



ETA-Danmark A/S
Göteborg Plads 1
DK-2150 Nordhavn
Tel. +45 72 24 59 00
Internet www.etadanmark.dk

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to Article 29 of the Regulation (EU)
No 305/2011 of the European
Parliament and of the Council of 9
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MEMBER OF EOTA



European Technical Assessment ETA-22/0095 of 2022/03/11

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the
construction product:

Threaded rod G M10, G M12, G M16

Product family to which the
above construction product
belongs:

Threaded rods

Manufacturer:

fischerwerke GmbH & Co. KG
Klaus-Fischer-Straße 1
DE-72178 Waldachtal
Telephone: +49 7443 120
www.fischer.de

Manufacturing plant:

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

This European Technical
Assessment contains:

13 pages including 5 annexes which form an integral
part of the document

This European Technical
Assessment is issued in
accordance with Regulation
(EU) No 305/2011, on the
basis of:

EAD 280016-00-0602:
Products for installation systems for supporting
technical building equipment

This version replaces:

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Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

The fischer G threaded rods are made of steel with the metric threads M10, M12 and M16.

They are delivered in lengths of 1 m, 2 m and 3 m and are cut to length as required.

The dimensions of the threaded rods are described in table 1 below.

	A _s [mm ²]	d _s [mm]	l _s [mm]
M10	58	8,59	167,70
M12	84,3	10,36	565,52
M16	157	14,14	1961,51

Table 1: Dimensions of fischer G threaded rods.

Information about the material:

Ultimate tensile strength: $f_{ub} = 400 \text{ N/mm}^2$

Yield strength: $f_{yb} = 320 \text{ N/mm}^2$

Steel elastic modulus: $E = 210.000 \text{ N/mm}^2$

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

The fischer G threaded rod is intended to be used to connect attachments to channels or directly to the structure. In addition, channels are suspended from the structure with threaded rods or mounted directly to the structure.

The threaded rod is intended as a load-transferring element between:

- A pipe clamp and the substructure.
- A pipe clamp and a channel, cantilever or the substructure.
- The substructure and a suspended channel or cantilever.

Annex 2 elaborates on the intended use and performance assessment.

More information in table, section 3: “Performance of the product and references to the methods used for its assessment”.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise their clients on the transport, storage, maintenance, replacement and repair of the product, as the manufacturer considers necessary.

It is assumed that the product will be installed according to the manufacturer’s instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer’s stipulations having influence on the performance of a product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

The provisions made in this European Technical Assessment are based on an assumed working life of the fischer G threaded rods of at least 50 years, provided that the installation systems products are subject to appropriate installation.

The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the Assessment Body 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.

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

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR 2)	
Reaction to fire	The product is considered to satisfy the requirements for performance class A1 in accordance with EN 13501-1 and delegated regulation 2016/364, given by the provisions of Commission Decision 96/603/EC, as amended by Commission Decisions 2000/605/EC and 2003/424/EC, without the need for testing.
Resistance to combined bending and tension under fire exposure	See Annex 3
Tension resistance under fire exposure	See Annex 4
Compression resistance under fire exposure	See Annex 5

See additional information in section 3.8-3.9.

3.8 Methods of verification

The assessment of the performance of fischer G threaded rods in relation to the applicable BWR's has been made in accordance with the European Assessment Document (EAD) no. EAD 280016-00-0602 Products for installation systems for supporting technical building equipment, table 2.1.9; Threaded rod.

3.9 General aspects related to the fitness for use of the product.

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

The fischer G threaded rods are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

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

4.1 AVCP system

In accordance with the European Assessment Document EAD 280016-00-0602 the applicable European legal act is:

For products for installation systems intended to be used for supporting pipes for the transport of water not intended for human consumption the applicable European legal act is Commission Decision 1999/472/EC, as amended by Commission Decision 2001/596/EC: The system to be applied is 4. This includes uses that are subject to regulations on reaction to fire performance because the performance of the product is class A1 without the need to be tested for reaction to fire.

For products for installation systems intended to be used for supporting pipes for the transport of gas/fuel intended for the supply of building heating/cooling systems the applicable European legal act is Commission Decision 1999/472/EC, as amended by Commission Decision 2001/596/EC: The system to be applied is 3.

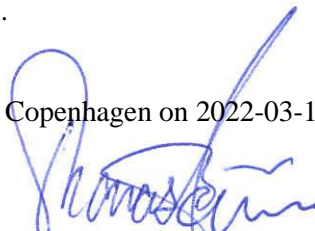
For products for installation systems intended to be used for supporting technical building equipment in general the applicable European legal act is Commission Decision 97/161/EC: The system to be applied is 2+.

For products for installation systems intended to be used for supporting components of fixed fire-fighting systems the applicable European legal act is Commission Decision 96/577/EC, as amended by Commission Decision 2002/592/EC: The system to be applied is 1.

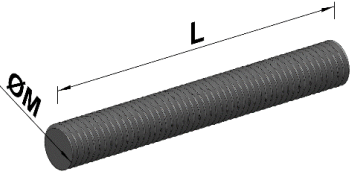
5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD.

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2022-03-11 by



Thomas Bruun
Managing Director, ETA-Danmark

Illustration	Designation	M Thread	L [mm]	Material According to DIN 976, property class 4.8 or higher acc. to EN ISO 898-1, galvanised
	G M10 x 1.000	M10	1.000	Zinc coated
	G M10 x 2.000	M10	2.000	
	G M10 x 3.000	M10	3.000	
	G M12 x 1.000	M12	1.000	
	G M12 x 2.000	M12	2.000	
	G M12 x 3.000	M12	3.000	
	G M16 x 1.000	M16	1.000	

fischer G threaded rods

Dimensions and materials of threaded rods

Annex 1

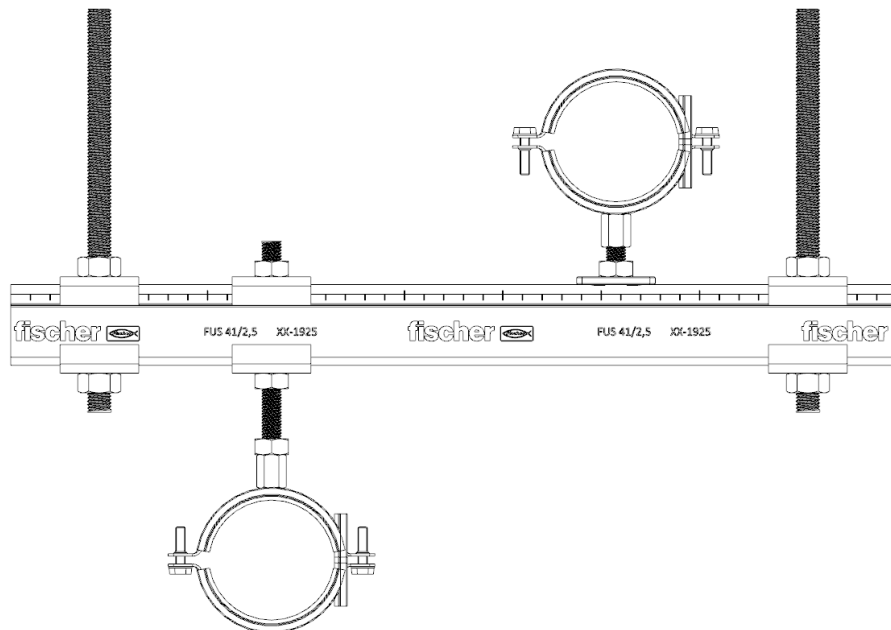
Requirements for performance assessment of fischer G threaded rods

fischer G threaded rods are used to transfer loads of technical building equipment such as pipes and equipment for sprinkler, water, heating, cooling, ventilation, electrical and other installations into the fischer FUS channel or directly into the sub structure. The performances indicated for the fischer G threaded rods for load-bearing function at ambient temperature and in case of fire apply to the conditions described in Annex 3 of this European Technical Assessment.

fischer G threaded rods are used as connectors in installation systems. Typical examples for the application of threaded rods in installation systems, as shown in figure B 1.1, are:

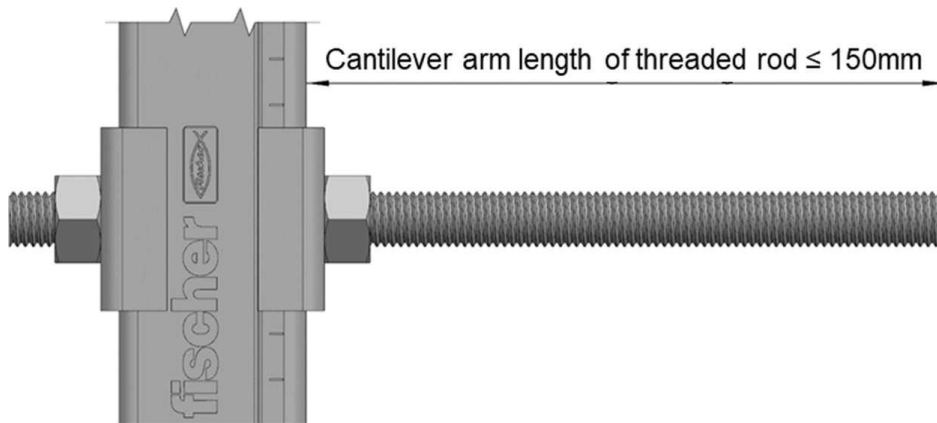
- For supporting pipe clamps,
- for suspending or mounting pipe clamps in conjunction with channels,
- for suspending channels.

Figure B 1.1 – With threaded rods suspended channel and pipe clamp



If such systems are exposed to elevated temperatures, threaded rods are exposed to combined bending and tension stress as a result of a link polygon forming between the suspension points and the channel. The combined bending and tension resistance in case of fire results with a cantilever arm length of threaded rod $\leq 150\text{mm}$. Installed horizontally in the furnace, the threaded rod is rigidly connected to a vertical channel and loaded at its outer end (see Figure B 1.2).

Figure B 1.2 – Installed threaded rod in conjunction with vertical channel



fischer G Threaded rod

Requirements for the performance assessment

Annex 2

Requirements for performance assessment of fischer G threaded rods

- The resistance at ambient temperature and in case of fire apply to static and centric tension loading.
- Resistance and deformation values under fire exposure are assessed based on the standard temperature/time curve (STTC) according to EN 1363-1:2020.
- The anchoring used with the base material must be suitable and have a fireproof certificate.
- Prior to installation, it must be ensured that the supported component, the anchoring of the threaded rod to the base material and the base material itself are suitable to withstand the resistance values of the installation system and that they have a fireproof certificate.
- The threaded rods must be installed by appropriately personnel.

fischer G threaded rods

Requirements for the performance assessment

Annex 2

Resistance to combined bending and tension under fire exposure

Table 3.1.1: Resistance to combined bending and tension under fire exposure, coefficients c_1 , c_2 and c_3 of regression curve $F_{Rk}(t) = c_3 (c_1 + c_2 / t)$

Threaded rod	Regression coefficients			Limits for $F_{Rk}(t)$	
	c_1 [N]	c_2 [N·min]	c_3 []	t_{min} [min]	t_{max} [min]
M10	624,73	3511,55	0,85	10	121
M12	1006,35	4842,27	0,82	6	143
M16	No performance assessed				

Based on the coefficients given in Table C 1.1, the characteristic resistance to combined bending and tension under fire exposure $F_{Rk(30)}$, $F_{Rk(60)}$, $F_{Rk(90)}$, $F_{Rk(120)}$ are calculated in Table C 1.2 for the discrete time points $t = [30, 60, 90, 120]$ min.

Table 3.1.2: Resistance $F_{Rk}(t)$ to combined bending and tension stress under fire exposure for $t = [30, 60, 90, 120]$ minutes

Threaded rod	Resistance to combined bending and tension under fire exposure $F_{Rk}(t)$			
	$F_{Rk(30)}$ [N]	$F_{Rk(60)}$ [N]	$F_{Rk(90)}$ [N]	$F_{Rk(120)}$ [N]
M10	629	579	562	554
M12	954	888	866	855
M16	No performance assessed			

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

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

Designations of the coefficients

$F_{Rk(30)}$	Resistance at R30 acc. to EN 1363-1:2020
$F_{Rk(60)}$	Resistance at R60 acc. to EN 1363-1:2020
$F_{Rk(90)}$	Resistance at R90 acc. to EN 1363-1:2020
$F_{Rk(120)}$	Resistance at R120 acc. to EN 1363-1:2020
$F_{Rk}(t)$	Resistance-time function in case of fire

fischer G threaded rods

Resistance to combined bending and tension under fire exposure

Annex 3

Tension resistance under fire exposureTable 4.1.1: Tension resistance $F_{Rk(t)}$ of threaded rods M10, M12 and M16 under fire exposure after $t = [30, 60, 90, 120]$ min

Designation	$N_{t,fi,\theta,Rd(30)}$ [kN]	$N_{t,fi,\theta,Rd(60)}$ [kN]	$N_{t,fi,\theta,Rd(90)}$ [kN]	$N_{t,fi,\theta,Rd(120)}$ [kN]
Threaded rod M10	1,65	0,95	0,72	0,56
Threaded rod M12	2,40	1,37	1,05	0,81
Threaded rod M16	4,48	2,56	1,95	1,52

The Tension resistance under fire exposure $N_{t,fi,\theta,Rd(t)}$ was calculated acc. to EN 1993-1-2:2010 and EN 1993-1-8:2020.

fischer G threaded rods

Tension resistance under fire exposure

Annex 4

Compression resistance under fire exposure for threaded rod M10Table 5.1.1: Compression resistance $P_{Rk,fi(t)}$ of threaded rod M10 under fire exposure after $t = [30, 60, 90, 120]$ mi

Installed length L [mm]	$N_{c,fi,0,Rd(30)}$ [N]	$N_{c,fi,0,Rd(60)}$ [N]	$N_{c,fi,0,Rd(90)}$ [N]	$N_{c,fi,0,Rd(120)}$ [N]
40	1246	734	551	428
50	1141	680	507	394
60	1033	624	462	359
70	926	568	417	324
80	824	513	374	291
90	730	460	333	259
100	645	412	296	230
110	571	368	263	205
120	506	330	234	182
130	451	295	209	163
140	403	266	187	146
150	361	239	169	131
160	326	217	152	118
170	295	197	138	107
180	268	179	125	98
190	244	164	115	89
200	224	150	105	82
210	205	138	96	75
220	189	128	89	69
230	175	118	82	64
240	162	110	76	59
250	151	102	71	55
260	140	95	66	51
270	131	89	62	48
280	123	83	58	45
290	115	78	54	42
300	108	73	51	40
330	91	62	43	33
360	77	53	36	28
390	66	45	31	24
420	58	39	27	21
450	51	35	24	19
500	41	28	20	15

The compressive resistance under fire exposure $N_{c,fi,0,Rd(t)}$ is calculated acc. to EN 1993-1-2:2010, EN 1993-1-8:2020 and EN 1993-1-1:2010.

fischer G threaded rods

Compression resistance under fire exposure, M10

Annex 5

Compression resistance under fire exposure for threaded rod M12Table 5.1.2: Compression resistance $P_{Rk,fi(t)}$ of threaded rod M12 under fire exposure after $t = [30, 60, 90, 120]$ min

Installed length L [mm]	$N_{c,fi,\theta,Rd(30)}$ [N]	$N_{c,fi,\theta,Rd(60)}$ [N]	$N_{c,fi,\theta,Rd(90)}$ [N]	$N_{c,fi,\theta,Rd(120)}$ [N]
40	1914	1119	842	655
50	1789	1055	791	615
60	1661	990	738	574
70	1531	922	684	532
80	1402	855	630	490
90	1275	788	576	448
100	1156	722	525	409
110	1044	660	477	371
120	943	602	433	337
130	852	549	392	305
140	770	500	356	277
150	698	456	324	252
160	635	417	295	230
170	579	382	269	210
180	529	350	247	192
190	485	322	227	176
200	446	297	209	162
210	411	275	193	150
220	380	255	178	139
230	352	237	165	129
240	328	220	154	120
250	305	205	143	112
260	285	192	134	104
270	266	180	125	98
280	250	169	118	91
290	235	159	110	86
300	221	149	104	81
330	186	126	88	68
360	158	108	75	58
390	137	93	65	50
420	119	81	56	44
450	105	71	49	38
500	86	59	41	32

The compressive resistance under fire exposure $N_{c,fi,\theta,Rd(t)}$ is calculated acc. to EN 1993-1-2:2010, EN 1993-1-8:2020 and EN 1993-1-1:2010.

fischer G threaded rods

Compression resistance under fire exposure, M12

Annex 5

Compression resistance under fire exposure for threaded rod M16Table 5.1.3: Compression resistance $P_{Rk,fi(t)}$ of threaded rod M16 under fire exposure after $t = [30, 60, 90, 120]$ min

Installed length L [mm]	$N_{c,fi,\theta,Rd(30)}$ [N]	$N_{c,fi,\theta,Rd(60)}$ [N]	$N_{c,fi,\theta,Rd(90)}$ [N]	$N_{c,fi,\theta,Rd(120)}$ [N]
40	3805	2208	1669	1299
50	3640	2123	1601	1245
60	3473	2037	1531	1191
70	3302	1949	1460	1136
80	3127	1860	1388	1080
90	2951	1769	1315	1023
100	2773	1677	1241	965
110	2596	1584	1167	908
120	2423	1492	1094	851
130	2256	1402	1023	796
140	2097	1315	954	743
150	1947	1230	889	692
160	1806	1150	828	644
170	1676	1075	771	600
180	1556	1004	717	558
190	1446	938	668	520
200	1345	877	623	485
210	1253	820	582	453
220	116	768	543	423
230	1092	720	509	396
240	1022	676	476	371
250	958	635	447	348
260	899	598	420	327
270	845	563	395	308
280	796	531	373	290
290	751	502	352	274
300	709	475	332	259
330	602	405	283	220
360	517	349	243	189
390	449	303	211	164
420	393	266	185	144
450	346	235	163	127
500	286	194	135	105

The compressive resistance under fire exposure $N_{c,fi,\theta,Rd(t)}$ is calculated acc. to EN 1993-1-2:2010, EN 1993-1-8:2020 and EN 1993-1-1:2010.

fischer G threaded rods

Compression resistance under fire exposure, M16

Annex 5