Azienda con Sistema Qualità certificato
UNI EN ISO 9001:2008
Certified Quality System Company

TECHNICAL DATA SHEET
PRODUCT

GK EXTRABOND

INJECTION CHEMICAL ANCHOR
CE CERTIFIED
VINYLESTER RESIN BASED
stirene free

ETAG 001-5 OPTION 7
ETA 09/0078 M8-M30

ETAG 001-5 OPTION 7
ETA 09/0407 Ø8-Ø25

Feuerwider-standsklasse F120

GK EXTRABOND is an high quality bonded anchor for high performance based on **vinylester resin styrene free**, CE OPTION 7 approved, for applications on concrete even in dry or flooded bore holes, Certified for applications with **threaded bars class 5, class 8,8 and stainless steel, and reinforced bars**, **Suited also for application on wood and flooded bore holes.** It grants a safety fixing and high load values even on semisolid and hollow supports.

PLUS

- **CE Option 7 approved for application on not cracked concrete with threaded bars and rebars, Certified for applications in flooded bore holes,**
- **DIBT** approved for application on **solid and hollow bricks,**
- **Fire Resistance Certification F120,**
- **Ideal performance even on wood,**
- Waterproofing joint
- Low in odour: it is **styrene free**,
- No expansion effect, allowing fixing close to the edges
- Very high chemical resistance,
- It does not modify the external appearance of the support
- Cartridge can be used up to the end of the validity date by replacing the static mixer and re-sealing the cartridge with the sealing cap,

On solid supports, it can be used with accessories of galvanized steel and stainless steel
On hollow supports, it can be used with polypropylene or/and metal wired sleeves

APPLICATION

It is suited for fixing medium and heavy loads on solid and hollow supports: stone, concrete, aerated concrete, solid and hollow bricks, It is indicated for applications with threaded bars and reinforced bars, application on wood and metal carpentry, for fixing of ventilated facades, railings, pipes connection, profiles,

CHARACTERISTICS

• For use with special application caulking gun and static mixers,
• The anchor may be installed in dry or submerged holes,
• Temperature range I:
  - 40°C ÷ +40°C (-40°F ÷ 104°F)
  (max short term temperature; +40°C/104°F; max long term temperature +24°C/75.2°F),
• Temperature range II:
  - 40°C ÷ +80°C (-40°F ÷ 176°F) ;
  (max short term temperature +80°C/176°F; max long term temperature +50°C/122°F),
• Storage temperature from 5°C/41°F up to max 25°C/77°F,
• Storage life: **18 months** for cartridges 410ml (cartridges tightly sealed)

PACKAGING

Cartridge of 410 ml. including static mixer (carton/box of 12 cartridges and 12 static mixers)

INDUSTRIA CHIMICA GENERAL S.r.l. - Via Repubblica S. Marino, 8 - 41122 MODENA, ITALY
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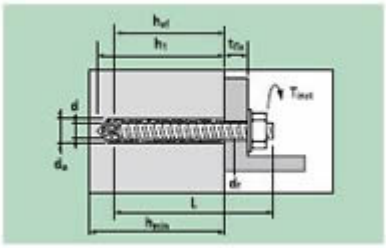
INSTALLATION TIME AND TEMPERATURES

USE TEMPERATURE	WORKING TIME	LOAD APPLICATION after	
		dry concrete	wet concrete
≥ 0°C / 32°F	45 min.	7 hours	14 hours
≥ +5°C / 41°F	25 min.	2 hours	4 hours
≥ +10°C / 50°F	15 min.	80 min.	160 min.
≥ +20°C / 68°F	6 min.	45 min.	90 min.
≥ +30°C / 86°F	4 min.	25 min.	50 min.
≥ +35°C / 95°F	2 min.	20 min.	40 min.
≥ +40°C / 104°F	1,5 min.	15 min.	30 min.



LEGENDA

h_1	hole depth
t_{fix}	max. fixing thickness
L.	stud/bar length
d	stud/bar diameter
d_o	hole diameter
T_{inst}	tigthening torque
h_{min}	base material thickness
d_f	clearance hole in the structure
h_{ef}	real anchoring depth

THREADED RODS/BARS

Installation parameters for threaded rod on concrete C20/25 - C50/60 (ETAG 001)

	d_o mm	h_{ef} min mm	h_{ef} max mm	d_f mm	d_b ** mm	T_{inst} Nm	t_{fix1} min mm	t_{fix2} min mm	h_{min} mm	s_{min} mm	c_{min} mm
M 8	10	60	160	≤ 9	≥ 12	96	> 0	<1500	h_{ef} +	40	40
M10	12	60	200	≤ 12	≥ 14	120	> 0	<1500	*30 mm*	50	50
M12	14	70	240	≤ 14	≥ 16	144	> 0	<1500	*≥ 100*	60	60
M16	18	80	320	≤ 18	≥ 20	192	> 0	<1500	*mm*	80	80
M20	24	90	400	≤ 22	≥ 26	240	> 0	<1500		100	100
M24	28	96	480	≤ 26	≥ 30	160	> 0	<1500	h_{ef} +	120	120
M27	32	108	540	≤ 30	≥ 34	180	> 0	<1500	$2d_o$	135	135
M30	35	120	600	≤ 33	≥ 37	200	> 0	<1500		150	150

** d_b = diameter of the steel brush

REBARS

Installation parameters for rod on concrete C20/25 - C50/60 (ETAG 001)

	d_o mm	h_{ef} min mm	h_{ef} max mm	d_b ** mm	h_{min} mm	s_{min} mm	c_{min} mm
Ø 8	12	60	160	≥ 14	h_{ef} +	40	40
Ø 10	14	60	200	≥ 16	*30 mm*	50	50
Ø 12	16	70	240	≥ 18	*≥ 100 mm*	60	60
Ø 14	18	75	280	≥ 20		70	70
Ø 16	20	80	320	≥ 22		80	80
Ø 20	24	90	400	≥ 26	h_{ef} + $2d_o$	100	100
Ø 25	32	100	480	≥ 34		125	125
Ø 28	35	112	540	≥ 37		140	140
Ø 32	37	128	640	≥ 40		160	160

** d_b = diameter of the steel brush

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THREADED RODS 5,8

	M8	M10	M12	M16	M20	M24	M27	M30
Ø mm.	8	10	12	16	20	24	27	30
h_{ef} min mm.	60	60	70	80	90	96	108	120
h_{ef} max mm.	160	200	240	320	400	480	540	600

CHARACTERISTIC VALUES OF RESISTANCE TO TENSION LOADS (N_{Rk})

"Design Method A" (ETAG)

			M8	M10	M12	M16	M20	M24	M27	M30
DRY and WET CONCRETE	*Temperature range I: 40 + 24°C (*	$T_{k,unkr}$ (N/mm²)	10	12	12	12	12	11	10	9
		Nrk (KN) h_{ef} min	15,1	22,6	31,7	48,3	67,9	79,6	91,6	101,8
		Nrk (KN) h_{ef} max	18	24	42	78	122	176	260	280
STEEL CLASS 5,8	*Temperature range II: 80 + 50°C*	$T_{k,unkr}$ (N/mm²)	7,5	9	9	9	9	8,5	7,5	6,5
		Nrk (KN) h_{ef} min	11,3	17,0	23,8	36,2	50,9	61,5	68,7	73,5
		Nrk (KN) h_{ef} max	18	24	42	78	122	176	230	280
	partial safety factor	γ Mc = γ Mp	1,5				1,8			
FLOODED BORE HOLE	*Temperature range I: 40 + 24°C*	$T_{k,unkr}$ (N/mm²)	7,5	8,5	8,5	8,5				
		Nrk (KN) h_{ef} min	11,3	16,0	22,4	34,2				
		Nrk (KN) h_{ef} max	18	24	42	78				
STEEL CLASS 5,8	*Temperature range II: 80 + 50°C*	$T_{k,unkr}$ (N/mm²)	5,5	6,5	6,5	6,5	not admissible			
		Nrk (KN) h_{ef} min	11,3	16,0	22,4	34,2				
		Nrk (KN) h_{ef} max								
	partial safety factor	γ Mc = γ Mp			2,1					

increasing factor for not cracked concrete	C30/37	Ψc = 1,04
	C40/50	Ψc = 1,08
	C50/60	Ψc = 1,10

$N_{Rk} = T \cdot \pi \cdot d \cdot h_{ef}$ T = bond strength

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CHARACTERISTIC VALUES OF RESISTANCE TO SHARE LOADS (V_{Rk})
"Design Method A" (ETAG)

Steel failure without lever arm

		M8	M10	M12	M16	M20	M24	M27	M30
Steel class 5,8	V_{Rk} (KN)	9	15	21	39	61	88	115	140
Steel class 8,8	V_{Rk} (KN)	15	23	34	63	98	141	184	224
Partial safety factor	$Y_{Ms,V}$	1,25							
Stainless steel A4 e HCR Class 50 (>M24) and 70 (≤M24)	V_{Rk} (KN)	13	20	30	55	86	124	115	140
Partial safety factor	$Y_{Ms,V}$	1,56						2,38	

Steel failure with lever arm
Characteristic bending moment

		M8	M10	M12	M16	M20	M24	M27	M30
Steel class 5,8	V_{Rk} (KN)	19	37	65	166	324	560	833	1123
Steel class 8,8	V_{Rk} (KN)	30	60	105	266	519	896	1333	1797
Partial safety factor	$Y_{Ms,V}$	1,25							
Stainless steel A4 e HCR Class 50 (>M24) and 70 (≤M24)	V_{Rk} (KN)	26	52	92	262	454	784	832	1125
Partial safety factor	$Y_{Ms,V}$	1,56						2,38	

REBAR
Fe BSt 500 S

		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
h_{ef} min	mm.	60	60	70	75	80	90	100	112	128
h_{ef} max	mm.	160	200	240	280	320	400	480	540	640

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CHARACTERISTIC VALUES OF RESISTANCE TO TENSION LOADS (N_{Rk})
"Design Method A" (ETAG)

			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
DRY and WET CONCRETE	*Temperature range I: 40 + 24°C*	$R_{k,unkr}$ (N/mm²)	8,5	10	10	10	10	10	9	8	7
		Nrk (KN) h_{ef} min	13	19	26	33	40	57	71	79	80
		Nrk (KN) h_{ef} max	28	43	62	85	111	173	270	339	442
	Temperature range II: 80 + 50°C	$R_{k,unkr}$ (N/mm²)	6	7,5	7,5	7,5	7,5	7,5	7	6	5
		Nrk (KN) h_{ef} min	9	14	20	25	30	42	55	59	64
STEEL CLASS 5,8		Nrk (KN) h_{ef} max	24	43	62	85	111	173	264	285	322
	partial safety factor	γ Mc = γ Mp	1,5					1,8			
FLOODED BORE HOLE CLASSE 5,8 STEEL CLASS 5,8	*Temperature range I: 40 + 24°C*	$R_{k,unkr}$ (N/mm²)	6	7,5	7,5	7,5	7,5				
		Nrk (KN) h_{ef} min	9	14	20	25	30	not admissible			
		Nrk (KN) h_{ef} max	24	43	62	85	111				
	Temperature range II: 80 + 50°C	$R_{k,unkr}$ (N/mm²)	4,5	5,54	5,5	5,5	5.5				
		Nrk (KN) h_{ef} min	7	35	50	68	88				
		Nrk (KN) h_{ef} max	18	35	50	68	88				
	partial safety factor	γ Mc = γ Mp			2,1						
increasing factor for not cracked concrete		C30/37		Ψc = 1,04							
		C40/50		Ψc = 1,08							
		C50/60		Ψc = 1,10							

$N_{Rk} = T \cdot \pi \cdot d \cdot h_{ef}$
T = bond strength

CHARACTERISTIC VALUES OF RESISTANCE TO SHARE LOADS (V_{Rk})
"Design Method A" (ETAG)

Steel failure without lever arm

		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
Characteristic share resistance	$V_{RK,S}$ (KN)	14	22	31	42	55	86	135	169	221
Partial safety factor	γ Ms,V					1,5				

Steel failure with lever arm
Characteristic bending moment

		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
Characteristic bending moment	$M^0_{RK,s}$ (KN)	31	65	112	178	165	518	1012	1422	2123
Partial safety factor	γMs,V					1,5				

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RECOMMENDED LOADS FOR APPLICATION ON SOLID AND HOLLOW SUPPORTS ACCORDING TO IFBT APPROVAL

Support		*standard sleeve*				*approved sleeves*	
		M6	M8	M10	M12	M8	M10
Hollow brick	F_{rec} (KN)	0,3 ≥ F ≥ 0,7 *	0,3 ≥ F ≥ 0,8 *	0,3 ≥ F ≥ 0,8 *	0,3 ≥ F ≥ 0,8 *	0,3 ≥ F ≥ 0,8 *	0,3 ≥ F ≥ 0,8 *
Solid brick	F_{rec} (KN)	0,5	1,7	1,7	1,7	1,7	1,7
Ligth concrete hollow brick	F_{rec} (KN)	0,3 ≥ F ≥ 0,5 *	0,3 ≥ F ≥ 0,6 *	0,3 ≥ F ≥ 0,6 *	0,3 ≥ F ≥ 0,6 *		
Concrete hollow brick	F_{rec} (KN)	0,5	0,6	0,6	0,6		

* depending on number of holes

GEOMETRICAL INSTALLATION DATA ON HOLLOW SUPPORTS

		standard sleeve				*approved sleeves*	
		M6	M8	M10	M12	M8	M10
Distance between anchoring groups	$S_{cr,N}$ mm	brick = 100 concrete brick = 200					
Minimum distance between anchoring groups	S_{min} mm	brick = 50 concrete brick = 200					
Distance between each anchors	S_{sing} mm	250					
Critical distance from the edge	$C_{cr,N}$ mm	250					
Minimum disance from the edge	S_{min} mm	250					
Real anchoring depth	h_{ef} mm	55	90	90	90	105	105
Anchoring depth without sleeve	h_{ef} mm	65	85	95	100	85	95
Minimum thickness of the support	h_{min} mm	110	110	110	110	110	110
Hole diamater	d_o mm	11	16	16	16	14	16
Tightening torque	T_{inst} Nm	3	8	8	8	2	2

The values of load/extraction indicated refer to anchors installed respecting the distances shown on the tables
It's possible to use the chemical anchor GK EXTRABOND even when the distances are not respected; of course there will be reduction in load values and the installation parameters

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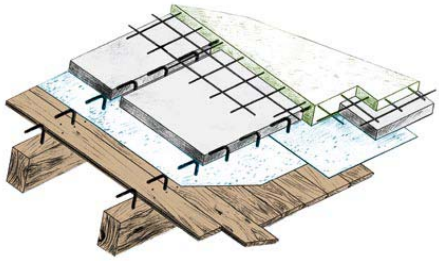
FIRE RESISTANCE - F120

Maximum load values in case of fire exposure for application on concrete C20/25 ÷C50/60 with threaded rods/bars from M8 to M30

Fire resistance	*F (kN)*						
	M8	*M10*	*M12*	*M16*	*M20*	*M24*	*M30*
h_{ef} mm	80	90	110	125	175	210	280
30 min.	1,64	2,60	3,35	6,25	9,75	14,04	18,26
60 min.	1,12	1,77	2,59	4,82	7,52	10,84	14,10
90 min.	0,59	0,94	1,82	3,40	5,30	7,64	9,94
120 min.	0,33	0,52	1,44	2,69	4,19	6,04	7,86

REINFORCEMENT OF WOODEN FLOORS

The chemical anchor GK EXTRABOND, vinylester resin based, is also suitable for fixing iron connectors/rebars of improved adherence used to connect the wooden parts to the new concrete floor



TECHNICAL DATA

rebar nominal Ø mm.	Hole Ø mm.	hole depth mm.	permissible load KN
10	13	90	6,2
12	16	110	8,0

Tests carried out on beams in fir wood. It is always recommended to effect own tests on-site taking into account the level of conservation of the various kind of wood

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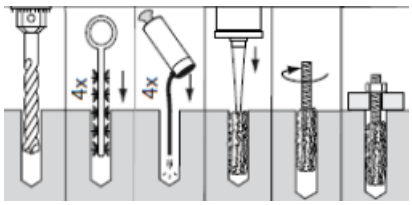
APPROXIMATE RESIN CONSUMPTION FOR EACH APPLICATION CONSIDERING A FILLING OF THE HOLE OF 2/3 OF ITS VOLUME

Solid Supports

threaded stud/bar	*d_o x h_f mm.*	*number of application, about, on solid supports*
M 8	10 x 60	127
M 10	12 x 60	88
M 12	14 x 70	48
M 16	18 x 80	29
M 20	24 x 90	14
M 24	28 x 96	10
M 27	32 x 108	6
M 30	35 x 120	5

Hollow Supports

threaded stud/bar	*BR nylon sleeve mm.*	*number of application, about, on solid supports*
M 6	10 x 45	113
	12 x 50	71
	12 x 60	59
	12 x 80	44
M 8	15 x 85	27
	15 x 100	23
	15 x 130	17
	15 x 85	27
M 10	15 x 100	23
	15 x 130	17
M 12	20 x 85	15



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