD 280016-00-0602, the product is intended to be used in dry indoor conditions for supporting:

- pipes for the transport of water not intended for human consumption,
- pipes for the transport of gas/fuel intended for the supply of building heating/cooling systems,
- technical building equipment in general,
- components of fixed fire-fighting systems.

The product is intended to be used where failure or excessive deformation of the installation systems would

- compromise safety in case of fire (BWR 2) or
- would lead to an unacceptable risk of accidents or damage in service or in operation (BWR 4).

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:	Class A1
Pull-through resistance under fire exposure	see Annex D1

3.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic pull-through resistance	see Annex C1

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 applicable European legal act is:

For products for installation systems intended to be used for supporting pipes for the transport of water not intended for human consumption the applicable European legal act is Commission Decision 1999/472/EC, as amended by Commission Decision 2001/596/EC.

The system to be applied is 4.

This includes uses that are subject to regulations on reaction to fire performance because the performance of the product is class A1 without the need to be tested for reaction to fire.

For products for installation systems intended to be used for supporting pipes for the transport of gas/fuel intended for the supply of building heating/cooling systems the applicable European legal act is Commission Decision 1999/472/EC, as amended by Commission Decision 2001/596/EC.

The system to be applied is 3.

For products for installation systems intended to be used for supporting technical building equipment in general the applicable European legal act is Commission Decision 97/161/EC.

The system to be applied is 2+.

For products for installation systems intended to be used for supporting components of fixed fire-fighting systems the applicable European legal act is Commission Decision 96/577/EC, as amended by Commission Decision 2002/592/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 European Assessment Document

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

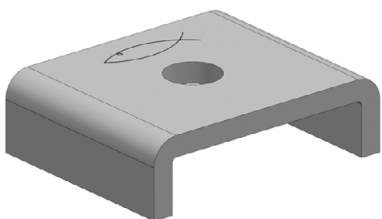
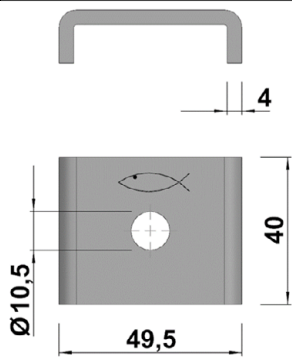
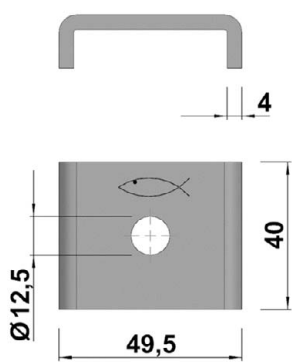
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Head of Section

beglaubigt:
Stiller

Shape, dimensions and materials of drilled plate HK 41

Table A 1.1: Shape, dimensions and materials of drilled plate HK 41

Shape	Dimension [mm]	Designation	Materials
		HK 41 10,5	Steel, S235JR acc. to EN 10025-2:2018, material number 1.0038 Surface acc. to EN ISO 4042:2018-A2K
		HK 41 12,5	Steel, S235JR acc. to EN 10025-2:2018, material number 1.0038 Surface acc. to EN ISO 4042:2018-A2K

fischer drilled plate HK 41 10,5 and HK 41 12,5

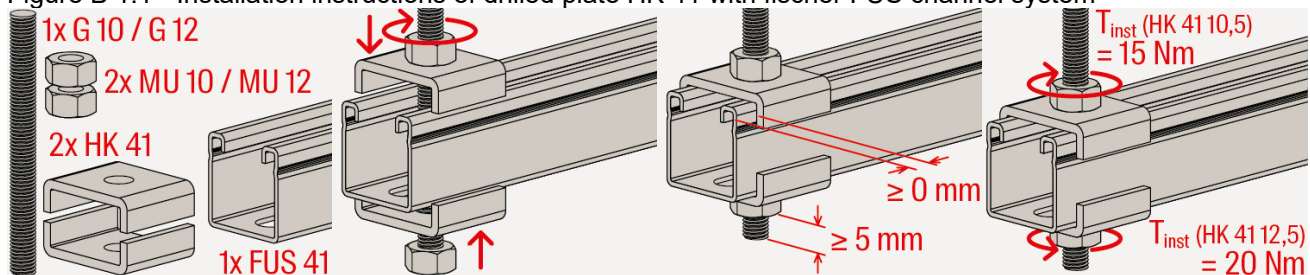
Product description
Shape, dimensions and materials

Annex A1

Requirements for performance assessment of drilled plate HK 41

- fischer drilled plates HK 41 10,5 and HK 41 12,5 are used in installation systems for technical building equipment at ambient temperature and under fire exposure. The drilled plates HK 41 10,5 and HK 41 12,5 are used for load transfer of components of the technical building equipment such as pipes and equipment for sprinkler, water, heating, cooling, ventilation, electrical and other installations.
- The performance of the drilled plates HK 41 is determined exclusively in conjunction with fischer attachments.
- fischer drilled plates HK 41 10,5 and HK 41 12,5 are used for fixing threaded rods to fischer FUS channel system in conjunction with hexagonal nuts.
- The performance of drilled plate HK 41 is assessed in conjunction with
 - threaded rods of property class 4.8 or higher acc. to EN ISO 898-1:2013 and Table B 2.1 depending on thread size.
 - hexagonal nuts of property class 8 or higher acc. to EN ISO 898-2:2012 and Table B 2.2 depending on thread size.
 - fischer FUS channel system acc. to Table B 3.1.
- The data for resistance at ambient temperature and in case of fire apply to static and centric actions. The centric distance of the drilled plates HK 41 10,5 or HK 41 12,5 from the end of the channel is at least 20 mm.
- Resistance and deformation values under fire exposure are assessed based on the standard temperature/time curve (STTC) acc. to EN 1363-1:2020.
- When mounting drilled plate HK 41 to attachments, the general manufacturer's mounting instructions for attachments and fasteners must be observed. The installation instructions for drilled plate HK 41 is shown in Figure B 1.1.

Figure B 1.1 - Installation instructions of drilled plate HK 41 with fischer FUS channel system



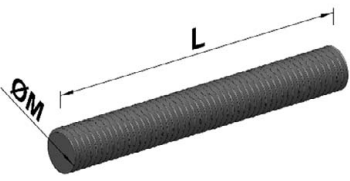
fischer drilled plate HK 41 10,5 and HK 41 12,5

Intended Use
Requirements for performance assessment

Annex B1

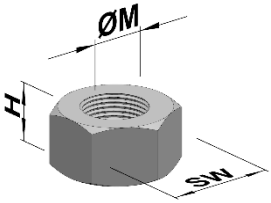
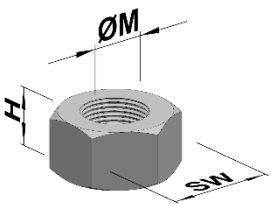
Components necessary for an assembly corresponding to figure B 1.1

Table B 2.1: Threaded rods for use with drilled plate HK 41 10,5 and HK 41 12,5

Shape	Designation	Thread	L [mm] ¹⁾	Material
	G M10 x 1.000	M10	1.000	DIN 976:2016, property class 4.8 or better acc. to EN ISO 898-1:2013, zinc coated
	G M10 x 2.000	M10	2.000	
	G M10 x 3.000	M10	3.000	
	G M12 x 1.000	M12	1.000	
	G M12 x 2.000	M12	2.000	
	G M12 x 3.000	M12	3.000	

¹⁾ The lengths of the threaded rods shown in Table B 2.1 serve as an example.

Table B 2.2: Hexagonal nuts for use with drilled plate HK 41 10,5 and HK 41 12,5

Shape	Designation	Thread M	SW [mm]	H [mm]	Materials
	MU M10 Hexagonal nut	M10	acc. to EN ISO 4032:2012 or DIN 934:1987	8	Property class 8 or higher acc. to EN ISO 898-2:2012, zinc coated
	MU M12 Hexagonal nut	M12	acc. to EN ISO 4032:2012 or DIN 934:1987	10	Property class 8 or higher acc. to EN ISO 898-2:2012, zin coated

fischer drilled plate HK 41 10,5 and HK 41 12,5

Intended Use
Requirements for performance assessment

Annex B2

Components necessary for an assembly corresponding to figure B 1.1

Table B 3.1: Shape, dimensions and material of channel FUS 41/2,5

Shape [mm]	Designation ¹⁾	Length L [m]	Material
	FUS 41/2,5	0,05 to 6,00	S250GD+Z275-M-A-C acc. to EN 10346:2015

Legend of the variables in the figures: H = Channel height, T = Material thickness of the channel, L = Length of the channel

¹⁾ The designation of the channel refers to the height H and the material thickness T of the channel. The channel FUS 41/2,5 has a height H = 41 mm and a material thickness T = 2,5 mm.

fischer drilled plate HK 41 10,5 and HK 41 12,5

Intended Use
Requirements for performance assessment

Annex B3

Characteristic pull-through resistance of drilled plate HK 41 through FUS channel system

Table C 1.1 shows the connection of the drilled plate HK 41 with the FUS channel system as well as the load directions of the loads F_{Rk} and $F_{Rk(t)}$.

Table C 1.1: Direction of force and arrangement of the drilled plates

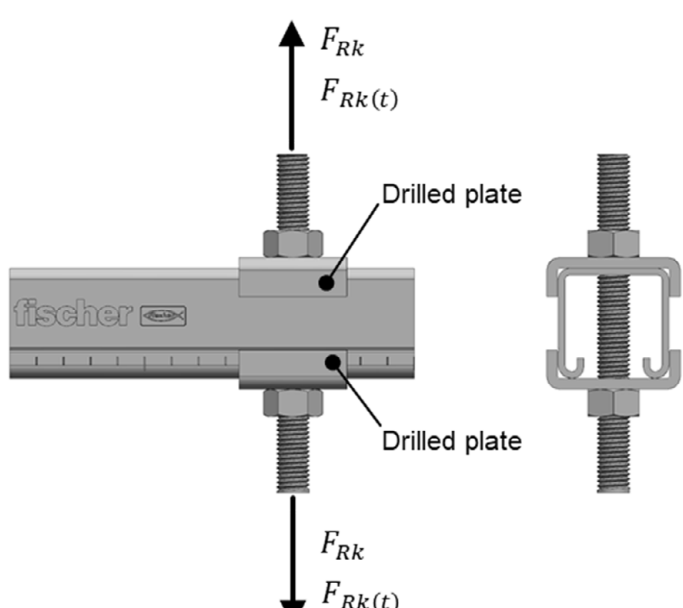
Shape	Channel
 <p>The diagram illustrates the connection of a drilled plate HK 41 through a FUS channel system. On the left, a side view shows a grey metal drilled plate with two holes, labeled 'Drilled plate'. A bolt is inserted through the holes, and a nut is attached to the bottom. The bolt is shown with arrows pointing up and down, labeled F_{Rk} and $F_{Rk(t)}$ respectively. On the right, a top view shows the FUS channel system, which is a U-shaped metal profile with a threaded rod passing through it. The channel is labeled 'FUS 41/2,5'.</p>	FUS 41/2,5

Table C 1.2 shows the characteristic pull-through resistance of drilled plate HK41 at ambient temperatures.

Table C 1.2: Characteristic pull-through resistance

Drilled plate	Channel	Characteristic pull-through resistance F_{Rk} [kN]	Partial safety factor $\gamma_M^{1)}$ [-]
HK 41 10,5	FUS 41/2,5	28,8	1,10
HK 41 12,5	FUS 41/2,5	29,2	1,32

¹⁾ in absence of other national regulations

fischer drilled plate HK 41 10,5 and HK 41 12,5

Performances
Characteristic pull-through resistance

Annex C1

Pull-through resistance of drilled plate HK 41 10,5 under fire exposure

Table D 1.1: Pull-through resistance under fire exposure, coefficients of regression curve

$$F_{Rk(t)} = c_3 (c_1 + c_2 / t)$$

Drilled plate	channel	Regression coefficients			Limits for $F_{Rk(t)}$
		c_1 [N]	c_2 [N·min]	c_3 [-]	t [min]
HK 41 10,5	FUS 41/2,5	1000,8133	34559,8612	0,790746	$18 \leq t \leq 131$

Based on the coefficients given in Table D 1.1, the Pull-through resistance under fire exposure $F_{Rk(30)}$, $F_{Rk(60)}$, $F_{Rk(90)}$, $F_{Rk(120)}$ are calculated in Table D 1.2 for the discrete time points $t = [30, 60, 90, 120]$ min.

Table D 1.2: Pull-through resistance $F_{Rk(t)}$ under fire exposure

Drilled plate	channel	Pull-through resistance $F_{Rk(t)}$			
		$F_{Rk(30)}$ [N]	$F_{Rk(60)}$ [N]	$F_{Rk(90)}$ [N]	$F_{Rk(120)}$ [N]
HK 41 10,5	FUS 41/2,5	1702,3	1246,9	1095,0	1019,1

The equation for calculating the pull-through resistances at each time point in the range of the defined time interval is given in formula Eq. D 1.1

$$F_{Rk(t)} = c_3 (c_1 + c_2 / t) \quad \text{Eq. D 1.1}$$

fischer drilled plate HK 41 10,5 and HK 41 12,5

Performances
Pull-through resistance under fire exposure

Annex D1