MT SYSTEM

FRAME TRAPEZE

ETA-23-0104 (14.08.2024)

English 2-61

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European Technical Assessment

ETA-23/0104 of 14/08/2024

English translation prepared by CSTB - Original version in French language

General Part

Technical Assessment Body issuing the European Technical Assessment: Centre Scientifique et Technique du Bâtiment (CSTB)	
Trade name of the construction product:	Hilti Frame Trapeze of MT System with load introduction component
Product family to which the construction product belongs:	Products for installation systems for supporting technical building equipment
Manufacturer:	Hilti AG Feldkircherstraße 100 9494 Schaan FÜRSTENTUM LIECHTENSTEIN
Manufacturing plants:	L 1000446, L 1027881, L 1124303, L 1087643, L 1006522, L 1128868, L 1066663, L 1005049
This European Technical Assessment contains:	60 pages including 57 pages of 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:	European Assessment Document (EAD) 280016-00-0602 version June 2020
This version replaces:	-

Specific Part

1 Technical description of the product

This European Technical Assessment covers HILTI MT frame trapezes with load introduction component. Hilti MT frame trapezes consists of at least three installation channels. In a typical setup one horizontally aligned MT installation channel is positioned in-between two vertically aligned MT installation channels. The vertical and horizontal channels are attached to each other by using corresponding angle connectors and channel connectors. The frame trapeze is fixed to the ceiling using corresponding baseplates.

A MT frame trapeze with open profile channels consists of at least two vertical MT-50 S, MT-50, MT-50 U, MT-50 S OC or MT-50 OC channels and at least one horizontal MT-40 D, MT-40 D S, MT-40 D OC, or MT-40 D S OC channel connected by using either MT-C-GS OC angle connector and MT-TL M10, MT-TL M10 OC, MT-FL, or MT-FL OC channel connectors. Alternatively, a horizontal MT-50 S, MT-50, MT-50 U MT-50 S OC or MT-50 OC channel can be used, which is connected to the vertical channels by using either MT-C-GS OC angle connector and MT-TL M10, MT-TL M10 OC, MT-FL, or MT-FL OC channel connectors or alternatively the MT-AB A set or MT-AB A OC set.

The MT-40 D, MT-40 D S, MT-40 D OC and MT-40 D S OC channel consists of two profiles, which are connected in the area of the holes in the back of the channels in a shape-fitting and force-fitting way as a kind of riveted connection. The vertical channels are connected to the ceiling with MT-B-T, MT-B-T OC, MT-B-O2, MT-B-O2 OC, MT-B-O2 OC, MT-B-O2B, MT-B-O2B OC, MT-B-O4 or MT-B-O4 OC baseplates and two MT-TL M10 or MT-TL M10 OC channel connectors. MT-B-T FL, MT-B-T FL OC, MT-B-O2 FL and MT-B-O2 FL OC baseplates are already equipped with MT-FL or MT-FL OC channel connectors. Alternatively, the MT-AB A set or MT-AB A OC set can be used. The load is applied to the horizontal channel by means of Hilti threaded rod(s) which are fastened to the channel by using MQZ-L drilled plates and hexagonal nuts or Hilti saddle nuts.

The MT frame trapeze with closed profile channels consists of at least two vertical MT-70 OC or MT-70 S OC channels and at least either one MT-70 OC or MT-70 S OC or one MT-80 OC or MT-80 S OC channel which are connected by using MT-C-GSP L A angle connectors and MT-TFB OC channel connectors. The vertical channels are connected to the ceiling using either MT-B-GS O4U OC or MT-B-GS T OC baseplates with MT-TFB OC connectors. The load is applied to the horizontal channel by means of Hilti threaded rod(s), which are fixed to the channel by MT-PCC-G, MT-CTR-GS or MT-CTR-GL saddle nuts and MT-TFB connectors.

The MT frame trapeze may also consist of more than only two vertical and one horizontal frame (i.e. in case of multi-layer frame trapeze).

Annex A describes the dimensions and materials of above mentioned Hilti MT frame trapezes.

2 Specification of the intended use

The performance given in Section 3 can only be assumed if the Hilti MT frame trapezes are used in compliance with the specifications and under boundary conditions set out in Annexes A to C. The test and assessment methods on which this European Technical Assessment is based lead to an assumption of a working life of the Hilti cantilevers of MT System 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 technical building equipment in general,

c) installations for the support of pipes for the transportation of water not intended for human consumption,

d) installations for the support of pipes for the transport of gas/fuel intended for the supply of building heating / cooling systems.

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

3.1 Safety in case of fire (BWR 2)

No.	Essential characteristic	Performance
1	Reaction to fire	Class A1
2	Resistance and deformation under fire exposure	See Annex C See Annex D

3.2 Safety and accessibility in use (BWR 4)

No.	Essential characteristic	Performance
3	Shape	See Annex A
4	Dimension	See Annex A
5	Material	See Annex A

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:
Commission Decision 96/577/EC, as amended by Commission Decision 2002/592/EC.

The system is 1.

In case of intended use b) specified in Section 2:
Commission Decision 97/161/EC.

The system is 2+

In case of intended use c) specified in Section 2:
Commission Decision 1999/472/EC, as amended by Commission Decision 2001/596/EC.

The system is 4

In case of intended use d) specified in Section 2:
Commission Decision 1999/472/EC, as amended by Commission Decision 2001/596/EC.

The system is 3

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 Centre Scientifique et Technique du Bâtiment.

The manufacturer shall, on the basis of a contract, involve a notified body approved in the field of supporting systems for issuing the certificate of conformity CE based on the control plan.

The original French version is signed by

Le chef de division, Loïc PAYET

Table A1: Dimensions and materials of Hilti MT-50 S, MT-50, MT-50 U MT-50 S OC, MT-50 OC, MT-40D S. MT-40D, MT-40D S OC, MT-40 D OC, MT-70 S OC and MT-70 OC installation channels

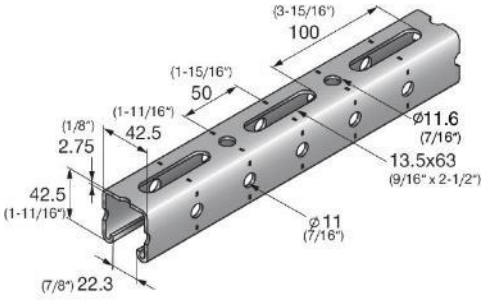
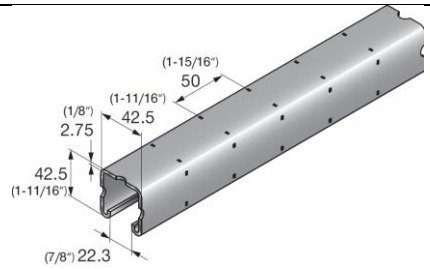
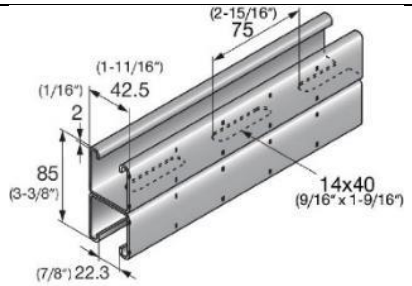
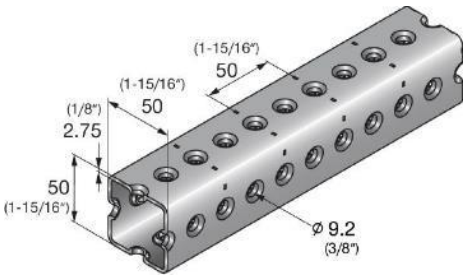
Item number	Designation	Length [m]	Materials and coatings	Illustration (Dimensions in mm and inch)
2268509	MT-50 S	3	S280GD or equivalent as defined in HN704 + Z275-M-A-C acc. to EN 10346	
2268510	MT-50	6		
2268511	MT-50 S OC	3	S280GD or equivalent as defined in HN704 + ZM310-A-C acc. to EN 10346	
2268512	MT-50 OC	6		
2362808	MT-50 U	6	S280GD or equivalent as defined in HN704 + Z275-M-A-C acc. to EN 10346	
2268517	MT-40D S	3	S280GD or equivalent as defined in HN704 + Z275-M-A-C acc. to EN 10346	 Two profiles of MT-40 channel are connected in the area of the holes in the back of the channels in a shape-fitting and force-fitting way as a kind of riveted connection.
2268518	MT-40D	6		
2268519	MT-40D S OC	3	S280GD or equivalent as defined in HN704 + ZM310-A-C acc. to EN 10346	
2268520	MT-40D OC	6		
2268364	MT-70 S OC	3	S350GD+ ZM310-A-C acc. to EN 10346	
2268365	MT-70 OC	6		

Table A2: Dimensions and materials of Hilti MT-80 S OC and MT-80 OC, installation channels

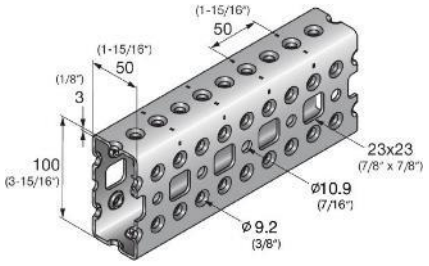
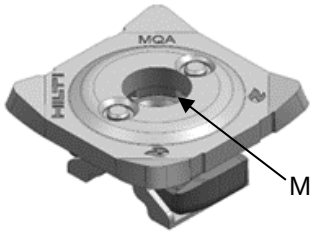
Item number	Designation	Length [m]	Materials and coatings	Illustration (Dimensions in mm and inch)
2268366	MT-80 S OC	3	S350GD+ ZM310-A-C acc. to EN 10346	
2268367	MT-80 OC	6		

Table A3: Dimensions and materials of Hilti MQA-B saddle nuts

Item number	Designation	M thread	Materials	Illustration
2199452	MQA-M10-B	M10	Plate: DD11 according to DIN EN 10111 [1] or S235JR according to DIN EN 10025-2 Nut: C4C according to DIN EN 10263-2 Plastic part: PET	
2199453	MQA-M12-B	M12		
2199454	MQA-M16-B	M16		

[1] with 235 < R_{eL} < 340 N/mm², Deoxidisation type: fully deoxidised

Table A4: Dimensions of the components of the MQA-M10-B and MQA-M12-B saddle nuts in mm

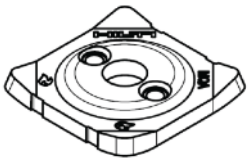
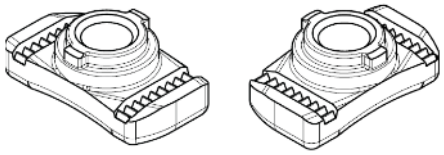
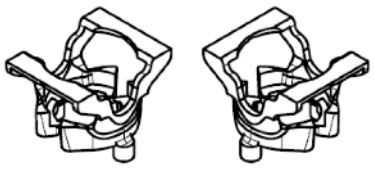
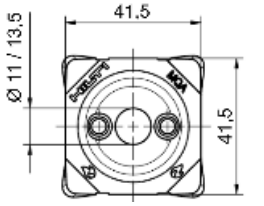
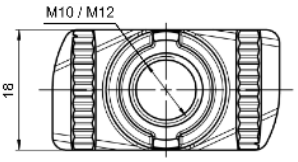
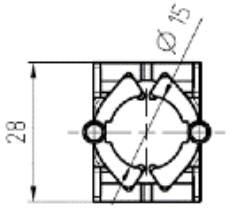
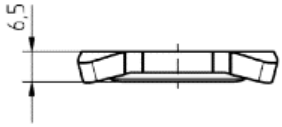
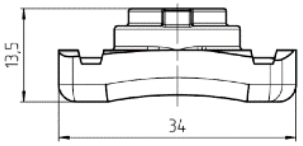
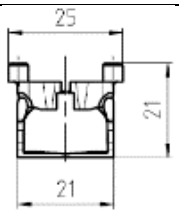
Plate	Nut	Spring section
		
		
		

Table A5: Dimensions of the components of the MQA-M16-B saddle nut in mm

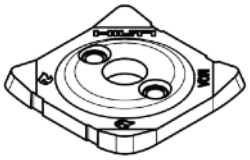
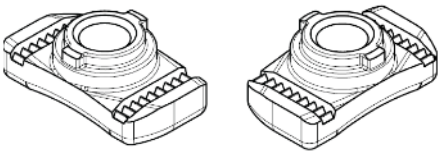
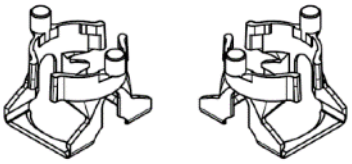
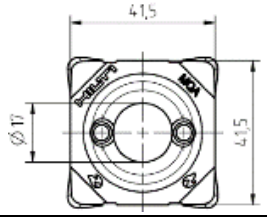
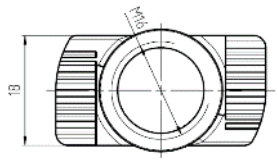
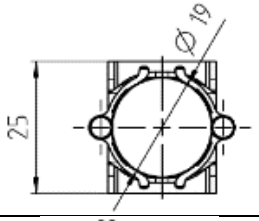
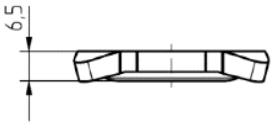
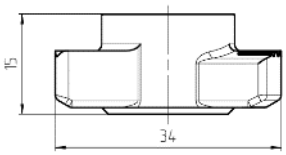
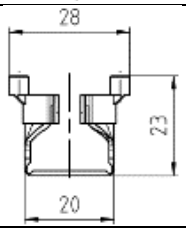
Plate	Nut	Spring
		
		
		

Table A6: Dimensions and materials of the components of the MT-PCC-G M8/M10 OC, MT-PCC-G M12 OC and MT-PCC-G M16 OC saddle nut

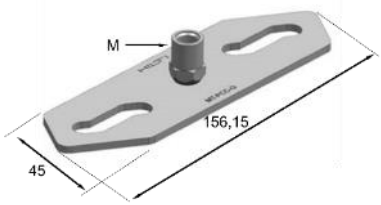
Item number	Designation	M thread	Baseplate thickness	Materials	Illustration (Dimensions in mm)
2353801	MT-PCC-G M8/M10 OC	M10	4 mm	Baseplate: Q355B acc. to GB/T 1591 hot dipped galv. Connection piece: 9SMN28 acc. to DIN 1651 hot dipped galv.	
2354564	MT-PCC-G M12 OC	M12	4 mm		
2354155	MT-PCC-G M16 OC	M16	6 mm		

Table A7: Dimensions and materials of MT-CTR GS M12 OC, MT-CTR GS M16 OC, MT-CTR GL M12 OC and MT-CTR-GL M16 OC saddle nut

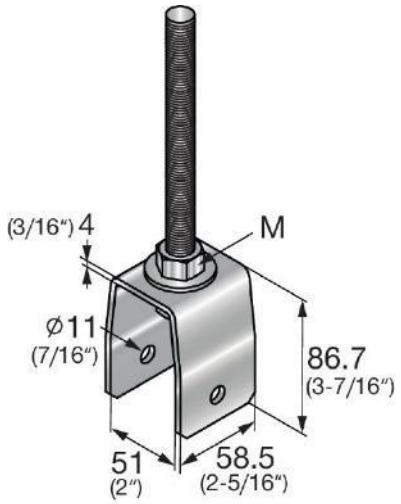
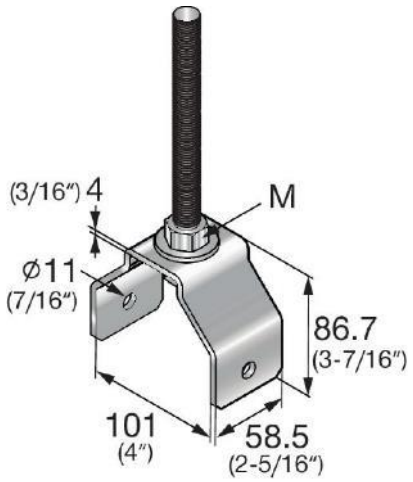
Item number	Designation	M thread	Materials	Illustration (Dimensions in mm and inch)
2332789	MT-CTR-GS M12 OC	M12	U-shape steel plate: Q355B acc. to GB/T 1591 Hot dipped galvanized Hexagonal Nut: Strength class 8 acc. to ISO898-2 Washer 12/40 and 16/40 acc. to ISO 7089-200HV Plate: Q235B acc. to GB/T 700 Hot dipped galvanized	
2332790	MT-CTR-GS M16 OC	M16		
2332793	MT-CTR-GL M12 OC	M12		
2332796	MT-CTR-GL M16 OC	M16		

Table A8: Dimensions and materials of Hilti MT-B-T, MT-B-T OC, MT-B-O2, MT-B-O2 OC, MT-B-O2B, MT-B-O2B OC, MT-B-O4 and MT-B-O4 OC baseplates for use with Hilti MT-50 installation channel product family

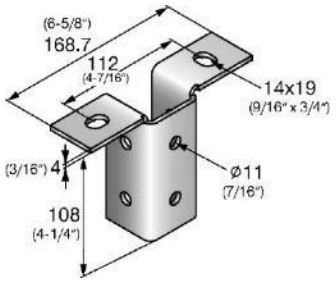
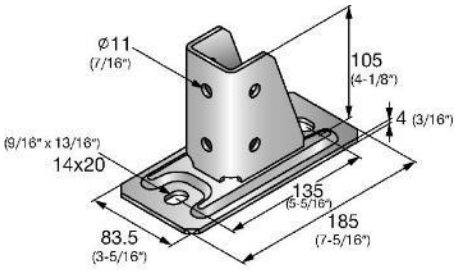
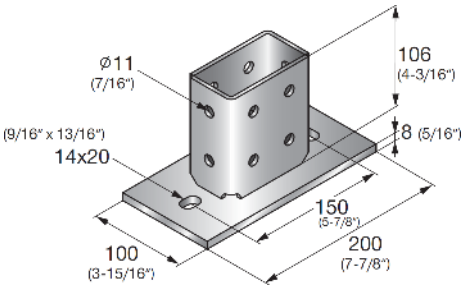
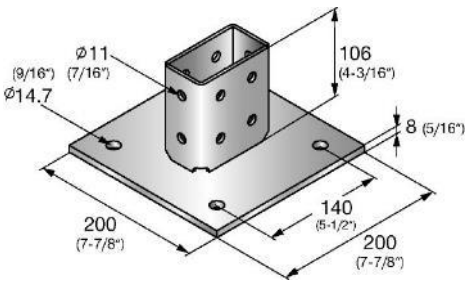
Item number	Designation	Materials	Illustration (Dimensions in mm and inch)
2272090	MT-B-T	Steel Q235B acc. to GB/T 700; galvanized	
2272092	MT-B-T OC	Steel Q235B acc. to GB/T 700; hot dip galvanized	
2272094	MT-B-O2	Steel Q235B acc. To GB/T 700; galvanized	
2272096	MT-B-O2 OC	Steel Q235B acc. to GB/T 700; hot dip galvanized	
2282212	MT-B-O2B	Steel Q235B acc. to GB/T 700; galvanized	
2282213	MT-B-O2B OC	Steel Q235B acc. to GB/T 700; hot dip galvanized	
2272098	MT-B-O4	Steel Q235B acc. to GB/T 700 galvanized	
2272099	MT-B-O4 OC	Steel Q235B acc. to GB/T 700 hot dip galvanized	

Table A9: Dimensions and materials of Hilti MT-B-T FL, MT-B-T FL OC, MT-B-O2 FL, MT-B-O2 FL OC, baseplates for use with Hilti MT-50 and MT-40D installation channel product family

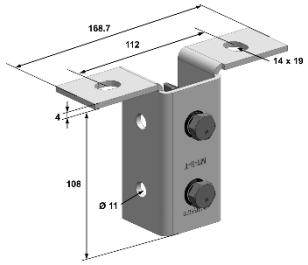
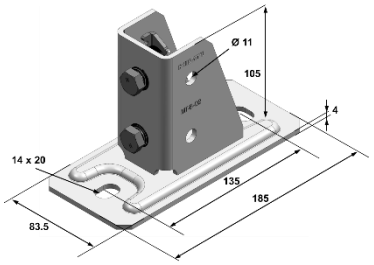
Item number	Designation	Materials	Illustration (Dimensions in mm)
2399639	MT-B-T FL	Steel Q235B acc. to GB/T 700; galvanized	
2399674	MT-B-T FL OC	Steel Q235B acc. to GB/T 700; hot dip galvanized	
2399660	MT-B-O2 FL	Steel Q235B acc. to GB/T 700; galvanized	
2399675	MT-B-O2 FL OC	Steel Q235B acc. to GB/T 700; hot dip galvanized	

Table A10: Dimensions and materials of Hilti MT-B-GS O4U OC, MT-B-GS T OC baseplates for use with Hilti MT-70 and MT-80 installation channel product family

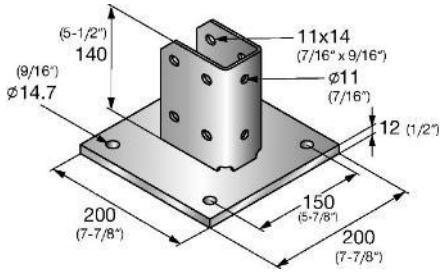
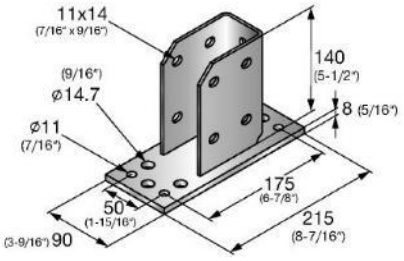
Item number	Designation	Materials and coatings	Illustration (Dimensions in mm and inch)
2272101	MT-B-GS O4U OC	Steel Q355B acc. to GB/T 1591; hot dip galvanized	
2272100	MT-B-GS T OC	Q355B acc. to GB/T 1591; hot dip galvanized	

Table A11: Dimensions and materials of Hilti MT-TL M10, MT-TL M10 OC, MT-TFB OC, MT-TLB, MT-TLB OC, MT-TLB 30 and MT-TLB 30 OC channel connector

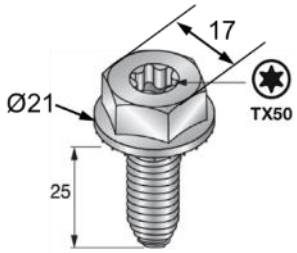
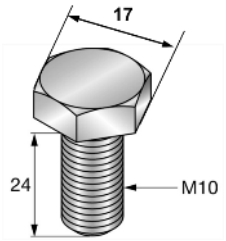
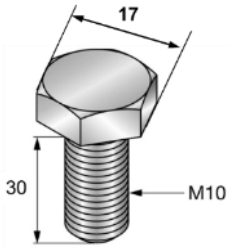
Item number	Designation	Materials and coatings	Illustration (Dimensions in mm)
2272080	MT-TL M10	Steel part: S460MC acc. to EN10149-2 or equivalent as defined in HN709 zinc coated Plastic part: Polyamid	
2272082	MT-TL M10 OC	Steel part: S460MC acc. to EN10149-2 or equivalent as defined in HN709 zinc coated with organic topcoat Plastic part: Polyamid	
2272084	MT-TFB OC	C10B21 acc. to SAE J403, Surface hardness min. 530 HV, Core hardness min. 32-39 HRC zinc coated with organic topcoat	
2273254	MT-TLB	strength class 8.8 acc. to EN ISO 898-1, zinc coated	
2273256	MT-TLB OC	strength class 8.8 acc. to EN ISO 898-1, zinc coated with organic topcoat	
2282190	MT-TLB 30	strength class 8.8 acc. to EN ISO 898-1, zinc coated	
2282191	MT-TLB 30 OC	strength class 8.8 acc. to EN ISO 898-1, zinc coated with organic topcoat	

Table A12: Dimensions and material of Hilti MT-FL and MT-FL OC channel connectors

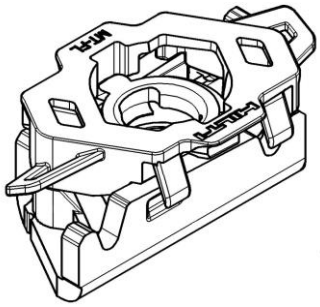
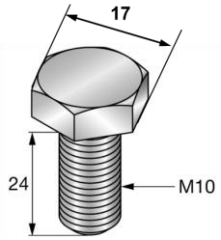
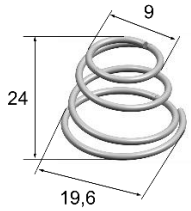
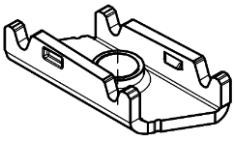
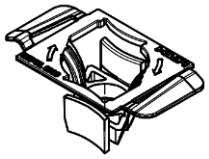
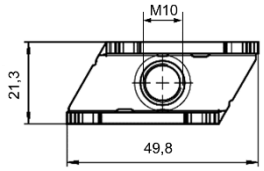
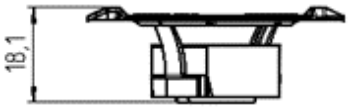
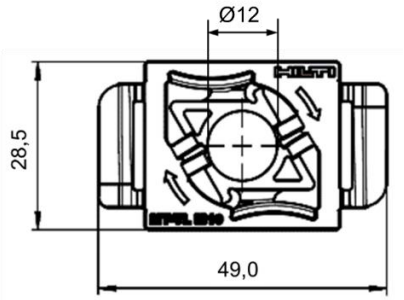
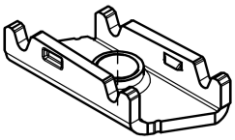
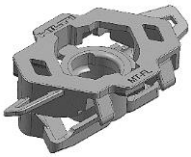
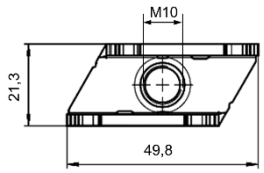
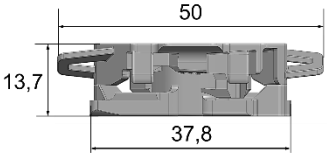
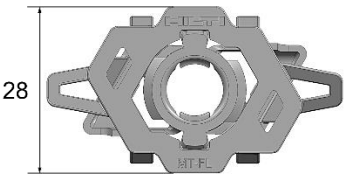
Item number	Designation	Materials and coatings	Illustration (Dimensions in mm)
2399683	MT-FL	Steel part: S460MC acc. to EN10149-2 or equivalent as defined in HN709 zinc coated Plastic part: Polypropylene	
2399682	MT-FL OC	Steel part: S460MC acc. to EN10149-2 or equivalent as defined in HN709 zinc coated with organic topcoat Plastic part: Polypropylene	
Additional components of MT-FL and MT-FL OC			
-	MT-FL	strength class 8.8 acc. to EN ISO 898-1, zinc coated	
-	MT-FL OC	strength class 8.8 acc. to EN ISO 898-1, zinc coated with organic topcoat	
-	MT-FL	1.4310 acc. to EN 10151	
-	MT-FL OC		

Table A13: Dimensions of components of Hilti MT-TL M10, MT-TL M10 OC, MT-FL and MT-FL OC channel connectors

Item number	Designation	Illustration of nut (Dimensions in mm)	Illustration of plastic part (Dimensions in mm)
2272080 2272082	MT-TL M10 MT-TL M10 OC		
			
			
2399683 2399682	MT-FL MT-FL OC		
			
			

Hilti MT frame trapezes with load introduction component

Product Description
Dimensions and materials

Annex A10

Table A14: Dimensions and material MT-C-GS OC and MT-C-GSP L A connectors

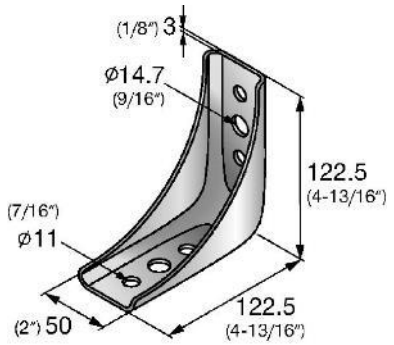
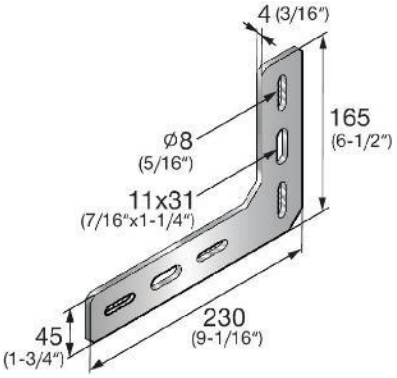
Item number	Designation	Materials and coatings	Illustration (Dimensions in mm and inch)
2272064	MT-C-GS OC	Steel Q355B acc. to GB/T 1591 hot dip galvanized	
2332786	MT-C-GSP L A	Steel Q355B acc. to GB/T 1591 hot dip galvanized	

Table A15: Dimensions and materials of Hilti adjustable angle brace MT-AB A set and MT-AB A OC set

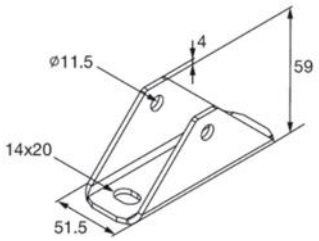
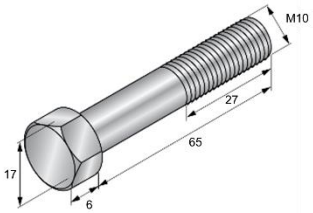
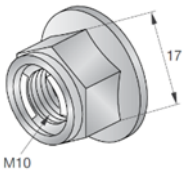
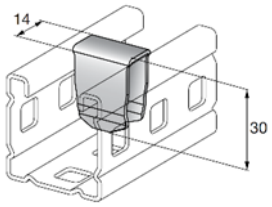
Item number	Designation	Materials and coatings	Illustration (Dimensions in mm)
2346395	MT-AB A set	Steel Q235B acc. to GB/T700 galvanized	
2346396	MT-AB A OC set	Steel Q235B acc. to GB/T700 hot dip galvanized	
Additional components of MT-AB A set and MT-AB A OC set			
-	-	Bolt M10x65: strength class 8.8 acc. to ISO 898-1, hot dip galvanized	
		Flanged nut: strength class 8 acc. to ISO 898-2, galvanized	
		Spacer Steel Q235B acc. to GB/T700 zinc coated	

Table A16: Dimensions and materials of Hilti threaded rods for use with Hilti frame trapezes of MT System

Item number	Designation	M thread	L [mm]	Materials	Illustration
339795	M10x1000 4.8	M10	1000	Strength class 4.8 in accordance with DIN976-1, zinc coated	
339796	M10x2000 4.8	M10	2000		
216418	M10x3000 4.8	M10	3000		
339797	M12x1000 4.8	M12	1000		
216420	M12x2000 4.8	M12	2000		
216421	M12x3000 4.8	M12	3000		
216424	M16x3000 4.8	M16	3000		
407497	M10x1000 8.8	M10	1000	Strength class 8.8 in accordance with DIN976-1, zinc coated	
2008566	M10x3000 8.8	M10	3000		
407498	M12x1000 8.8	M12	1000		
2008567	M12x3000 8.8	M12	3000		
2390279	M10x1000 A4-70	M10	1000	Strength class A4-70 in accordance with DIN976-1, Stainless steel	
2390279	M10x3000 A4-70	M10	3000		
2390280	M12x1000 A4-70	M12	1000		
2390286	M12x3000 A4-70	M12	3000		

Table A17: Dimensions and materials of Hilti hexagonal nuts for use with Hilti frame trapezes of MT System

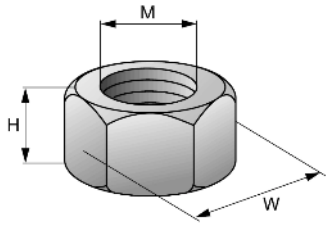
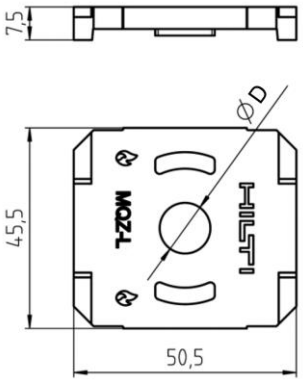
Illustration (Dimensions in mm)	Item number	Designation	M thread	W [mm]	H [mm]	Material and coating
	216466	M10 hexagonal nut	M10	17	8	Strength class 8 in accordance with DIN 934, zinc coated
	2184554	M12 hexagonal nut	M12	19	10	
	2184474	M10 hexagonal nut	M10	17	8	Strength class 70 in accordance with DIN 934, stainless steel
	2184475	M12 hexagonal nut	M12	19	10	

Table A18: Geometry and dimensions of MQZ-L11 and MQZ-L13 drilled plates for use with Hilti trapeze frames of MT System

Item number	Designation	D [mm]	Materials	Illustration (Dimensions in mm)
2199455	MQZ-L11	11,5	S235JR in accordance with DIN EN 10025-2	
2199456	MQZ-L13	13,5		

Specification of intended use

- Hilti frame trapezes of MT System are used to transfer building services component loads such as ducts and equipment for sprinklers, wafter, heating, cooling, ventilation, electrical and other systems in case of fire.
- Hilti frame trapezes of MT System are performing this loadbearing function under the conditions described in Section 2 of this European Technical Assessment.
- The resistance and deformation in case of fire are referring to the boundary conditions of the standard temperature / time curve (STTC) in accordance with EN 1363-1.
- The resistance of Hilti frame trapezes of MT System in case of fire applies for static and centric actions according to Annex C.
- Prior to installation, it must be ensured that the component to be supported by the frame trapeze, the anchoring of the frame trapeze to the base material and the base material itself are suitable to withstand the resistance values given in Annex C in this European Technical Assessment in case of fire.
- MT-C-GS OC connector is made of zinc coated steel. Two leg angles are arranged at 90 ° between each other and with stiffening ribs. Various openings in different size and shape are located on the leg angles.
- MT-C-GSP L A OC connector is made of flat zinc coated steel in L-shape with 6 openings in total.
- MT-AB A set and MT-AB A OC set connectors are made of zinc coated steel. The connectors are in U-shape with two parallel flanges in trapezoid shape and in total with 5 openings.
- The Hilti channel connectors MT-TL M10, MT-TL M10 OC, MT-FL, MT-FL OC and MT-TFB OC are used to fix the channels to connectors or baseplates and transfer the loads. MT-TL M10, MT-TL M10 OC, MT-FL and MT-FL OC channels connectors are used for open profile MT channels. MT-TFB OC thread forming bolts are used for closed profile MT channels.
- The Hilti channel connectors are suitable for undertaking this load-transferring function under the conditions described in Section 2 of this European Technical Assessment.
- The nuts MT-TL M10 and MT-TL M10 OC are connected to the installation channel according to the manufacturer's instructions (see Figure A1) and the attached component by tightening a MT-TLB, MT-TLB OC, MT-TLB 30 or MT-TLB 30 OC acc. to Table A10 and A11. Installation torque for MT-TL M10, MT-TL M10 OC, MT-FL and MT-FL OC are shown in Table B1.

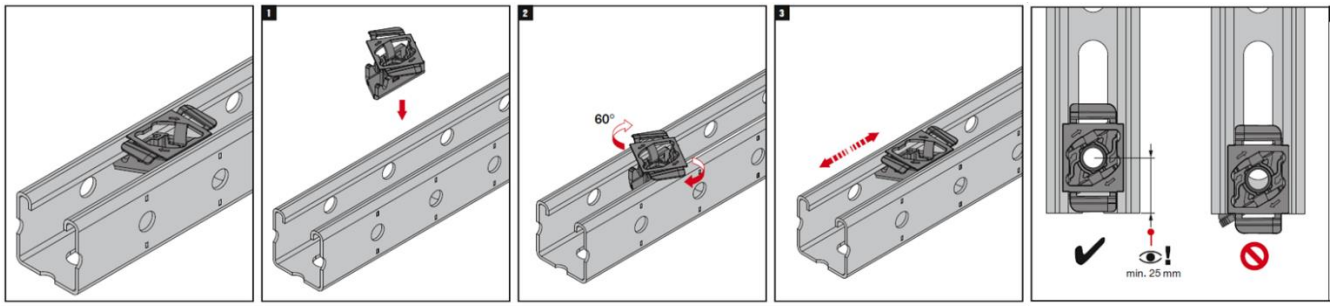


Figure A1: Installation instructions for Hilti channel connectors MT-TL M10 and MT-TL M10 OC

- The required torques may be applied with electrical or non-electrical devices.MT-TFB OC thread forming bolts is used to screw together installation channels and attached angle connectors or base connectors by screwing them together through the appropriate openings of these components. For the thread forming bolt MT-TFB OC a torque of 60 Nm applies (see also table B2).

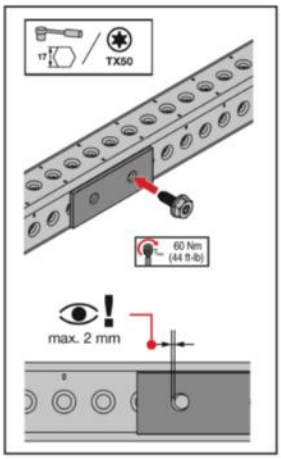
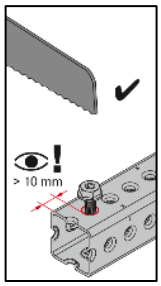


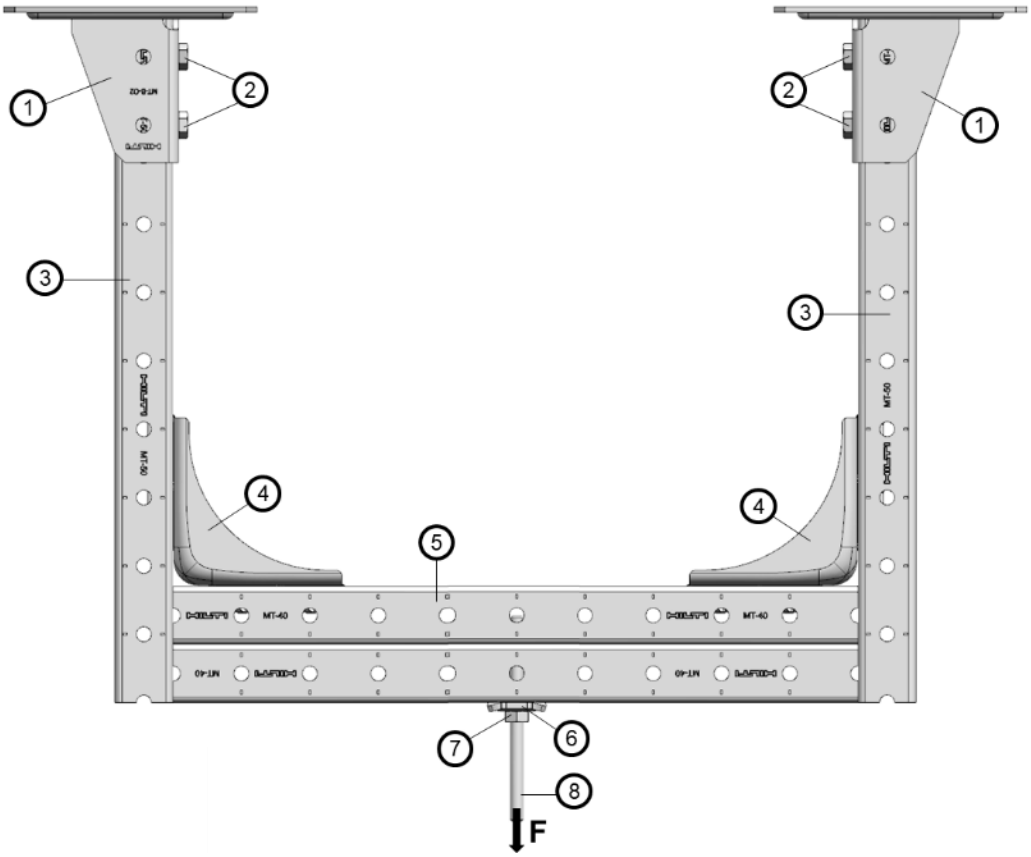
Figure A2: Installation instructions for Hilti MT-TFB OC thread forming bolts

- The MT installation open profile channels and closed profiles (girders) can be cut along the entire length following the manufacturer's instructions without compromising the declared performances.
- For girders the distance between the cut of the girder and start of the dome shaped hole must be at a minimum distance of 10 mm.



- 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 cross section and material properties of the channels are shown in Annex B2.
- The Hilti frame trapezes of MT System must be installed by appropriately qualified personnel and under the supervision of the site manager. The general installation instructions of the manufacturer apply.

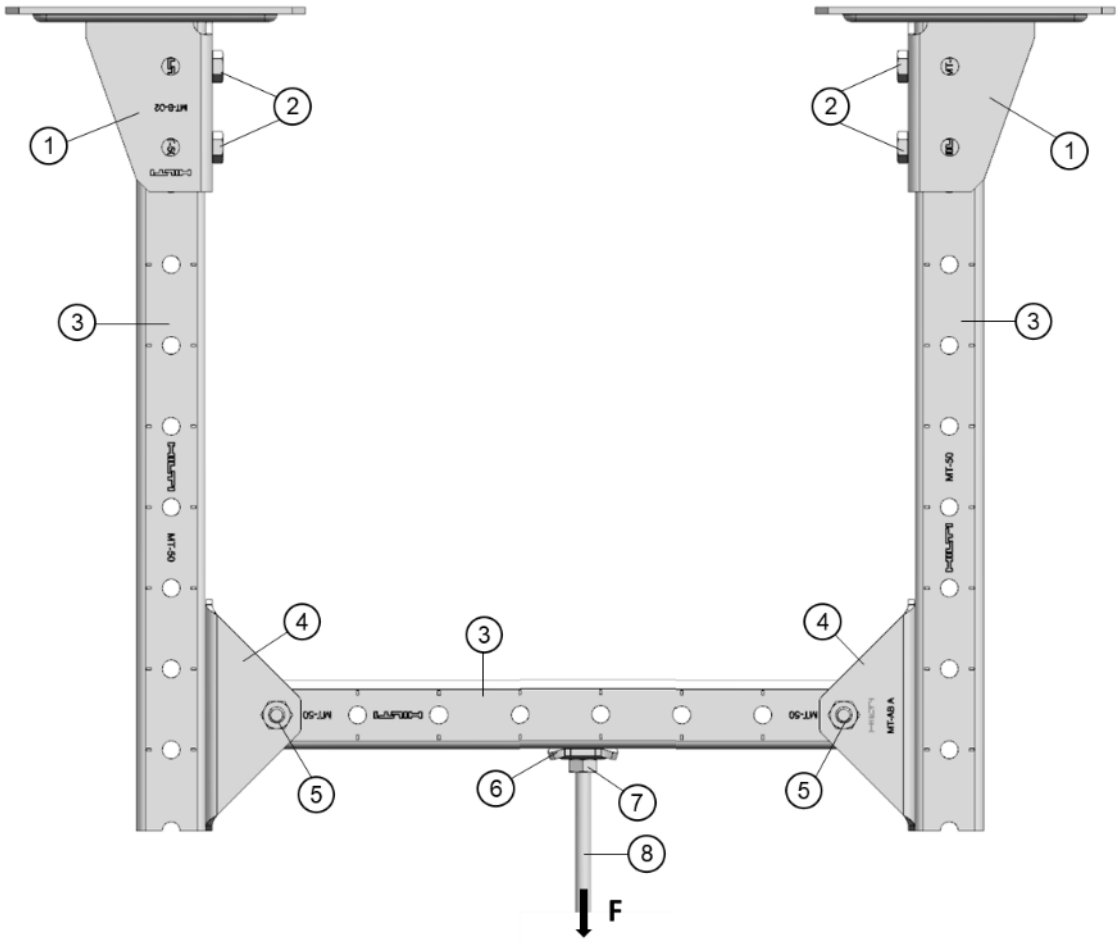
Figure A3: Hilti frame trapeze of MT System with load introduction components, MT-50 and MT-40D channels



Legend		Annex
1	MT-B-O2, MT-B-O2 FL*, MT-B-O4, MT-B-T, MT-B-T FL* or MT-AB A set baseplates	Annex A5
2	MT-TL M10 with MT-TLB channel connectors or MT-FL	Annex A7 and A8
3	MT-50	Annex A1
4	MT-C-GS OC	Annex A10
5	MT-40D	Annex A1
6	MQA-B saddle nut or threaded rod with MQZ-L drilled plates	Annex A2, A3 and A13
7	hexagonal nut	Annex A13
8	threaded rod	Annex A12
F	applied load	

* MT-B-O2 FL and MT-B-T FL are already pre-assembled with MT-FL

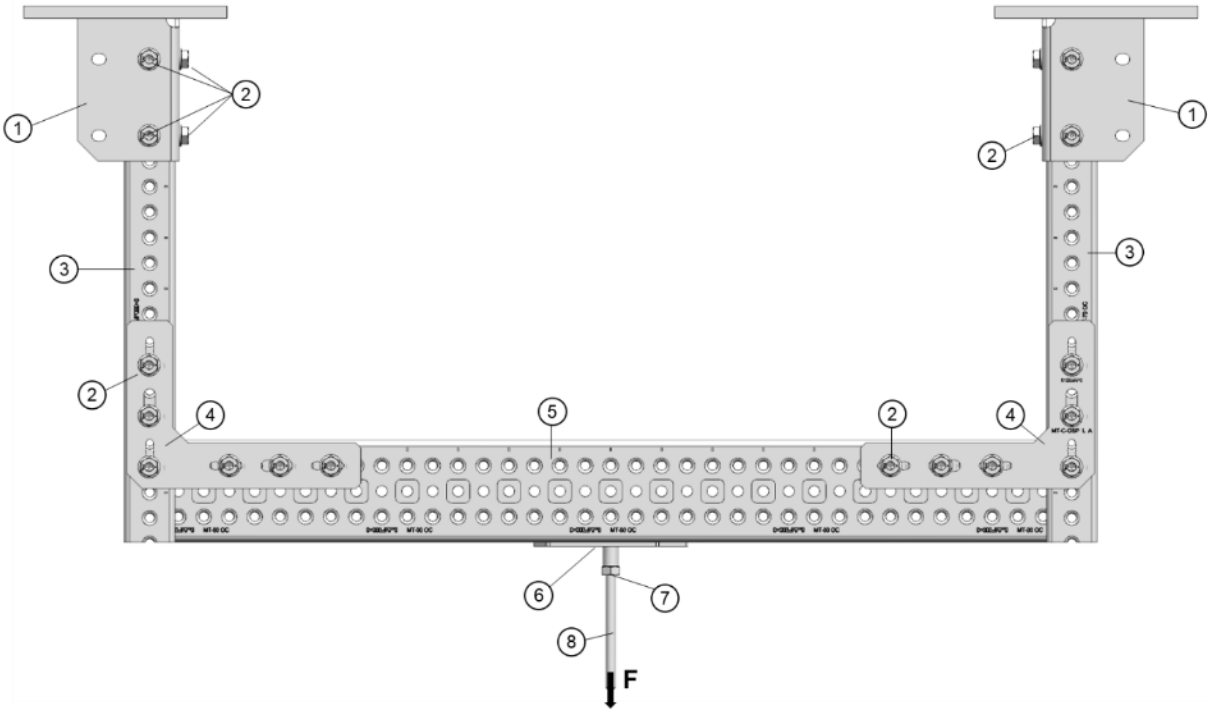
Figure A4: Hilti frame trapeze of MT System with load introduction components, MT-50 and MT-50 channels



Legend		Annex
1	MT-B-O2, MT-B-O2 FL*), MT-B-O4, MT-B-T, MT-B-T FL*) or MT-AB A set baseplates	Annex A5
2	MT-TL M10 with MT-TLB channel connectors or MT-FL	Annex A7 and A8
3	MT-50	Annex A1
4	MT-AB A set	Annex A11
5	M10 8.8 bolt with M10 hexagonal nut as part of MT-AB A set	Annex A11
6	MQA-B saddle nut	Annex A2, A3 and A13
7	hexagonal nut	Annex A13
8	Threaded rod	Annex A12
F	applied load	

*)MT-B-O2 FL and MT-B-T FL are already pre-assembled with MT-FL

Figure A5: Hilti frame trapeze of MT System with load introduction components, closed profiles



Legend		Annex
1	MT-B-GS T OC or MT-B-GS O4U OC	Annex A6
2	MT-TFB	Annex A7
3	MT-70	Annex A1
4	MT-C-GSP L A OC	Annex A10
5	MT-70 OC or MT-80 OC	Annex A1
6	MT-PCC-G	Annex A5
7	hexagonal nut	Annex A13
8	Threaded rod	Annex A12
F	applied load	

Table B1: Installation torque of MT-TLB bolt in combination with MT-TL M10, MT-TL M10 OC, MT-FL and MT-FL OC

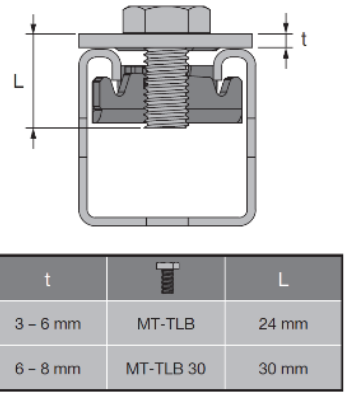
Item number	Designation	Installation torque	Illustration
2272080 2399683	MT-TL M10 MT-FL	30 Nm	
2272082 2399682	MT-TL M10 OC MT-FL OC	40 Nm	

Table B2: Installation torque of MT-TFB OC thread forming bolt combination with MT-70 and MT-80 installation channels

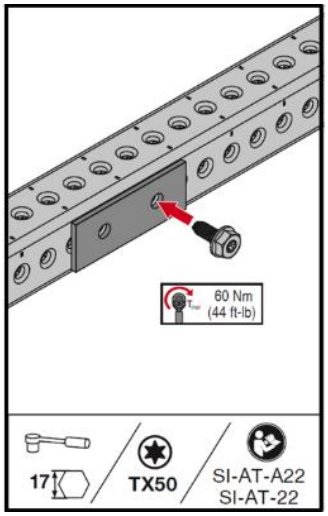
Item number	Designation	Installation torque	Illustration
2272084	MT-TFB OC	60 Nm	

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Table B3: Properties of the cross section of Hilti channels MT-50 S, MT-50 S OC, MT-50, MT-50 U, MT-50 OC, MT-60 S, MT-60 S OC, MT-60, MT-60 OC, MT-70 S OC, MT-70 OC, MT-80 S OC and MT-80 OC

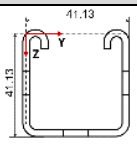
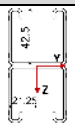
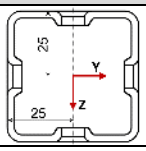
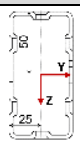
Description	Symbol	Unit	MT-50 S / MT-50 / MT-50 S OC / MT-50 U / MT-50 OC	MT-40D S / MT-40D / MT-40D S OC / MT-40D OC	MT-70 S OC / MT-70 OC	MT-80 S OC / MT-80 OC
Cross section (dimensions in mm)	-	-				
Classification cross section in accordance with EN 1993-1-1	-	-	3	3	3	3
Cross section areas	A	cm^2	2.77	4.31	4.32	5.96
	A_{tot}	cm^2	2.77	4.31	4.32	5.96
Shear areas	A_y	cm^2	NPA	NPA	NPA	NPA
	A_z	cm^2	NPA	NPA	NPA	NPA
Centroid position	$y_{C,0}$	cm	1.99	0.00	0.00	0.00
	$z_{C,0}$	cm	2.07	0.00	0.00	0.00
Moments of inertia	I_y	cm^4	7.07	30.13	15.96	88.39
	I_z	cm^4	8.30	13.22	15.96	24.61
Polar moments of inertia	I_p	cm^4	15.36	43.35	31.93	113.00
	$I_{p,M}$	cm^4	66.91	43.35	31.93	113.00
Radii of gyration	i_y	cm	1.60	2.64	1.92	3.85
	i_z	cm	1.73	1.75	1.92	2.03
Polar radii of gyration	i_p	cm	2.35	3.17	2.72	4.36
	$i_{p,M}$	cm	4.91	3.17	2.72	4.36
Warping radius of gyration	$i_{\omega,M}$	cm	NPA	NPA	NPA	NPA
Torsional constant	J	cm^4	NPA	NPA	NPA	NPA
Secondary torsional constant	J_s	cm^4	NPA	NPA	NPA	NPA
Location of the shear center	$y_{M,0}$	cm	NPA	NPA	NPA	NPA
	$z_{M,0}$	cm	NPA	NPA	NPA	NPA
	y_M	cm	NPA	NPA	NPA	NPA
	z_M	cm	NPA	NPA	NPA	NPA
Warping constants	$I_{\omega,C}$	cm^6	NPA	NPA	NPA	NPA
	$I_{\omega,M}$	cm^6	NPA	NPA	NPA	NPA
Section moduli	$S_{y,max}$	cm^3	3.46	7.09	6.39	17.68
	$S_{y,min}$	cm^3	-3.21	-7.09	-6.39	-17.68
	$S_{z,max}$	cm^3	3.90	6.22	6.39	9.84
	$S_{z,min}$	cm^3	-3.90	-6.22	-6.39	-9.84
Torsional section modulus	S_t	cm^3	NPA	NPA	NPA	NPA
Max. plastic bending moment	$M_{pl,y,k}$	kNm	NPA	NPA	NPA	NPA
	$M_{pl,z,k}$	kNm	NPA	NPA	NPA	NPA
Max. plastic section moduli	Z_y	cm^3	NPA	NPA	NPA	NPA
	Z_z	cm^3	NPA	NPA	NPA	NPA
Plastic shear areas	$A_{pl,y}$	cm^2	NPA	NPA	NPA	NPA
	$A_{pl,z}$	cm^2	NPA	NPA	NPA	NPA
Area bisecting axis position	$f_{y,0}$	cm	NPA	NPA	NPA	NPA
	$f_{z,0}$	cm	NPA	NPA	NPA	NPA
Plastic shear forces	$V_{pl,y,k}$	kN	NPA	NPA	NPA	NPA
	$V_{pl,z,k}$	kN	NPA	NPA	NPA	NPA
Plastic axial forces	$N_{pl,k}$	kN	NPA	NPA	NPA	NPA
Buckling curves	BC_y	-	c	c	c	c
	BC_z	-	c	c	c	c

Figure C25: Definition of Hilti MT-B-GS T OC and MT-B-GS O4U OC baseplate local coordinate System for use with Hilti MT-70 S OC, MT-70 OC, MT-80 S OC and MT-80 OC installation channels

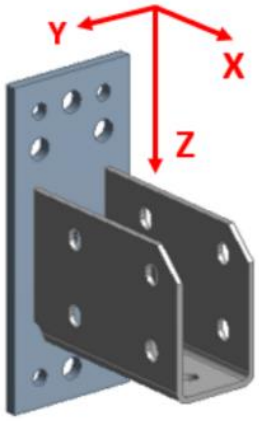


Table C25: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-B-GS T OC and MT-B-GS O4U OC baseplate in combination with Hilti MT-70 S OC, MT-70 OC, MT-80 S OC and MT-80 OC installation channels

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	3500,0	NPA	3600,0	3600,0	3600,0	3600,0	NPA	NPA	421,9	421,9	421,9	421,9
60	3500,0		2786,9	2786,9	2786,9	2786,9			337,5	337,5	337,5	337,5
90	3500,0		2500,0	2500,0	2250,0	2500,0			337,5	337,5	337,5	337,5
120	3500,0		2500,0	2500,0	2250,0	2500,0			337,5	337,5	337,5	337,5

Figure C26: Definition of Hilti MT-AB A set and MT-AB A OC set local coordinate System for use with Hilti MT-50 S, MT-50, MT-50 S OC and MT-50 OC installation channels

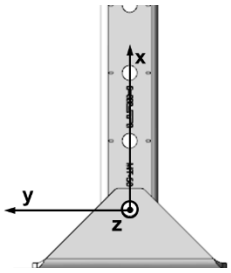


Table C26: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-AB A and MT-AB A OC angel brace as baseplate application in combination with Hilti MT-50 S, MT-50, MT-50 S OC and MT-50 OC installation channels

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	3600,0	NPA	3165,1	3165,1	NPA	NPA	NPA	NPA	NPA	NPA	NPA	NPA
60	2302,5		1627,8	1627,8								
90	1804,0		1115,4	1115,4								
120	1554,8		859,1	859,1								

Figure C26: Definition of Hilti MT-B O2, MT-B O2 OC, MT-B O2 FL, MT-B O2 FL OC, MT-B O4, MT-B O4 OC, MT-B O2B and MT-B O2B OC baseplate local coordinate System for use with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels

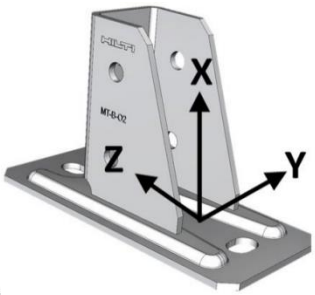


Table C26: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-B O2, MT-B O2 OC, MT-B O2 FL, MT-B O2 FL OC, MT-B O4, MT-B O4 OC, MT-B O2B and MT-B O2B OC baseplate in combination with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	2250,0	NPA	1293,3	1293,3	1293,3	1040,0	NPA	NPA	134,0	134,0	134,0	134,0
60	1000,0		550,0	550,0	550,0	470,0			64,6	64,6	64,6	64,6
90	1000,0		550,0	550,0	550,0	280,0			64,6	64,6	64,6	64,6
120	1000,0		550,0	550,0	550,0	185,0			64,6	64,6	64,6	64,6

Figure C27: Definition of Hilti MT-B-T, MT-B-T OC, MT-B-T FL and MT-B-T FL OC baseplate local coordinate System for use with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels

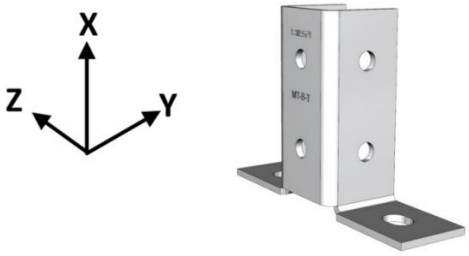


Table C27: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-B-T, MT-B-T OC, MT-B-T FL and MT-B-T FL OC, baseplate in combination with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	1160,5	NPA	1114,9	1114,9	NPA	NPA	NPA	NPA	NPA	NPA	84,4	84,4
60	623,0		626,1	626,1							0,0	0,0
90	500,0		463,1	463,1							0,0	0,0
120	500,0		381,7	381,7							0,0	0,0

Figure C28: Definition of Hilti MT-C-GSP L A OC connector local coordinate System and viewpoints for use with Hilti MT-70 S OC, MT-70 OC, MT-80 S OC and MT-80 OC installation channels

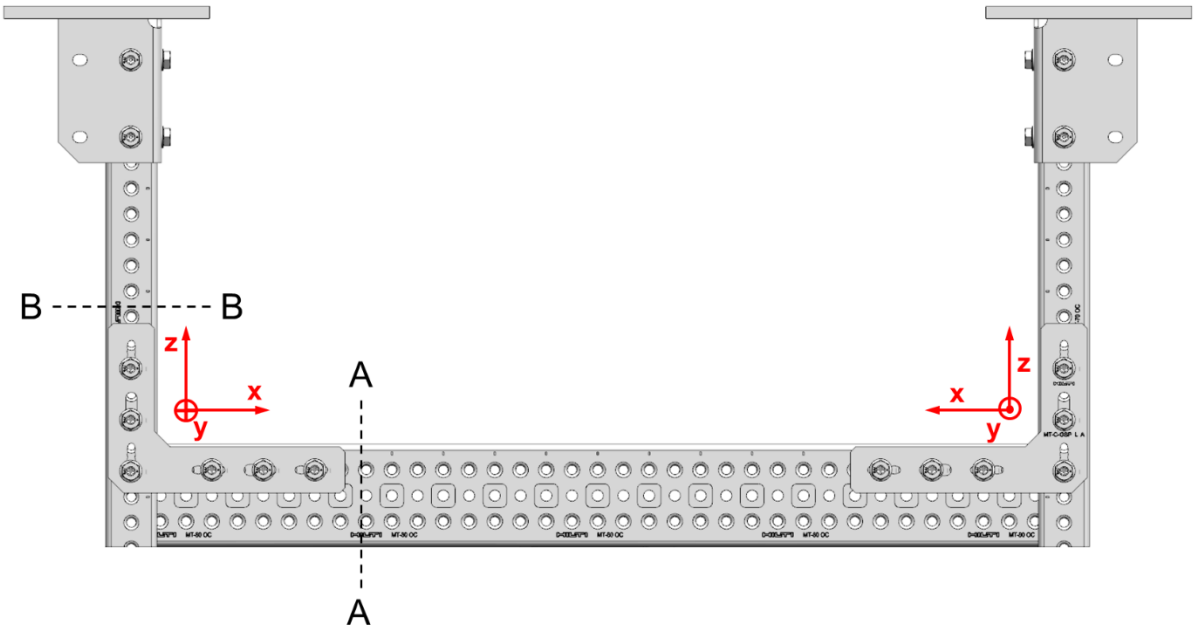


Table C28: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GSP L A OC connector in combination with Hilti MT-70 S OC and MT-70 OC installation channels, view A-A

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	3200	NPA	NPA	NPA	NPA	2000	NPA	NPA	140	NPA	NPA	NPA
60	3200					2000			140			
90	3200					2000			140			
120	3200					2000			140			

Table C28: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GSP L A OC connector in combination with Hilti MT-70 S OC and MT-70 OC installation channels, view B-B

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	NPA	3000	NPA	NPA	3200	NPA	NPA	NPA	NPA	140	NPA	NPA
60		3000			3200					140		
90		3000			3200					140		
120		3000			3200					140		

Table C29: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GSP L A OC connector in combination with Hilti MT-70 S OC, MT-70 OC and MT-80 C OC and MT-80 OC installation channels, view A-A

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	3200	NPA	NPA	NPA	NPA	1500	NPA	NPA	140	NPA	NPA	NPA
60	3200					1500			140			
90	3200					1500			140			
120	3200					1500			140			

Table C29: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GSP L A OC connector in combination with Hilti MT-70 S OC, MT-70 OC and MT-80 C OC and MT-80 OC installation channels, view B-B

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	NPA	1500	NPA	NPA	2900	NPA	NPA	NPA	NPA	140	NPA	NPA
60		1500			2900					140		
90		1500			2900					140		
120		1500			2900					140		

Figure C6: Definition of Hilti MT-AB A set and MT-AB A OC set local coordinate System and viewpoints for use with Hilti MT-50 S, MT-50, MT-50 S OC and MT-50 OC installation channels

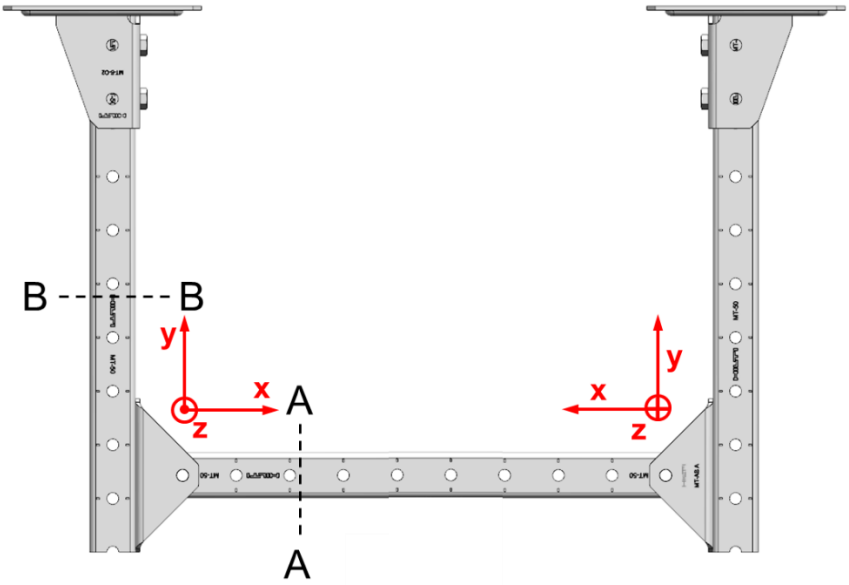


Table C30: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-AB A set and MT-AB A OC set angel brace used as connector in combination with Hilti MT-50 S, MT-50, MT-50 S OC and MT-50 OC installation channels, view A-A

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	1566,1	NPA	NPA	1750,0	NPA	NPA	NPA	NPA	NPA	NPA	NPA	NPA
60	808,1			926,1								
90	555,5			647,3								
120	429,2			507,9								

Table C30: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-AB A set and MT-AB A OC set angel brace used as connector in combination with Hilti MT-50 S, MT-50, MT-50 S OC and MT-50 OC installation channels, view B-B

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	NPA	1566,1	1750,0	NPA	NPA	NPA	NPA	NPA	NPA	NPA	NPA	NPA
60		808,1	926,1									
90		555,5	647,3									
120		429,2	507,9									

Figure C7: Definition of Hilti MT-C-GS OC connector local coordinate System and viewpoints for use with vertical Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC or MT-50 OC and horizontal MT-50 S, MT-50, MT-50 S OC, MT-50 OC, MT-40D S, MT-40D, MT-40D S OC or MT-40D OC installation channels

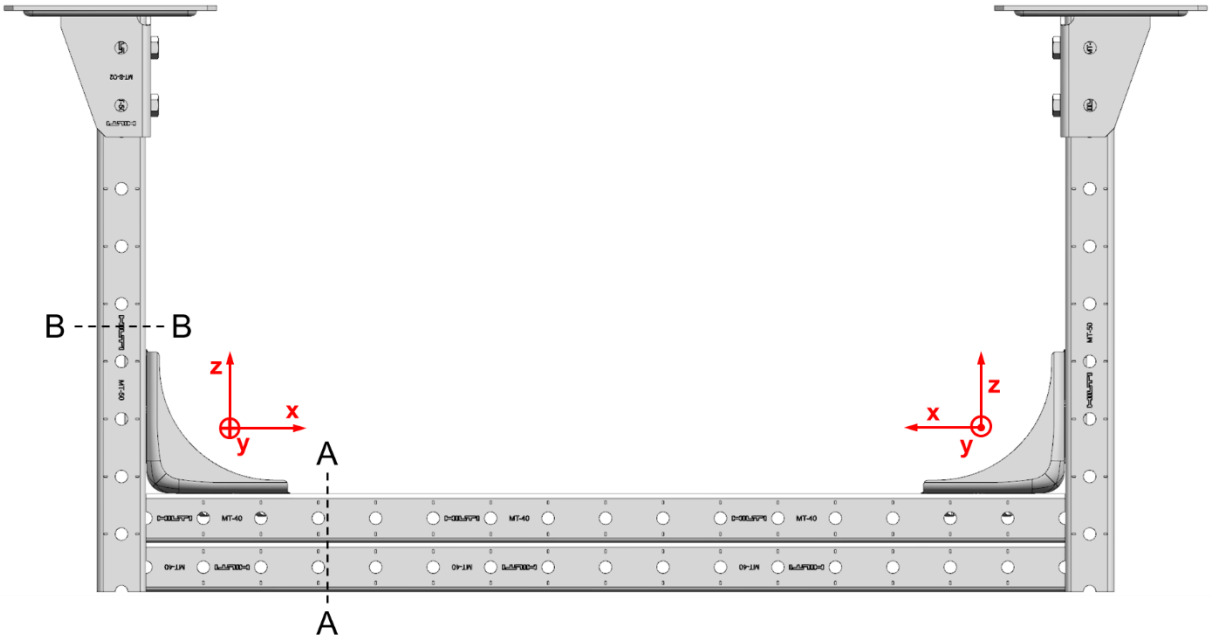


Table C31: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector for use with vertical Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC or MT-50 OC and horizontal MT-50 S, MT-50, MT-50 U, MT-50 S OC, MT-50 OC, MT-40D S, MT-40D, MT-40D S OC or MT-40D OC installation channels, view A-A

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	935,5	NPA	NPA	NPA	NPA	782,3	NPA	NPA	216,0	NPA	NPA	NPA
60	615,9					559,8			137,7			
90	509,3					485,6			111,6			
120	456,1					448,6			98,6			

Table C31: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector for use with vertical Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC or MT-50 OC and horizontal MT-50 S, MT-50, MT-50 U, MT-50 S OC, MT-50 OC, MT-40D S, MT-40D, MT-40D S OC or MT-40D OC installation channels, view B-B

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	NPA	689,6	NPA	NPA	935,5	NPA	NPA	NPA	NPA	216,0	NPA	NPA
60		300,0			615,9					137,7		
90		300,0			509,3					111,6		
120		300,0			456,1					98,6		

Figure C8: Definition of Hilti MT-C-GS OC connector local coordinate System and viewpoints for use with vertical Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC or MT-50 OC and horizontal MT-40D S, MT-40D, MT-40D S OC or MT-40D OC installation channels

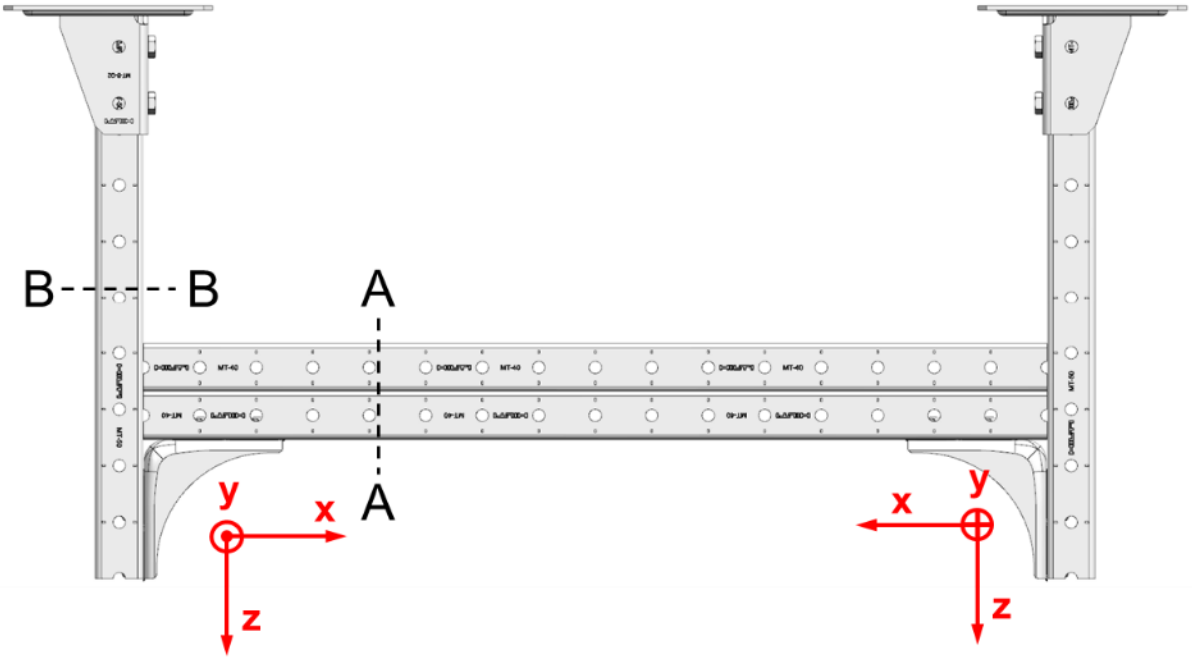


Table C32: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector for use with vertical Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC or MT-50 OC and horizontal MT-40D S, MT-40D, MT-40D S OC or MT-40D OC installation channels, view A-A

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	426,1	NPA	NPA	NPA	877,4	NPA	NPA	NPA	NPA	125,0	NPA	NPA
60	300,0				580,1					0,0		
90	300,0				481,0					0,0		
120	300,0				431,4					0,0		

Table C32: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector for use with vertical Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC or MT-50 OC and horizontal MT-40D S, MT-40D, MT-40D S OC or MT-40D OC installation channels, view B-B

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	NPA	689,6	NPA	NPA	NPA	1025,1	NPA	NPA	125,0	NPA	NPA	NPA
60		300,0				553,8			0,0			
90		300,0				396,7			0,0			
120		300,0				318,1			0,0			

Figure C9: Definition of Hilti MT-C-GS OC connector local coordinate System and viewpoints for use with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC, installation channels

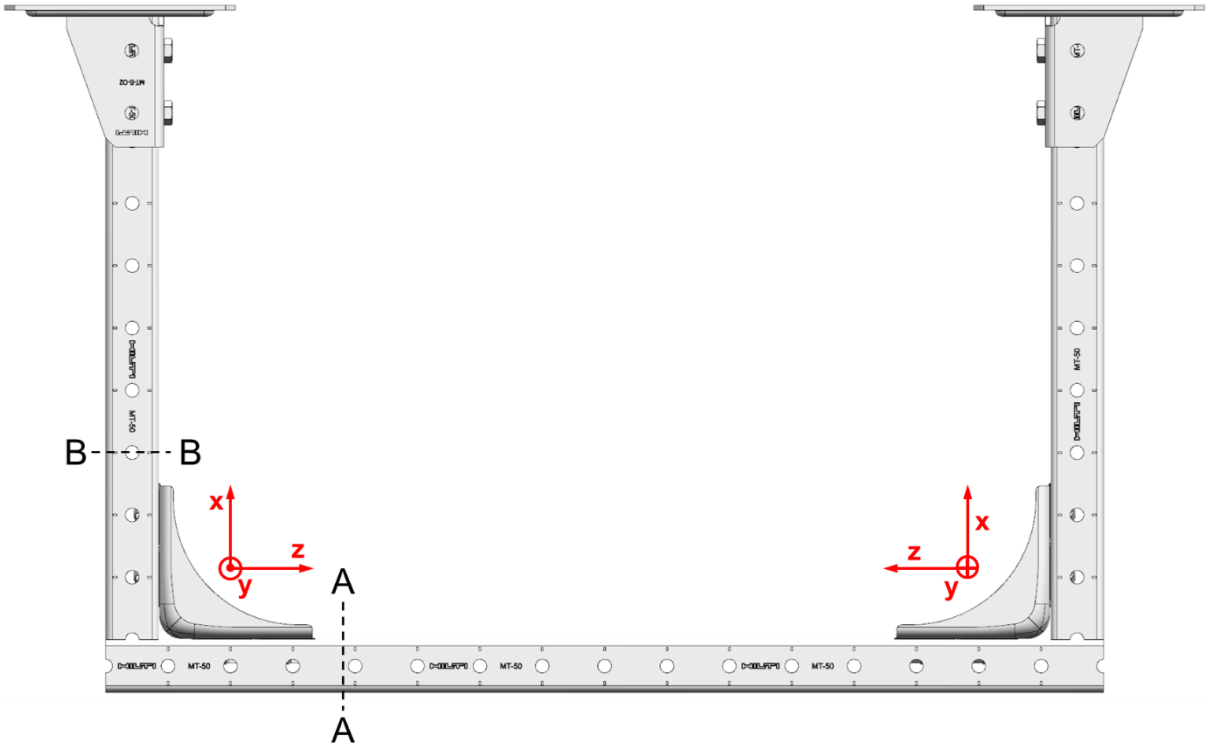


Table C33: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector in combination with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels, view A-A

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	NPA	782,3	NPA	NPA	935,5	NPA	NPA	NPA	NPA	132,1	NPA	NPA
60		559,8			615,9					122,6		
90		485,6			509,3					0,0		
120		448,6			456,1					0,0		

Table C33: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector in combination with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels, view B-B

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	935,5	NPA	NPA	NPA	NPA	782,3	NPA	NPA	132,1	NPA	NPA	NPA
60	615,9					559,8			122,6			
90	509,3					485,6			0,0			
120	456,1					448,6			0,0			

Figure C10: Definition of Hilti MT-C-GS OC connector local coordinate System for use with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC, installation channels

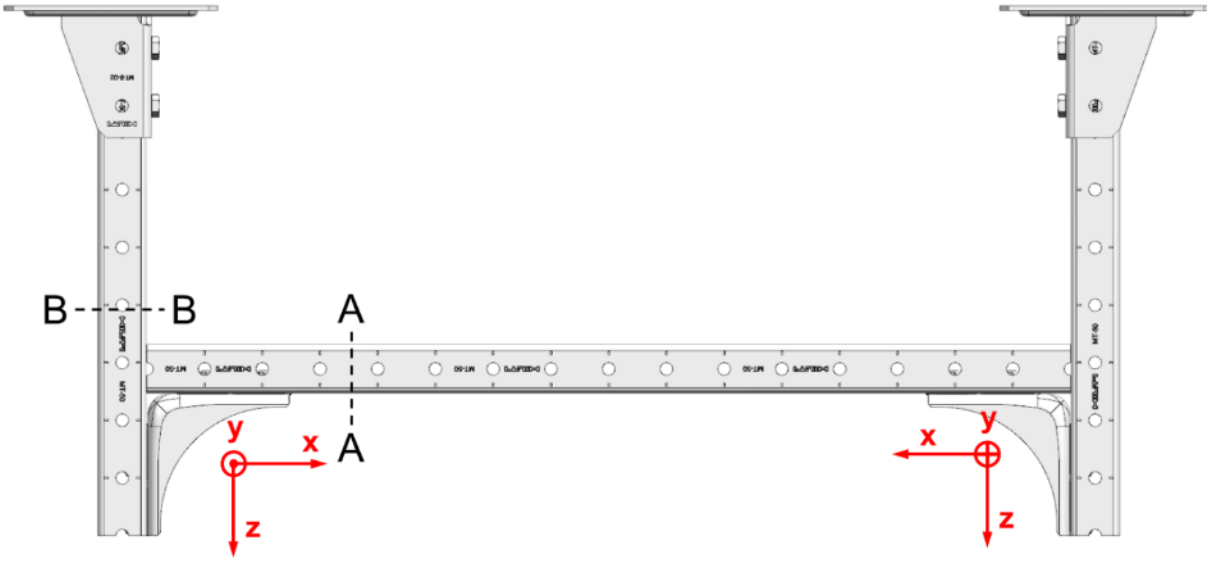


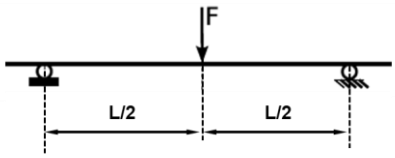
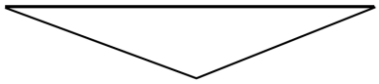
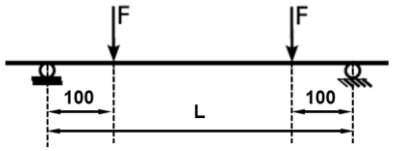
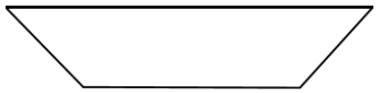
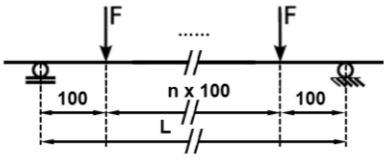
Table C34: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector in combination with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels, view A-A

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	426,1	NPA	NPA	NPA	877,4	NPA	NPA	NPA	NPA	125,0	NPA	NPA
60	300,0				580,1					0,0		
90	300,0				481,0					0,0		
120	300,0				431,4					0,0		

Table C34: Resistance $F_{Rk,t}$ and $M_{Rk,t}$ in case of fire after t = 30, 60, 90 and 120 minutes of Hilti MT-C-GS OC connector in combination with Hilti MT-50 S, MT-50, MT-50 U, MT-50 S OC and MT-50 OC installation channels, view B-B

t	$+F_{x,Rk,t}$	$-F_{x,Rk,t}$	$+F_{y,Rk,t}$	$-F_{y,Rk,t}$	$+F_{z,Rk,t}$	$-F_{z,Rk,t}$	$+M_{x,Rk,t}$	$-M_{x,Rk,t}$	$+M_{y,Rk,t}$	$-M_{y,Rk,t}$	$+M_{z,Rk,t}$	$-M_{z,Rk,t}$
min	N	N	N	N	N	N	Nm	Nm	Nm	Nm	Nm	Nm
30	NPA	689,6	NPA	NPA	NPA	1025,1	NPA	NPA	125,0	NPA	NPA	NPA
60		300,0				553,8			0,0			
90		300,0				396,7			0,0			
120		300,0				318,1			0,0			

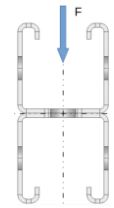
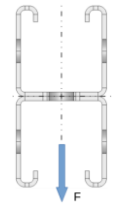
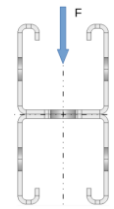
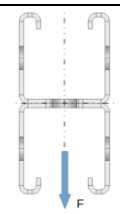
Table D1: Loading characteristics of Hilti channels

Loadcase	System	Resulting torque curve shape
1		
2		
3		

Symbols and designation

L	Distance between the supports in mm
n	number of 100 mm gaps between loads
F	Load

Table D2: Calculation-based deformation in case of fire for installation channels MT-40D, MT-40D S, MT-40D OC and MT-40D S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n[4]		MPa	-	N	mm	min	mm	mm	mm	mm
1	600	-		5	0,50	225,04	29,03	120,00	20,77	21,10	27,93	29,03
				10	0,50	459,99	34,30	106,67	22,57	24,76	32,96	-
				15	0,50	694,95	29,63	46,67	24,85	-	-	-
				20	0,50	929,90	24,07	26,67	-	-	-	-
				25	0,50	1164,86	16,09	20,00	-	-	-	-
				30	0,50	1399,81	16,76	20,00	-	-	-	-
1	600	-		5	0,50	225,04	29,76	120,00	21,01	21,55	28,54	29,76
				10	0,50	459,99	37,13	120,00	23,13	25,86	34,48	37,13
				15	0,50	694,95	51,07	93,33	25,89	32,55	48,92	-
				20	0,50	929,90	45,48	53,33	29,67	-	-	-
				25	0,50	1164,86	51,18	33,33	40,07	-	-	-
				30	0,50	1399,81	38,07	26,67	-	-	-	-
2	600	-		5	0,67	450,07	31,95	120,00	21,70	22,84	30,27	31,95
				10	0,67	919,98	49,52	100,00	25,55	32,51	45,49	-
				15	0,67	1389,89	41,81	40,00	31,78	-	-	-
				20	0,67	1859,80	33,88	26,67	-	-	-	-
				25	0,67	2329,71	19,03	20,00	-	-	-	-
				30	0,67	2799,62	11,26	13,33	-	-	-	-
2	600	-		5	0,67	450,07	31,23	120,00	21,54	22,50	29,74	31,23
				10	0,67	919,98	70,61	120,00	24,83	30,22	42,27	70,61
				15	0,67	1389,89	109,11	73,33	29,76	71,64	-	-
				20	0,67	1859,80	102,70	33,33	66,52	-	-	-
				25	0,67	2329,71	18,22	20,00	-	-	-	-
				30	0,67	2799,62	20,29	20,00	-	-	-	-

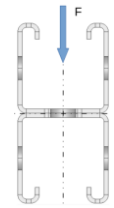
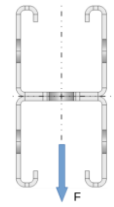
[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm
[4] distance between loads is 75 mm

Symbols and designation

$\varepsilon_{B,\theta a}$	Channel bending strain at elevated temperatures θ_a
σ_B	Channel bending stress
V	Momentum degree of fullness
F	Load
$\delta_{tmax;B}$	Deformation of the channel at the point in time of stability failure or of the plastic hinging
$t_{max,B}$	Time in which loss of rigidity or plastic hinging of the channel occurs under bending stress
δ_{30}	Displacement after exposure time of 30 minutes to elevated temperatures
δ_{60}	Displacement after exposure time of 60 minutes to elevated temperatures
δ_{90}	Displacement after exposure time of 90 minutes to elevated temperatures
δ_{120}	Displacement after exposure time of 120 minutes to elevated temperatures

Thermal analyses as well as calculations are referring to the boundary conditions of STTC.

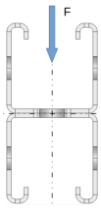
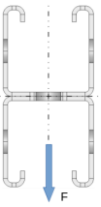
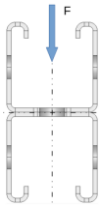
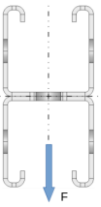
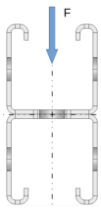
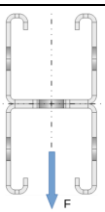
Table D3: Calculation-based deformation in case of fire for installation channels MT-40D, MT-40D S, MT-40D OC and MT-40D S OC

System			Load direction	σ_B	V[1)]	F[2)]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3)]	n[4)]		MPa	-	N	mm	min	mm	mm	mm	mm
3	600	6		5	0,88	56,26	29,88	120,00	21,08	21,63	28,62	29,88
				10	0,88	115,00	39,10	120,00	23,46	26,83	36,01	39,10
				15	0,88	173,74	59,36	93,33	26,60	35,39	55,68	-
				20	0,88	232,48	53,74	53,33	31,27	-	-	-
				25	0,88	291,21	54,25	33,33	42,38	-	-	-
				30	0,88	349,95	42,81	26,67	-	-	-	-
3	600	6		5	0,88	56,26	30,13	120,00	21,18	21,80	28,83	30,13
				10	0,88	115,00	39,64	120,00	23,67	27,13	36,30	39,64
				15	0,88	173,74	88,93	73,33	26,88	37,36	-	-
				20	0,88	232,48	39,56	33,33	32,91	-	-	-
				25	0,88	291,21	31,49	26,67	-	-	-	-
				30	0,88	349,95	17,92	20,00	-	-	-	-

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm
[4)] distance between loads is 75 mm

Symbols and designation see Annex D1

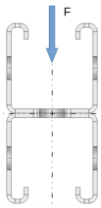
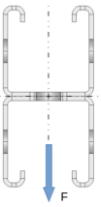
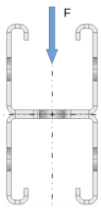
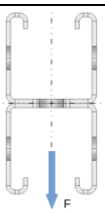
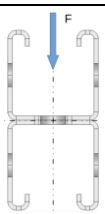
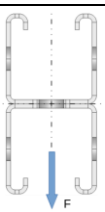
Table D4: Calculation-based deformation in case of fire for installation channels MT-40D, MT-40D S, MT-40D OC and MT-40D S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n[4]		MPa	-	N	mm	min	mm	mm	mm	mm
1	900	-		5	0,50	141,76	32,60	120,00	22,02	23,26	30,77	32,60
				10	0,50	298,40	45,36	120,00	25,68	30,86	41,26	45,36
				15	0,50	455,03	61,61	93,33	30,33	42,56	60,15	-
				20	0,50	611,67	60,56	60,00	36,58	60,56	-	-
				25	0,50	768,31	57,06	33,33	46,26	-	-	-
				30	0,50	924,94	45,50	26,67	-	-	-	-
1	900	-		5	0,50	141,76	33,02	120,00	22,16	23,52	31,12	33,02
				10	0,50	298,40	46,90	120,00	26,03	31,56	42,27	46,90
				15	0,50	455,03	83,81	73,33	30,99	44,65	-	-
				20	0,50	611,67	99,25	40,00	38,05	-	-	-
				25	0,50	768,31	37,11	26,67	-	-	-	-
				30	0,50	924,94	20,15	20,00	-	-	-	-
2	900	-		5	0,67	425,28	37,28	120,00	23,63	26,18	34,56	37,28
				10	0,67	895,19	216,07	120,00	30,87	44,28	172,94	216,07
				15	0,67	1365,10	352,83	120,00	42,55	224,71	322,16	352,83
				20	0,67	1835,01	48,14	26,67	-	-	-	-
				25	0,67	2304,92	22,94	20,00	-	-	-	-
				30	0,67	2774,83	12,84	13,33	-	-	-	-
2	900	-		5	0,67	425,28	36,50	120,00	23,46	25,81	33,99	36,50
				10	0,67	895,19	171,23	120,00	30,02	41,24	57,99	171,23
				15	0,67	1365,10	269,20	120,00	39,22	124,11	227,73	269,20
				20	0,67	1835,01	324,85	93,33	88,86	269,31	321,21	-
				25	0,67	2304,92	22,07	20,00	-	-	-	-
				30	0,67	2774,83	25,60	20,00	-	-	-	-
3	900	10		5	0,92	23,63	34,39	120,00	22,69	24,42	32,23	34,39
				10	0,92	49,73	53,46	120,00	27,56	35,26	47,63	53,46
				15	0,92	75,84	99,13	106,67	33,89	52,19	78,29	-
				20	0,92	101,94	105,46	66,67	43,24	83,43	-	-
				25	0,92	128,05	78,01	33,33	60,60	-	-	-
				30	0,92	154,16	63,45	26,67	-	-	-	-
3	900	10		5	0,92	23,63	34,40	120,00	22,70	24,44	32,25	34,40
				10	0,92	49,73	54,30	120,00	27,61	35,20	47,41	54,30
				15	0,92	75,84	302,03	120,00	33,89	56,23	241,46	302,03
				20	0,92	101,94	354,07	120,00	46,82	249,66	322,40	354,07
				25	0,92	128,05	46,17	26,67	-	-	-	-
				30	0,92	154,16	21,64	20,00	-	-	-	-

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm
[4] distance between loads is 75 mm

Symbols and designation see Annex D1

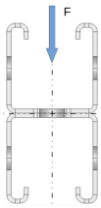
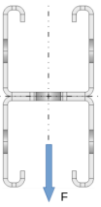
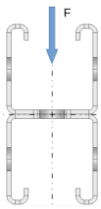
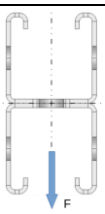
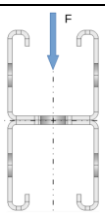
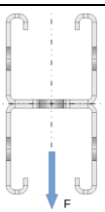
Table D5: Calculation-based deformation in case of fire for installation channels MT-40D, MT-40D S, MT-40D OC and MT-40D S OC

System			Load direction	σ_B	$V^{1)}$	$F^{2)}$	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	$L^{3)}$	$n^{4)}$		MPa	-	N	mm	min	mm	mm	mm	mm
1	1200	-		5	0,50	97,64	38,03	120,00	23,92	26,56	35,10	38,03
				10	0,50	215,12	60,76	120,00	30,31	40,02	53,76	60,76
				15	0,50	332,60	100,54	93,33	38,43	60,69	94,64	-
				20	0,50	450,07	96,88	60,00	49,42	96,88	-	-
				25	0,50	567,55	98,24	33,33	73,19	-	-	-
				30	0,50	685,03	67,35	26,67	-	-	-	-
1	1200	-		5	0,50	97,64	38,33	120,00	24,03	26,75	35,35	38,33
				10	0,50	215,12	63,62	120,00	30,58	40,57	54,82	63,62
				15	0,50	332,60	124,16	66,67	38,98	77,89	-	-
				20	0,50	450,07	82,47	33,33	60,51	-	-	-
				25	0,50	567,55	50,68	26,67	-	-	-	-
				30	0,50	685,03	24,23	20,00	-	-	-	-
2	1200	-		5	0,67	390,57	44,88	120,00	26,35	30,91	40,66	44,88
				10	0,67	860,48	297,70	120,00	38,46	62,61	236,26	297,70
				15	0,67	1330,39	451,21	120,00	89,14	266,52	361,85	451,21
				20	0,67	450,07	82,47	33,33	60,51	-	-	-
				25	0,67	567,55	50,68	26,67	-	-	-	-
				30	0,67	685,03	24,23	20,00	-	-	-	-
2	1200	-		5	0,67	390,57	44,06	120,00	26,17	30,51	40,07	44,06
				10	0,67	860,48	245,42	120,00	37,38	57,47	128,19	245,42
				15	0,67	1330,39	337,90	120,00	56,50	215,81	296,46	337,90
				20	0,67	1800,30	356,63	93,33	148,97	303,55	351,38	-
				25	0,67	2270,21	27,52	20,00	-	-	-	-
				30	0,67	2740,12	33,24	20,00	-	-	-	-
3	1200	14		5	0,94	12,21	41,25	120,00	25,15	28,69	37,76	41,25
				10	0,94	26,89	74,91	120,00	33,66	47,82	64,97	74,91
				15	0,94	41,57	215,97	120,00	44,62	76,85	119,32	215,97
				20	0,94	56,26	404,68	120,00	60,71	135,49	330,01	404,68
				25	0,94	70,94	417,72	120,00	92,26	299,78	378,43	417,72
				30	0,94	85,63	435,77	120,00	183,39	334,63	396,70	435,77
3	1200	14		5	0,94	12,21	41,05	120,00	25,08	28,57	37,59	41,05
				10	0,94	26,89	77,11	120,00	33,59	47,51	64,45	77,11
				15	0,94	41,57	320,15	120,00	44,48	79,83	267,60	320,15
				20	0,94	56,26	406,31	120,00	68,73	274,25	360,25	406,31
				25	0,94	70,94	471,09	120,00	168,76	357,24	431,36	471,09
				30	0,94	85,63	27,26	20,00	-	-	-	-

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm
[4)] distance between loads is 75 mm

Symbols and designation see Annex D1

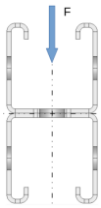
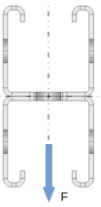
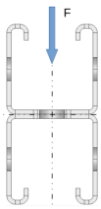
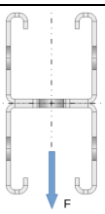
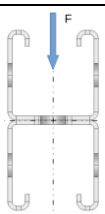
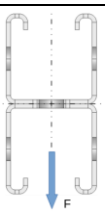
Table D6: Calculation-based deformation in case of fire for installation channels MT-40D, MT-40D S, MT-40D OC and MT-40D S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n[4]		MPa	-	N	mm	min	mm	mm	mm	mm
1	1500	-		5	0,50	69,19	45,74	120,00	26,63	31,26	41,26	45,74
				10	0,50	163,17	82,38	120,00	36,66	52,69	71,13	82,38
				15	0,50	257,15	535,47	120,00	49,36	85,67	365,37	535,47
				20	0,50	351,13	614,33	120,00	66,93	397,13	559,35	614,33
				25	0,50	445,12	65,42	26,67	-	-	-	-
				30	0,50	539,10	100,62	26,67	-	-	-	-
1	1500	-		5	0,50	69,19	45,96	120,00	26,71	31,40	41,44	45,96
				10	0,50	163,17	142,87	120,00	36,88	53,38	74,25	142,87
				15	0,50	257,15	158,32	60,00	50,17	158,32	-	-
				20	0,50	351,13	50,18	26,67	-	-	-	-
				25	0,50	445,12	82,42	26,67	-	-	-	-
				30	0,50	539,10	29,74	20,00	-	-	-	-
2	1500	-		5	0,67	345,94	54,93	120,00	29,88	37,06	48,72	54,93
				10	0,67	815,85	369,45	120,00	48,57	131,06	308,28	369,45
				15	0,67	1285,76	459,22	120,00	138,22	337,06	414,37	459,22
				20	0,67	1755,67	28,80	20,00	-	-	-	-
				25	0,67	2225,58	35,81	20,00	-	-	-	-
				30	0,67	2695,49	47,51	20,00	-	-	-	-
2	1500	-		5	0,67	345,94	53,90	120,00	29,66	36,58	47,98	53,90
				10	0,67	815,85	306,27	120,00	46,97	92,37	228,43	306,27
				15	0,67	1285,76	399,57	120,00	96,73	281,78	358,66	399,57
				20	0,67	1755,67	419,41	93,33	218,19	356,20	415,04	-
				25	0,67	2225,58	34,54	20,00	-	-	-	-
				30	0,67	2695,49	43,76	20,00	-	-	-	-
3	1500	18		5	0,95	6,92	50,87	120,00	28,62	34,72	45,53	50,87
				10	0,95	16,32	103,91	120,00	41,90	64,82	88,37	103,91
				15	0,95	25,72	260,97	120,00	58,88	109,10	172,36	260,97
				20	0,95	35,11	446,80	120,00	83,63	185,15	363,88	446,80
				25	0,95	44,51	492,69	120,00	127,97	320,20	439,26	492,69
				30	0,95	53,91	524,41	120,00	212,58	389,87	476,04	524,41
3	1500	18		5	0,95	6,92	50,28	120,00	28,40	34,33	45,04	50,28
				10	0,95	16,32	105,82	120,00	41,66	64,16	87,48	105,82
				15	0,95	25,72	373,86	120,00	58,58	120,45	302,62	373,86
				20	0,95	35,11	454,01	120,00	93,96	310,78	404,32	454,01
				25	0,95	44,51	506,10	120,00	204,98	392,10	464,26	506,10
				30	0,95	53,91	34,71	20,00	-	-	-	-

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm
[4] distance between loads is 75 mm

Symbols and designation see Annex D1

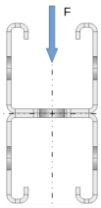
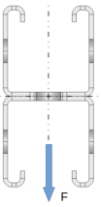
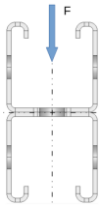
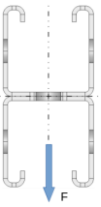
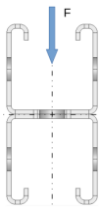
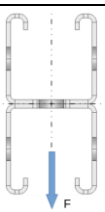
Table D7: Calculation-based deformation in case of fire for installation channels MT-40D, MT-40D S, MT-40D OC and MT-40D S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n[4]		MPa	-	N	mm	min	mm	mm	mm	mm
1	1800	-		5	0,50	48,56	56,23	120,00	30,35	37,73	49,67	56,23
				10	0,50	126,88	112,31	120,00	44,97	69,47	94,33	112,31
				15	0,50	205,20	643,50	120,00	63,43	120,15	465,60	643,50
				20	0,50	283,52	736,31	120,00	90,50	481,96	671,69	736,31
				25	0,50	361,84	88,15	26,67	-	-	-	-
				30	0,50	440,16	36,39	20,00	-	-	-	-
1	1800	-		5	0,50	48,56	56,56	120,00	30,40	37,84	49,89	56,56
				10	0,50	126,88	215,20	113,33	45,24	71,56	114,86	0,00
				15	0,50	205,20	255,72	60,00	66,42	255,72	-	-
				20	0,50	283,52	66,43	26,67	-	-	-	-
				25	0,50	361,84	31,28	20,00	-	-	-	-
				30	0,50	440,16	36,80	20,00	-	-	-	-
2	1800	-		5	0,67	291,39	68,72	120,00	34,23	44,74	59,13	68,72
				10	0,67	761,30	453,17	120,00	64,04	215,19	383,81	453,17
				15	0,67	1231,21	555,84	120,00	187,63	414,88	503,93	555,84
				20	0,67	1701,12	35,05	20,00	-	-	-	-
				25	0,67	2171,03	45,16	20,00	-	-	-	-
				30	0,67	2640,94	84,77	20,00	-	-	-	-
2	1800	-		5	0,67	291,39	67,40	120,00	33,98	44,17	58,23	67,40
				10	0,67	761,30	382,16	120,00	60,71	155,72	306,30	382,16
				15	0,67	1231,21	485,94	120,00	137,04	348,57	437,59	485,94
				20	0,67	1701,12	531,10	106,67	283,26	434,52	503,20	-
				25	0,67	2171,03	43,39	20,00	-	-	-	-
				30	0,67	2640,94	63,40	20,00	-	-	-	-
3	1800	22		5	0,96	4,05	63,87	120,00	33,35	42,93	56,10	63,87
				10	0,96	10,57	141,47	120,00	52,50	86,66	118,34	141,47
				15	0,96	17,10	297,70	120,00	76,83	148,75	222,35	297,70
				20	0,96	23,63	484,26	120,00	112,32	231,99	367,82	484,26
				25	0,96	30,15	555,64	120,00	165,54	324,29	477,35	555,64
				30	0,96	36,68	621,82	120,00	264,33	485,90	571,73	621,82
3	1800	22		5	0,96	4,05	62,58	120,00	32,85	42,06	55,01	62,58
				10	0,96	10,57	152,86	120,00	51,97	85,49	116,95	152,86
				15	0,96	17,10	515,00	120,00	76,35	283,85	442,53	515,00
				20	0,96	23,63	533,27	120,00	129,86	365,09	474,43	533,27
				25	0,96	30,15	594,47	120,00	268,94	459,35	544,96	594,47
				30	0,96	36,68	44,07	20,00	-	-	-	-

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm
[4] distance between loads is 75 mm

Symbols and designation see Annex D1

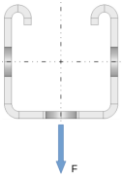
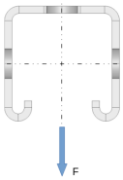
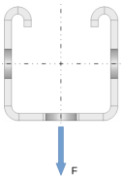
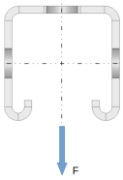
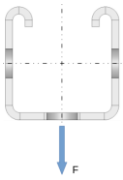
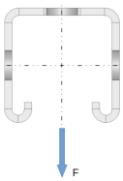
Table D8: Calculation-based deformation in case of fire for installation channels MT-40D, MT-40D S, MT-40D OC and MT-40D S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n[4]		MPa	-	N	mm	min	mm	mm	mm	mm
1	2100	-		5	0,50	32,42	70,26	120,00	35,34	46,42	60,99	70,26
				10	0,50	99,55	160,00	120,00	55,57	91,18	125,20	160,00
				15	0,50	166,68	754,89	120,00	81,09	179,27	586,20	754,89
				20	0,50	233,81	844,22	120,00	126,46	578,16	775,90	844,22
				25	0,50	300,94	914,22	120,00	345,59	761,26	866,24	914,22
				30	0,50	368,07	44,97	20,00	-	-	-	-
1	2100	-		5	0,50	32,42	71,58	120,00	35,38	46,62	61,65	71,58
				10	0,50	99,55	306,50	106,67	56,18	99,29	193,76	0,00
				15	0,50	166,68	320,74	53,33	92,19	-	-	-
				20	0,50	233,81	91,87	26,67	-	-	-	-
				25	0,50	300,94	37,93	20,00	-	-	-	-
				30	0,50	368,07	45,68	20,00	-	-	-	-
2	2100	-		5	0,67	226,92	95,31	120,00	39,45	54,31	73,91	95,31
				10	0,67	696,83	534,70	120,00	92,83	283,75	456,00	534,70
				15	0,67	1166,74	655,13	120,00	240,96	490,69	594,40	655,13
				20	0,67	1636,65	42,70	20,00	-	-	-	-
				25	0,67	2106,56	59,09	20,00	-	-	-	-
				30	0,67	2576,47	157,74	20,00	-	-	-	-
2	2100	-		5	0,67	226,92	92,91	120,00	39,20	53,76	73,15	92,91
				10	0,67	696,83	460,35	120,00	84,99	218,41	378,63	460,35
				15	0,67	1166,74	575,80	120,00	184,46	415,51	519,45	575,80
				20	0,67	1636,65	638,73	113,33	340,41	515,23	595,97	-
				25	0,67	2106,56	55,93	20,00	-	-	-	-
				30	0,67	2576,47	107,34	20,00	-	-	-	-
3	2100	26		5	0,96	2,32	81,18	120,00	39,61	53,87	70,32	81,18
				10	0,96	7,11	186,73	120,00	65,82	113,93	155,64	186,73
				15	0,96	11,91	341,37	120,00	98,81	193,17	272,87	341,37
				20	0,96	16,70	509,61	120,00	145,00	279,39	390,52	509,61
				25	0,96	21,50	650,97	120,00	206,30	363,26	582,77	650,97
				30	0,96	26,29	693,53	120,00	278,93	515,32	632,55	693,53
3	2100	26		5	0,96	2,32	78,70	120,00	38,65	52,19	68,17	78,70
				10	0,96	7,11	220,87	120,00	64,84	112,07	153,58	220,87
				15	0,96	11,91	581,64	120,00	98,03	308,03	499,02	581,64
				20	0,96	16,70	608,72	120,00	166,38	416,71	540,47	608,72
				25	0,96	21,50	679,83	120,00	319,85	522,61	622,08	679,83
				30	0,96	26,29	55,43	20,00	-	-	-	-

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm
[4] distance between loads is 75 mm

Symbols and designation see Annex D1

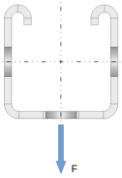
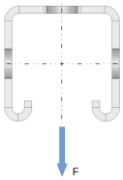
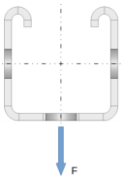
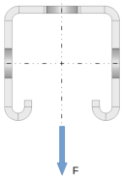
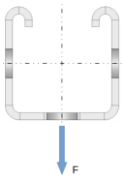
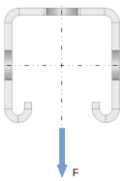
Table D9: Calculation-based deformation in case of fire for installation channels MT-50, MT-50 U, MT-50 S, MT-50 OC and MT-50 S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	500	-		5	0,50	122,79	9,93	120,00	7,50	7,50	9,93	9,93
				10	0,50	250,89	17,22	120,00	10,28	13,00	17,22	17,22
				15	0,50	379,00	36,62	120,00	13,10	19,74	28,87	36,62
				20	0,50	507,11	121,28	120,00	15,97	27,73	75,78	121,28
				25	0,50	635,22	140,57	120,00	18,95	39,35	115,74	140,57
				30	0,50	763,33	160,60	120,00	22,61	89,52	141,98	160,60
1	500	-		5	0,50	122,79	10,02	120,00	7,54	7,55	10,02	10,02
				10	0,50	250,89	17,36	120,00	10,36	13,16	17,36	17,36
				15	0,50	379,00	31,72	120,00	13,21	19,80	27,84	31,72
				20	0,50	507,11	59,92	106,67	16,08	27,08	45,86	-
				25	0,50	635,22	48,63	73,33	19,04	35,76	-	-
				30	0,50	763,33	49,46	60,00	22,31	49,46	-	-
2	500	-		5	0,67	153,48	12,25	120,00	8,53	9,34	12,25	12,25
				10	0,67	313,62	29,54	106,67	12,39	17,67	24,46	-
				15	0,67	473,75	24,19	53,33	16,29	-	-	-
				20	0,67	633,89	15,74	26,67	-	-	-	-
				25	0,67	794,02	6,73	20,00	-	-	-	-
				30	0,67	954,16	7,64	20,00	-	-	-	-
2	500	-		5	0,67	153,48	12,40	120,00	8,58	9,46	12,40	12,40
				10	0,67	313,62	24,65	120,00	12,53	17,95	23,70	24,65
				15	0,67	473,75	54,72	120,00	16,53	27,87	43,02	54,72
				20	0,67	633,89	57,89	80,00	20,56	38,74	-	-
				25	0,67	794,02	52,52	60,00	24,82	52,52	-	-
				30	0,67	954,16	51,68	46,67	30,86	-	-	-
3	500	33		5	0,80	51,16	11,35	120,00	8,12	8,60	11,35	11,35
				10	0,80	104,54	20,99	120,00	11,55	15,76	20,89	20,99
				15	0,80	157,92	38,93	93,33	15,05	24,35	37,73	-
				20	0,80	211,30	39,18	66,67	18,59	34,19	-	-
				25	0,80	264,67	33,21	46,67	22,26	-	-	-
				30	0,80	318,05	34,27	33,33	27,21	-	-	-
3	500	33		5	0,80	51,16	11,46	120,00	8,17	8,70	11,46	11,46
				10	0,80	104,54	21,15	120,00	11,66	15,98	21,11	21,15
				15	0,80	157,92	46,92	120,00	15,19	24,60	36,86	46,92
				20	0,80	211,30	68,02	93,33	18,76	34,11	64,24	-
				25	0,80	264,67	55,44	66,67	22,46	46,32	-	-
				30	0,80	318,05	57,75	53,33	27,30	-	-	-

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

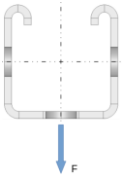
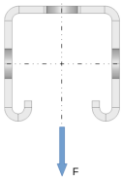
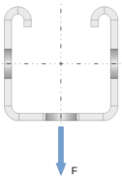
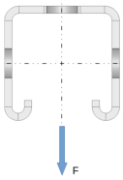
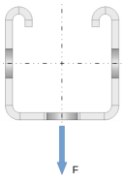
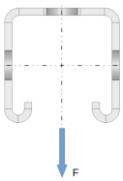
Table D10: Calculation-based deformation in case of fire for installation channels MT-50, MT-50 U, MT-50 S, MT-50 OC and MT-50 S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	700	-		5	0,50	84,06	15,96	120,00	10,15	12,34	15,96	15,96
				10	0,50	175,56	31,24	120,00	15,46	23,06	30,07	31,24
				15	0,50	267,07	110,67	120,00	20,88	35,87	52,26	110,67
				20	0,50	358,57	171,86	120,00	26,37	50,61	141,00	171,86
				25	0,50	450,08	203,36	120,00	32,00	114,31	178,10	203,36
				30	0,50	541,58	229,95	120,00	38,73	153,52	207,78	229,95
1	700	-		5	0,50	84,06	16,00	120,00	10,18	12,38	16,00	16,00
				10	0,50	175,56	30,84	120,00	15,51	23,02	29,88	30,84
				15	0,50	267,07	59,05	120,00	20,90	35,50	49,33	59,05
				20	0,50	358,57	95,65	106,67	26,31	48,86	79,15	-
				25	0,50	450,08	99,89	80,00	31,79	63,88	-	-
				30	0,50	541,58	96,53	60,00	40,22	96,53	-	-
2	700	-		5	0,67	147,10	20,84	120,00	12,31	16,28	20,84	20,84
				10	0,67	307,23	115,84	120,00	20,01	34,24	97,06	115,84
				15	0,67	467,37	105,04	60,00	27,88	105,04	-	-
				20	0,67	627,50	26,84	26,67	-	-	-	-
				25	0,67	787,64	9,97	20,00	-	-	-	-
				30	0,67	947,77	11,79	20,00	-	-	-	-
2	700	-		5	0,67	147,10	20,93	120,00	12,34	16,36	20,93	20,93
				10	0,67	307,23	47,57	120,00	20,12	32,93	42,72	47,57
				15	0,67	467,37	86,89	120,00	27,91	51,31	73,61	86,89
				20	0,67	627,50	120,84	113,33	35,66	69,31	105,06	-
				25	0,67	787,64	117,95	80,00	43,53	87,39	-	-
				30	0,67	947,77	119,64	66,67	53,39	106,26	-	-
3	700	5		5	0,86	24,52	18,74	120,00	11,38	14,57	18,74	18,74
				10	0,86	51,21	40,15	120,00	17,97	28,24	36,84	40,15
				15	0,86	77,89	68,81	93,33	24,62	44,09	66,48	-
				20	0,86	104,58	69,64	66,67	31,30	61,24	-	-
				25	0,86	131,27	58,57	46,67	38,14	-	-	-
				30	0,86	157,96	59,47	33,33	46,96	-	-	-
3	700	5		5	0,86	24,52	18,81	120,00	11,41	14,65	18,81	18,81
				10	0,86	51,21	40,15	120,00	18,06	28,46	36,99	40,15
				15	0,86	77,89	78,46	120,00	24,76	44,37	63,93	78,46
				20	0,86	104,58	131,24	120,00	31,46	60,84	98,26	131,24
				25	0,86	131,27	131,04	86,67	38,27	78,89	-	-
				30	0,86	157,96	119,58	66,67	46,49	101,36	-	-

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

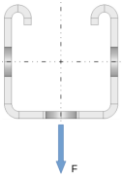
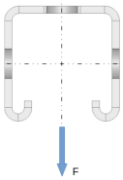
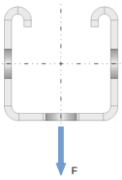
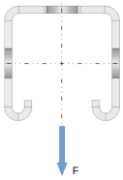
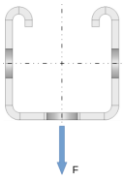
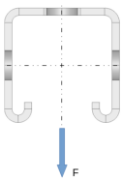
Table D11: Calculation-based deformation in case of fire for installation channels MT-50, MT-50 U, MT-50 S, MT-50 OC and MT-50 S OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	900	-		5	0,50	61,59	24,43	120,00	13,87	19,18	24,43	24,43
				10	0,50	132,76	51,51	120,00	22,59	36,65	47,25	51,51
				15	0,50	203,93	181,22	120,00	31,40	57,08	93,17	181,22
				20	0,50	275,10	238,05	120,00	40,22	87,12	205,02	238,05
				25	0,50	346,28	273,17	120,00	49,20	179,15	245,05	273,17
				30	0,50	417,45	299,31	120,00	61,64	217,52	273,58	299,31
1	900	-		5	0,50	61,59	24,33	120,00	13,86	19,13	24,33	24,33
				10	0,50	132,76	50,70	120,00	22,54	36,41	46,84	50,70
				15	0,50	203,93	92,90	120,00	31,28	56,33	77,08	92,90
				20	0,50	275,10	150,23	113,33	39,99	76,97	118,85	-
				25	0,50	346,28	141,64	80,00	48,74	98,85	-	-
				30	0,50	417,45	144,02	66,67	58,12	124,90	-	-
2	900	-		5	0,67	138,58	32,30	120,00	17,34	25,49	32,30	32,30
				10	0,67	298,72	138,36	120,00	30,16	86,28	121,58	138,36
				15	0,67	458,85	133,34	60,00	54,29	133,34	-	-
				20	0,67	618,99	42,60	26,67	-	-	-	-
				25	0,67	779,12	14,30	20,00	-	-	-	-
				30	0,67	939,26	17,35	20,00	-	-	-	-
2	900	-		5	0,67	138,58	32,19	120,00	17,34	25,50	32,19	32,19
				10	0,67	298,72	75,18	120,00	30,14	52,02	66,44	75,18
				15	0,67	458,85	120,51	120,00	42,72	79,34	106,02	120,51
				20	0,67	618,99	160,37	120,00	54,92	103,27	141,79	160,37
				25	0,67	779,12	184,14	113,33	66,89	124,93	168,09	-
				30	0,67	939,26	192,17	93,33	79,93	143,82	189,30	-
3	900	7		5	0,89	13,86	28,86	120,00	15,87	22,76	28,86	28,86
				10	0,89	29,87	64,52	120,00	26,58	44,64	57,52	64,52
				15	0,89	45,89	101,76	93,33	37,28	68,73	98,39	-
				20	0,89	61,90	104,37	66,67	47,84	92,86	-	-
				25	0,89	77,91	88,04	46,67	58,39	-	-	-
				30	0,89	93,93	88,40	33,33	70,66	-	-	-
3	900	7		5	0,89	13,86	28,88	120,00	15,87	22,81	28,88	28,88
				10	0,89	29,87	64,84	120,00	26,71	45,06	57,91	64,84
				15	0,89	45,89	114,33	120,00	37,52	69,61	96,13	114,33
				20	0,89	61,90	166,59	120,00	48,17	93,27	137,86	166,59
				25	0,89	77,91	210,62	120,00	58,77	116,54	172,96	210,62
				30	0,89	93,93	211,25	93,33	70,68	140,46	205,51	-

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

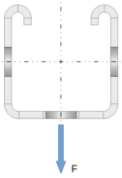
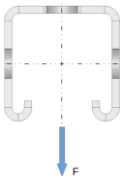
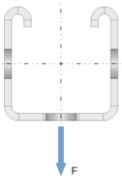
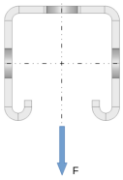
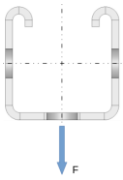
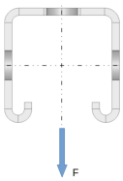
Table D12: Calculation-based deformation in case of fire for installation channels MT-50, MT-50 U, MT-50 S, MT-50 OC and MT-50 S OC

System			Load direction	σ_B	V[1)]	F[2)]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3)]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1100	-		5	0,50	46,52	35,51	120,00	18,79	28,18	35,51	35,51
				10	0,50	104,75	77,38	120,00	31,69	53,79	68,91	77,38
				15	0,50	162,98	232,92	120,00	44,59	83,58	186,12	232,92
				20	0,50	221,22	102,01	53,33	57,42	-	-	-
				25	0,50	279,45	98,91	40,00	70,55	-	-	-
				30	0,50	337,68	62,35	26,67	-	-	-	-
1	1100	-		5	0,50	46,52	35,29	120,00	18,72	28,01	35,29	35,29
				10	0,50	104,75	75,65	120,00	31,55	53,45	68,27	75,65
				15	0,50	162,98	132,07	120,00	44,40	82,01	110,31	132,07
				20	0,50	221,22	201,86	113,33	57,09	110,50	163,46	-
				25	0,50	279,45	190,74	80,00	69,69	139,21	-	-
				30	0,50	337,68	192,59	66,67	82,91	170,74	-	-
2	1100	-		5	0,67	127,94	69,64	120,00	23,63	37,28	51,26	69,64
				10	0,67	288,07	166,94	120,00	45,83	118,04	151,28	166,94
				15	0,67	448,21	208,96	120,00	82,64	161,63	194,51	208,96
				20	0,67	608,34	66,45	26,67	-	-	-	-
				25	0,67	768,48	19,72	20,00	-	-	-	-
				30	0,67	928,61	24,44	20,00	-	-	-	-
2	1100	-		5	0,67	127,94	46,58	120,00	23,57	36,80	46,06	46,58
				10	0,67	288,07	105,86	120,00	42,44	74,43	93,66	105,86
				15	0,67	448,21	156,11	120,00	60,57	110,19	139,76	156,11
				20	0,67	608,34	198,07	120,00	77,62	139,15	179,18	198,07
				25	0,67	768,48	228,57	120,00	93,81	163,52	207,93	228,57
				30	0,67	928,61	246,28	113,33	109,65	184,15	229,66	-
3	1100	9		5	0,91	8,53	42,16	120,00	21,72	33,36	41,93	42,16
				10	0,91	19,20	93,20	120,00	37,46	64,70	82,35	93,20
				15	0,91	29,88	169,49	100,00	52,91	97,12	141,99	-
				20	0,91	40,56	154,49	73,33	68,64	127,81	-	-
				25	0,91	51,23	121,70	46,67	82,41	-	-	-
				30	0,91	61,91	121,60	33,33	98,42	-	-	-
3	1100	9		5	0,91	8,53	42,02	120,00	21,67	33,37	41,88	42,02
				10	0,91	19,20	94,22	120,00	37,63	65,57	83,31	94,22
				15	0,91	29,88	152,44	120,00	53,35	99,12	131,42	152,44
				20	0,91	40,56	209,35	120,00	68,55	129,35	179,23	209,35
				25	0,91	51,23	251,75	120,00	83,34	157,13	217,57	251,75
				30	0,91	61,91	287,79	120,00	98,86	182,88	248,92	287,79

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm

Symbols and designation see Annex D1

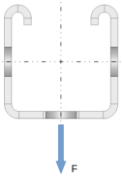
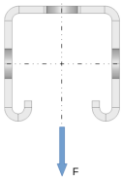
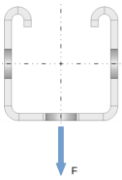
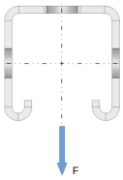
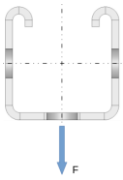
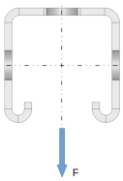
Table D13: Calculation-based deformation in case of fire for installation channels MT-50, MT-50 U, MT-50 S, MT-50 OC and MT-50 S OC

System			Load direction	σ_B	V[1)]	F[2)]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3)]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1300	-		5	0,50	35,44	50,34	120,00	25,05	39,53	49,47	50,34
				10	0,50	84,71	110,76	120,00	42,85	74,60	95,11	110,76
				15	0,50	133,98	299,78	120,00	60,52	117,38	254,76	299,78
				20	0,50	183,25	115,26	46,67	77,98	-	-	-
				25	0,50	232,52	119,54	33,33	95,25	-	-	-
				30	0,50	281,80	84,75	26,67	-	-	-	-
1	1300	-		5	0,50	35,44	50,00	120,00	24,90	39,29	49,17	50,00
				10	0,50	84,71	105,56	120,00	42,67	74,21	94,15	105,56
				15	0,50	133,98	175,33	120,00	60,29	112,15	148,12	175,33
				20	0,50	183,25	256,98	113,33	77,52	148,52	211,44	-
				25	0,50	232,52	242,90	80,00	94,39	183,66	-	-
				30	0,50	281,80	244,50	66,67	111,70	219,94	-	-
2	1300	-		5	0,67	115,16	102,17	120,00	31,30	56,59	87,55	102,17
				10	0,67	275,30	197,57	120,00	68,95	145,84	179,80	197,57
				15	0,67	435,43	241,56	120,00	110,98	190,82	224,88	241,56
				20	0,67	595,57	262,49	120,00	152,69	216,30	248,21	262,49
				25	0,67	755,70	281,76	120,00	181,47	238,04	268,71	281,76
				30	0,67	915,84	301,03	120,00	210,25	259,79	289,21	301,03
2	1300	-		5	0,67	115,16	64,39	120,00	31,00	50,14	62,34	64,39
				10	0,67	275,30	138,69	120,00	56,87	99,42	123,47	138,69
				15	0,67	435,43	194,19	120,00	81,02	142,85	175,09	194,19
				20	0,67	595,57	237,81	120,00	103,06	176,41	217,72	237,81
				25	0,67	755,70	270,36	120,00	123,41	203,12	249,10	270,36
				30	0,67	915,84	297,44	120,00	142,23	225,47	272,82	297,44
3	1300	11		5	0,92	5,48	59,91	120,00	29,08	46,52	58,07	59,91
				10	0,92	13,11	125,36	120,00	50,63	87,98	110,62	125,36
				15	0,92	20,73	292,41	120,00	71,27	128,12	205,04	292,41
				20	0,92	28,36	348,80	120,00	90,79	184,70	310,77	348,80
				25	0,92	35,99	384,34	120,00	109,53	262,82	350,60	384,34
				30	0,92	43,61	186,45	40,00	127,94	-	-	-
3	1300	11		5	0,92	5,48	59,64	120,00	28,91	46,47	57,95	59,64
				10	0,92	13,11	127,34	120,00	50,90	89,60	112,53	127,34
				15	0,92	20,73	191,96	120,00	72,07	131,68	168,55	191,96
				20	0,92	28,36	252,24	120,00	92,15	167,59	221,11	252,24
				25	0,92	35,99	298,34	120,00	111,27	199,12	262,65	298,34
				30	0,92	43,61	334,07	120,00	130,15	226,91	296,39	334,07

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm

Symbols and designation see Annex D1

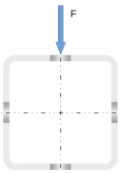
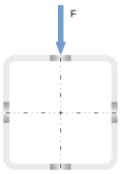
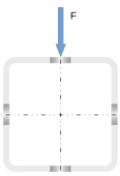
Table D14: Calculation-based deformation in case of fire for installation channels MT-50, MT-50 U, MT-50 S, MT-50 OC and MT-50 S OC

System			Load direction	σ_B	V[1)]	F[2)]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3)]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1500	-		5	0,50	26,74	69,18	120,00	32,82	53,55	66,66	69,18
				10	0,50	69,44	156,55	120,00	56,23	99,36	128,32	156,55
				15	0,50	112,14	367,21	120,00	79,27	211,60	319,11	367,21
				20	0,50	154,84	138,88	40,00	102,11	-	-	-
				25	0,50	197,55	92,90	26,67	-	-	-	-
				30	0,50	240,25	110,95	26,67	-	-	-	-
1	1500	-		5	0,50	26,74	68,76	120,00	32,60	53,23	66,29	68,76
				10	0,50	69,44	140,16	120,00	56,02	98,71	124,36	140,16
				15	0,50	112,14	221,93	120,00	78,99	146,31	189,72	221,93
				20	0,50	154,84	313,11	113,33	101,16	190,30	262,15	-
				25	0,50	197,55	297,15	80,00	122,62	231,42	-	-
				30	0,50	240,25	298,68	66,67	144,11	271,93	-	-
2	1500	-		5	0,67	100,26	127,09	120,00	40,94	85,50	114,48	127,09
				10	0,67	260,40	236,47	120,00	90,37	173,01	214,01	236,47
				15	0,67	420,53	282,98	120,00	138,78	223,88	263,32	282,98
				20	0,67	580,67	294,93	120,00	175,48	244,97	279,04	294,93
				25	0,67	740,80	314,56	120,00	205,20	268,02	300,53	314,56
				30	0,67	900,94	337,27	120,00	236,15	293,12	324,57	337,27
2	1500	-		5	0,67	100,26	84,66	120,00	39,59	65,40	80,89	84,66
				10	0,67	260,40	173,32	120,00	73,24	126,50	155,31	173,32
				15	0,67	420,53	234,91	120,00	103,71	176,89	212,13	234,91
				20	0,67	580,67	279,58	120,00	130,71	214,67	257,60	279,58
				25	0,67	740,80	314,39	120,00	155,03	243,98	291,77	314,39
				30	0,67	900,94	341,28	120,00	176,90	267,89	317,62	341,28
3	1500	13		5	0,93	3,58	81,20	120,00	38,13	62,43	77,46	81,20
				10	0,93	9,30	161,03	120,00	66,02	113,81	141,50	161,03
				15	0,93	15,02	302,22	120,00	92,10	161,24	225,03	302,22
				20	0,93	20,74	386,93	120,00	116,20	215,37	334,92	386,93
				25	0,93	26,46	429,91	120,00	139,35	282,47	389,36	429,91
				30	0,93	32,18	461,08	120,00	170,29	351,56	423,66	461,08
3	1500	13		5	0,93	3,58	80,83	120,00	37,77	62,32	77,29	80,83
				10	0,93	9,30	163,12	120,00	66,46	116,60	144,74	163,12
				15	0,93	15,02	232,89	120,00	93,49	166,35	206,97	232,89
				20	0,93	20,74	295,33	120,00	118,50	207,12	263,13	295,33
				25	0,93	26,46	344,69	120,00	141,84	241,72	307,81	344,69
				30	0,93	32,18	383,46	120,00	163,95	271,88	343,97	383,46

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm

Symbols and designation see Annex D1

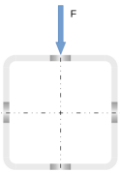
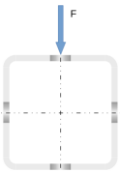
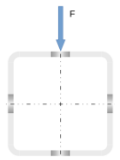
Table D15: Calculation-based deformation in case of fire for installation channels MT-70 S OC and MT-70 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	500	-		5	0,50	247,05	32,35	120,00	7,01	32,35	32,35	32,35
				10	0,50	502,41	38,36	120,00	8,14	38,36	38,36	38,36
				15	0,50	757,77	51,59	120,00	9,72	46,90	46,90	51,59
				20	0,50	1013,13	156,46	120,00	12,34	62,06	80,63	156,46
				25	0,50	1268,49	195,33	120,00	17,55	88,46	170,56	195,33
				30	0,50	1523,85	210,65	120,00	27,60	155,54	199,01	210,65
1	500	-		5	0,50	247,05	33,21	120,00	7,35	33,21	33,21	33,21
				10	0,50	502,41	40,17	120,00	9,05	40,17	40,17	40,17
				15	0,50	757,77	48,64	120,00	11,37	48,64	48,64	48,64
				20	0,50	1013,13	87,28	120,00	14,52	61,32	66,88	87,28
				25	0,50	1268,49	152,03	120,00	19,08	80,44	107,53	152,03
				30	0,50	1523,85	204,09	120,00	26,54	107,19	158,87	204,09
2	500	-		5	0,67	308,81	34,80	120,00	7,45	34,80	34,80	34,80
				10	0,67	628,01	44,09	120,00	9,33	44,09	44,09	44,09
				15	0,67	947,21	89,44	120,00	12,11	62,12	71,78	89,44
				20	0,67	1266,41	126,51	120,00	17,81	92,92	111,00	126,51
				25	0,67	1585,61	146,44	120,00	32,42	123,99	136,97	146,44
				30	0,67	1904,81	151,99	90,91	58,28	146,85	151,37	-
2	500	-		5	0,67	308,81	34,60	120,00	7,44	34,60	34,60	34,60
				10	0,67	628,01	42,86	120,00	9,23	42,86	42,86	42,86
				15	0,67	947,21	64,64	120,00	11,58	55,84	55,84	64,64
				20	0,67	1266,41	99,95	120,00	15,83	75,67	84,86	99,95
				25	0,67	1585,61	124,97	117,77	25,13	100,20	111,00	-
				30	0,67	1904,81	132,35	86,10	40,33	120,99	-	-
3	500	3		5	0,80	102,94	33,77	120,00	7,27	33,77	33,77	33,77
				10	0,80	209,34	41,46	120,00	8,80	41,46	41,46	41,46
				15	0,80	315,74	76,61	120,00	10,82	53,94	57,32	76,61
				20	0,80	422,14	138,95	120,00	14,43	78,29	107,97	138,95
				25	0,80	528,54	184,65	120,00	22,94	115,77	155,14	184,65
				30	0,80	634,94	206,49	120,00	40,89	155,52	188,56	206,49
3	500	3		5	0,80	102,94	33,74	120,00	7,28	33,74	33,74	33,74
				10	0,80	209,34	41,12	120,00	8,81	41,12	41,12	41,12
				15	0,80	315,74	58,64	120,00	10,77	51,80	51,80	58,64
				20	0,80	422,14	101,04	120,00	14,07	69,47	81,67	101,04
				25	0,80	528,54	138,89	120,00	20,88	94,70	117,43	138,89
				30	0,80	634,94	167,03	120,00	33,06	122,34	145,78	167,03

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

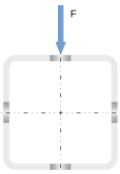
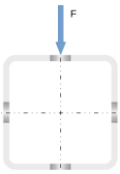
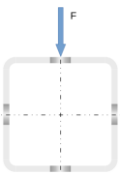
Table D16: Calculation-based deformation in case of fire for installation channels MT-70 S OC and MT-70 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	800	-		5	0,50	146,30	37,15	120,00	8,03	37,15	37,15	37,15
				10	0,50	305,90	51,36	120,00	10,79	51,36	51,36	51,36
				15	0,50	465,50	104,98	120,00	14,35	70,27	83,77	104,98
				20	0,50	625,10	188,53	120,00	19,81	101,73	143,75	188,53
				25	0,50	784,70	287,59	120,00	30,42	146,59	216,85	287,59
				30	0,50	944,30	328,95	120,00	50,99	199,96	291,64	328,95
1	800	-		5	0,50	146,30	37,59	120,00	8,21	37,59	37,59	37,59
				10	0,50	305,90	52,26	120,00	11,24	52,26	52,26	52,26
				15	0,50	465,50	97,60	120,00	15,13	70,67	81,20	97,60
				20	0,50	625,10	166,31	120,00	20,78	99,10	132,52	166,31
				25	0,50	784,70	230,37	120,00	30,49	138,44	189,70	230,37
				30	0,50	944,30	288,75	120,00	47,64	181,46	240,91	288,75
2	800	-		5	0,67	292,60	43,33	120,00	9,08	43,33	43,33	43,33
				10	0,67	611,80	90,19	120,00	13,76	67,02	75,78	90,19
				15	0,67	931,00	160,84	120,00	20,48	110,06	140,50	160,84
				20	0,67	1250,20	205,97	120,00	34,67	159,09	187,44	205,97
				25	0,67	1569,40	228,43	120,00	71,07	198,04	215,41	228,43
				30	0,67	1888,60	232,96	96,35	114,76	223,65	231,31	-
2	800	-		5	0,67	292,60	42,77	120,00	9,05	42,77	42,77	42,77
				10	0,67	611,80	75,64	120,00	13,56	63,70	66,53	75,64
				15	0,67	931,00	121,54	120,00	19,51	93,48	108,82	121,54
				20	0,67	1250,20	161,78	120,00	30,49	128,95	148,58	161,78
				25	0,67	1569,40	185,20	119,26	53,27	159,84	174,52	-
				30	0,67	1888,60	192,40	86,74	82,82	183,55	-	-
3	800	6		5	0,88	36,57	39,96	120,00	8,52	39,96	39,96	39,96
				10	0,88	76,47	66,72	120,00	12,13	58,08	58,37	66,72
				15	0,88	116,37	135,21	120,00	16,79	84,91	109,54	135,21
				20	0,88	156,27	206,64	120,00	24,72	127,76	171,73	206,64
				25	0,88	196,17	258,44	120,00	42,19	178,22	226,12	258,44
				30	0,88	236,07	301,74	120,00	74,97	221,82	266,99	301,74
3	800	6		5	0,88	36,57	39,97	120,00	8,56	39,97	39,97	39,97
				10	0,88	76,47	63,97	120,00	12,21	57,74	57,74	63,97
				15	0,88	116,37	119,67	120,00	16,86	82,23	100,40	119,67
				20	0,88	156,27	182,25	120,00	24,53	118,83	153,63	182,25
				25	0,88	196,17	225,13	120,00	40,12	161,71	198,90	225,13
				30	0,88	236,07	257,18	120,00	67,32	198,63	234,53	257,18

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

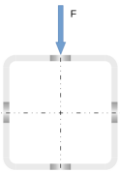
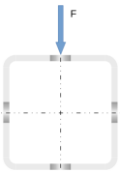
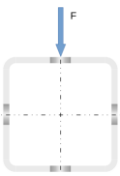
Table D17: Calculation-based deformation in case of fire for installation channels MT-70 S OC and MT-70 OC

System			Load direction	σ_B	$V^{1)}$	$F^{2)}$	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	$L^{3)}$	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1100	-		5	0,50	97,78	44,47	120,00	9,57	44,47	44,47	44,47
				10	0,50	213,85	90,08	120,00	14,71	70,67	79,48	90,08
				15	0,50	329,93	170,78	120,00	21,23	103,99	140,03	170,78
				20	0,50	446,00	265,95	120,00	31,02	154,31	218,39	265,95
				25	0,50	562,07	357,23	120,00	49,47	216,07	294,52	357,23
				30	0,50	678,15	429,03	120,00	83,56	277,03	366,09	429,03
1	1100	-		5	0,50	97,78	44,71	120,00	9,68	44,71	44,71	44,71
				10	0,50	213,85	89,97	120,00	14,98	71,12	79,75	89,97
				15	0,50	329,93	164,55	120,00	21,69	103,81	137,45	164,55
				20	0,50	446,00	253,90	120,00	31,52	151,68	210,69	253,90
				25	0,50	562,07	322,83	120,00	49,02	209,61	278,99	322,83
				30	0,50	678,15	382,96	120,00	79,99	264,61	335,99	382,96
2	1100	-		5	0,67	268,90	55,51	120,00	11,38	55,51	55,51	55,51
				10	0,67	588,10	155,74	120,00	20,19	100,15	131,71	155,74
				15	0,67	907,30	236,04	120,00	32,82	169,15	213,11	236,04
				20	0,67	1226,50	289,73	120,00	59,95	229,94	269,43	289,73
				25	0,67	1545,70	316,31	120,00	118,75	272,79	301,35	316,31
				30	0,67	1864,90	324,77	99,78	177,03	304,89	322,28	-
2	1100	-		5	0,67	268,90	54,19	120,00	11,32	54,19	54,19	54,19
				10	0,67	588,10	128,59	120,00	19,76	92,55	112,91	128,59
				15	0,67	907,30	183,94	120,00	30,85	139,04	166,72	183,94
				20	0,67	1226,50	226,11	120,00	51,05	186,85	212,57	226,11
				25	0,67	1545,70	249,89	120,00	88,10	221,42	241,50	249,89
				30	0,67	1864,90	258,55	88,59	128,57	246,83	-	-
3	1100	9		5	0,91	17,93	49,62	120,00	10,47	49,62	49,62	49,62
				10	0,91	39,21	119,82	120,00	17,31	83,49	102,56	119,82
				15	0,91	60,49	210,61	120,00	26,21	131,06	178,51	210,61
				20	0,91	81,77	295,09	120,00	41,55	194,51	255,54	295,09
				25	0,91	103,05	350,43	120,00	74,72	257,63	313,76	350,43
				30	0,91	124,33	389,04	120,00	128,76	307,45	359,45	389,04
3	1100	9		5	0,91	17,93	49,45	120,00	10,47	49,45	49,45	49,45
				10	0,91	39,21	114,95	120,00	17,26	82,45	99,51	114,95
				15	0,91	60,49	193,74	120,00	26,01	126,18	166,73	193,74
				20	0,91	81,77	270,45	120,00	40,72	183,19	236,88	270,45
				25	0,91	103,05	322,62	120,00	70,47	239,32	288,62	322,62
				30	0,91	124,33	358,62	120,00	117,19	285,40	329,77	358,62

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm

Symbols and designation see Annex D1

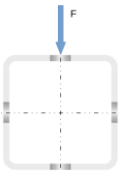
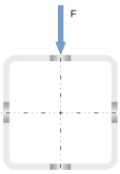
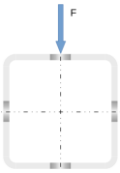
Table D18: Calculation-based deformation in case of fire for installation channels MT-70 S OC and MT-70 OC

System			Load direction	σ_B	$V^{1)}$	$F^{2)}$	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	$L^{3)}$	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1400	-		5	0,50	67,92	54,74	120,00	11,73	54,74	54,74	54,74
				10	0,50	159,12	142,09	120,00	20,02	96,57	123,77	142,09
				15	0,50	250,32	245,97	120,00	30,50	147,49	207,15	245,97
				20	0,50	341,52	355,17	120,00	46,11	217,35	301,21	355,17
				25	0,50	432,72	441,62	120,00	74,90	293,35	384,18	441,62
				30	0,50	523,92	518,66	120,00	125,26	361,86	453,77	518,66
1	1400	-		5	0,50	67,92	54,85	120,00	11,79	54,85	54,85	54,85
				10	0,50	159,12	141,66	120,00	20,19	96,74	123,69	141,66
				15	0,50	250,32	241,24	120,00	30,76	146,97	204,90	241,24
				20	0,50	341,52	346,34	120,00	46,31	215,08	296,28	346,34
				25	0,50	432,72	424,05	120,00	74,09	288,31	373,15	424,05
				30	0,50	523,92	484,16	120,00	121,76	353,68	437,07	484,16
2	1400	-		5	0,67	237,72	78,46	120,00	14,30	70,84	78,29	78,46
				10	0,67	556,92	227,82	120,00	28,54	141,73	196,03	227,82
				15	0,67	876,12	314,93	120,00	49,05	233,09	288,77	314,93
				20	0,67	1195,32	377,06	120,00	92,91	305,91	353,78	377,06
				25	0,67	1514,52	410,55	120,00	177,30	354,16	392,80	410,55
				30	0,67	1833,72	419,50	102,67	241,32	388,45	415,60	-
2	1400	-		5	0,67	237,72	71,32	120,00	14,20	68,54	71,32	71,32
				10	0,67	556,92	187,55	120,00	27,75	128,14	166,28	187,55
				15	0,67	876,12	255,33	120,00	45,48	189,49	229,68	255,33
				20	0,67	1195,32	296,37	120,00	76,79	247,30	280,33	296,37
				25	0,67	1514,52	320,84	120,00	127,33	287,74	312,36	320,84
				30	0,67	1833,72	330,23	91,17	178,19	315,43	329,56	-
3	1400	12		5	0,93	9,70	61,83	120,00	12,96	61,83	61,83	61,83
				10	0,93	22,73	180,34	120,00	23,85	114,95	154,70	180,34
				15	0,93	35,76	285,87	120,00	38,00	182,92	249,05	285,87
				20	0,93	48,79	381,63	120,00	62,04	263,59	339,37	381,63
				25	0,93	61,82	446,39	120,00	111,17	335,73	403,85	446,39
				30	0,93	74,85	490,85	120,00	183,11	393,90	453,15	490,85
3	1400	12		5	0,93	9,70	61,63	120,00	12,96	61,63	61,63	61,63
				10	0,93	22,73	174,43	120,00	23,80	113,57	150,82	174,43
				15	0,93	35,76	270,16	120,00	37,76	177,01	237,14	270,16
				20	0,93	48,79	358,58	120,00	60,93	252,16	320,95	358,58
				25	0,93	61,82	420,09	120,00	105,68	317,90	381,99	420,09
				30	0,93	74,85	463,10	120,00	170,07	372,41	426,98	463,10

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm

Symbols and designation see Annex D1

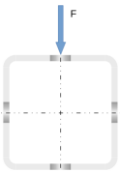
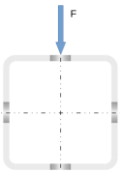
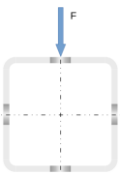
Table D19: Calculation-based deformation in case of fire for installation channels MT-70 S OC and MT-70 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1700	-		5	0,50	46,84	69,94	120,00	14,60	68,64	69,94	69,94
				10	0,50	121,94	204,84	120,00	26,85	129,43	178,09	204,84
				15	0,50	197,05	328,64	120,00	42,31	199,97	282,63	328,64
				20	0,50	272,16	449,22	120,00	65,25	288,58	390,65	449,22
				25	0,50	347,26	538,95	120,00	106,73	376,39	479,49	538,95
				30	0,50	422,37	614,38	120,00	175,02	452,62	553,18	614,38
1	1700	-		5	0,50	46,84	69,89	120,00	14,64	68,66	69,89	69,89
				10	0,50	121,94	204,21	120,00	26,94	129,39	177,78	204,21
				15	0,50	197,05	325,06	120,00	42,44	199,21	280,66	325,06
				20	0,50	272,16	442,39	120,00	65,22	286,64	386,88	442,39
				25	0,50	347,26	529,51	120,00	105,59	372,33	471,65	529,51
				30	0,50	422,37	592,73	120,00	171,58	447,06	541,47	592,73
2	1700	-		5	0,67	199,06	109,90	120,00	17,78	88,73	108,26	109,90
				10	0,67	518,26	303,22	120,00	38,71	189,58	264,87	303,22
				15	0,67	837,46	401,53	120,00	69,02	299,93	367,24	401,53
				20	0,67	1156,66	466,63	120,00	132,09	384,16	440,74	466,63
				25	0,67	1475,86	507,07	120,00	236,40	438,46	485,68	507,07
				30	0,67	1795,06	518,54	105,72	307,91	474,73	511,91	-
2	1700	-		5	0,67	199,06	98,73	120,00	17,63	85,46	98,73	98,73
				10	0,67	518,26	251,34	120,00	37,44	169,29	224,87	251,34
				15	0,67	837,46	330,79	120,00	63,23	243,87	300,24	330,79
				20	0,67	1156,66	376,42	120,00	107,01	311,08	351,88	376,42
				25	0,67	1475,86	401,45	120,00	169,95	356,87	388,11	401,45
				30	0,67	1795,06	408,28	94,69	230,59	388,17	407,08	-
3	1700	15		5	0,94	5,53	86,08	120,00	16,16	77,60	86,08	86,08
				10	0,94	14,40	250,27	120,00	32,25	154,14	216,36	250,27
				15	0,94	23,26	369,34	120,00	53,18	243,65	327,36	369,34
				20	0,94	32,13	473,79	120,00	88,56	340,78	428,77	473,79
				25	0,94	41,00	546,64	120,00	157,03	420,45	501,97	546,64
				30	0,94	49,86	597,20	120,00	246,32	485,67	554,77	597,20
3	1700	15		5	0,94	5,53	85,23	120,00	16,15	77,31	85,23	85,23
				10	0,94	14,40	243,38	120,00	32,14	152,23	211,60	243,38
				15	0,94	23,26	354,74	120,00	52,77	236,62	315,20	354,74
				20	0,94	32,13	451,39	120,00	86,89	328,37	410,16	451,39
				25	0,94	41,00	520,79	120,00	149,86	402,53	479,92	520,79
				30	0,94	49,86	569,71	120,00	231,67	464,05	530,59	569,71

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

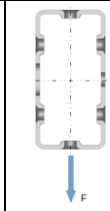
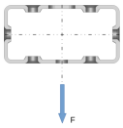
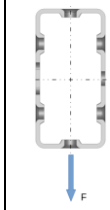
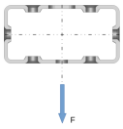
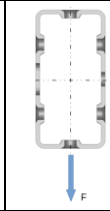
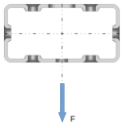
Table D20: Calculation-based deformation in case of fire for installation channels MT-70 S OC and MT-70 OC

System			Load direction	σ_B	$V^{1)}$	$F^{2)}$	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	$L^{3)}$	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	2000	-		5	0,50	30,58	99,99	120,00	18,35	86,97	99,99	99,99
				10	0,50	94,42	277,12	120,00	35,40	169,60	241,74	277,12
				15	0,50	158,26	417,36	120,00	56,88	260,37	364,62	417,36
				20	0,50	222,10	546,67	120,00	88,66	366,19	484,33	546,67
				25	0,50	285,94	644,10	120,00	144,85	463,89	579,38	644,10
				30	0,50	349,78	717,60	120,00	231,73	547,96	657,26	717,60
1	2000	-		5	0,50	30,58	99,86	120,00	18,36	86,93	99,86	99,86
				10	0,50	94,42	276,38	120,00	35,43	169,40	241,26	276,38
				15	0,50	158,26	414,68	120,00	56,89	259,45	362,91	414,68
				20	0,50	222,10	541,40	120,00	88,43	364,44	481,24	541,40
				25	0,50	285,94	636,96	120,00	143,42	460,56	574,24	636,96
				30	0,50	349,78	706,05	120,00	228,32	543,49	648,44	706,05
2	2000	-		5	0,67	152,92	142,95	120,00	21,71	108,34	139,97	142,95
				10	0,67	472,12	380,79	120,00	50,55	241,64	336,23	380,79
				15	0,67	791,32	493,91	120,00	92,41	368,74	448,30	493,91
				20	0,67	1110,52	559,08	120,00	175,95	464,18	530,48	559,08
				25	0,67	1429,72	603,59	120,00	297,78	525,98	581,32	603,59
				30	0,67	1748,92	621,31	110,18	377,74	566,21	611,58	-
2	2000	-		5	0,67	152,92	130,08	120,00	21,55	104,58	129,38	130,08
				10	0,67	472,12	320,01	120,00	48,73	215,12	288,09	320,01
				15	0,67	791,32	410,89	120,00	83,92	302,36	375,57	410,89
				20	0,67	1110,52	461,69	120,00	141,12	378,54	429,59	461,69
				25	0,67	1429,72	489,49	120,00	215,65	429,74	467,18	489,49
				30	0,67	1748,92	492,54	99,12	285,81	464,59	489,30	-
3	2000	18		5	0,95	3,06	117,05	120,00	19,99	96,34	116,61	117,05
				10	0,95	9,44	323,90	120,00	42,11	198,53	282,73	323,90
				15	0,95	15,83	456,93	120,00	70,87	307,58	407,78	456,93
				20	0,95	22,21	565,98	120,00	118,62	418,93	518,14	565,98
				25	0,95	28,59	646,13	120,00	205,08	505,78	599,47	646,13
				30	0,95	34,98	702,80	120,00	309,33	577,22	658,49	702,80
3	2000	18		5	0,95	3,06	116,03	120,00	19,98	96,04	115,76	116,03
				10	0,95	9,44	316,78	120,00	41,99	196,33	277,64	316,78
				15	0,95	15,83	444,49	120,00	70,38	300,16	396,15	444,49
				20	0,95	22,21	545,12	120,00	116,55	406,31	500,28	545,12
				25	0,95	28,59	621,64	120,00	196,92	489,01	578,10	621,64
				30	0,95	34,98	676,52	120,00	294,36	556,41	635,14	676,52

[1)] Momentum degree of fullness without contribution from channel dead weight
[2)] Size of designated system's single load
[3)] dimensions in mm

Symbols and designation see Annex D1

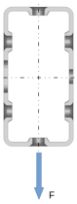
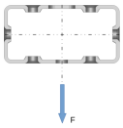
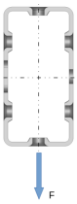
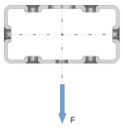
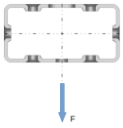
Table D21: Calculation-based deformation in case of fire for installation channels MT-80 S OC and MT-80 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	500	-		5	0,50	695,64	33,01	120,00	3,91	30,49	30,49	33,01
				10	0,50	1402,76	50,48	120,00	4,84	33,95	37,76	50,48
				15	0,50	2109,88	45,66	70,00	6,15	39,48	-	-
				20	0,50	2817,00	32,97	46,67	8,58	-	-	-
				25	0,50	3524,12	12,65	26,67	-	-	-	-
				30	0,50	4231,24	5,59	20,00	-	-	-	-
1	500	-		5	0,50	382,28	33,62	120,00	4,06	31,01	31,01	33,62
				10	0,50	776,04	47,93	120,00	5,26	35,86	40,97	47,93
				15	0,50	1169,80	83,59	120,00	6,89	42,92	58,57	83,59
				20	0,50	1563,56	166,18	120,00	9,55	54,26	102,55	166,18
				25	0,50	1957,32	196,80	120,00	14,50	74,38	162,61	196,80
				30	0,50	2351,08	213,12	120,00	24,49	128,76	188,32	213,12
2	500	-		5	0,67	869,55	37,31	120,00	4,50	32,31	33,44	37,31
				10	0,67	1753,45	47,60	80,00	6,22	38,77	-	-
				15	0,67	2637,35	35,52	48,33	9,35	-	-	-
				20	0,67	3521,25	22,29	30,00	22,29	-	-	-
				25	0,67	4405,15	14,87	21,67	-	-	-	-
				30	0,67	5289,05	7,96	18,33	-	-	-	-
2	500	-		5	0,67	477,85	37,91	120,00	4,87	33,34	34,55	37,91
				10	0,67	970,05	59,61	120,00	6,90	40,77	49,86	59,61
				15	0,67	1462,25	92,47	120,00	10,00	51,18	71,92	92,47
				20	0,67	1954,45	125,08	120,00	14,78	66,66	99,64	125,08
				25	0,67	2446,65	145,57	120,00	22,73	85,89	122,61	145,57
				30	0,67	2938,85	157,86	120,00	35,77	104,68	138,40	157,86
3	500	3		5	0,80	289,85	34,53	120,00	4,24	31,42	31,47	34,53
				10	0,80	584,48	49,08	120,00	5,42	35,90	41,32	49,08
				15	0,80	879,12	55,15	78,33	7,09	42,91	-	-
				20	0,80	1173,75	48,14	55,00	9,69	-	-	-
				25	0,80	1468,38	34,51	40,00	14,38	-	-	-
				30	0,80	1763,02	23,40	28,33	-	-	-	-
3	500	3		5	0,80	159,28	35,97	120,00	4,61	32,55	32,94	35,97
				10	0,80	323,35	53,63	120,00	6,31	38,76	45,94	53,63
				15	0,80	487,42	89,12	120,00	8,53	47,23	66,05	89,12
				20	0,80	651,48	153,84	120,00	11,72	60,54	99,99	153,84
				25	0,80	815,55	189,53	120,00	16,84	81,27	150,90	189,53
				30	0,80	979,62	209,16	120,00	25,74	111,49	180,91	209,16

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

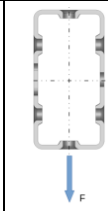
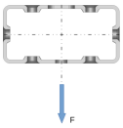
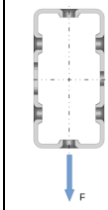
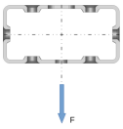
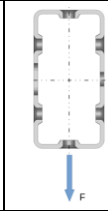
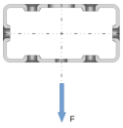
Table D22: Calculation-based deformation in case of fire for installation channels MT-80 S OC and MT-80 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	900	-		5	0,50	372,18	38,41	120,00	5,01	34,19	35,16	38,41
				10	0,50	765,03	62,99	120,00	7,48	43,31	53,95	62,99
				15	0,50	1157,87	96,15	95,00	10,55	55,06	87,24	-
				20	0,50	1550,72	100,05	68,33	14,79	74,99	-	-
				25	0,50	1943,56	73,57	48,33	21,83	-	-	-
				30	0,50	2336,41	43,88	30,00	43,88	-	-	-
1	900	-		5	0,50	198,10	41,58	120,00	5,97	36,76	38,35	41,58
				10	0,50	416,85	72,90	120,00	9,71	49,38	63,00	72,90
				15	0,50	635,61	133,11	120,00	14,01	64,46	98,39	133,11
				20	0,50	854,36	267,87	120,00	19,39	87,31	158,89	267,87
				25	0,50	1073,12	347,89	120,00	27,13	121,99	267,63	347,89
				30	0,50	1291,87	380,84	120,00	40,86	184,85	336,11	380,84
2	900	-		5	0,67	837,42	48,42	120,00	6,39	38,70	44,35	48,42
				10	0,67	1721,32	66,96	70,00	10,40	55,05	-	-
				15	0,67	2605,22	45,18	41,67	17,10	-	-	-
				20	0,67	3489,12	27,43	28,33	-	-	-	-
				25	0,67	4373,02	19,41	21,67	-	-	-	-
				30	0,67	5256,92	11,67	18,33	-	-	-	-
2	900	-		5	0,67	445,72	50,58	120,00	7,73	41,73	46,94	50,58
				10	0,67	937,92	98,64	120,00	13,24	60,94	84,16	98,64
				15	0,67	1430,12	146,26	120,00	20,95	82,99	121,73	146,26
				20	0,67	1922,32	181,70	120,00	31,11	111,00	158,99	181,70
				25	0,67	2414,52	207,74	120,00	44,91	138,12	187,90	207,74
				30	0,67	2906,72	222,06	120,00	62,64	161,27	204,55	222,06
3	900	7		5	0,89	83,74	41,91	120,00	5,68	36,24	38,79	41,91
				10	0,89	172,13	73,67	120,00	8,68	47,62	62,54	73,67
				15	0,89	260,52	89,81	80,00	12,68	63,50	-	-
				20	0,89	348,91	80,90	56,67	17,95	-	-	-
				25	0,89	437,30	63,43	41,67	26,29	-	-	-
				30	0,89	525,69	51,85	31,67	41,51	-	-	-
3	900	7		5	0,89	44,57	46,58	120,00	7,02	39,74	43,22	46,58
				10	0,89	93,79	87,63	120,00	11,88	56,25	75,43	87,63
				15	0,89	143,01	147,23	120,00	17,94	75,70	115,14	147,23
				20	0,89	192,23	230,52	120,00	25,64	102,55	169,76	230,52
				25	0,89	241,45	303,99	120,00	36,37	137,46	232,77	303,99
				30	0,89	290,67	349,64	120,00	52,31	179,76	291,60	349,64

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

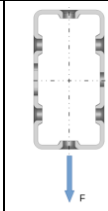
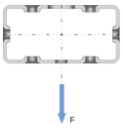
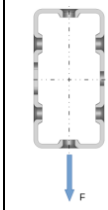
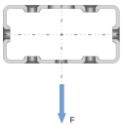
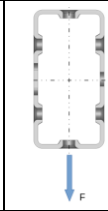
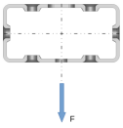
Table D23: Calculation-based deformation in case of fire for installation channels MT-80 S OC and MT-80 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1300	-		5	0,50	242,13	48,00	120,00	6,89	40,54	44,63	48,00
				10	0,50	514,10	93,62	120,00	11,70	58,34	80,65	93,62
				15	0,50	786,07	182,71	105,00	17,63	80,59	136,98	-
				20	0,50	1058,03	170,61	71,67	25,37	115,22	-	-
				25	0,50	1330,00	146,32	53,33	36,74	-	-	-
				30	0,50	1601,97	116,13	38,33	57,23	-	-	-
1	1300	-		5	0,50	121,60	55,00	120,00	9,06	45,88	51,29	55,00
				10	0,50	273,05	110,47	120,00	16,58	70,40	97,16	110,47
				15	0,50	424,50	191,47	120,00	25,26	97,19	148,91	191,47
				20	0,50	575,94	349,22	120,00	35,81	131,23	234,63	349,22
				25	0,50	727,39	481,09	120,00	49,14	177,04	354,21	481,09
				30	0,50	878,83	542,78	120,00	66,96	253,28	464,02	542,78
2	1300	-		5	0,67	786,91	66,81	120,00	9,38	48,96	62,36	66,81
				10	0,67	1670,81	92,03	63,33	17,16	83,42	-	-
				15	0,67	2554,71	57,77	36,67	29,96	-	-	-
				20	0,67	3438,61	31,31	26,67	-	-	-	-
				25	0,67	4322,51	16,66	20,00	-	-	-	-
				30	0,67	5206,41	17,81	18,33	-	-	-	-
2	1300	-		5	0,67	395,21	68,02	120,00	11,77	53,30	63,88	68,02
				10	0,67	887,41	150,59	120,00	22,44	89,05	130,10	150,59
				15	0,67	1379,61	224,65	120,00	36,85	127,11	189,90	224,65
				20	0,67	1871,81	277,82	120,00	54,93	169,19	241,90	277,82
				25	0,67	2364,01	312,83	120,00	77,30	209,95	286,49	312,83
				30	0,67	2856,21	336,03	120,00	103,18	244,03	317,92	336,03
3	1300	11		5	0,92	37,47	55,11	120,00	8,10	44,38	51,70	55,11
				10	0,92	79,56	118,64	120,00	14,04	67,09	98,97	118,64
				15	0,92	121,65	227,10	81,67	22,06	99,30	-	-
				20	0,92	163,74	165,27	58,33	32,63	-	-	-
				25	0,92	205,83	145,36	43,33	49,41	-	-	-
				30	0,92	247,92	107,85	31,67	81,90	-	-	-
3	1300	11		5	0,92	18,82	63,47	120,00	10,91	50,93	59,51	63,47
				10	0,92	42,26	137,34	120,00	20,46	82,23	118,36	137,34
				15	0,92	65,70	225,20	120,00	32,26	117,06	182,86	225,20
				20	0,92	89,13	327,58	120,00	46,92	161,79	258,81	327,58
				25	0,92	112,57	414,57	120,00	66,30	213,35	333,03	414,57
				30	0,92	136,01	479,56	120,00	93,02	267,96	401,27	479,56

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

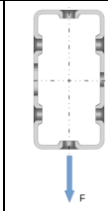
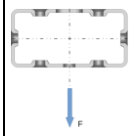
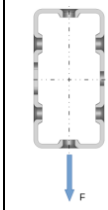
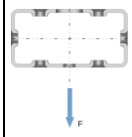
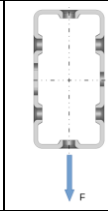
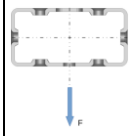
Table D24: Calculation-based deformation in case of fire for installation channels MT-80 S OC and MT-80 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	1700	-		5	0,50	168,95	62,44	120,00	9,66	49,82	58,75	62,44
				10	0,50	376,93	136,59	120,00	17,59	79,31	117,83	136,59
				15	0,50	584,91	269,94	105,00	27,46	115,47	206,03	-
				20	0,50	792,88	260,64	71,67	39,97	170,27	-	-
				25	0,50	1000,86	250,27	55,00	57,92	-	-	-
				30	0,50	1208,83	185,75	40,00	86,70	-	-	-
1	1700	-		5	0,50	76,79	74,67	120,00	13,61	58,99	70,21	74,67
				10	0,50	192,60	163,74	120,00	26,10	98,74	143,60	163,74
				15	0,50	308,41	268,90	120,00	40,58	141,54	221,80	268,90
				20	0,50	424,22	400,99	120,00	58,11	193,51	313,55	400,99
				25	0,50	540,03	552,73	120,00	80,02	254,05	412,05	552,73
				30	0,50	655,85	639,97	120,00	108,54	320,86	535,96	639,97
2	1700	-		5	0,67	718,05	92,79	120,00	13,45	63,16	87,66	92,79
				10	0,67	1601,95	131,09	60,00	26,60	131,09	-	-
				15	0,67	2485,85	76,15	33,33	48,44	-	-	-
				20	0,67	3369,75	35,67	25,00	-	-	-	-
				25	0,67	4253,65	24,91	20,00	-	-	-	-
				30	0,67	5137,55	26,85	18,33	-	-	-	-
2	1700	-		5	0,67	326,35	89,58	120,00	16,82	67,55	84,64	89,58
				10	0,67	818,55	212,46	120,00	34,24	123,48	184,75	212,46
				15	0,67	1310,75	317,02	120,00	57,17	180,56	270,07	317,02
				20	0,67	1802,95	391,17	120,00	85,25	237,59	338,87	391,17
				25	0,67	2295,15	441,73	120,00	118,23	293,09	397,10	441,73
				30	0,67	2787,35	473,10	120,00	154,02	339,46	439,80	473,10
3	1700	15		5	0,94	19,95	73,56	120,00	11,49	55,67	69,72	73,56
				10	0,94	44,50	176,48	120,00	21,36	93,42	147,01	176,48
				15	0,94	69,05	744,33	120,00	34,81	145,87	436,38	744,33
				20	0,94	93,60	802,13	120,00	52,43	282,52	764,75	802,13
				25	0,94	118,16	392,10	46,67	80,08	-	-	-
				30	0,94	142,71	169,01	31,67	130,63	-	-	-
3	1700	15		5	0,94	9,07	85,70	120,00	16,14	65,59	80,89	85,70
				10	0,94	22,74	197,60	120,00	31,68	114,89	171,05	197,60
				15	0,94	36,41	315,56	120,00	50,73	167,78	261,79	315,56
				20	0,94	50,08	433,69	120,00	74,13	230,93	357,41	433,69
				25	0,94	63,75	533,46	120,00	103,95	298,66	445,25	533,46
				30	0,94	77,43	607,61	120,00	142,80	366,38	520,21	607,61

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

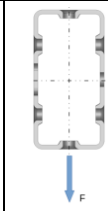
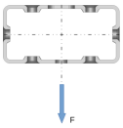
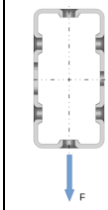
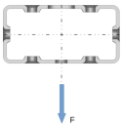
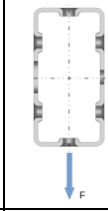
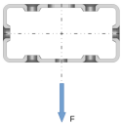
Table D25: Calculation-based deformation in case of fire for installation channels MT-80 S OC and MT-80 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	2100	-		5	0,50	120,16	83,18	120,00	13,57	62,85	79,02	83,18
				10	0,50	288,52	193,72	120,00	25,42	107,14	167,11	193,72
				15	0,50	456,88	432,28	103,33	40,38	160,91	301,21	-
				20	0,50	625,24	454,54	71,67	59,13	242,29	-	-
				25	0,50	793,60	335,47	53,33	85,54	-	-	-
				30	0,50	961,97	271,62	40,00	126,41	-	-	-
1	2100	-		5	0,50	45,55	101,80	120,00	19,93	76,75	96,25	101,80
				10	0,50	139,30	229,82	120,00	38,54	134,63	201,42	229,82
				15	0,50	233,05	368,17	120,00	60,14	195,86	307,61	368,17
				20	0,50	326,80	519,87	120,00	86,18	267,21	421,96	519,87
				25	0,50	420,56	660,20	120,00	118,30	345,93	534,50	660,20
				30	0,50	514,31	785,76	120,00	159,04	428,46	643,89	785,76
2	2100	-		5	0,67	630,82	125,99	120,00	18,61	81,22	119,80	125,99
				10	0,67	1514,72	165,38	56,67	38,79	-	-	-
				15	0,67	2398,62	106,50	31,67	73,38	-	-	-
				20	0,67	3282,52	54,07	25,00	-	-	-	-
				25	0,67	4166,42	35,86	20,00	-	-	-	-
				30	0,67	5050,32	24,72	16,67	-	-	-	-
2	2100	-		5	0,67	239,12	115,35	120,00	22,89	84,53	109,37	115,35
				10	0,67	731,32	284,17	120,00	48,45	163,56	247,68	284,17
				15	0,67	1223,52	421,52	120,00	81,50	242,04	360,67	421,52
				20	0,67	1715,72	515,33	120,00	121,55	315,26	448,60	515,33
				25	0,67	2207,92	577,86	120,00	166,77	386,33	517,77	577,86
				30	0,67	2700,12	617,24	120,00	213,99	444,99	569,82	617,24
3	2100	19		5	0,95	11,47	98,15	120,00	16,00	70,61	93,75	98,15
				10	0,95	27,54	248,72	120,00	30,85	127,22	207,64	248,72
				15	0,95	43,61	783,34	120,00	51,22	204,64	527,36	783,34
				20	0,95	59,68	949,12	120,00	77,86	400,37	857,93	949,12
				25	0,95	75,75	993,65	120,00	119,18	799,47	960,24	993,65
				30	0,95	91,82	258,19	31,67	193,61	-	-	-
3	2100	19		5	0,95	4,35	114,10	120,00	22,88	84,18	108,11	114,10
				10	0,95	13,30	268,38	120,00	45,75	154,39	233,47	268,38
				15	0,95	22,25	417,27	120,00	73,52	227,60	351,66	417,27
				20	0,95	31,19	548,65	120,00	107,21	309,42	465,17	548,65
				25	0,95	40,14	659,76	120,00	148,89	393,45	566,36	659,76
				30	0,95	49,09	741,32	120,00	200,63	473,38	648,91	741,32

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm

Symbols and designation see Annex D1

Table D26: Calculation-based deformation in case of fire for installation channels MT-80 S OC and MT-80 OC

System			Load direction	σ_B	V[1]	F[2]	$\delta_{tmax;B}$	$t_{max,B}$	δ_{30}	δ_{60}	δ_{90}	δ_{120}
Loadcase	L[3]	n		MPa	-	N	mm	min	mm	mm	mm	mm
1	2500	-		5	0,50	84,04	111,94	120,00	18,91	80,51	107,14	111,94
				10	0,50	225,46	266,28	120,00	35,47	142,67	229,51	266,28
				15	0,50	366,88	802,33	110,00	56,71	217,73	444,31	-
				20	0,50	508,31	773,69	75,00	83,20	335,07	-	-
				25	0,50	649,73	553,35	53,33	120,18	-	-	-
				30	0,50	791,16	357,60	38,33	176,40	-	-	-
1	2500	-		5	0,50	21,36	138,02	120,00	28,38	100,04	130,94	138,02
				10	0,50	100,12	308,53	120,00	54,19	178,52	270,72	308,53
				15	0,50	178,87	479,18	120,00	84,29	260,12	405,06	479,18
				20	0,50	257,62	648,90	120,00	120,30	351,28	540,54	648,90
				25	0,50	336,37	799,48	120,00	164,15	447,94	668,01	799,48
				30	0,50	415,12	920,41	120,00	218,40	545,27	783,93	920,41
2	2500			5	0,67	525,22	167,24	120,00	25,23	104,23	159,69	167,24
				10	0,67	1409,12	232,67	56,67	54,14	-	-	-
				15	0,67	2293,02	104,86	30,00	104,86	-	-	-
				20	0,67	3176,92	74,04	25,00	-	-	-	-
				25	0,67	4060,82	49,16	20,00	-	-	-	-
				30	0,67	4944,72	33,95	16,67	-	-	-	-
2	2500			5	0,67	133,52	145,36	120,00	30,03	104,44	138,15	145,36
				10	0,67	625,72	364,93	120,00	64,95	208,49	318,19	364,93
				15	0,67	1117,92	537,66	120,00	109,40	310,87	461,33	537,66
				20	0,67	1610,12	651,27	120,00	163,48	401,99	569,29	651,27
				25	0,67	2102,32	724,49	120,00	222,40	489,01	648,80	724,49
				30	0,67	2594,52	770,14	120,00	282,41	560,63	708,64	770,14
3	2500	23		5	0,96	6,73	129,65	120,00	21,75	89,60	124,51	129,65
				10	0,96	18,07	334,26	120,00	42,67	168,76	280,38	334,26
				15	0,96	29,40	832,28	120,00	71,46	275,19	646,73	832,28
				20	0,96	40,73	1062,42	120,00	109,03	529,85	903,31	1062,42
				25	0,96	52,06	1146,38	120,00	166,63	807,77	1085,21	1146,38
				30	0,96	63,39	1202,27	120,00	271,92	1102,39	1176,33	1202,27
3	2500	23		5	0,96	1,71	149,31	120,00	31,32	107,01	141,74	149,31
				10	0,96	8,02	348,26	120,00	62,61	200,36	304,42	348,26
				15	0,96	14,33	527,60	120,00	100,39	295,27	450,39	527,60
				20	0,96	20,64	672,83	120,00	145,71	395,98	581,12	672,83
				25	0,96	26,95	792,97	120,00	200,13	496,13	694,65	792,97
				30	0,96	33,26	881,96	120,00	265,20	587,86	785,50	881,96

[1] Momentum degree of fullness without contribution from channel dead weight
[2] Size of designated system's single load
[3] dimensions in mm
Symbols and designation see Annex D1