iBMB MPA TU BRAUNSCHWEIG

Institut für Baustoffe, Massivbau und Brandschutz | Materialprüfanstalt für das Bauwesen

Supplement to the Test Report

- Translation -

Document No.:	(3147/252/12) – CM of 05/10/2012
Client:	fischerwerke GmbH & Co. KG Weinhalde 14-18 72178 Waldachtal
Order date:	30/05/2012
Order Ref.:	Mr Peller
Order received:	30/05/2012
Subject:	Testing and assessment of fischer FUS channel mounting systems consisting of fischer FUS 41/2.5 mounting channels and fischer FCA 41 brackets in connection with fischer FCN Clix channel nuts for their reaction to fire when exposed to an ETK (standard-temperature-time curve) fire in accordance with DIN EN 1363-1 : 1999-10
Test basis:	DIN EN 1363-1 : 1999-10
Test material received:	Week 10, 2012
Sampling:	The Testing Laboratory does not have any information indicating official sampling.
Test material marking:	No marking
Test date:	13/03/2012
Valid until:	05/10/2017

This Supplement to the Test Report consists of 7 pages, including the cover sheet.

Neither this Supplement nor the Test Report can be used as a substitute for the official certification of applicability, i.e. National Test Certificate (abP), National Technical Approval (abZ) or European Technical Approval (ETA).

Materialprüfanstalt f. d. Bauwesen MPA BS 3.1 Braunschweig

Materialprüfanstalt (MPA)
für das Bauwesen
Beethovenstraße 52
D-38106 Braunschweig

Fon +49 (0)531-391-5400
Fax +49 (0)531-391-5900
info@mpa.tu-bs.de
www.mpa.tu-bs.de

Norddeutsche LB Hannover
106 020 050 BLZ 250 500 00
Swift-Code: NOLADE 2H
USt.-ID-Nr. DE183500654
Steuer-Nr.: 14/201/22859
IBAN: DE58250500000106020050

Notified body (0761-CPD)
Die MPA Braunschweig ist für Prüfung, Überwachung, Inspektion und Zertifizierung bauaufsichtlich anerkannt und notifiziert. Die MPA Braunschweig ist als Prüf- und Kalibrierlaboratorium nach ISO/IEC 17025 und als Inspektionsstelle nach ISO/IEC 17020 akkreditiert.

1 General

Under the order placed with the Testing Laboratory, a Supplement to Test Report No. (3147/252/12) – CM of 05/10/2012 was to be prepared on the reaction to fire of fischer FUS channel mounting systems consisting of fischer FUS 41/2.5 mounting channels and fischer FCA 41 brackets in connection with fischer FCN Clix channel nuts made from galvanised/stainless steel when exposed to an ETK (standard-temperature-time curve) fire in accordance with DIN EN 1363-1 : 1999-10 .

The following documents were provided by the Client:

- Fire tests based on the standard temperature-time curve (ETK) in accordance with DIN EN 1363-1:1999-10
- Client's technical data sheets
- Standard regulations for fire safety requirements made on piping systems (Muster-Leitungsanlagen-Richtlinie MLAR), version of 17/11/2005)

On the basis of the performed fire tests, the fischer FUS channel mounting systems consisting of fischer FUS 41/2.5 mounting channels and fischer FCA 41 brackets in connection with fischer FCN CLIX M12 / FCN CLIX M10 channel nuts were to be assessed with respect to their fire resistance time and the required minimum spacing of members (e.g. false floors) installed below the installation channel system.

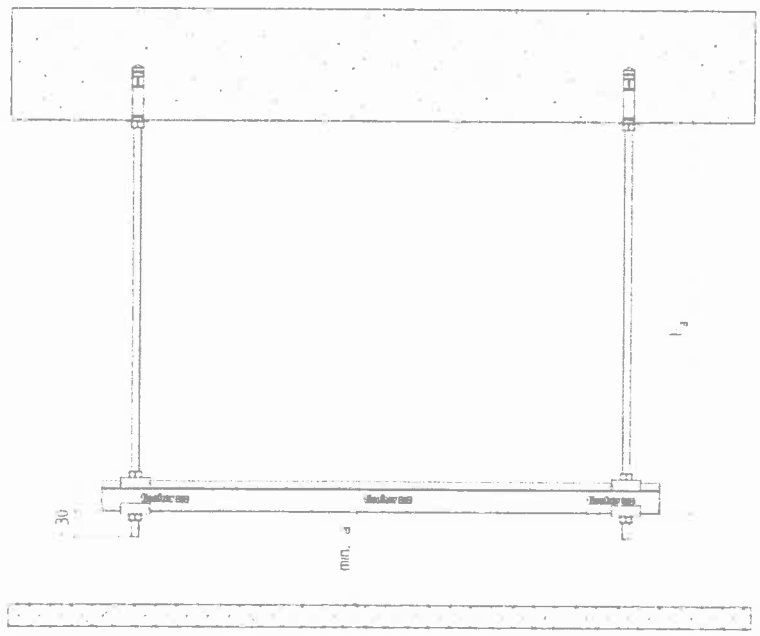

Fig. 1: Graphical representation of fischer FUS channel mounting systems in the void above suspended, fire safety relevant ceiling membranes

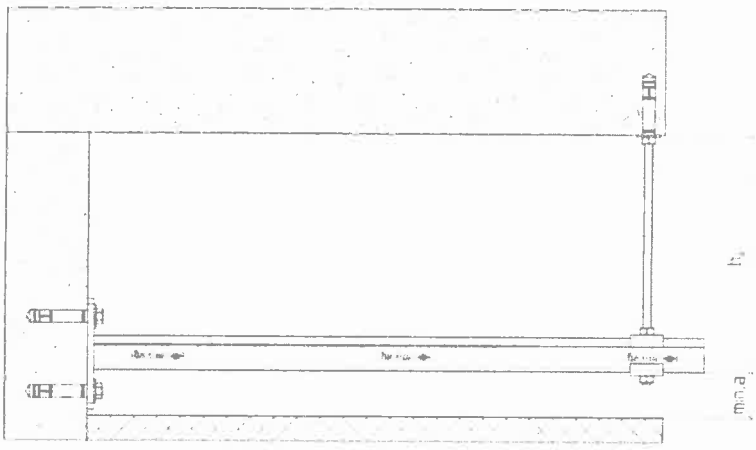

Fig. 2: Graphical representation of fischer FUS channel mounting systems in the void above suspended, fire safety relevant ceiling membranes

The following assessment of fischer FUS channel mounting systems does not apply to installations that have to conform with a fire resistance class as an integral system (e.g. **electrical cable systems with the ability to maintain circuit integrity** and **cable trunking** in accordance with DIN 4102 - 12 : 1998-11). For these applications, the overall system has to be assessed on the basis of additional tests.

2 Assembly details and proposed design value

2.1 General requirements

The following criteria have to be observed to ensure proper performance of the support system.

Point loads have to be transmitted centrically or symmetrically to the channel system. Where this is not feasible, the loads have to be reduced so that the maximum permissible steel stresses in the threaded rods are not exceeded.

The stated loads for several adjacent point loads are summated values for the **maximum total loads per fastening point** on the channel. This means that, for simultaneous upright and suspended mounting at one point on the channel, the stated load must not be exceeded by the aggregate load.

Where installation channels are suspended, channel washers in conjunction with the required nuts (strength class ≥ 8 / ≥ A70) and threaded rods (strength class ≥ 4.8 / ≥ A70) must be incorporated on either side at the **nodes** between the channels and threaded rods.

For suspended channel systems it is furthermore assumed that the maximum projection of the nuts and the threaded rods below the channels is not greater than ü = 30 mm. Should the threaded rods project by more than that ($ü_{actual}$ > 30 mm), a value of $ü_{actual}$ – 30 mm has to be added to the values given in the relevant tables in the sections below for the minimum spacing min. a.

For both suspended and directly fastened channel systems as well as for bracket assemblies, provision must be made for a lateral channel projection of not less than 5 cm, starting from the central axis of the vertical fastener (threaded rod or anchor).

The fire resistance performance for the anchoring solution with the base must be demonstrated.

2.2 Additional requirements for suspended channel systems

With the suspended channel systems that are described above, the channel profiles are only installed with the channel opening facing upwards. The fischer channel nuts must not be used in channel profiles opening downwards, but only for the upright mounting of installations.

This assessment applies to pipe clamps and other installations fixed to the channel from below only if fischer HK 41 ≥ M10 washers in conjunction with nuts (strength class 8 / ≥ A70) and threaded rods (strength class ≥ 4.8 / ≥ A70) are used on either side for suspension.

2.3 Additional requirements for brackets

Where the assembly is subject to fire safety requirements, the use of bracket assemblies using fischer FCA 41 brackets is limited to structural system lengths (l_s) not exceeding 700 mm. The free channel ends must be vertically supported by threaded rods ≥ M10 (strength class ≥ 4.8 / ≥ A70) in compliance with the tested assemblies.

Where system components are connected to fireproof walls, provisions may have to be made to ensure that these are able to take the compressive and tensile forces in the event of fire.

2.4 Assessment with regard to requirements of the standard regulations for fire safety requirements for piping systems (MLAR) of 17/11/2005

For the applications in which the fischer FUS channel mounting systems, consisting of fischer FUS 41/2.5 mounting channels and fischer FCA 41 brackets, are used in the void above fire safety relevant ceiling membranes, a safe-side minimum value is specified for the distance (min a) between the top face of the ceiling membrane and the underside of the channels (see Figures 1 and 2) so as to safeguard the integrity of the ceiling membrane system and prevent any temperature-induced vertical deflection of the channel or elongation of the threaded rods. Given that the usable height in the void above fire safety relevant ceiling membranes is limited – due to the constraints imposed by the requirements of the standard regulations for fire safety requirements made on piping systems (MLAR) of 17/11/2005, Section 3.5.3 – it is often necessary to determine the loads for fire exposure based on the standard temperature-time curve for a 30-minute fire resistance in relation to a minimum distance of a ≥ 50 mm.

2.4.1 Proposed design value for channel systems (limitation of deflection)

For the application of the fischer FUS channel mounting systems, consisting of fischer FUS 41/2.5 mounting channels and fischer FCA 41 brackets, safe-side loads are proposed which – subject to compliance with a minimum distance min. a ≥ 50 mm (e.g. between top face of the ceiling membrane and bottom face of the fischer FUS channel mounting systems – rule out any significant temperature-induced vertical deflection of the fischer FUS channel mounting system.

The following table specifies maximum loads for fischer FUS channel mounting systems, consisting of fischer FUS 41/2.5 mounting channels and fischer FCA 41 brackets, which apply to a minimum distances min. a ≥ 50 mm from members installed below the channel mounting system and are complied with for suspension heights h ≤ 500 mm.

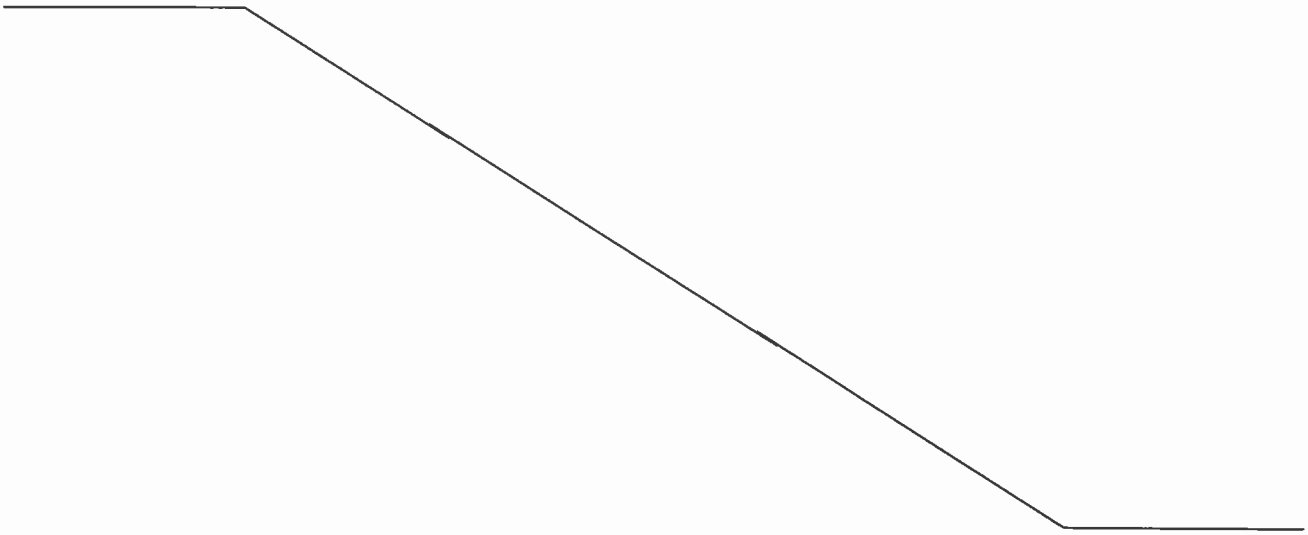

Table 2-1: Maximum loads for fischer FUS channel mounting systems, consisting of fischer FUS 41/2.5 mounting channels and fischer FCA 41 brackets made from galvanised/stainless steel in connection with the required threaded rods (size M10/M12, strength class ≥ 4.8 / ≥ A70), for suspension heights h ≤ 500 mm, 30-minute fire resistance and a minimum distance a ≥ 50[1)] mm

fischer FUS channel mounting system[2)]	Load	Maximum recommended load [kN] for 30-minute fire resistance and a safe distance of a = 50 mm
		Max. suspension height 500 mm
fischer FUS channel mounting system with fischer FUS 41/2.5 mounting channel, suspended installation (span ≤ 400 mm) fischer FCA 41 bracket, suspended installation (span ≤ 400 mm)	Point load/multiple load	0.90 (or max. 0.90 as a sum total)
fischer FUS channel mounting system with fischer FUS 41/2.5 mounting channel, suspended installation (span ≤ 400 mm) fischer FCA 41 bracket, suspended installation (span ≤ 400 mm)	Uniformly distributed load (e.g. carrying a sheet-steel duct)	1.50
fischer FUS channel mounting system with fischer FUS 41/2.5 mounting channel, suspended installation (span ≤ 700 mm) fischer FCA 41 bracket, suspended installation (span ≤ 700 mm)	Uniformly distributed load (e.g. carrying a sheet-steel duct)	0.60

[1)] The minimum distance (min a) only relates to the deflection of the channel systems under fire exposure. Where necessary, any additional deflections, e.g. those resulting from installations (e.g. pipes, pipe clamps), must be considered separately.

[2)] Greater suspension heights (up to a maximum of 1,500 mm) may be calculated with due allowance for thermal elongation of the threaded rods and deflection of the channels.

3 Special notes

3.1 This Supplement to the Test Report or the Test Report itself does not replace the general type approval (Building Code Test Certificate - abP, National Technical Approval - abZ, European Technical Approval - ETA) that is required under the German building code procedure.

3.2 This Supplement to the Test Report only applies to the tested fischer FUS channel mounting systems, consisting of fischer FUS 41/2.5 mounting channel and fischer FCA 41 brackets made from galvanised/stainless steel, due regard given to the general conditions set out in the technical data sheets of the Test Report and the relevant technical data sheets of fischerwerke GmbH & Co. KG.

3.3 The assessment for the channel systems only applies in connection with the described elements as well as with fireproof members that can at least be classified under a fire resistance class that corresponds to that of the pipe clamps.

3.4 The assessed channel systems may be used for fixing installation elements (e.g. pipes) and in connection with primarily static loads.

3.5 The channel systems shall be fixed to floor systems of the required fire resistance class with fasteners for which the necessary fire resistance performance has been demonstrated.

3.6 Test Report (No. 3147/252/12) – CM shall remain effective until 05/10/2017.

This document is the translated version of the Supplement to Test Report No. 3147/252/12 – CM dated 05/10/2012. The legally binding text is the aforementioned German supplement.

ORR Dr.-Ing. Röhling
Head of Testing Laboratory

Materialprüfanstalt f. d. Bauwesen MPA BS 3.1 Braunschweig

i.A.
Dipl.-Ing. Maertins
Engineer/official in charge

Braunschweig, 31 January 2013