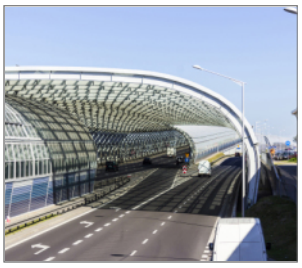
R-KER-II Hybrid resin with Rebar as an Anchor

High performance hybrid resin approved for use with reinforcement bars



Approvals and Reports

- ETA-17/0594

Product information

Features and benefits

- Approved for use with rebar as an anchor in cracked and non-cracked concrete
- Winter version can be used in warmer temperatures for faster curing
- Suitable for use in dry and wet substrates as well as holes and substrates covered with water
- Rapid bonding time enables quick execution of works
- Very high load capacity
- Anchor does not generate expansion forces in the concrete which means reduced spacing and edge distances.
- Suitable for multiple use. Partly used product can be reused after fitting new nozzle

Applications

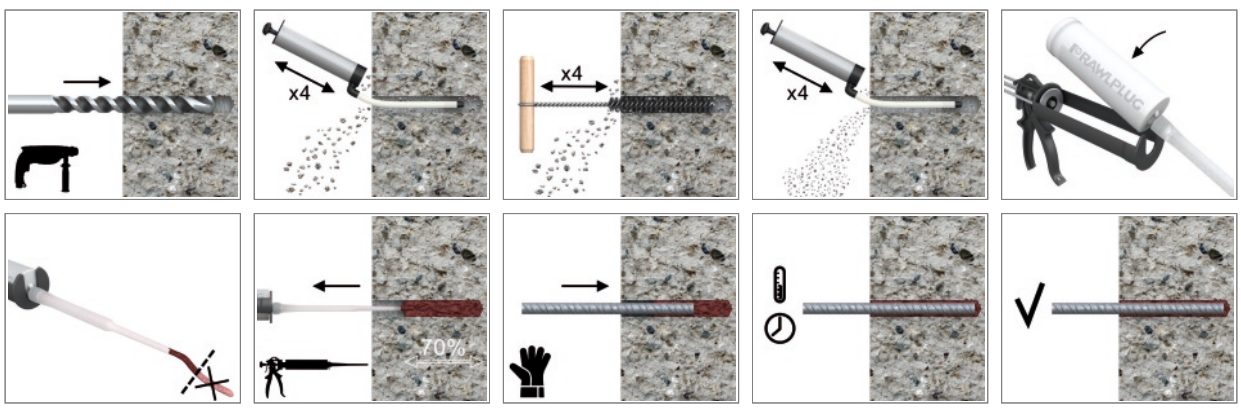
- Curtain walling
- Balustrading
- Barriers
- Cable trays
- Cladding restraints
- Structural steelwork
- Rebar dowelling
- Starter bars
- Rebar missed-outs

Base materials

Approved for use in:

- Non-cracked concrete C20/25-C50/60
- Cracked concrete C20/25-C50/60

Installation guide

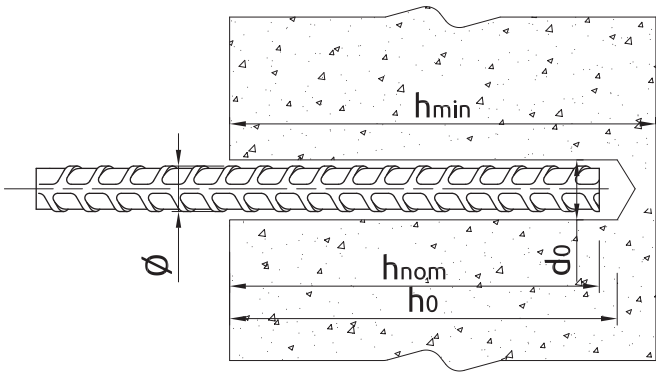


Product information

1. Drill hole to the required diameter and depth for rebar size being used.
2. Clean the drill hole thoroughly with brush and hand pump at least four times before installation
3. Insert cartridge into gun and attach nozzle.
4. Dispense to waste until even colour is obtained (min. 10 cm)
5. Insert the mixer nozzle to the bottom of the drill hole and inject resin, slowly withdrawing the nozzle as the hole is filled to 70% of its depth.
6. Immediately insert the rebar, slowly and with slight twisting motion. Remove any excess resin around the hole before it sets and leave it undisturbed until the curing time elapses.

Product Code	Resin	Description / Resin Type	Volume [ml]
R-KER-II-300	R-KER-II	R-KER II Hybrid Resin	300
R-KER-II-345			345
R-KER-II-400			400
R-KER-II-300-S	R-KER-II-S	R-KER II Hybrid Resin for High Temperature (Summer) / Slow Cure Styrene Free Hybrid Resin	300
R-KER-II-400-S			400
R-KER-II-300-W	R-KER-II-W	R-KER II Hybrid Resin for Low Temperature (Winter) / Rapid Cure Styrene Free Hybrid Resin	300
R-KER-II-345-W			345
R-KER-II-400-W			400

Installation data



REBARS AS ANCHORS

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Rebar diameter	d_s	[mm]	8	10	12	14	16	20	25	32
Hole diameter in substrate	d_0	[mm]	12	14	18	18	22	26	32	40
Min. hole depth in substrate	h_0	[mm]	h_{nom}+5	h_{nom}+5	h_{nom}+5	h_{nom}+5	h_{nom}+5	h_{nom}+5	h_{nom}+5	h_{nom}+5
Min. substrate thickness	h_{min}	[mm]	h_{nom}+30 ≥100	h_{nom}+30 ≥100	h_{nom}+30 ≥100	h_{nom}+30 ≥100	h_{nom} + $2d_0$	h_{nom} + $2d_0$	h_{nom} + $2d_0$	h_{nom} + $2d_0$
Min. spacing	s_{min}	[mm]	40	40	40	40	40	40	50	70
Min. edge distance	c_{min}	[mm]	40	40	40	40	40	40	50	70
MINIMUM EMBEDMENT DEPTH										
Min. installation depth	$h_{nom,min}$	[mm]	60	60	60	60	64	80	100	128
MAXIMUM EMBEDMENT DEPTH										
Min. installation depth	$h_{nom,max}$	[mm]	160	200	240	240	320	400	500	640

Installation data

Minimum working and curing time

R-KER-II

Resin temperature	Concrete temperature	Curing time*	Working time
[°C]	[°C]	[min]	[min]
5	0	3 h	30
5	5	90	15
10	10	60	8
15	15	60	5
20	20	45	2.5
25	25	45	2
25	30	45	2
25	35	30	1.5
25	40	30	1.5

**For wet concrete the curing time must be doubled*

R-KER-II S

Resin temperature	Concrete temperature	Curing time*	Working time
[°C]	[°C]	[min]	[min]
5	5	12 h	40
10	10	8 h	20
15	15	6 h	15
20	20	4 h	10
25	25	3 h	9.5
25	30	2 h	7
25	35	2 h	6.5
25	40	1.5 h	6.5

**For wet concrete the curing time must be doubled*

R-KER-II W

Resin temperature	Concrete temperature	Curing time*	Working time
[°C]	[°C]	[min]	[min]
5	0	2 h	14
5	5	60	9
10	10	45	5.5
15	15	30	3
20	20	15	2
25	25	10	1.5
25	30	10	1.5
25	35	5	1
25	40	5	1

**For wet concrete the curing time must be doubled*

Mechanical properties

REBARS AS ANCHORS

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)										
Nominal ultimate tensile strength - tension	f_{uk}	[N/mm^2]	540	540	540	540	540	540	540	540
Nominal yield strength - tension	f_{yk}	[N/mm^2]	500	500	500	500	500	500	500	500
Cross sectional area - tension	A_s	[mm^2]	50	79	113	154	201	314	491	804
Elastic section modulus	W_{el}	[mm^3]	50	98	170	269	402	785	1534	3217

Mechanical properties

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
f_uk = 575 (e.g. B 500 SP acc. to EC2)										
Nominal ultimate tensile strength - tension	f_{uk}	[N/mm²]	575	575	575	575	575	575	575	575
Nominal yield strength - tension	f_{yk}	[N/mm²]	500	500	500	500	500	500	500	500
Cross sectional area - tension	A_s	[mm²]	50	79	113	154	201	314	491	804
Elastic section modulus	W_{el}	[mm³]	50	98	170	269	402	785	1534	3217
f_uk = 620 (e.g. G-60 acc. to ASTM 615)										
Nominal ultimate tensile strength - tension	f_{uk}	[N/mm²]	620	620	620	620	620	620	620	620
Nominal yield strength - tension	f_{yk}	[N/mm²]	420	420	420	420	420	420	420	420
Cross sectional area - tension	A_s	[mm²]	50	79	113	154	201	314	491	804
Elastic section modulus	W_{el}	[mm³]	50	98	170	269	402	785	1534	3217

Basic performance data

REBARS AS ANCHORS

Size		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Substrate		Non-cracked concrete								Cracked concrete							
MEAN ULTIMATE LOAD																	
TENSION LOAD $N_{Ru,m}$																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	26.8	31.4	31.4	31.4	34.6	48.3	67.5	97.8	22.1	22.1	22.1	22.1	24.3	34.0	47.5	68.8
Maximum embedment depth	[kN]	28.5	44.5	64.1	87.3	114.0	178.1	278.3	456.0	28.5	44.5	64.1	87.3	114.0	178.1	278.3	456.0
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	26.8	31.4	31.4	31.4	34.6	48.3	67.5	97.8	22.1	22.1	22.1	22.1	24.3	34.0	47.5	68.8
Maximum embedment depth	[kN]	30.6	47.4	68.3	92.9	121.4	189.7	296.4	485.6	30.4	47.4	68.3	92.9	121.4	189.7	296.4	485.6
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	26.8	31.4	31.4	31.4	34.6	48.3	67.5	97.8	22.1	22.1	22.1	22.1	24.3	34.0	47.5	68.8
Maximum embedment depth	[kN]	32.7	51.1	73.6	100.2	130.9	204.5	319.6	523.6	33.7	51.1	73.6	100.2	130.9	204.5	319.6	523.6
SHEAR LOAD $V_{Ru,m}$																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	17.1	26.7	38.5	52.4	68.4	96.6	135.0	195.5	17.1	26.7	38.5	44.2	48.6	68.0	95.0	137.6
Maximum embedment depth	[kN]	17.1	26.7	38.5	52.4	68.4	106.9	167.0	273.6	17.1	26.7	38.5	52.4	68.4	106.9	167.0	273.6
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	18.2	28.5	41.0	55.8	69.1	96.6	135.0	195.5	18.2	28.5	41.0	44.2	48.6	68.0	95.0	137.6
Maximum embedment depth	[kN]	18.2	28.5	41.0	55.8	72.8	113.8	177.8	291.3	18.2	28.5	41.0	55.8	72.8	113.8	177.8	291.3
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	19.6	30.7	44.2	60.1	69.1	96.6	135.0	195.5	19.6	30.7	44.2	44.2	48.6	68.0	95.0	137.6
Maximum embedment depth	[kN]	19.6	30.7	44.2	60.1	78.5	122.7	191.7	314.1	19.6	30.7	44.2	60.1	78.5	122.7	191.7	314.1

Basic performance data

Size		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
CHARACTERISTIC LOAD																	
TENSION LOAD N_{Rk}																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	19.6	23.5	23.5	23.5	25.9	36.1	50.5	73.1	12.1	16.7	16.7	16.7	18.4	25.8	36.0	45.0
Maximum embedment depth	[kN]	27.1	42.4	61.1	83.1	108.6	169.7	265.1	434.3	27.1	42.4	61.1	83.1	108.6	169.7	235.6	225.2
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	19.6	23.5	23.5	23.5	25.9	36.1	50.5	73.1	12.1	16.7	16.7	16.7	18.4	25.8	36.0	45.0
Maximum embedment depth	[kN]	28.9	45.2	65.0	88.5	115.6	180.6	282.3	462.4	28.9	45.2	65.0	88.5	115.6	180.6	235.6	225.2
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	19.6	23.5	23.5	23.5	25.9	36.1	50.5	73.1	12.1	16.7	16.7	16.7	18.4	25.8	36.0	45.0
Maximum embedment depth	[kN]	31.2	48.7	70.1	95.4	124.7	194.8	304.3	482.6	31.2	48.7	70.1	95.4	124.7	188.5	235.6	225.2
SHEAR LOAD V_{Rk}																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	13.6	21.2	30.5	41.6	51.7	72.3	101.0	146.3	13.6	21.2	30.5	33.5	36.9	51.5	72.0	90.1
Maximum embedment depth	[kN]	13.6	21.2	30.5	41.6	54.3	84.8	132.5	217.2	13.6	21.2	30.5	41.6	54.3	84.8	132.5	217.2
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	14.5	22.6	32.5	44.3	51.7	72.3	101.0	146.3	14.5	22.6	32.5	33.5	36.9	51.5	72.0	90.1
Maximum embedment depth	[kN]	14.5	22.6	32.5	44.3	57.8	90.3	141.1	231.2	14.5	22.6	32.5	44.3	57.8	90.3	141.1	231.2
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	15.6	24.4	35.1	46.9	51.7	72.3	101.0	146.3	15.6	24.4	33.5	33.5	36.9	51.5	72.0	90.1
Maximum embedment depth	[kN]	15.6	24.4	35.1	47.7	62.3	97.4	152.2	249.3	15.6	24.4	35.1	47.7	62.3	97.4	152.2	249.3
DESIGN LOAD																	
TENSION LOAD N_{Rd}																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	13.1	15.7	15.7	15.7	17.2	24.1	33.7	48.8	8.04	11.2	11.2	11.2	12.3	17.2	24.0	30.3
Maximum embedment depth	[kN]	19.4	30.3	43.6	59.4	77.6	121.2	189.3	310.2	19.4	30.3	43.6	59.4	77.6	121.2	157.1	150.1
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	13.1	15.7	15.7	15.7	17.2	24.1	33.7	48.8	8.04	11.2	11.2	11.2	12.3	17.2	24.0	30.3
Maximum embedment depth	[kN]	20.6	32.3	46.5	63.2	82.6	129.0	201.6	321.7	20.6	32.3	46.5	63.2	82.6	125.7	157.1	150.1
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	13.1	15.7	15.7	15.7	17.2	24.1	33.7	48.8	8.04	11.2	11.2	11.2	12.3	17.2	24.0	30.3
Maximum embedment depth	[kN]	22.3	34.8	50.1	68.2	89.0	139.1	217.4	321.7	21.5	34.8	50.1	68.2	89.0	125.7	157.1	150.1
SHEAR LOAD V_{Rd}																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	9.05	14.1	20.4	27.7	34.5	48.2	67.3	97.5	9.05	14.1	20.4	22.3	24.6	34.4	48.0	60.1
Maximum embedment depth	[kN]	9.05	14.1	20.4	27.7	36.2	56.6	88.4	144.8	9.05	14.1	20.4	27.7	36.2	56.6	88.4	144.8
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	9.63	15.1	21.7	29.5	34.5	48.2	67.3	97.5	9.63	15.1	21.7	22.3	24.6	34.4	48.0	60.1
Maximum embedment depth	[kN]	9.63	15.1	21.7	29.5	38.5	60.2	94.1	154.2	9.63	15.1	21.7	29.5	38.5	60.2	94.1	154.2
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	10.4	16.2	23.4	31.3	34.5	48.2	67.3	97.5	10.4	16.2	22.3	22.3	24.6	34.4	48.0	60.1
Maximum embedment depth	[kN]	10.4	16.2	23.4	31.8	41.6	64.9	101.5	166.2	10.4	16.2	23.4	31.8	41.6	64.9	101.5	166.2

Basic performance data

Size		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
RECOMMENDED LOAD																	
TENSION LOAD N_{rec}																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	9.34	11.2	11.2	11.2	12.3	17.2	24.1	34.8	5.74	7.97	7.97	7.97	8.78	12.3	17.1	21.5
Maximum embedment depth	[kN]	13.9	21.6	31.2	42.4	55.4	86.6	135.2	221.6	13.9	21.6	31.2	42.4	55.4	86.6	112.2	107.2
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	9.34	11.2	11.2	11.2	12.3	17.2	24.1	34.8	5.74	7.97	7.97	7.97	8.78	12.3	17.1	21.5
Maximum embedment depth	[kN]	14.8	23.0	33.2	45.2	59.0	92.2	144.0	229.8	14.8	23.0	33.2	45.2	59.0	89.8	112.2	107.2
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	9.34	11.2	11.2	11.2	12.3	17.2	24.1	34.8	5.74	7.97	7.97	7.97	8.78	12.3	17.1	21.5
Maximum embedment depth	[kN]	15.9	24.8	35.8	48.7	63.6	99.4	155.3	229.8	15.3	24.8	35.8	48.7	63.6	89.8	112.2	107.2
SHEAR LOAD V_{rec}																	
f_uk = 540 (e.g. 500 B acc. to BS 4449; B 500 B acc. to SS 560)																	
Minimum embedment depth	[kN]	6.46	10.1	14.5	19.8	24.6	34.4	48.1	69.7	6.46	10.1	14.5	15.9	17.6	24.5	34.3	42.9
Maximum embedment depth	[kN]	6.46	10.1	14.5	19.8	25.9	40.4	63.1	103.4	6.46	10.1	14.5	19.8	25.9	40.4	63.1	103.4
f_uk = 575 (e.g. B 500 SP acc. to EC2)																	
Minimum embedment depth	[kN]	6.88	10.8	15.5	21.1	24.6	34.4	48.1	69.7	6.88	10.8	15.5	15.9	17.6	24.5	34.3	42.9
Maximum embedment depth	[kN]	6.88	10.8	15.5	21.1	27.5	43.0	67.2	110.1	6.88	10.8	15.5	21.1	27.5	43.0	67.2	110.1
f_uk = 620 (e.g. G-60 acc. to ASTM 615)																	
Minimum embedment depth	[kN]	7.42	11.6	16.7	22.4	24.6	34.4	48.1	69.7	7.42	11.6	15.9	15.9	17.6	24.5	34.3	42.9
Maximum embedment depth	[kN]	7.42	11.6	16.7	22.7	29.7	46.4	72.5	118.7	7.42	11.6	16.7	22.7	29.7	46.4	72.5	118.7

Design performance data

REBARS AS ANCHORS

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
TENSION LOAD										
STEEL FAILURE; F_UK = 540 (E.G. 500 B ACC. TO BS 4449; B 500 B ACC. TO SS 560)										
Characteristic resistance	$N_{Rk,s}$	[kN]	27.14	42.41	61.07	83.13	108.57	169.65	265.07	434.29
Partial safety factor	γ_{Ms}	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
STEEL FAILURE; F_UK = 575 (E.G. B 500 SP ACC. TO EC2)										
Characteristic resistance	$N_{Rk,s}$	[kN]	28.90	45.16	65.03	88.51	115.61	180.64	282.25	462.44
Partial safety factor	γ_{Ms}	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
STEEL FAILURE; F_UK = 620 (E.G. G-60 ACC. TO ASTM 615)										
Characteristic resistance	$N_{Rk,s}$	[kN]	31.16	48.69	70.12	95.44	124.66	194.78	304.34	498.63
Partial safety factor	γ_{Ms}	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; NON-CRACKED CONCRETE, C20/25 (40°C/24°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	13.00	14.00	14.00	13.00	13.00	10.00	9.00	7.50
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; NON-CRACKED CONCRETE, C20/25 (80°C/50°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	13.00	14.00	14.00	13.00	13.00	10.00	9.00	7.50
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; NON-CRACKED CONCRETE, C20/25 (120°C/80°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	7.00	7.00	7.00	7.00	7.00	5.50	5.00	4.00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (40°C/24°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	8.00	9.00	10.00	10.00	8.50	7.50	6.00	3.50
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (80°C/50°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	8.00	9.00	10.00	10.00	8.50	7.50	6.00	3.50
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (120°C/80°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	4.50	5.00	5.00	5.00	4.50	4.00	3.00	2.00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE										
Installation safety factor	γ_2	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Increasing factors for $N_{Rd,p}$ - C30/37	Ψ_c	-	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Increasing factors for $N_{Rd,p}$ - C40/50	Ψ_c	-	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Increasing factors for $N_{Rd,p}$ - C50/60	Ψ_c	-	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
CONCRETE CONE FAILURE										
Installation safety factor	γ_2	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Factor for cracked concrete	k	-	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20
Factor for cracked concrete	$k_{cr,N}$	-	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70
Factor for non-cracked concrete	k	-	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Edge distance	$c_{cr,N}$	[mm]	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$
Spacing	$s_{cr,N}$	[mm]	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$
CONCRETE SPLITTING FAILURE										
Installation safety factor	γ_2	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Design performance data

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
SHEAR LOAD										
STEEL FAILURE; F_UK = 540 (E.G. 500 B ACC. TO BS 4449; B 500 B ACC. TO SS 560)										
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	13.57	21.21	30.54	41.56	54.29	84.82	132.54	217.15
Ductility factor	k_7	-	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	32.57	63.62	109.93	174.57	260.58	508.94	994.02	2084.61
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
STEEL FAILURE; F_UK = 575 (E.G. B 500 SP ACC. TO EC2)										
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	14.45	22.59	32.52	44.26	57.81	90.32	141.13	231.22
Ductility factor	k_7	-	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	34.68	67.74	117.06	185.88	277.47	541.92	1058.45	2219.72
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
STEEL FAILURE; F_UK = 620 (E.G. G-60 ACC. TO ASTM 615)										
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	15.58	24.35	35.06	47.72	62.33	97.39	152.17	249.32
Ductility factor	k_7	-	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	37.40	73.04	126.22	200.43	299.18	584.34	1141.28	2393.44
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
CONCRETE PRY-OUT FAILURE										
Factor	k	-	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Installation safety factor	γ_2	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CONCRETE EDGE FAILURE										
Anchor diameter	d_{nom}	[mm]	8.00	10.00	12.00	14.00	16.00	20.00	25.00	32.00
Effective length of anchor	ℓ_f	[mm]	min (h_{ef};8d_{nom})	min (h_{ef};8d_{nom})	min (h_{ef};8d_{nom})	min (h_{ef};8d_{nom})	min (h_{ef};8d_{nom})	min (h_{ef};8d_{nom})	min (h_{ef};8d_{nom})	min (h_{ef};8d_{nom})
Installation safety factor	γ_2	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Combined pull-out and concrete cone failure (TR 029, p.5.2.2.3. acc. to formula 5.2a - $N^0_{Rk,p}=\pi*d*h_{ef}*\tau_{Rk}$).
Concrete cone failure (TR 029, p.5.2.2.4. acc. to formula 5.3a - $N^0_{Rk,c}=k_1*f_{ck,cube}{}^{0,5}*h_{ef}{}^{1,5}$).
$h_{ef} = h_{nom}$

Allowable values for resistance in case of Seismic performance category C1

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
TENSION LOAD										
STEEL FAILURE; F_UK = 540 (E.G. 500 B ACC. TO BS 4449; B 500 B ACC. TO SS 560)										
Characteristic resistance	$N_{Rk,s}$	[kN]	27.14	42.41	61.07	83.13	108.57	169.65	265.07	434.29
Partial safety factor	$\gamma_{MsN,seisC1}$	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
STEEL FAILURE; F_UK = 575 (E.G. B 500 SP ACC. TO EC2)										
Characteristic resistance	$N_{Rk,s}$	[kN]	28.90	45.16	65.03	88.51	115.61	180.64	282.25	462.44
Partial safety factor	$\gamma_{MsN,seisC1}$	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
STEEL FAILURE; F_UK = 620 (E.G. G-60 ACC. TO ASTM 615)										
Characteristic resistance	$N_{Rk,s}$	[kN]	31.16	48.69	70.12	94.44	124.66	194.78	304.34	498.63
Partial safety factor	$\gamma_{MsN,seisC1}$	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (40°C/24°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	7.00	8.50	10.00	10.00	8.50	7.50	6.00	3.50
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (80°C/50°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	7.00	8.50	10.00	10.00	8.50	7.50	6.00	3.50
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (120°C/80°C)										
Characteristic bond resistance	T_{Rk}	[N/mm²]	4.00	4.50	5.00	5.00	4.50	4.00	3.00	1.50
PULL-OUT FAILURE										
Partial safety factor	$\gamma_{Mp,seisC1}$	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

Design performance data

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
SHEAR LOAD										
STEEL FAILURE; F_UK = 540 (E.G. 500 B ACC. TO BS 4449; B 500 B ACC. TO SS 560)										
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	9.50	14.84	21.38	29.09	38.00	59.38	92.78	152.00
Partial safety factor	$\gamma_{MsV,seisC1}$	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
STEEL FAILURE; F_UK = 575 (E.G. B 500 SP ACC. TO EC2)										
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	10.12	15.81	22.76	30.98	40.46	63.22	98.79	161.85
Partial safety factor	$\gamma_{MsV,seisC1}$	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
STEEL FAILURE; F_UK = 620 (E.G. G-60 ACC. TO ASTM 615)										
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	10.91	17.04	24.51	33.40	43.63	68.17	106.52	174.52
Partial safety factor	$\gamma_{MsV,seisC1}$	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

Product commercial data

Product Code	Volume [ml]	Quantity [pcs]			Weight [kg]			Bar Codes
		Box	Outer	Pallet	Box	Outer	Pallet	
R-KER-II-300 [1]	300	10	10	840	5.9	5.9	525.6	5906675293738
R-KER-II-345 [1]	345	10	10	840	7.6	7.6	668.4	5906675395203
R-KER-II-400 [1]	400	10	10	560	8.2	8.2	489.2	5906675392103
R-KER-II-300-S [1]	300	10	10	840	5.9	5.9	525.6	5906675432045
R-KER-II-400-S [1]	400	10	10	560	8.2	8.2	489.2	5906675432076
R-KER-II-300-W [1]	300	10	10	840	5.9	5.9	525.6	5906675432038
R-KER-II-345-W [1]	345	10	10	840	7.6	7.6	668.4	5906675432052
R-KER-II-400-W [1]	400	10	10	560	8.2	8.2	489.2	5906675432069

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