Declaration of Performance No. 0756-CPR-0564

Throughbolt Option 1
JCP Construction Products,
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Intended use or uses of the products according to EAD 330232-00-0601	
Generic type	Torque controlled expansion anchor
Base material	Cracked and Non-cracked concrete C20/25 to C50/60 acc. EN 206-2:2003
Batch Number	Marked on individual boxes
Material	Zinc plated carbon steel , A4 Stainless Steel
Durability	Dry internal conditions
Loading	Static, quasi-static , Seismic
Fire Resistance	120mins (Annex C7)
Fire Reaction	Class A1
ETA 13/0364 issued by	DIBt
On the basis of	EAD 330232-00-0601
Certificate of Conformity 1343-CPR-M 556-2/07.15 issued by	MPA Darmstadt
Under system	1

Declared performances according to EAD 330232-00-0601*								
Essential Characteristics (Standard Anchorage Depth)				Anchor Size				
				M08	M10	M12	M16	M20
Installation parameters								
d_o	Nominal diameter of drill bit		[mm]	8	10	12	16	20
d_f	Fixture clearance hole		[mm]	9	12	14	18	22
h_{ef}	Effective anchorage depth	Steel, Zinc plated	[mm]	46	60	70	85	100
		A4	[mm]	46	60	70	85	100
h_1	Depth of drill hole to deepest point	Steel, Zinc plated	[mm]	60	75	90	110	125
		A4	[mm]	60	75	90	110	125
h_{min}	Minimum thickness of concrete member	Steel, Zinc plated	[mm]	100	120	140	170	200
		A4	[mm]	100	120	140	160	200
T_{inst}	Nominal torque moment	Steel, Zinc plated	[Nm]	20	25	45	90	160
		A4	[Nm]	20	35	50	110	200
Cracked concrete								
S_{min}	Minimum spacing	Steel, Zinc plated	[mm]	40	45	60	60	95
		A4	[mm]	40	50	60	60	95
for C≥	Edge distance	Steel, Zinc plated	[mm]	70	70	100	100	150
		A4	[mm]	70	75	100	100	150
C_{min}	Minimum edged distance	Steel, Zinc plated	[mm]	40	45	60	60	95
		A4	[mm]	40	55	60	60	95
for S≥	Anchor spacing	Steel, Zinc plated	[mm]	80	90	140	180	200
		A4	[mm]	80	90	140	180	200
Non-Cracked concrete								
S_{min}	Minimum spacing	Steel, Zinc plated	[mm]	40	45	60	65	90
		A4	[mm]	40	50	60	65	90
for C≥	Edge distance	Steel, Zinc plated	[mm]	80	70	120	120	180
		A4	[mm]	80	75	120	120	180
C_{min}	Minimum edged distance	Steel, Zinc plated	[mm]	50	50	75	80	130
		A4	[mm]	50	60	75	80	130
for S≥	Anchor spacing	Steel, Zinc plated	[mm]	100	100	150	150	240
		A4	[mm]	100	120	150	150	240
Tensile Steel failure								
$N_{Rk,s}$	Characteristic tensile steel failure	Steel, Zinc plated	[kN]	16	27	40	60	86
		A4		16	27	40	64	108
$\gamma M,s$	Partial safety factor	Steel, Zinc plated	[-]	1.53		1.5		1.6
		A4		1.5				1.68

Essential Characteristics (Standard Anchorage Depth)				Anchor Size				
				M08	M10	M12	M16	M20
Pull-out failure								
$N_{Rk,p,cr}$	Characteristic tensile load in cracked concrete C20/25		[kN]	5	9	16	25	(1)
$N_{Rk,p,ucr}$	Characteristic tensile load in non-cracked concrete C20/25		[kN]	12	16	25	35	(1)
$\gamma_{M,p}$	Partial safety factor (Includes $\gamma 2$)		[-]	1.5				
$S_{cr,N}$	Critical spacing		[mm]	138	180	210	255	300
$C_{,cr,N}$	Critical edge distance		[mm]	69	90	105	128	150
$\Psi cC30/37$	Increasing factor for concrete C30/37		[-]	1.22				
$\Psi cC40/50$	Increasing factor for concrete C40/50		[-]	1.41				
$\Psi cC50/60$	Increasing factor for concrete C50/60		[-]	1.55				
Splitting for standard thickness of concrete member (The highest resistance of Case 1 and Case 2 may be used)								
$h_{std} \geq$	Standard thickness of concrete		[mm]	100	120	140	170	200
Case 1								
$N^0_{Rk,sp}$	Characteristic Resistance in C20/25 concrete		[kN]	9	12	20	30	40
$S_{cr,sp}$	Critical spacing (Splitting)		[mm]	3 hef				
$C_{cr,sp}$	Critical edge distance (Splitting)		[mm]	Scr,sp / 2				
Case 2								
$N^0_{Rk,sp}$	Characteristic Resistance in C20/25 concrete		[kN]	12	16	25	35	(1)
$S_{cr,sp}$	Critical spacing (Splitting)	Steel, Zinc plated	[mm]	4hef				4.4 hef
		A4		230	250	280	400	440
$C_{cr,sp}$	Critical edge distance (Splitting)		[mm]	Scr,sp / 2				
Splitting for minimum thickness of concrete member								
h_{min}	Minimum thickness of concrete		[mm]	80	100	120	140	-
$N^0_{Rk,sp}$	Characteristic Resistance in C20/25 concrete		[kN]	12	16	25	35	-
$S_{cr,sp}$	Critical spacing (Splitting)		[mm]	5 hef				
$C_{cr,sp}$	Critical edge distance (Splitting)		[mm]	Scr,sp / 2				
Concrete cone failure								
h_{ef}	Effective anchorage depth		[mm]	46	60	70	85	100
kcr	Factor accroding to EN1992-4 for cracked concrete		[mm]	7.2				
kucr	Factor accroding to EN1992-4 for uncracked concrete		[mm]	10.1				
Displacement under tensile loading (Steel Zinc Plated)								
N_{cr}	Service tensile loads in cracked concrete		[kN]	2.4	4.3	7.6	11.9	17.1
$\delta N0_{,cr}$	Short term displacement under tensile loads		[mm]	0.6	1.0	0.4	1.0	0.9
$\delta N\infty_{,cr}$	Long term displacement under tensile loads		[mm]	1.4	1.2	1.4	1.3	1.0
Nu_{cr}	Service tensile loads in non-cracked concrete		[kN]	5.7	7.6	11.9	16.7	23.8
$\delta N0,u_{cr}$	Short term displacement under tensile loads		[mm]	0.4	0.5	0.7	0.3	0.4
$\delta N\infty_{,ucr}$	Long term displacement under tensile loads		[mm]	0.8	0.8	1.4	0.8	0.8
Displacement under tensile loading (A4)								
N_{cr}	Service tensile loads in cracked concrete		[kN]	2.4	4.3	7.6	11.9	17.1
$\delta N0_{,cr}$	Short term displacement under tensile loads		[mm]	0.7	1.8	0.4	0.7	0.9
$\delta N\infty_{,cr}$	Long term displacement under tensile loads		[mm]	1.2	1.4	1.4	1.4	1.0
Nu_{cr}	Service tensile loads in non-cracked concrete		[kN]	5.8	7.6	11.9	16.7	23.8
$\delta N0,u_{cr}$	Short term displacement under tensile loads		[mm]	0.6	0.5	0.7	0.2	0.4
$\delta N\infty_{,ucr}$	Long term displacement under tensile loads		[mm]	1.2	1.0	1.4	0.8	0.8
Shear steel failure								
$V^0_{,Rk,s}$	Characteristic shear steel failure	Steel, Zinc plated	[kN]	12.2	20.1	30	55	69
		A4	[kN]	13	20	30	55	86
$M^0_{Rk,s}$	Characteristic bending moment	Steel, Zinc plated	[kN]	23	47	82	216	363
		A4	[kN]	26	52	92	200	454
$\gamma_{m,sV}$	Partial safety factor	Steel, Zinc plated	[-]	1.25				1.33
		A4	[-]	1.25				1.4
k_2	Factor for ductility		[-]	1.0				
Concrete pryout failure								
k_3	Factor in equation 95.6) ETAG 001 Annex C §5.2.3.3 or EN 1992-4		[-]	2.4				2.8
$\gamma_{M,cp}$	Partial safety factor		[-]	1.5				
Shear concrete edge failure								
l_{ef}	Effective anchorage length	Steel, Zinc plated	[mm]	46	60	70	85	100
		A4	[mm]	46	60	70	85	100

Essential Characteristics (Standard Anchorage Depth)				Anchor Size				
				M08	M10	M12	M16	M20
Displacement on shear load (steel zinc plated)								
V	Service shear load in cracked and non-cracked concrete		[kN]	8.6	12.6	17.1	34.3	36.8
δ_{v0}	Short term displacement under shear load		[mm]	2.3	2.2	2.2	4.0	1.8
$\delta V\infty$	Long term displacement under shear load		[mm]	3.5	3.3	3.4	6.0	2.7
Displacement on shear load (A4)								
V	Service shear load in cracked and non-cracked concrete		[kN]	7.3	11.4	17.1	31.4	43.8
δ_{v0}	Short term displacement under shear load		[mm]	1.9	2.4	4.0	4.3	2.9
$\delta V\infty$	Long term displacement under shear load		[mm]	2.9	3.6	5.9	6.4	4.3
Characteristic tensile fire resistance								
$N_{Rk,fi30}$	Fire resistance duration = 30 minutes	Steel, Zinc plated	[kN]	1.4	2.2	3.2	6.0	9.4
		A4	[kN]	3.8	6.9	11.5	21.5	33.5
$N_{Rk,fi60}$	Fire resistance duration = 60 minutes	Steel, Zinc plated	[kN]	1.1	1.8	2.8	5.2	8.2
		A4	[kN]	2.9	5.2	8.6	16	25
$N_{Rk,fi90}$	Fire resistance duration = 90 minutes	Steel, Zinc plated	[kN]	0.8	1.4	2.4	4.4	6.9
		A4	[kN]	2.0	3.5	5.6	10.5	16.4
$N_{Rk,fi120}$	Fire resistance duration = 120 minutes	Steel, Zinc plated	[kN]	0.7	1.2	2.2	4.0	6.3
		A4	[kN]	1.6	2.7	4.2	7.8	12.1
Characteristic shear fire resistance without lever arm								
$V_{Rk,fi30}$	Fire resistance duration = 30 minutes	Steel, Zinc plated	[kN]	1.6	2.6	3.8	7.0	11.0
		A4	[kN]	3.8	6.9	11.5	21.5	33.5
$V_{Rk,fi60}$	Fire resistance duration = 60 minutes	Steel, Zinc plated	[kN]	1.5	2.5	3.6	6.8	11.0
		A4	[kN]	2.9	5.2	8.6	16	25.0
$V_{Rk,fi90}$	Fire resistance duration = 90 minutes	Steel, Zinc plated	[kN]	1.2	2.1	3.5	6.5	10.0
		A4	[kN]	2.0	3.5	5.6	10.5	16.4
$V_{Rk,fi120}$	Fire resistance duration = 120 minutes	Steel, Zinc plated	[kN]	1.0	2.0	3.4	6.4	10.0
		A4	[kN]	1.6	2.7	4.2	7.8	12.1
Characteristic shear fire resistance with lever arm								
$V_{Rk,fi30}$	Fire resistance duration = 30 minutes	Steel, Zinc plated	[kN]	1.7	3.3	5.9	15.0	29.0
		A4	[kN]	3.8	9.0	17.9	45.5	88.8
$V_{Rk,fi60}$	Fire resistance duration = 60 minutes	Steel, Zinc plated	[kN]	1.6	3.2	5.6	14.0	28.0
		A4	[kN]	2.9	6.8	13.3	33.9	66.1
$V_{Rk,fi90}$	Fire resistance duration = 90 minutes	Steel, Zinc plated	[kN]	1.2	2.7	5.4	14.0	27.0
		A4	[kN]	2.1	4.5	8.8	22.2	43.4
$V_{Rk,fi120}$	Fire resistance duration = 120 minutes	Steel, Zinc plated	[kN]	1.1	2.5	5.3	13.0	26.0
		A4	[kN]	1.6	3.4	6.5	16.4	32.1

*Please refer to ETA 13/0364 for reduced anchorage depth perforamance data and seismic loadings.

The previous performance data relates to the following product codes

Steel Zinc Plated

d	Marking d_o	L [mm]	t_{fix} [mm]	Product Code
M8	BZ08 C	75	10	ETA08075
	BZ08 E	95	30	ETA08095
	BZ08 G	115	50	ETA08115
M10	BZ10 E	90	10	ETA10090
	BZ10 F	110	30	ETA10110
	BZ10 H	130	50	ETA10130
M12	BZ12 F	110	15	ETA12110
	BZ12 G	125	30	ETA12125
	BZ12 J	160	65	ETA12160
	BZ12 L	180	85	ETA12180
M16	BZ16 H	135	15	ETA16135
	BZ16 K	170	50	ETA16170
	BZ16 M	200	80	ETA16200
M20	BZ20 J	165	30	ETA20165
	BZ20 M	195	60	ETA20195

Ammendments	
A4 Stainless Steel version added	25/02/2024
New products added	25/02/2024

A4 Stainless Steel

d	Marking d_o/L	L [mm]	t_{fix} [mm]	Product Code
M8	BZ08 A4 C	65	10	ETA08065SS
	BZ08 A4 D	80	15	ETA08080SS
	BZ08 A4 E	95	30	ETA08095SS
	BZ08 A4 G	115	50	ETA08115SS
M10	BZ10 A4 D	80	20	ETA10080SS
	BZ10 A4 E	100	20	ETA10110SS
	BZ10 A4 H	130	50	ETA10130SS
M12	BZ12 A4 F	110	15	ETA12110SS
	BZ12 A4 G	125	30	ETA12125SS
	BZ12 A4 J	160	65	ETA12160SS
	BZ12 A4 L	180	85	ETA12180SS
M16	BZ16 A4 G	115	15	ETA16115SS
	BZ16 A4 H	135	15	ETA16135SS
	BZ16 A4 K	170	50	ETA16170SS
	BZ16 A4 M	200	80	ETA16200SS
M20	BZ20 A4 J	165	30	ETA20165SS
	BZ20 A4 M	195	60	ETA20195SS
	BZ20 A4 P	235	100	ETA20235SS

The performances of the product identified by the above product codes are in conformity with the declared performance

This Declaration of performance is issued under the sole responsibility of JCP Construction products

Signed for and on behalf of the manufacturers

Name and function	Place and date of issue	Signature
Mehrdad Mirshokraei	Teddington	Mehrdad Mirshokraei
Technical Manager	28/02/2024	