R-KEX-I REBAR AS ANCHOR

High performance pure epoxy resin approved for cracked and non-cracked concrete. Available in Asia-Pacific region.

Approvals and Reports

- ETA-18/0994

Product information

Features and benefits

- Approved for use in cracked and non-cracked concrete (EAD 330499-00-0601)
- Suitable for use in dry and wet substrates including flooded holes (use category I1 & I2)
- Very high chemical resistance – suitable for applications exposed to influence of various agents (industrial or marine environment)
- Minimal shrinkage provides option of use in diamond-drilled holes and oversized holes
- For use in positive temperatures
- High-performance epoxy resin for concrete.
- Installation direction D3 (downward and horizontal and upwards installation).
- Extended working time ensures easy installation of metal components (up to 50 min. in 20°C).
- Working with Dustlessdrill - drlling and hole cleaning in one step.

Applications

- Safety barriers
- Temporary works/formworks support systems
- Rebar
- Curtain walling
- Formwork support systems
- Masonry support
- Platforms
- Structural steelwork
- Rebar dowelling
- Starter bars
- Rebar missed-outs

Base materials

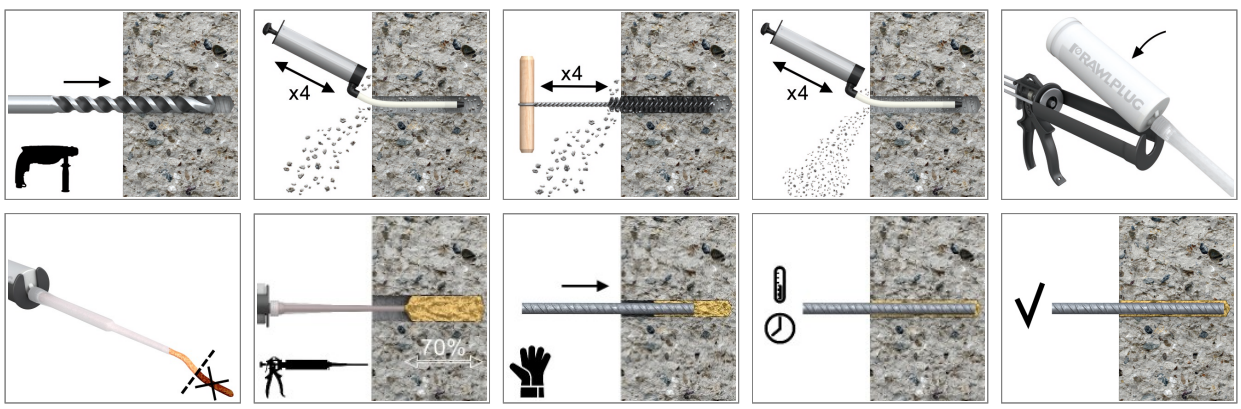
Approved for use in:

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

Also suitable for use in:

- High-Density Natural Stone

Installation guide

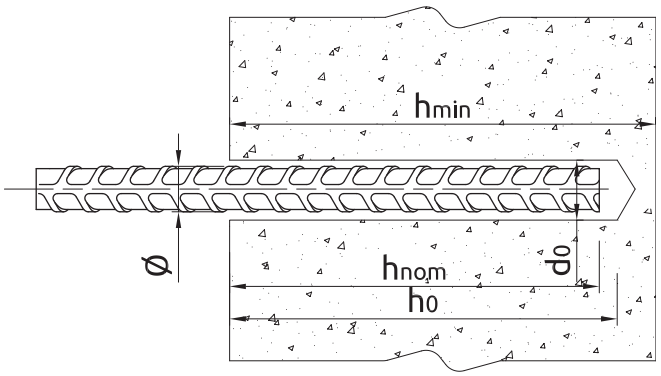


Product information

1. Drill hole to the required diameter and depth for rebar size being used.
2. Clean the hole with brush and hand pump at least four times each. It is very important and necessary before installation.
3. Insert cartridge into gun and attach nozzle.
4. Dispense to waste until even colour is obtained.
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-KEX-I-600	R-KEX I	Epoxy Resin	600

Installation data



REBARS AS ANCHORS

Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar diameter	d_s	[mm]	8	10	12	16	20	25	32
Hole diameter in substrate	d_0	[mm]	12	14	18	22	26	35	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
Min. substrate thickness	h_{min}	[mm]	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	50	50	65
Min. edge distance	c_{min}	[mm]	40	40	40	40	50	50	65
MINIMUM EMBEDMENT DEPTH									
Min. installation depth	$h_{nom,min}$	[mm]	60	60	70	80	90	100	128
MAXIMUM EMBEDMENT DEPTH									
Min. installation depth	$h_{nom, max}$	[mm]	160	200	240	320	400	500	640

Minimum working and curing time

Resin temperature	Concrete temperature	Curing time*	Working time
[°C]	[°C]	[min]	[min]
5	5	96 h	180
10	10	72 h	120
20	20	10 h	50
25	30	5 h	35
25	40	4 h	20

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

Mechanical properties

REBARS AS ANCHORS

Size			Ø8	Ø10	Ø12	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/mm²]	540	540	540	540	540	540	540
Nominal yield strength - tension	f_{yk}	[N/mm²]	500	500	500	500	500	500	500
Cross sectional area - tension	A_s	[mm²]	50	79	113	201	314	491	804
Elastic section modulus	W_{el}	[mm³]	50	98	170	402	785	1534	3217
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
Nominal yield strength - tension	f_{yk}	[N/mm²]	500	500	500	500	500	500	500
Cross sectional area - tension	A_s	[mm²]	50	79	113	201	314	491	804
Elastic section modulus	W_{el}	[mm³]	50	98	170	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
Nominal yield strength - tension	f_{yk}	[N/mm²]	420	420	420	420	420	420	420
Cross sectional area - tension	A_s	[mm²]	50	79	113	201	314	491	804
Elastic section modulus	W_{el}	[mm³]	50	98	170	402	785	1534	3217

Basic performance data

REBARS AS ANCHORS

Size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32	Ø8	Ø10	Ø12	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	39.5	48.3	57.6	67.5	97.8	22.1	22.1	27.8	34.0	40.6	47.5	68.8
Maximum embedment depth	[kN]	28.5	44.5	64.1	114.0	178.1	278.3	456.0	28.5	44.5	64.1	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	39.5	48.3	57.6	67.5	97.8	22.1	22.1	27.8	34.0	40.6	47.5	68.8
Maximum embedment depth	[kN]	30.6	47.4	68.3	121.4	189.7	296.4	485.6	30.4	47.4	68.3	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	39.5	48.3	57.6	67.5	97.8	22.1	22.1	27.8	34.0	40.6	47.5	68.8
Maximum embedment depth	[kN]	32.7	51.1	73.6	130.9	204.5	319.6	523.6	33.7	51.1	73.6	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	68.4	106.9	135.0	195.5	17.1	26.7	38.5	68.0	81.1	95.0	137.6
Maximum embedment depth	[kN]	17.1	26.7	38.5	68.4	106.9	167.0	273.6	17.1	26.7	38.5	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	72.8	113.8	135.0	195.5	18.2	28.5	41.0	68.0	81.1	95.0	137.6
Maximum embedment depth	[kN]	18.2	28.5	41.0	72.8	113.8	177.8	291.3	18.2	28.5	41.0	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	78.5	115.3	135.0	195.5	19.6	30.7	44.2	68.0	81.1	95.0	137.6
Maximum embedment depth	[kN]	19.6	30.7	44.2	78.5	122.7	191.7	314.1	19.6	30.7	44.2	78.5	122.7	191.7	314.1

Basic performance data

Size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32	Ø8	Ø10	Ø12	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]	22.6	22.9	28.8	35.2	42.0	49.2	71.2	9.80	12.3	18.5	24.6	29.4	34.4	49.9
Maximum embedment depth	[kN]	27.1	42.4	61.1	108.6	169.7	265.1	434.3	26.1	40.8	61.1	108.6	169.7	196.4	289.5
f_uk = 575 (e.g. B 500 SP acc. to EC2)															
Minimum embedment depth	[kN]	22.6	22.9	28.8	35.2	42.0	49.2	71.2	9.80	12.3	18.5	24.6	29.4	34.4	49.9
Maximum embedment depth	[kN]	28.9	45.2	65.0	115.6	180.6	282.3	462.4	26.1	40.8	63.3	112.6	175.9	196.4	289.5
f_uk = 620 (e.g. G-60 acc. to ASTM 615)															
Minimum embedment depth	[kN]	22.6	22.9	28.8	35.2	42.0	49.2	71.2	9.80	12.3	18.5	24.6	29.4	34.4	49.9
Maximum embedment depth	[kN]	31.2	48.7	70.1	124.7	194.8	304.3	498.6	26.1	40.8	63.3	112.6	175.9	196.4	289.5
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	54.3	84.0	98.4	142.5	13.6	21.2	30.5	49.3	58.8	68.9	99.7
Maximum embedment depth	[kN]	13.6	21.2	30.5	54.3	84.8	132.5	217.2	13.6	21.2	30.5	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	57.8	84.0	98.4	142.5	14.5	22.0	32.5	49.3	58.8	68.9	99.7
Maximum embedment depth	[kN]	14.5	22.6	32.5	57.8	90.3	141.1	231.2	14.5	22.6	32.5	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	62.3	84.0	98.4	142.5	15.6	22.0	35.1	49.3	58.8	68.9	99.7
Maximum embedment depth	[kN]	15.6	24.4	35.1	62.3	97.4	152.2	249.3	15.6	24.4	35.1	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]	15.1	15.2	19.2	23.5	28.0	32.8	47.5	6.53	8.17	12.3	16.4	19.6	23.0	33.3
Maximum embedment depth	[kN]	19.4	30.3	43.6	77.6	121.2	189.3	310.2	17.4	27.2	42.2	75.1	117.3	130.9	193.0
f_uk = 575 (e.g. B 500 SP acc. to EC2)															
Minimum embedment depth	[kN]	15.1	15.2	19.2	23.5	28.0	32.8	47.5	6.53	8.17	12.3	16.4	19.6	23.0	33.3
Maximum embedment depth	[kN]	20.6	32.3	46.5	82.6	129.0	201.6	330.3	17.4	27.2	42.2	75.1	117.3	130.9	193.0
f_uk = 620 (e.g. G-60 acc. to ASTM 615)															
Minimum embedment depth	[kN]	15.1	15.2	19.2	23.5	28.0	32.8	47.5	6.53	8.17	12.3	16.4	19.6	23.0	33.3
Maximum embedment depth	[kN]	22.3	34.8	50.1	89.0	139.1	217.4	356.2	17.4	27.2	42.2	75.1	117.3	130.9	193.0
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	36.2	56.0	65.6	95.0	9.05	14.1	20.4	32.9	39.2	45.9	66.5
Maximum embedment depth	[kN]	9.05	14.1	20.4	36.2	56.6	88.4	144.8	9.05	14.1	20.4	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	38.5	56.0	65.6	95.0	9.63	14.7	21.7	32.9	39.2	45.9	66.5
Maximum embedment depth	[kN]	9.63	15.1	21.7	38.5	60.2	94.1	154.2	9.63	15.1	21.7	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	41.6	56.0	65.6	95.0	10.4	14.7	23.4	32.9	39.2	45.9	66.5
Maximum embedment depth	[kN]	10.4	16.2	23.4	41.6	64.9	101.5	166.2	10.4	16.2	23.4	41.6	64.9	101.5	166.2

Basic performance data

Size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32	Ø8	Ø10	Ø12	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]	10.8	10.9	13.7	16.8	20.0	23.4	33.9	4.67	5.83	8.00	11.7	14.0	16.4	23.8
Maximum embedment depth	[kN]	13.9	21.6	31.2	55.4	86.6	135.2	221.6	12.5	19.5	30.2	53.6	83.8	93.5	137.9
f_uk = 575 (e.g. B 500 SP acc. to EC2)															
Minimum embedment depth	[kN]	10.8	10.9	13.7	16.8	20.0	23.4	33.9	4.67	5.83	8.80	11.7	14.0	16.4	23.8
Maximum embedment depth	[kN]	14.8	23.0	33.2	59.0	92.2	144.0	235.9	12.5	19.5	30.2	53.6	83.8	93.5	137.9
f_uk = 620 (e.g. G-60 acc. to ASTM 615)															
Minimum embedment depth	[kN]	10.8	10.9	13.7	16.8	20.0	23.4	33.9	4.67	5.83	8.80	11.7	14.0	16.4	23.8
Maximum embedment depth	[kN]	15.9	24.8	35.8	63.6	99.4	155.3	254.0	12.5	19.5	30.2	53.6	83.8	93.5	137.9
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	25.9	40.0	46.9	67.9	6.46	10.1	14.5	23.5	28.0	32.8	47.5
Maximum embedment depth	[kN]	6.46	10.1	14.5	25.9	40.4	63.1	103.4	6.46	10.1	14.5	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	27.5	40.0	46.9	67.9	6.88	10.5	15.5	23.5	28.0	32.8	47.5
Maximum embedment depth	[kN]	6.88	10.8	15.5	27.5	43.0	67.2	110.1	6.88	10.8	15.5	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	29.7	40.0	46.9	67.9	7.42	10.5	16.7	23.5	28.0	32.8	47.5
Maximum embedment depth	[kN]	7.42	11.6	16.7	29.7	46.4	72.5	118.7	7.42	11.6	16.7	29.7	46.4	72.5	118.7

Design performance data

REBARS AS ANCHORS

Size			Ø8	Ø10	Ø12	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	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
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	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
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	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
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; NON-CRACKED CONCRETE, C20/25 (40°C/24°C)									
Characteristic bond resistance	T_{Rk}	[N/mm²]	15.00	14.00	14.00	10.00	10.00	10.00	9.00
Sustained load factor	Ψ^0_{sus}	-	0.60	0.60	0.60	0.60	0.60	0.60	0.60
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; NON-CRACKED CONCRETE, C20/25 (80°C/50°C)									
Characteristic bond resistance	T_{Rk}	[N/mm²]	15.00	14.00	14.00	10.00	10.00	10.00	9.00
Sustained load factor	Ψ^0_{sus}	-	0.60	0.60	0.60	0.60	0.60	0.60	0.60
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (40°C/24°C)									
Characteristic bond resistance	T_{Rk}	[N/mm²]	6.50	6.50	7.00	7.00	7.00	5.00	4.50
Sustained load factor	Ψ^0_{sus}	-	0.60	0.60	0.60	0.60	0.60	0.60	0.60
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE, C20/25 (80°C/50°C)									
Characteristic bond resistance	T_{Rk}	[N/mm²]	6.50	6.50	7.00	7.00	7.00	5.00	4.50
Sustained load factor	Ψ^0_{sus}	-	0.60	0.60	0.60	0.60	0.60	0.60	0.60
COMBINED PULL-OUT AND CONCRETE CONE FAILURE									
Installation safety factor	γ_{inst}	-	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
Increasing factors for $N_{Rd,p}$ - C40/50	Ψ_c	-	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
CONCRETE CONE FAILURE									
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Factor for cracked concrete	$k_{cr,N}$	-	7.70	7.70	7.70	7.70	7.70	7.70	7.70
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Edge distance	$c_{cr,N}$	[mm]	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$	$1.5*h_{ef}$
Spacing	$s_{cr,N}$	[mm]	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$	$3.0*h_{ef}$
CONCRETE SPLITTING FAILURE									
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Design performance data

Size			Ø8	Ø10	Ø12	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	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
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	32.57	63.62	109.93	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
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	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
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	34.68	67.74	117.06	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
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	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
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	37.40	73.04	126.22	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
CONCRETE PRY-OUT FAILURE									
Factor	k	-	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Installation safety factor	γ_{inst}	-	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	16.00	20.00	25.00	32.00
Effective length of anchor	ℓ_f	[mm]	min(300; h_{ef};12d_{nom})	min(300; h_{ef};12d_{nom})	min(300; h_{ef};12d_{nom})	min(300; h_{ef};12d_{nom})	min(300; h_{ef};12d_{nom})	min(300; h_{ef};12d_{nom})	min(300; h_{ef};12d_{nom})
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Combined pull-out and concrete cone failure (EN 1992-4:2018, p.7.2.1.6., 7.14 - $N^0_{Rk,p}=\psi^0_{sus}*\tau_{Rk}*\pi*d*h_{ef}$).
$h_{ef} = h_{nom}$

Product commercial data

Product Code	Volume [ml]	Quantity [pcs]			Weight [kg]			Bar Codes
		Box	Outer	Pallet	Box	Outer	Pallet	
R-KEX-I-600 [1)]	600	8	8	504	8.0	8.0	536.0	5906675452562

1) ETA-18/0994