CE

Declaration of Performance –CE 1343-CPR-M-582-4
Chemfix 500 (Bonded anchor)
Chemfix Products Ltd
Mill Street East. Dewsburv. West Yorkshire. WF12 9BQ. UK

CHEMFIX 500 (galvanized or stainless steel bonded anchor)

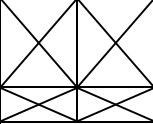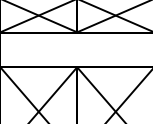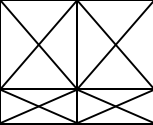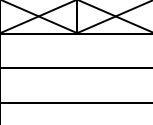| Intended use or uses of the construction product according to ETAG 001 parts 1 and 5	
Generic type	Bonded anchor for anchorage of threaded rod size M8 to M30 or rebar d8 to d32 for use in concrete
Base material	Cracked and Non-cracked concrete C20/25 to C50/60 acc. to EN 206:2000-12;
Material	Zinc-plated or hot dip galvanized steel: dry internal conditions M8 to M30 Stainless steel (A4) – 1.4401, 1.4404, 1.4571: internal and external use without particular aggressive conditions M8 to M30 High corrosion resistance steel (HCR) – 1.4529, 1.4565: internal and external use with particular aggressive conditions M8 to M30 Reinforcing bar Class B and C as EN 1992-1-1 Annex C Ø8 to Ø32
Use category	Installation in dry and wet concrete or flooded holes • Overhead installation • Application in non-cracked concrete: M8 to M30, Rebar Ø8 to Ø32 • Application in cracked concrete and seismic C1: M12 to M30, Rebar Ø12 to Ø32 • Application in cracked concrete and seismic C2: M12 and M16
Loading	Static, quasi-static, seismic C1, seismic C2,
Temperature Range	- 40°C to +40°C (max. short term temperature +40°C; max. long term temperature +24°C) - 40°C to +80°C (max. short term temperature +80°C; max. long term temperature +50°C) - 40°C to +120°C (max. short term temperature +120°C; max. long term temperature +72°C)
ETA - 15/0130 issued by	DIBt, Germany
On the basis of	ETAG 001, according to Article 29 of the Regulation (EU) No 305/2011

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Declared performances according to ETAG 001 parts 1 and 5 for threaded rods										
Essential Characteristics of threaded rod			**Performance**							
			M8	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Installation parameters										
d	Diameter of anchor bolt or thread diameter	[mm]	M8	M10	M12	M16	M20	M24	M27	M30
d_0	Nominal diameter of drill bit	[mm]	10	12	14	18	22	26	30	35
d_{fix}	Diameter of clearance hole in the fixture	[mm]	9	12	14	18	22	26	30	33
h_{eff}	Minimum effective anchorage depth $h_{ef,min}$	[mm]	64	80	96	128	160	192	216	240
	Maximum effective anchorage depth $h_{cf,max}$	[mm]	96	120	144	192	240	288	324	360
h_{min}	Minimum thickness of the concrete member	[mm]	h_{eff} + 30 mm (≥ 100 mm)				H_{eff} + $2d_0$			
d_b	Diameter of steel brush	[mm]	12	14	16	20	26	30	34	37
T_{inst}	Nominal torque moment	[Nm]	10	20	40	80	120	160	180	200
t_{fix}	Thickness to be fixed	[mm]	0 - 1500							
s_{min}	Minimum spacing (for minimum effective anchorage depth)	[mm]	40	50	60	80	100	120	135	150
for c ≥	Edge distance	[mm]	40	50	60	80	100	120	135	150
c_{min}	Minimum edge distance (for minimum effective anchorage depth)	[mm]	40	50	60	80	100	120	135	150
for s ≥	Anchor spacing	[mm]	40	50	60	80	100	120	135	150
s_{min}	Minimum spacing (for maximum effective anchorage depth)	[mm]	40	50	60	80	100	120	135	150
for c ≥	Edge distance	[mm]	40	50	60	80	100	120	135	150
c_{min}	Minimum edge distance (for maximum effective anchorage depth)	[mm]	40	50	60	80	100	120	135	150
for s ≥	Anchor spacing	[mm]	40	50	60	80	100	120	135	150
Pull-out failure mode in un-cracked concrete										
$\tau_{Rk,ucr}$	Characteristic bond resistance in un-cracked concrete class C20/25, Use category 1, dry and wet concrete	[N/mm²]	13	13	12	12	11	10	10	10
γ_2	Partial safety factor	[-]	1,2				1.4			
$\gamma_{m,c}$ [1]	Partial safety factor	[-]								
$\tau_{Rk,ucr}$	Characteristic bond resistance in un-cracked concrete class C20/25 Use category 2, flooded holes	[N/mm²]	13	12	11	9	8	7	6.5	6
γ_2	Partial safety factor	[-]	1,4							
$\gamma_{m,c}$ [1]	Partial safety factor	[-]								
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete C30/37	[-]	1.04							
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete C40/50	[-]	1.08							
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete C50/60	[-]	1.10							
Pull-out failure mode in cracked concrete										
$\tau_{Rk,cr}$	Characteristic bond resistance in cracked concrete class C20/25, Use category 1, dry and wet concrete	[N/mm²]	☒	☒	6.5	5.5	5.0	4.5	4.5	4.5
γ_2	Partial safety factor	[-]	☒	☒	1.2		1.4			
$\gamma_{m,c}$ [1]	Partial safety factor	[-]								
$\tau_{Rk,cr}$	Characteristic bond resistance in cracked concrete class C20/25 Use category 2, flooded holes	[N/mm²]	☒	☒	6.5	5.0	4.0	3.5	3.5	3.5
γ_2	Partial safety factor	[-]	☒	☒	1.2		1.4			
$\gamma_{m,c}$ [1]	Partial safety factor	[-]								
$\psi_{c,cr}$	Increasing factor for cracked concrete C30/37	[-]	1.04							
$\psi_{c,cr}$	Increasing factor for cracked concrete C40/50	[-]	1.08							

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$\psi_{c,cr}$	Increasing factor for cracked concrete C50/60	[-]	1.10							
Resistance for splitting failure										
$s_{cr,sp}$	Critical spacing (splitting)	[mm]	2 $c_{cr,sp}$							
$c_{cr,sp}$	Critical edge distance(splitting)	[mm]	** note 1							
Displacement on Tension Load										
F	Service value of the bond stress in un-cracked concrete	[kN]								
$\delta_{0,ucr}$	Short term displacement under tension load	[mm]	0.011	0.013	0.015	0.020	0.024	0.029	0.032	0.035
$\delta_{\infty,ucr}$	Long term displacement under tension load	[mm]	0.044	0.052	0.061	0.079	0.096	0.114	0.127	0.140
F	Service value of the bond stress in cracked concrete	[kN]								
$\delta_{0,ucr}$	Short term displacement under tension load	[mm]			0.032	0.037	0.042	0.048	0.053	0.058
Shear, steel failure (Could I add here cracked and non cracked)										
$V_{Rk,s}$	Shear Steel characteristic failure (4.6 steel)	[kN]	7	12	17	31	49	71	92	112
$M^0_{Rk,s}$	Bending Moment characteristic failure (4.6 steel)	[Nm]	15	30	52	133	260	449	666	900
$\gamma_{m,sV}$	Partial safety factor for shear steel failure (4.6 steel)	[-]	1,67							
$V_{Rk,s}$	Shear Steel characteristic failure (5.8 steel)	[kN]	9	15	21	39	61	88	115	140
$V_{Rk,s}$	Shear Steel characteristic failure (8.8 steel)	[kN]	15	23	34	63	98	141	184	224
$M^0_{Rk,s}$	Bending Moment characteristic failure (5.8 steel)	[Nm]	19	37	65	166	324	560	833	1123
$M^0_{Rk,s}$	Bending Moment characteristic failure (8.8 steel)	[Nm]	30	60	105	266	519	898	1333	1797
$\gamma_{m,sV}$	Partial safety factor for shear steel failure (5.8 & 8.8 steel)	[-]								
$V_{Rk,s}$	Shear Steel characteristic failure (10.9 steel)	[kN]								
$M^0_{Rk,s}$	Bending Moment characteristic failure (10.9 steel)	[Nm]								
$\gamma_{m,sV}$	Partial safety factor for shear steel failure (10.9 steel)	[-]								
$V_{Rk,s}$	Shear Steel characteristic failure (A4-70 steel)	[kN]	13	20	30	55	86	124	115	140
$M^0_{Rk,s}$	Bending Moment characteristic failure (A4-70 steel)	[Nm]	26	52	92	232	454	784	832	1125
$\gamma_{m,sV}$	Partial safety factor for shear steel failure (A4-70 steel)	[-]								
$V_{Rk,s}$	Shear Steel characteristic failure (A4-80 steel)	[kN]								
$M^0_{Rk,s}$	Bending Moment characteristic failure (A4-80 steel)	[Nm]								
$\gamma_{m,sV}$	Partial safety factor for shear steel failure (A4-80 steel)	[-]								
$V_{Rk,s}$	Shear Steel characteristic failure (1.4529 class 70 steel)	[kN]								
$M^0_{Rk,s}$	Bending Moment characteristic failure (1.4529, class 70	[Nm]								
$\gamma_{m,sV}$	Partial safety factor for shear steel failure (1.4529 class	[-]								
Shear Concrete pryout failure										
k	Factor for concrete edge failure	[-]	2							
γ_2	Partial safety factor	[-]	1,0							
$\gamma_{m,c}$ [1]	Partial safety factor	[-]								
Shear Concrete edge failure										
γ_2	Partial safety factor	[-]	1,0							
$\gamma_{m,c}$ [1]	Partial safety factor	[-]	1,5							
Displacement on Shear Load										
F	Service shear load in concrete	[kN]								
δ_{V0}	Short term displacement under shear load	[mm]	0.06	0.06	0.05	0.04	0.04	0.03	0.03	0.03
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0.09	0.08	0.08	0.06	0.06	0.05	0.05	0.05

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Declared performances according to ETAG 001 parts 1 and 5 for reinforcing bar											
Essential Characteristics of reinforcing bar			**Performance**								
			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
Installation parameters											
d_0	Nominal diameter of drill bit	[mm]	12	14	16	18	20	25	32	35	40
h_{eff}	Minimum effective anchorage depth	[mm]	64	80	96	112	128	160	200	224	256
	Maximum effective anchorage depth	[mm]	96	120	144	168	195	240	300	336	384
h_1	Depth of the drilling hole	[mm]	$h_1 = h_{eff}$								
h_{min}	Minimum thickness of the concrete member	[mm]	h_{eff} + 30 mm		H_{eff} + 2d_0						
t_{fix}	Thickness to be fixed	[mm]	NPD								
s_{min}	Minimum spacing (for minimum effective anchorage depth)	[mm]	40	50	60	70	80	100	125	140	160
for c ≥	Edge distance	[mm]	40	50	60	70	80	100	125	140	160
c_{min}	Minimum edge distance (for minimum effective anchorage depth)	[mm]	40	50	60	70	80	100	125	140	160
for s ≥	Anchor spacing	[mm]	40	50	60	70	80	100	125	140	160
s_{min}	Minimum spacing (for maximum effective anchorage depth)	[mm]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
for c ≥	Edge distance	[mm]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
c_{min}	Minimum edge distance (for maximum effective anchorage depth)	[mm]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
for s ≥	Anchor spacing	[mm]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pull-out failure mode in un-cracked concrete											
$\tau_{Rk,ucr}$	Characteristic bond resistance in un-cracked concrete class C20/25, Use category 1, dry and wet concrete	[N/mm²]	12	12	11	11	10	10	9.5	9.0	9.0
γ_2	**Partial safety factor**	[-]	1,2					1.4			
$\gamma_{m,c}$ [1]	Partial safety factor	[-]									
$\tau_{Rk,ucr}$	Characteristic bond resistance in un-cracked concrete class C20/25 Use category 2, flooded holes	[N/mm²]	12	11	9.5	9.0	8.0	7.0	6.0	6.0	5.5
γ_2	**Partial safety factor**	[-]	1,4								
$\gamma_{m,c}$ [1]	Partial safety factor	[-]									
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete C30/37	[-]	1,04								
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete C40/50	[-]	1,08								
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete C50/60	[-]	1,10								
Resistance for splitting failure											
$s_{cr,sp}$	Critical spacing (splitting)	[mm]	2 $c_{cr,sp}$								
$c_{cr,sp}$	Critical edge distance(splitting)	[mm]									
Displacement on Tension Load											
F	Service value of the bond stress in un-cracked concrete	[kN]									
$\delta_{0,ucr}$	Short term displacement under tension load	[mm]	0.011	0.013	0.015	0.018	0.020	0.024	0.030	0.033	0.037
$\delta_{\infty,ucr}$	Long term displacement under tension load	[mm]	0.044	0.052	0.061	0.070	0.079	0.096	0.118	0.132	0.149
Shear, steel failure											
$V_{Rk,s}$	Shear Steel characteristic failure (Rebar BSt 500 S)	[kN]	7	12	17	31	49	71			92
$M^0_{Rk,s}$	Bending Moment characteristic failure (Rebar BSt 500 S)	[Nm]	33	65	112	265	518	1013			2122
$\gamma_{m,sV}$	Partial safety factor for shear steel failure (Rebar BSt 500 S)	[-]	1,5								
Shear Concrete Edge failure mode											
γ_2	Partial safety factor	[-]	1,0								
$\gamma_{m,c}$ [1]	Partial safety factor	[-]	1,5								
Displacement on Shear Load											
F	Service shear load in concrete	[kN]	5,9	9,3	13,3	23,7	37,0	57,9			94.8
δ_{V0}	Short term displacement under shear load	[mm]	0,3	0,4				0,5			0.9
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0,5	0,6				0,8			1.4

[1] In absence of other national regulations.

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The performance of the product identified above is in conformity with the set of declared performance/s.
This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of Chemfix Products Ltd by:

Place and date of issue: Dewsbury, 26/05/2016

Urs Joos, Sales Director