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European Technical Assessment

ETA-12/0370 of 21/06/2016

English translation prepared by CSTB - Original version in French language

General Part

Nom commercial *Trade name*	**MFT EKSPANJONSBOLT A4**
Famille de produit *Product family*	**Cheville métallique en acier inoxydable, à expansion par vissage à couple contrôlé, de fixation dans le béton non fissuré :** **diamètres M8, M10, M12 et M16** ***Torque-controlled expansion anchor, made of stainless steel, for use in uncracked concrete:*** ***sizes M8, M10, M12 and M16***
Titulaire *Manufacturer*	Hitachi Power Tools Norway AS Kjeller Vest 7 2007 Kjeller Norway
Usine de fabrication *Manufacturing plants*	Plant 1
Cette evaluation contient: *This Assessment contains*	12 pages incluant 9 annexes qui font partie intégrante de cette évaluation 12 *pages including 9 annexes which form an integral part of this assessment*
Base de l'ETE *Basis of ETA*	ETAG 001, Version Avril 2013, utilisée en tant que DEE *ETAG 001, Edition April 2013 used as EAD*
Cette evaluation remplace: *This Assessment replaces*	ATE-12/0370 valide du 18/10/2011 au 18/10/2016 *ETA-12/0370 with validity from 18/10/2011 to 18/10/2016*

3.7 Sustainable use of natural resources ((BWR 7)

For the sustainable use of natural resources no performance was determined for this product.

3.8 General aspects relating to fitness for use

Durability and Serviceability are only ensured if the specifications of intended use according to Annex B1 are kept.

4 Assessment and verification of constancy of performance (AVCP)

According to the Decision 96/582/EC of the European Commission[1], as amended, the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

Product	Intended use	Level or class	System
Metal anchors for use in concrete.	For fixing and/or supporting to concrete, structural elements (which contributes to the stability of the works) or heavy units.	—	1

5 Technical details necessary for the implementation of the AVCP system

Technical details necessary for the implementation of the Assessment and verification of constancy of performance (AVCP) system are laid down in the control plan deposited at Centre Scientifique et Technique du Bâtiment.

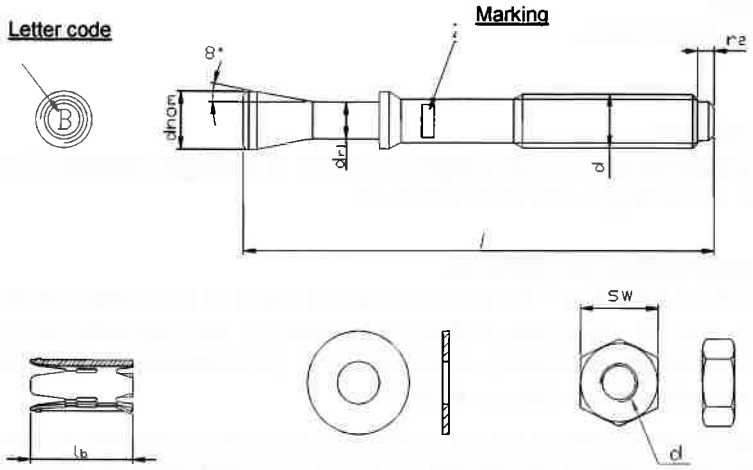
The manufacturer shall, on the basis of a contract, involve a notified body approved in the field of anchors for issuing the certificate of conformity CE based on the control plan.

The original French version is signed by

Charles Baloche
Technical Director

1 Official Journal of the European Communities L 254 of 08.10.1996

Assembled anchor: bolt and expansion sleeve



Marking on the bolt:

FM X/Y A4
with X = thread diameter (d)
Y = fixture thickness (t_{fix})
e.g. FM 10/5 A4 (size M10x75)

A letter code corresponding to the total length of the bolt is punched on the head of the bolt.

Table 1: Materials

Part	Designation	Material
1	Bolt	Stainless steel AISI 316-L-Cu X3CrNiCuMo 17-11-3-2 (UNI EN 10088/3) Stainless steel AISI 316-L X2CrNiMo 17-12-2 (UNI EN 10088/3)
2	Expansion sleeve	Stainless steel AISI 316-L X2CrNiMo 17-12-2 (UNI EN 10088/2)
3	Washer	A4 – 140 Hv (DIN 125)
4	Hexagonal nut	A4-70 (DIN 934)

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Product description Parts, materials and marking	

Table 2: Anchor dimensions

	Anchor size	Marking	L [mm]	t_{fix} [mm]	d_r [mm]	d_{nom} [mm]	l_{bague} [mm]	Letter code
M8	M8x65	FM 8/7 A4	65	7	5,8	8,0	11,5	B
	M8x75	FM 8/15 A4	75	15				C
	M8x90	FM 8/30 A4	90	30				D
	M8x115	FM 8/55 A4	115	55				E
	M8x135	FM 8/75 A4	135	75				F
	M8x165	FM 8/105 A4	165	105				G
M10	M10x75	FM 10/5 A4	78	5	7,4	10,0	14,0	B
	M10x90	FM 10/20 A4	90	20				C
	M10x120	FM 10/50 A4	120	50				D
	M10x145	FM 10/75 A4	145	75				E
	M10x170	FM 10/100 A4	173	100				F
M12	M12x100	FM 12/10 A4	100	10	8,8	12,0	17	B
	M12x110	FM 12/20 A4	110	20				C
	M12x135	FM 12/45 A4	135	45				D
	M12x160	FM 12/70 A4	160	70				E
	M12x185	FM 12/100 A4	188	100				F
M16	M16x125	FM 16/10 A4	125	10	12,6	16,0	23	A
	M16x145	FM 16/30 A4	145	30				B
	M16x175	FM 16/60 A4	175	60				C
	M16x215	FM 16/100 A4	215	100				D

Table 3: Installation data

	Anchor type	d_{cut} [mm]	d_f [mm]	T_{inst} [Nm]	h_{min} [mm]	h_1 [mm]	h_{nom} [mm]	h_{ef} [mm]	s_{min} [mm]	c_{min} [mm]
M8	FM 8/7 A4 FM 8/15 A4 FM 8/30 A4 FM 8/55 A4 FM 8/75 A4 FM 8/105 A4	8	9	15	100	60	48	40	60	60
M10	FM 10/5 A4 FM 10/20 A4 FM 10/50 A4 FM 10/75 A4 FM 10/100 A4	10	12	25	100	70	59	50	75	75
M12	FM 12/10 A4 FM 12/20 A4 FM 12/45 A4 FM 12/70 A4 FM 12/100 A4	12	14	50	120	85	71	60	90	90
M16	FM 16/10 A4 FM 16/30 A4 FM 16/60 A4 FM 16/100 A4	16	18	100	170	115	96	85	130	130

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Intended Use
Installation parameters

Annex B2

Table 5: Characteristic values for shear loads in case of static and quasi static loading for design method A acc. ETAG001, Annex C

			M8	M10	M12	M16
Steel failure without lever arm						
Characteristic resistance	$V_{Rk,s}$	[kN]	11,9	18,9	27,4	51,0
Partial safety factor	γ_{Ms} [1)]	[-]	1,33			
Steel failure with lever arm						
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	24	49	85	216
Partial safety factor	γ_{Ms} [1)]	[-]	1,33			
Concrete pry-out failure						
Factor in equation (5.6) of ETAG001, Annex C, § 5.2.3.3	k	[-]	1,0	1,0	2,0	2,0
Partial safety factor	γ_{Mc} [1)]	[-]	1,5 [2)]			
Concrete edge failure						
Effective length of anchor under shear loading	l_f	[mm]	40	36	43	62
Outside diameter of anchor	d_{nom}	[mm]	8	10	12	16
Partial safety factor	γ_{Mc} [1)]	[-]	1,5 [2)]			

[1)] In absence of other national regulations

[2)] The value contains an installation safety factor $\gamma_2 = 1.0$

Table 7: Characteristic values for shear loads in case of static and quasi static loading for design method A acc. CEN/TS 1992-4

			M8	M10	M12	M16
Steel failure without lever arm						
Characteristic resistance	$V_{Rk,s}$	[kN]	11,9	18,9	27,4	51,0
Factor considering ductility	k_2	[-]	0,8			
Partial safety factor	γ_{Ms} [1)]	[-]	1,33			
Steel failure with lever arm						
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	24	49	85	216
Partial safety factor	γ_{Ms} [1)]	[-]	1,33			
Concrete pry-out failure						
Factor in equation (16) of CEN/TS 1992-4-4, § 6.2.2.3	k_3	[-]	1,0	1,0	2,0	2,0
Partial safety factor	γ_{Mc} [1)]	[-]	1,5 [2)]			
Concrete edge failure						
Effective length of anchor under shear loading	l_f	[mm]	40	36	43	62
Outside diameter of anchor	d_{nom}	[mm]	8	10	12	16
Partial safety factor	γ_{Mc} [1)]	[-]	1,5 [2)]			

[1)] In absence of other national regulations

[2)] The value contains an installation safety factor $\gamma_2 = 1.0$