Fire Test Report

valid for

MPC-Support channels 38/48

MPA NRW.
Materialprüfungsamt Nordrhein-Westfalen
PRÜFEN • ÜBERWACHEN • ZERTIFIZIEREN

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TEST REPORT
SHORT FORM
No. 210005877-4
issued 20 April 2011
English version

Client: MÜPRO Services GmbH
Hessenstraße 11

D-65719 Hofheim-Wallau

Date of order: 8 November 2010

Validity: 12 April 2016

Subject matter: Extract of test report no. 210005877-1 issued 12 April 2011 regarding the load-bearing capacity of MÜPRO MPC-support channels 38/48 made of galvanized steel fixed with threaded rods ≥ M 10, when loaded with lateral tension.

Fire testing: On 24 November 2010 the MÜPRO MPC-support channels 38/48 were exposed to fire according to DIN EN 1363-1; 1999-10 at the MPA NRW in order to determine the load-bearing capacity and the deformation.

Application: The required minimum distance a_{min} for installations in the cavity of suspended ceilings of fire safety relevant ceiling constructions between the top of the ceiling and the bottom of the support channels can be defined by the determined deformation of the MÜPRO MPC-support channels according to the illustration in figure 1 and the details given in the tables in clause 2.

This test report consists of 10 pages and 1 annex.

1 Fire resistance duration

Fire resistance durations (load-bearing capacity of the support channels in time dependence) according to the test results stated in the test report no. 210005877-1 can be assigned to the MÜPRO MPC-support channels 38/48, made of galvanized steel, mounted to the ceiling side with threaded rods ≥ M10, in strength classes ≥ 4.6, in connection with washers, nuts and SP-clamps 38 x 48 (AT828A12) according to the illustration in annex 1.

1.1 MÜPRO MPC-support channels 38/48, centred single load (1x)

	Fire resistance duration in minutes			
Designation	30 max. F [kN]	60 max. F [kN]	90 max. F [kN]	120 max. F [kN]
MÜPRO MPC-support channel 38/48 mounted with threaded rods ≥ M10 static span ≤ 720 mm	≤ 0.550	≤ 0.400	≤ 0.250	

1.2 MÜPRO MPC- support channels 38/48, uniform load (6x)

	Fire resistance duration in minutes			
Designation	30 max. F [kN]	60 max. F [kN]	90 max. F [kN]	120 max. F [kN]
MÜPRO MPC-support channel 38/48 mounted with threaded rods ≥ M10 static span ≤ 720 mm	≤ 0.085			

The fire resistance durations stated in clause 1.1 and 1.2 are only valid for the MÜPRO MPC-support channel 38/48.

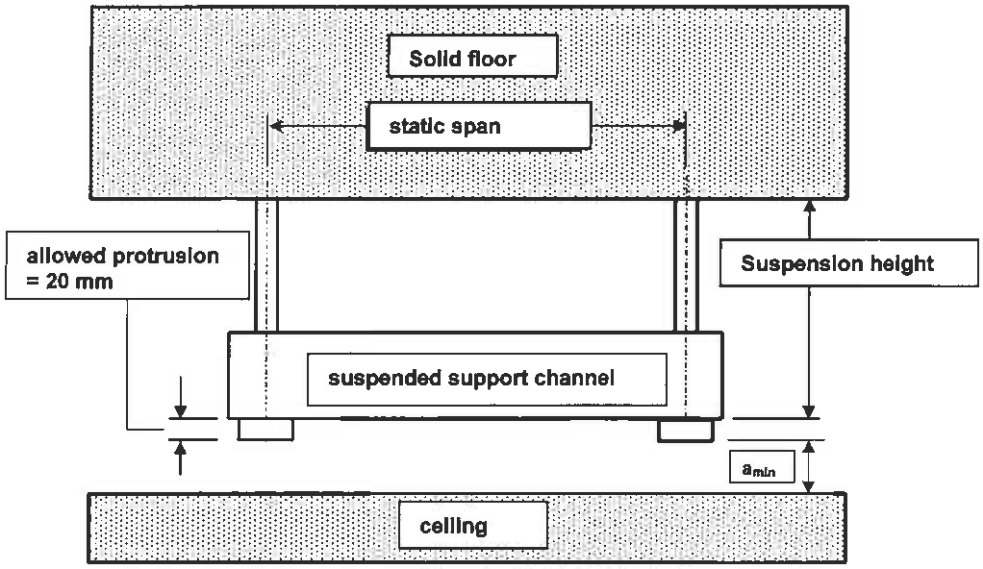
2 Deformation

On basis of the test results documented in test report no. 210005877-1, a minimum distance a_{min}, each, on the secure side between the top side of the ceiling and the bottom side of the support channels according to figure 1 and the details given in the tables in clause 2 is stated for the suspended mounting of MÜPRO MPC-support channels 38/48 that were mounted in the cavity of suspended, fire safety relevant ceiling constructions.

When the minimum distances a_{min} are kept, the ceiling will not be affected by the change in length of the MÜPRO MPC-support channels due to the temperature when it is exposed to fire.

The following illustration shows how to use the MÜPRO MPC support channels in the cavity of suspended ceiling constructions for which a fire resistance classification is required.

Figure 1



2.1 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 720 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.55 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	295	299	304	308

2.2 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 720 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 60 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.4 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	113	118	122	127
a_{min} for F60	**[mm]**	313	317	322	327

2.3 Deformation of the MÜPRO MPC-support channels 38/48
(Single load / static span ≤ 720 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.25 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	37	42	46	51
a_{min} for F60	**[mm]**	100	105	109	114
a_{min} for F90	**[mm]**	137	142	146	151
a_{min} for F120	**[mm]**	189	194	198	203

2.4 Deformation of the MÜPRO MPC-support channels 38/48
(Uniform load 6x / static span ≤ 720 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Uniform load	**[kN]**	**0.085 (6x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	33	39	46	52
a_{min} for F60	**[mm]**	73	79	86	92
a_{min} for F90	**[mm]**	90	96	103	109
a_{min} for F120	**[mm]**	107	113	120	126

2.5 Deformation of the MÜPRO MPC-support channels 38/48
(Uniform load 6x / static span ≤ 720 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.073 (6x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	31	36	42	47
a_{min} for F60	**[mm]**	65	70	76	81
a_{min} for F90	**[mm]**	80	85	91	96
a_{min} for F120	**[mm]**	92	97	103	108

2.6 Deformation of the MÜPRO MPC-support channels 38/48

(Uniform load 6x / static span ≤ 720 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.06 (6x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	29	36	42	48
a_{min} for F60	**[mm]**	65	70	82	88
a_{min} for F90	**[mm]**	80	85	91	99
a_{min} for F120	**[mm]**	85	92	98	104

2.7 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 500 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.55 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	205	208	211	214

2.8 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 500 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 60 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.4 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	78	82	85	88
a_{min} for F60	**[mm]**	217	221	224	227

2.9 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 500 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.25 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	26	29	32	35
a_{min} for F60	**[mm]**	69	73	76	79
a_{min} for F90	**[mm]**	95	98	102	105
a_{min} for F120	**[mm]**	131	134	138	141

2.10 Deformation of the MÜPRO MPC-support channels 38/48

(Uniform load 4x / static span ≤ 500 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Uniform load	**[kN]**	**0.085 (4x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	23	27	32	36
a_{min} for F60	**[mm]**	50	55	59	64
a_{min} for F90	**[mm]**	62	67	71	76
a_{min} for F120	**[mm]**	74	78	83	88

2.11 Deformation of the MÜPRO MPC-support channels 38/48

(Uniform load 4x / static span ≤ 500 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.073 (4x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	21	25	29	33
a_{min} for F60	**[mm]**	45	49	52	56
a_{min} for F90	**[mm]**	55	59	63	67
a_{min} for F120	**[mm]**	64	67	71	75

2.12 Deformation of the MÜPRO MPC-support channels 38/48

(Uniform load 4x / static span ≤ 500 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.06 (4x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	20	25	29	33
a_{min} for F60	**[mm]**	45	49	57	61
a_{min} for F90	**[mm]**	55	59	63	69
a_{min} for F120	**[mm]**	59	64	68	72

2.13 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 250 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.55 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	102	104	105	107

2.14 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 250 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 60 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.4 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	39	41	42	44
a_{min} for F60	**[mm]**	109	110	112	114

2.15 Deformation of the MÜPRO MPC-support channels 38/48

(Single load / static span ≤ 250 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.25 (1x centred)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	13	14	16	18
a_{min} for F60	**[mm]**	35	36	38	40
a_{min} for F90	**[mm]**	47	49	51	52
a_{min} for F120	**[mm]**	66	67	69	70

2.16 Deformation of the MÜPRO MPC-support channels 38/48

(Uniform load 2x / static span ≤ 250 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Uniform load	**[kN]**	**0.085 (2x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	11	14	16	18
a_{min} for F60	**[mm]**	25	27	30	32
a_{min} for F90	**[mm]**	31	33	36	38
a_{min} for F120	**[mm]**	37	39	41	44

2.17 Deformation of the MÜPRO MPC-support channels 38/48

(Uniform load 2x / static span ≤ 250 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	**[kN]**	**0.073 (2x a=120mm)**			
Suspension height	**[mm]**	250	500	750	1000
a_{min} for F30	**[mm]**	11	13	14	16
a_{min} for F60	**[mm]**	22	24	26	28
a_{min} for F90	**[mm]**	28	30	31	33
a_{min} for F120	**[mm]**	32	34	36	38

2.18 Deformation of the MÜPRO MPC-support channels 38/48

(Uniform load 2x / static span ≤ 250 mm)

Minimum distances a_{min} in mm for the use of MÜPRO MPC-support channels 38/48 in the cavity of suspended, fire safety relevant ceiling constructions according to the illustration in figure 1 for fire resistance durations of 30 up to 120 minutes.

		MÜPRO MPC-support channels 38/48, mounted with threaded rods ≥ M10			
Single load	[kN]	0.06 (2x a=120mm)			
Suspension height	[mm]	250	500	750	1000
a_{min} for F30	[mm]	10	12	14	17
a_{min} for F60	[mm]	22	24	28	31
a_{min} for F90	[mm]	28	30	31	34
a_{min} for F120	[mm]	30	32	34	36

3 Special notice

3.1 Restrictions

The above-mentioned assessment for the MÜPRO MPC-support channels 38/48 is not valid for the use on cable systems, for which the circuit integrity according to 4102-12: 1988-11 is required. Verification on basis of further fire tests is necessary for such applications.

3.2 Application, non-combustible pipes

The MÜPRO MPC-support channels 38/48 were used for the fixing of non-combustible pipe sections.

3.3 Application,combustible pipes

When combustible pipes with an outer diameter of ≤ 160 mm are fixed to MÜPRO MPC-support channels 38/48, the pipes have to be additionally equipped over the entire length with pipe insulations with the accordingly fire resistance classification on basis of „Allgemeiner Bauaufsichtlicher Prüfzeugnisse".

3.4 Material

The material of MÜPRO MPC-support channels 38/48 may also consist of stainless steel in grade A2 or A4.

3.5 Application in the cavity of suspended ceilings

When using the MÜPRO MPC-support channels in the cavity of suspended ceiling constructions with fire resistance classification, a minimum distance $a_{min.}$ between the top of the ceiling and the bottom of the MÜPRO MPC-support channels is specified according to figure 1 and the details given in the tables in clause 2. When the minimum distances a_{min} are kept, the ceiling construction will not be affected due to the temperature caused vertical deformations when it is exposed to fire.

The stated minimum distances a_{min} consider the protrusion of the threaded rods of u1=20 mm on below side of the support channels. When there is a higher protrusion of the threaded rods, the amount of u2 minus u1 (u2 = protrusion ≥ 20 mm) has to be added to the minimum distances.

3.6 Suspension height

The MÜPRO MPC support channels 38/48 were suspended ≤ 1.000 mm from the solid floor in the fire test.

3.7 Application

The assessments stated in this test report are only valid for MÜPRO MPC support channels 38/48 considering the basic conditions of the technical data sheets of the client.

The assessment of the MÜPRO MPC support channels 38/48 stated in clause 1 and 2 is only valid in combination with building elements which have at least the same fire resistance duration as the above-mentioned support channels.

3.8 Validity

This test report is valid until 17 April 2016.
The period may be extended on request.

This English version of the test report is issued additionally to the test report written in German language with the same report number. In case of doubt the German version is solely valid.

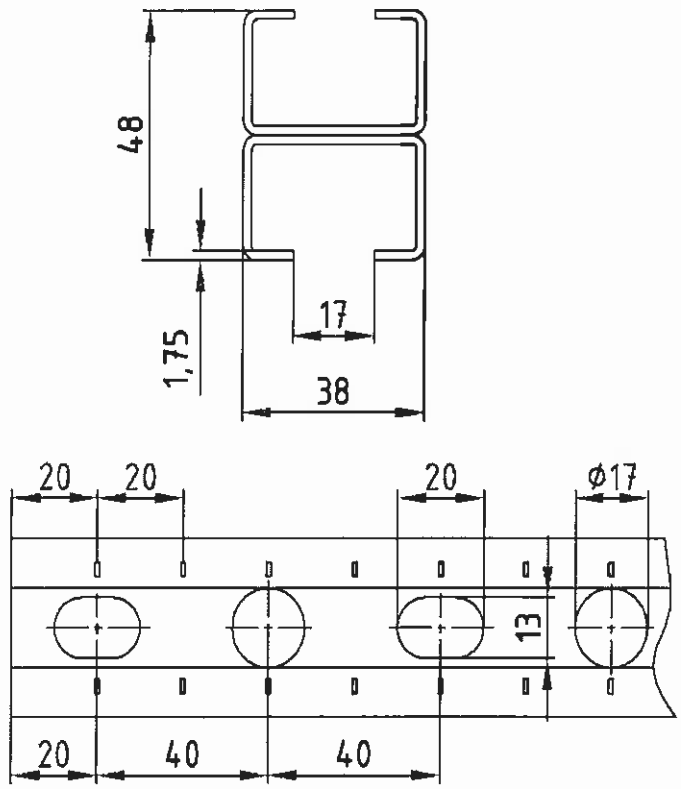
Erwitte, 20 April 2011
On behalf

Dipl.-Ing. H. Kötter
Official in charge

Materialprüfungsamt MPA NRW 15 Nordrhein-Westfalen

Date of issue of this English version: 23 July 2011

Figure 1



Profil	Profilgewicht [kg/m]	Profilquerschnitt [cm²]
38/48	2,28	2,91

MEPTEC Services GmbH 65719 Hofheim-Wallau Hessenstraße 11 Germany	Maßstab/Scale %	Oberfläche/Surface	Werkstoff/Material	Allgemeintoleranzen/Tolerance DIN ISO 2768-m

	Datum/Date	Name
Bearbeitet/ Constructed	07.04.2011	DE-RD-IK
Geprüft/ Checked	11.04.2011	DE-PM-JK
Freigegeben/ Released	11.04.2011	DE-RD-IK

No.	Änderungen / Modifications	Datum/Date	Name
d			
c			
b			
a			

Bezeichnung / Description
MPC-Systemschiene 38/48
Übersichtszeichnung
MPC support channel 38/48
general layout drawing

Zeichnungsnummer / Drawing no
DE-RD-11-400

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