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K - Q TSE-ISO-EN 9000

Technical Data Sheet

BAYCOCRET-AN4060 (Former: INDUCRET-VK4060)

Epoxy-acrylate based anchoring material with styrene

Description:
BAYCOCRET-AN4060 is an epoxy-acrylate based anchoring resin which can be used at natural stone, concrete, light concrete, porous concrete, steel and brick, hollow brick anchoring applications.

Areas of Application:
BAYCOCRET-AN4060 is used at;
- Natural stone anchoring application,
- Metric rods,
- Bolt and special fixing systems,
- Brick and hollow brick anchoring application,
- Steel surfaces,
- On concrete, light concrete and porous concrete at high capacity anchoring applications.
- The material can be used as an adhesive and repair mortar.

Properties/Advantages:
- Cartridge can be used until the expiration date by simply sealing and changing the mixer prior to next application.
- Suitable for galvanized steel, stainless steel and steel which is resistant to corrosion.
- It is water tight and has low loss rate.
- Suitable for close-edge applications.
- Can be applied at low temperatures.
- It can be used at overhead applications without any sagging.

Technical Data:
Basis:	epoxy resin with styrene
Tension load:	please refer to the table
Temperature resistance:	max. +80°C
Hardening time:	approx 24 hours
Application temperature:	+20°C≤a.t.≤ +35°C
Reaction temperature:	please refer to the table

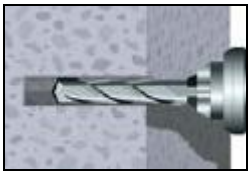
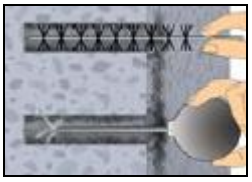
Packaging:
410 ml. cartridge.

Storage:
It can be stored for 12 months in dry condition (between +5°C - 25°C).

Surface Preparation:
Drill a suitable hole with appropriate drilling machine and clean the hole with an air pump and a wire brush.

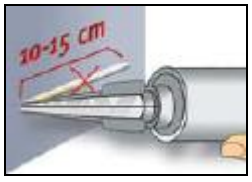
Product Preparation:
The material is ready to use.

Method of Application:
Concrete and natural stone applications:
- Drill the anchoring hole and clean it properly.

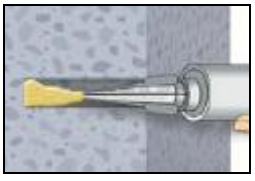



- Screw the mixer to the cartridge.

- Squeeze material to an empty space until a homogeneous grey material is achieved.



- Fill the hole entirely with BAYCOCRET-AN4060.



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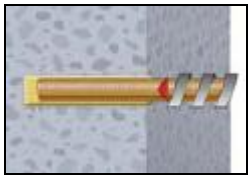
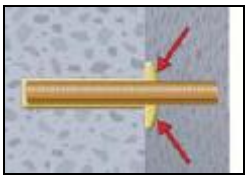
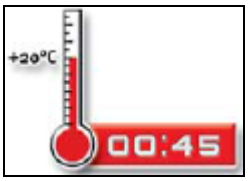
- Place the anchor slowly into the hole whilst turning.

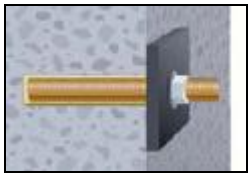


- Remove the excess material and observe hardening time.



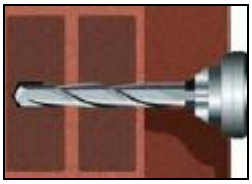


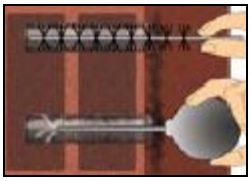
- Fix the anchor and do not move it.



<u>Hollow brick, brick and similar anchoring applications:</u>

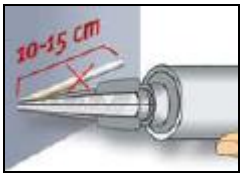
- Drill a suitable hole and clean it with methods mentioned previously.



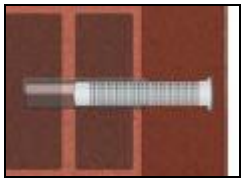


- Screw the mixer to the cartridge.

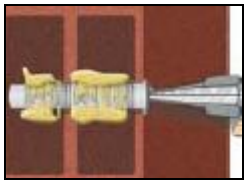
- Squeeze material to an empty space until a homogeneous grey material is achieved.



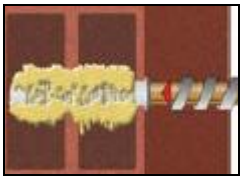
- Place the perforated sleeve into the hole.



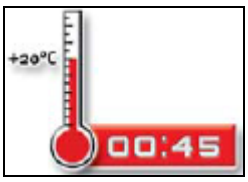
- Fill the sleeve with the material entirely.

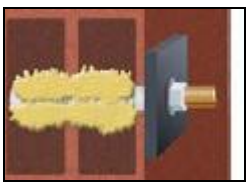


- Place the anchor slowly into the hole whilst turning.



- Fix the anchor and do not move it. Observe hardening time.





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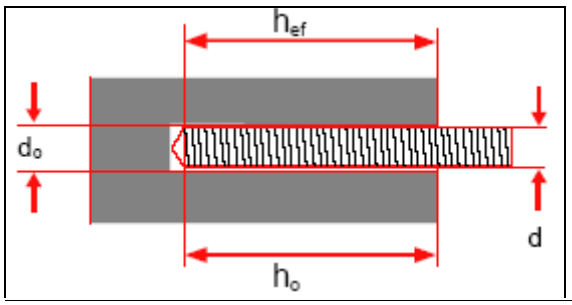
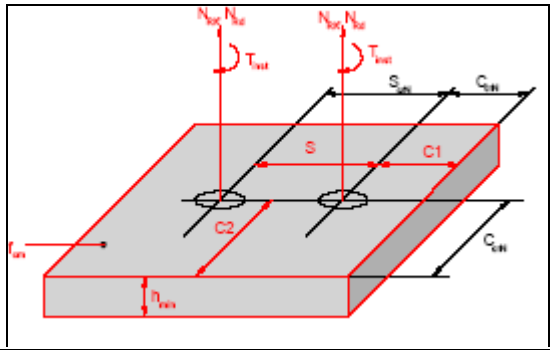
Reaction properties:

Cartridge temperature	Beginning of cure	End of cure dry surface	End of cure wet surface
5°C	25 min.	120 min	240 min.
10°C	15 min.	80 min.	160 min.
20°C	6 min.	45 min.	90 min.
30°C	4 min.	25 min.	50 min.
35°C	2 min.	20 min.	40 min.

Technical data for standard application (C20/25 concrete):

Anchor diameter	Hole diameter	Anchor depth	Characteristic distances		Min. concrete thickness	Tightening torque	Tension loads (KN) for C 20/25 concrete according to ETAG	
D (mm)	d_o (mm)	$h_o=h_{ef}$ (mm)	Edge distance (mm) $C_{cr,N}$	Axial distance (mm) $S_{cr,N}$	h_{min} (mm)	(Nm)	Design values N_{rk}	Recommended values N_{rd}
8	10	80	80	160	130	10	12,3	6,9
10	12	90	90	180	140	20	18,4	10,2
12	14	110	110	220	160	40	26,0	14,4
16	18	125	130	250	175	60	30,2	16,8
20	22	170	170	340	220	120	48,1	26,7





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Conversion factors for concrete:

C 30/37	C 40/50	C 50/60
1,04	1,07	1,09

Edge (C) and axial (S) distances:
Characteristic edge distance ($C_{Cr,N}$) = 1,0 x h_{ef}
Characteristic axial distance ($S_{cr,N}$) = 2,0 x h_{ef}
Min edge (C_{min})and axial (S_{min}) distances = 0,5 x h_{ef}
Presuming all load bearing capacities of the steel are adequate;
Anchoring tests had been done using 10,9 or 12,9 steel.
Concrete capacity reduction factor, tension (ψN):
Single anchor, edge C:
$\psi c,N = 0,5\ (C/h_{ef}) + 0,5 \leq 1$
Double anchors, axial adjacency S:
$\psi s,N = 0,25\ (S/h_{ef}) + 0,5 \leq 1$
Double anchors, c/l perpendicular to the edge C1:
$\psi sc,N = 0,25\ (S/h_{ef}) + 0,25\ (C1/h_{ef}) + 0,25 \leq 1$
Double anchors, c/l parallel to the edge C2:
$\psi cs,N = 0,25\ (C2/h_{ef}) + 0.125\ (S/h_{ef}) + 0,125\ (C/h_{ef})\ (S/h_{ef}) + 0,25 \leq 1$

In more complex anchoring applications, concrete capacity reductions of tension loads and shear loads toward edges should be done according to ETAG 001, appendix C, method A.

Load bearing capacities for reinforcement anchors:
Requirements for characteristic load bearing capacity calculation:
Ribbed S500 reinforcement (load bearing capacity of the concrete should be checked, too.)

Tensile load bearing capacity equation;

$$N_{rk} = \frac{hef - 50}{2,0}$$

Shear load bearing capacity equation;

$$V_{rk} = \frac{hef*do*fcm}{1000} \quad (f_{cm} \geq 50)$$

Reduction factor for adjacency and edge distances:
Edge, tensile: $RfcN = 0,4(C/h_{ef}) + 0,4 \leq 1$ (for $0,5 \leq (C/h_{ef}) \leq 1,5$)
Adjacency, tensile: $RfsN = 0,25(S/h_{ef}) + 0,5 \leq 1$ (for $0,25 \leq (S/hef) \leq 2,0$)
Edge, shear: $RfcV = 0,6(C/h_{ef}) - 0,2 \leq 1$ ($0,5 \leq$ (for C/hef) $\leq 2,0$)
Adjacency, shear: $RfsV = 0,1(S/h_{ef}) + 0,4 \leq 1$ ($1,0 \leq$ (for S/h_{ef}) $\leq 6,0$)

At S < 3C ve C < 2hef situation, close distances should be considered at the shear load calculations.
Important note:
Check the load bearing capacity of metric rod, too.
The anchoring hole should be dry.

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Recommended loads for hollow brick, brick and similar applications:

Recommended load			Standard sleeve			
Taş	Strength class		M 6	M 8	M 10	M 12
Hollow brick	Hlz 4	Frec. (kN)	0,3	0,3	0,3	0,3
	Hlz 6		0,4	0,4	0,4	0,4
	Hlz 12		0,7	0,8	0,8	0,8
Sand-lime hollow brick	KSL 4	Frec. (kN)	0,3	0,3	0,3	0,3
	KSL 6		0,4	0,4	0,4	0,4
	KSL 12		0,7	0,8	0,8	0,8
Sand-lime brick	KS12	Frec. (kN)	0,5	1,7	1,7	1,7
Light concrete hollow brick	Mz12	Frec. (kN)	0,5	1,7	1,7	1,7
Concrete hollow brick	Hbl 2	Frec. (kN)	0,3	0,3	0,3	0,3
	Hbl 4		0,5	0,6	0,6	0,6
Standard sleeve	9 X 50	Frec. (kN)	x			
	13 X 85			x	x	x
	13 X 130				x	x

Parameter table for hollow brick, brick and similar applications:

Parameters			Standard sleeve			
Axial distance	$S_{cr,N}$	mm	Hlz, Ksl, Mz, KS = 100			
			Hbl, Hbn = 200			
Min. axial distance	Min. S	mm	Hlz, KSL, Mz;ks =50			
			Hbl,Hbn =200			
Axial distances between fillings	S,single	mm	250			
Edge distance	$C_{cr,N}$	mm	250			
Min. edge distance	Min. C	mm	250			
Drill depth	h_{ef}	mm	55	90	90	90
Drill depth, no sleeve	h_{ef}	mm	65	85	95	100
Min. thickness	h min.	mm	110			
Hole diameter	d_b	mm	11	16	16	16
Tightening torque	$T_{inst.}$	Nm	3	8	8	8

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Bending tensile strength and compression strength tests:

Tests had been conducted according to EN 196 Part 1, on 3 samples (40 x 40 x 160 mm) and results are shown below.

Sample no.	Sample age	Density	Bending tensile strength	Compression strength	
		kg/dm^3	N/mm^2	N/mm^2	
1	24 hours	1,64	59	117	120
2	24 hours	1,70	56	120	121
3	24 hours	1,71	63	124	123
Mean values		1,68	59	121	

Dynamic elasticity modulus tests:
The results are shown below.

Sample no.	Density (kg/dm^3)	After 24 hours, E_{dyn} (N/mm^2)
1	1,64	3400
2	1,66	3800
3	1,66	3300
Mean value	1,65	3500

Energy at break tests:

Tests had been conducted according to EN 196 Part 1, on 5 samples (40 x 40 x 160 mm) and results are shown below.

Sample age	Properties	Extreme values		Mean values	Variation coefficient
24 saat	Bending tensile	49,20	51,90	50,50	2,39
	Bending tensile at break under maximum load Nm	7,06	8,80	8,19	8,53
	Compression	90,50	96,90	95,30	2,81
	Compression at break under maximum load Nm	113,00	132,00	128,00	7,30

Health and Safety:

Contains styrene, please refer to the MSDS.