

# R-KEM II with Threaded Rods for Concrete

Universal polyester (styrene free) resin - European Approval for 15 substrates



## Approvals and Reports

- ETA-12/0394
- ETA-21/0243



## Product information

### Features and benefits

- Approved for use in non-cracked concrete (EAD 330499-01-0601), working life up to 100 years
- Available in a winter version with faster curing time. It can be used from -20°C.
- Three colors - standard, stone & gray
- The most convenient bonded anchor for general purpose use
- Quick, secure and simple installation
- Product with wide spectrum of use in the medium load capacity area
- Ideal for applications where mechanical anchors are not suitable
- Easy dosage thanks to patented self-opening system and use of manual or electric gun
- Option of use standard manual silicone gun

### Applications

- Consoles
- Staircases
- Gates
- High racking
- Canopies
- Sanitary appliances
- Steel constructions
- Railings
- Handrails
- Ladders
- Cable trays

### Base materials

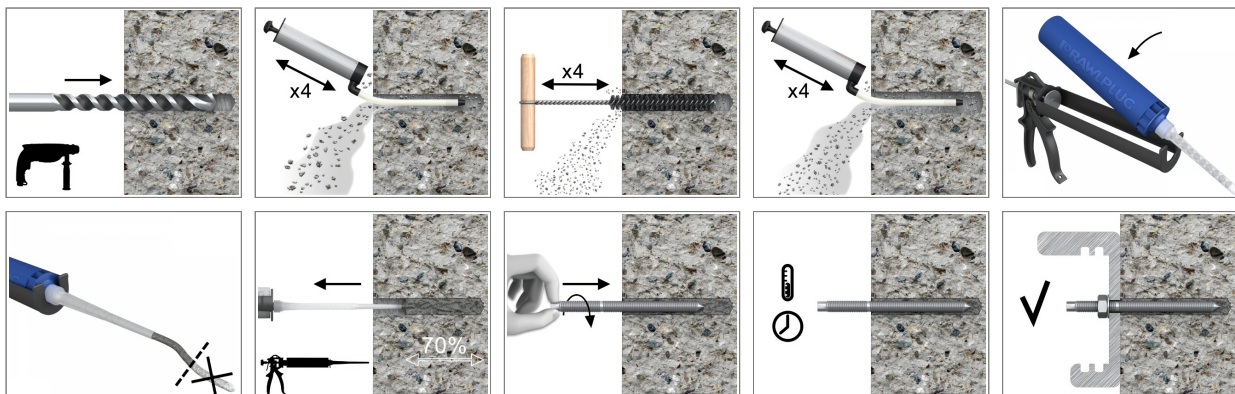
Approved for use in:

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

Also suitable for use in:

- Natural Stone (after site testing)

## Installation guide



## Product information

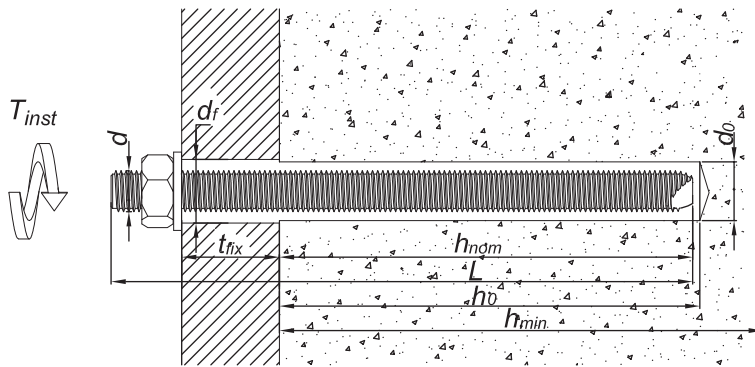
1. Drill hole to the required diameter and depth for stud size being used.
2. Solid substrates: clean the drill hole thoroughly with brush and hand pump at least four times before installation.
3. Insert cartridge into gun and attach nozzle.
4. Dispense to waste until even colour is obtained.
5. Insert 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 stud, 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.
7. Attach fixture and tighten the nut to the required torque.

Product Code	Resin	Description / Resin Type	Volume	
			[ml]	
R-KEM-II-175	R-KEMII	Styrene Free Polyester Resin	175	
R-KEM-II-300			300	
R-KEM-II-410			410	
R-KEM-II-300-W	R-KEMII-W	Low Temperature (Winter) / Rapid Cure Styrene Free Polyester Resin	300	
R-KEM-II-300-S	R-KEMII-S	High Temperature (Summer) / Slow Cure Styrene Free Polyester Resin	300	
R-KEM-II-175-SET	R-KEMII	Set with 4 studs and plastic sleeves	175	
R-KEM-II-300-SET			300	
R-KEM-II-300-STONE			Stone colour Styrene Free Polyester Resin	410
R-KEM-II-410-STONE			410	
R-KEM-II-300-GREY			Grey colour Styrene Free Polyester Resin	300
R-KEM-II-410-GREY			410	
R-KEM-II-300-SV			Styrene Free Polyester Resin	300

### R-STUDS

Size	Product Code			Anchor		Fixture
	Steel class 5.8	Steel class 8.8	Steel grade A4	Diameter	Length	Hole diameter
				d	L	d <sub>f</sub>
				[mm]	[mm]	[mm]
M8	R-STUDS-08110	R-STUDS-08110-88	R-STUDS-08110-A4	8	110	9
	R-STUDS-08160	-	R-STUDS-08160-A4	8	160	9
M10	R-STUDS-10130	R-STUDS-10130-88	R-STUDS-10130-A4	10	130	12
	R-STUDS-10170	-	-	10	170	12
	R-STUDS-10190	-	-	10	190	12
M12	R-STUDS-12160	R-STUDS-12160-88	R-STUDS-12160-A4	12	160	14
	R-STUDS-12190	-	R-STUDS-12190-A4	12	190	14
	R-STUDS-12220	-	-	12	220	14
	R-STUDS-12260	-	-	12	260	14
	R-STUDS-12300	-	R-STUDS-12300-A4	12	300	14
M16	R-STUDS-16190	R-STUDS-16190-88	R-STUDS-16190-A4	16	190	18
	R-STUDS-16220	-	-	16	220	18
	R-STUDS-16260	-	-	16	260	18
	R-STUDS-16300	-	-	16	300	18
	R-STUDS-16380	-	-	16	380	18
M20	R-STUDS-20260	R-STUDS-20260-88	R-STUDS-20260-A4	20	260	22
	R-STUDS-20300	-	-	20	300	22
	R-STUDS-20350	-	-	20	350	22
M24	R-STUDS-24300	R-STUDS-24300-88	R-STUDS-24300-A4	24	300	26
M30	R-STUDS-30380	R-STUDS-30380-88	-	30	380	32

### Installation data



R-STUDS

Size			M8	M10	M12	M16	M20	M24	M30
Thread diameter	d	[mm]	8	10	12	16	20	24	30
Hole diameter in substrate	d <sub>0</sub>	[mm]	10	12	14	18	24	28	35
Hole diameter in fixture	d <sub>f</sub>	[mm]	9	12	14	18	22	26	32
Min. hole depth in substrate	h <sub>0</sub>	[mm]	h <sub>nom</sub> + 5	h <sub>nom</sub> + 5	h <sub>nom</sub> + 5	h <sub>nom</sub> + 5	h <sub>nom</sub> + 5	h <sub>nom</sub> + 5	h <sub>nom</sub> + 5
Min. substrate thickness	h <sub>min</sub>	[mm]	$\frac{h_{nom} + 30}{\geq 100}$	$\frac{h_{nom} + 30}{\geq 100}$	$\frac{h_{nom} + 30}{\geq 100}$	h <sub>nom</sub> + 2d <sub>0</sub>	h <sub>nom</sub> + 2d <sub>0</sub>	h <sub>nom</sub> + 2d <sub>0</sub>	h <sub>nom</sub> + 2d <sub>0</sub>
Installation torque	T <sub>inst</sub>	[Nm]	10	20	40	80	120	180	300
Min. spacing	s <sub>min</sub>	[mm]	40	40	40	50	60	70	85
Min. edge distance	c <sub>min</sub>	[mm]	40	40	40	50	60	70	85
<b>MINIMUM EMBEDMENT DEPTH</b>									
Min. installation depth	h <sub>nom,min</sub>	[mm]	60	70	80	100	120	140	165
<b>MAXIMUM EMBEDMENT DEPTH</b>									
Min. installation depth	h <sub>nom,max</sub>	[mm]	160	200	240	320	400	480	600

### Minimum working and curing time

R-KEM II

Resin temperature	Concrete temperature	Curing time*	Working time
[°C]	[°C]	[min]	[min]
5	-20	-	-
5	-15	-	-
5	-10	-	-
5	-5	8 h	70
5	0	4 h	45
5	5	2 h	25
10	10	1.5 h	15
15	15	1 h	9
20	20	45	5
25	30	30	2
25	35	-	-
25	40	-	-

\*For wet concrete the curing time must be doubled

## Installation data

R-KEMII-W

Resin temperature	Concrete temperature	Curing time*	Working time
[°C]	[°C]	[min]	[min]
5	-20	24 h	45
5	-15	18 h	30
5	-10	8 h	20
5	-5	5 h	11
5	0	2 h	7
5	5	1 h	5
10	10	45	2
15	15	30	1.5
20	20	15	1
25	30	-	-
25	35	-	-
25	40	-	-

\*For wet concrete the curing time must be doubled

R-KEMII-S

Resin temperature	Concrete temperature	Curing time*	Working time
[°C]	[°C]	[min]	[min]
5	-20	-	-
5	-15	-	-
5	-10	-	-
5	-5	24 h	180
5	0	18 h	120
5	5	12 h	60
10	10	8 h	45
15	15	6 h	25
20	20	4 h	15
25	30	1.5 h	7
25	35	1 h	6
25	40	45	5

\*For wet concrete the curing time must be doubled

## Mechanical properties

Size			M8	M10	M12	M16	M20	M24	M30
<b>R-STUDS Metric Threaded Rods - Steel Class 5.8</b>									
Nominal ultimate tensile strength - tension	$f_{uk}$	[N/mm <sup>2</sup> ]	500	500	500	500	500	500	500
Nominal yield strength - tension	$f_{yk}$	[N/mm <sup>2</sup> ]	400	400	400	400	400	400	400
Cross sectional area - tension	$A_s$	[mm <sup>2</sup> ]	37	58	84	157	245	353	560
Elastic section modulus	$W_{el}$	[mm <sup>3</sup> ]	31	62	109	278	541	935	1868
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	19	37	65	166	324	561	1124
Design bending resistance	M	[Nm]	15	30	52	133	259	449	899
Allowable bending resistance	$M_{rec}$	[Nm]	11	21	37	95	185	321	642

## Mechanical properties

Size			M8	M10	M12	M16	M20	M24	M30
<b>R-STUDS Metric Threaded Rods - Steel Class 8.8</b>									
Nominal ultimate tensile strength - tension	$f_{uk}$	[N/mm <sup>2</sup> ]	800	800	800	800	800	800	800
Nominal yield strength - tension	$f_{yk}$	[N/mm <sup>2</sup> ]	640	640	640	640	640	640	640
Cross sectional area - tension	$A_s$	[mm <sup>2</sup> ]	37	58	84	157	245	353	560
Elastic section modulus	$W_{el}$	[mm <sup>3</sup> ]	31	62	109	278	541	935	1868
Characteristic bending resistance	$M_{Rk,s}^0$	[Nm]	30	60	105	266	519	898	1799
Design bending resistance	M	[Nm]	24	48	84	213	416	718	1439
Allowable bending resistance	$M_{rec}$	[Nm]	17	34	60	152	297	513	1028
<b>R-STUDS Metric Threaded Rods - Steel Class A4</b>									
Nominal ultimate tensile strength - tension	$f_{uk}$	[N/mm <sup>2</sup> ]	700	700	700	700	700	700	700
Nominal yield strength - tension	$f_{yk}$	[N/mm <sup>2</sup> ]	450	450	450	450	450	450	450
Cross sectional area - tension	$A_s$	[mm <sup>2</sup> ]	37	58	84	157	245	353	560
Elastic section modulus	$W_{el}$	[mm <sup>3</sup> ]	31	62	109	278	541	935	1868
Characteristic bending resistance	$M_{Rk,s}^0$	[Nm]	26	52	92	233	454	786	1574
Design bending resistance	M	[Nm]	17	34	59	149	291	504	1009
Allowable bending resistance	$M_{rec}$	[Nm]	12	24	42	107	208	360	721

## Basic performance data

### R-STUDS

Performance data for single anchor without influence of edge distance and spacing

Size			M8	M10	M12	M16	M20	M24	M30
Substrate	Non-cracked concrete								
<b>MEAN ULTIMATE LOAD</b>									
<b>TENSION LOAD <math>N_{Ru,m}</math></b>									
<b>R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8</b>									
Minimum embedment depth	[kN]	18.9	26.4	40.7	63.4	88.7	111.8	143.1	
Maximum embedment depth	[kN]	18.9	30.5	44.1	81.9	128.1	184.8	294.0	
<b>R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8</b>									
Minimum embedment depth	[kN]	21.1	26.4	40.7	65.4	88.7	111.8	143.1	
Maximum embedment depth	[kN]	30.5	48.3	70.4	132.3	205.8	296.1	471.5	
<b>R-STUDS METRIC THREADED RODS - STEEL CLASS A4</b>									
Minimum embedment depth	[kN]	21.1	26.4	40.7	65.4	88.7	111.8	143.1	
Maximum embedment depth	[kN]	27.3	43.1	62.0	115.5	179.6	259.4	412.7	
<b>SHEAR LOAD <math>V_{Ru,m}</math></b>									
<b>R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8</b>									
Minimum embedment depth	[kN]	11.3	18.3	26.5	49.1	76.9	110.9	176.4	
Maximum embedment depth	[kN]	11.3	18.3	26.5	49.1	76.9	110.9	176.4	
<b>R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8</b>									
Minimum embedment depth	[kN]	18.3	29.0	42.2	79.4	123.5	177.7	279.9	
Maximum embedment depth	[kN]	18.3	29.0	42.2	79.4	123.5	177.7	282.9	
<b>R-STUDS METRIC THREADED RODS - STEEL CLASS A4</b>									
Minimum embedment depth	[kN]	16.4	25.8	37.2	69.3	107.7	155.6	247.6	
Maximum embedment depth	[kN]	16.4	25.8	37.2	69.3	107.7	155.6	247.6	

### Basic performance data

Size		M8	M10	M12	M16	M20	M24	M30
<b>CHARACTERISTIC LOAD</b>								
TENSION LOAD $N_{Rk}$								
R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8								
Minimum embedment depth	[kN]	14.3	20.9	27.1	40.2	60.3	68.6	85.5
Maximum embedment depth	[kN]	18.0	29.0	42.0	78.0	122.0	176.0	280.0
R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8								
Minimum embedment depth	[kN]	14.3	20.9	27.1	40.2	60.3	68.6	85.5
Maximum embedment depth	[kN]	29.0	46.0	67.0	126.0	196.0	235.2	311.0
R-STUDS METRIC THREADED RODS - STEEL CLASS A4								
Minimum embedment depth	[kN]	14.3	20.9	27.1	40.2	60.3	68.6	85.5
Maximum embedment depth	[kN]	26.0	41.0	59.0	110.0	171.0	235.2	311.0
SHEAR LOAD $V_{Rk}$								
R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8								
Minimum embedment depth	[kN]	9.00	14.0	21.0	39.0	61.0	88.0	140.0
Maximum embedment depth	[kN]	9.00	14.0	21.0	39.0	61.0	88.0	140.0
R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8								
Minimum embedment depth	[kN]	15.0	23.0	34.0	63.0	98.0	137.2	171.1
Maximum embedment depth	[kN]	15.0	23.0	34.0	63.0	98.0	141.0	224.0
R-STUDS METRIC THREADED RODS - STEEL CLASS A4								
Minimum embedment depth	[kN]	13.0	20.0	29.0	55.0	86.0	124.0	171.1
Maximum embedment depth	[kN]	13.0	20.0	29.0	55.0	86.0	124.0	196.0
<b>DESIGN LOAD</b>								
TENSION LOAD $N_{Rd}$								
R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8								
Minimum embedment depth	[kN]	6.82	11.6	15.1	22.3	33.5	38.1	47.5
Maximum embedment depth	[kN]	12.0	19.3	28.0	52.0	81.3	117.3	172.8
R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8								
Minimum embedment depth	[kN]	6.82	11.6	15.1	22.3	33.5	38.1	47.5
Maximum embedment depth	[kN]	18.2	30.7	44.7	71.5	111.7	130.7	172.8
R-STUDS METRIC THREADED RODS - STEEL CLASS A4								
Minimum embedment depth	[kN]	6.82	11.6	15.1	22.3	33.5	38.1	47.5
Maximum embedment depth	[kN]	13.9	21.9	31.6	58.8	91.4	130.7	172.8
SHEAR LOAD $V_{Rd}$								
R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8								
Minimum embedment depth	[kN]	7.20	11.2	16.8	31.2	48.8	70.4	112.0
Maximum embedment depth	[kN]	7.20	11.2	16.8	31.2	48.8	70.4	112.0
R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8								
Minimum embedment depth	[kN]	12.0	18.4	27.2	50.4	78.4	91.5	114.0
Maximum embedment depth	[kN]	12.0	18.4	27.2	50.4	78.4	112.8	179.2
R-STUDS METRIC THREADED RODS - STEEL CLASS A4								
Minimum embedment depth	[kN]	8.33	12.8	18.6	35.3	55.1	79.5	114.0
Maximum embedment depth	[kN]	8.33	12.8	18.6	35.3	55.1	79.5	125.6

## Basic performance data

Size		M8	M10	M12	M16	M20	M24	M30
<b>RECOMMENDED LOAD</b>								
TENSION LOAD $N_{rec}$								
R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8								
Minimum embedment depth	[kN]	4.87	8.29	10.8	16.0	23.9	27.2	33.9
Maximum embedment depth	[kN]	5.87	13.8	20.0	37.1	58.1	83.8	123.4
R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8								
Minimum embedment depth	[kN]	4.87	8.29	10.8	16.0	23.9	27.2	33.9
Maximum embedment depth	[kN]	13.0	21.9	31.9	51.1	79.8	93.4	123.4
R-STUDS METRIC THREADED RODS - STEEL CLASS A4								
Minimum embedment depth	[kN]	4.87	8.29	10.8	16.0	23.9	27.2	33.9
Maximum embedment depth	[kN]	9.93	15.7	22.5	42.0	65.3	93.4	123.4
SHEAR LOAD $V_{rec}$								
R-STUDS METRIC THREADED RODS - STEEL CLASS 5.8								
Minimum embedment depth	[kN]	5.14	8.00	12.0	22.3	34.9	50.3	80.0
Maximum embedment depth	[kN]	5.14	8.00	12.0	22.3	34.9	50.3	80.0
R-STUDS METRIC THREADED RODS - STEEL CLASS 8.8								
Minimum embedment depth	[kN]	8.57	13.1	19.4	36.0	56.0	65.4	81.5
Maximum embedment depth	[kN]	8.57	13.1	19.4	36.0	56.0	80.6	128.0
R-STUDS METRIC THREADED RODS - STEEL CLASS A4								
Minimum embedment depth	[kN]	5.95	9.16	13.3	25.2	39.4	56.8	81.5
Maximum embedment depth	[kN]	5.95	9.16	13.3	25.2	39.4	56.8	89.7

## Design performance data

R-STUDS

Size			M8	M10	M12	M16	M20	M24	M30
<b>TENSION LOAD</b>									
<b>STEEL FAILURE; STEEL CLASS 5.8</b>									
Characteristic resistance	$N_{Rk,s}$	[kN]	18.00	29.00	42.00	78.00	122.00	176.00	280.00
Partial safety factor	$\gamma_{Ms}$	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50
<b>STEEL FAILURE; STEEL CLASS 8.8</b>									
Characteristic resistance	$N_{Rk,s}$	[kN]	29.00	46.00	67.00	126.00	196.00	282.00	448.00
Partial safety factor	$\gamma_{Ms}$	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50
<b>STEEL FAILURE; STEEL GRADE A4-70</b>									
Characteristic resistance	$N_{Rk,s}$	[kN]	26.00	41.00	59.00	110.00	171.00	247.00	392.00
Partial safety factor	$\gamma_{Ms}$	-	1.87	1.87	1.87	1.87	1.87	1.87	1.87
<b>COMBINED PULL-OUT AND CONCRETE CONE FAILURE; NON-CRACKED CONCRETE, C20/25 (40°C/24°C)</b>									
Characteristic bond resistance	$T_{Rk}$	[N/mm <sup>2</sup> ]	9.50	9.50	9.00	8.00	8.00	6.50	5.50
Sustained load factor	$\psi_{sus}^0$	-	0.81	0.81	0.81	0.81	0.81	0.81	0.81
<b>COMBINED PULL-OUT AND CONCRETE CONE FAILURE; NON-CRACKED CONCRETE, C20/25 (80°C/50°C)</b>									
Characteristic bond resistance	$T_{Rk}$	[N/mm <sup>2</sup> ]	8.00	8.00	7.50	7.00	6.50	5.00	4.50
Sustained load factor	$\psi_{sus}^0$	-	0.76	0.76	0.76	0.76	0.76	0.76	0.76
<b>COMBINED PULL-OUT AND CONCRETE CONE FAILURE</b>									
Installation safety factor	$\gamma_{inst}$	-	1.40	1.20	1.20	1.20	1.20	1.20	1.20
Increasing factors for $N_{Rd,p}$ - C30/37	$\psi_c$	-	1.04	1.04	1.04	1.04	1.00	1.00	1.00
Increasing factors for $N_{Rd,p}$ - C40/50	$\psi_c$	-	1.07	1.07	1.07	1.07	1.00	1.00	1.00
Increasing factors for $N_{Rd,p}$ - C50/60	$\psi_c$	-	1.09	1.09	1.09	1.09	1.00	1.00	1.00
<b>CONCRETE CONE FAILURE</b>									
Installation safety factor	$\gamma_{inst}$	-	1.40	1.20	1.20	1.20	1.20	1.20	1.20
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 <sub>ef</sub>	1.5*h <sub>ef</sub>	1.5*h <sub>ef</sub>	1.5*h <sub>ef</sub>	1.5*h <sub>ef</sub>	1.5*h <sub>ef</sub>	1.5*h <sub>ef</sub>
Spacing	$s_{cr,N}$	[mm]	3.0*h <sub>ef</sub>	3.0*h <sub>ef</sub>	3.0*h <sub>ef</sub>	3.0*h <sub>ef</sub>	3.0*h <sub>ef</sub>	3.0*h <sub>ef</sub>	3.0*h <sub>ef</sub>
<b>CONCRETE SPLITTING FAILURE</b>									
Installation safety factor	$\gamma_{inst}$	-	1.40	1.20	1.20	1.20	1.20	1.20	1.20



## Design performance data

Size			M8	M10	M12	M16	M20	M24	M30
<b>SHEAR LOAD</b>									
<b>STEEL FAILURE; STEEL CLASS 5.8</b>									
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	9.00	14.00	21.00	39.00	61.00	88.00	140.00
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]	19.00	37.00	65.00	166.00	324.00	561.00	1124.00
Partial safety factor	$\gamma_{Ms}$	-	1.25	1.25	1.25	1.25	1.25	1.25	1.25
<b>STEEL FAILURE; STEEL CLASS 8.8</b>									
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	15.00	23.00	34.00	63.00	98.00	141.00	224.00
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]	30.00	60.00	105.00	266.00	519.00	898.00	1799.00
Partial safety factor	$\gamma_{Ms}$	-	1.25	1.25	1.25	1.25	1.25	1.25	1.25
<b>STEEL FAILURE; STEEL GRADE A4-70</b>									
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	13.00	20.00	29.00	55.00	86.00	124.00	196.00
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]	26.00	52.00	92.00	233.00	454.00	786.00	1574.00
Partial safety factor	$\gamma_{Ms}$	-	1.56	1.56	1.56	1.56	1.56	1.56	1.56
<b>CONCRETE PRY-OUT FAILURE</b>									
Factor	$k$	-	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Installation safety factor	$\gamma_{inst}$	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<b>CONCRETE EDGE FAILURE</b>									
Anchor diameter	$d_{nom}$	[mm]	8.00	10.00	12.00	16.00	20.00	24.00	30.00
Effective length of anchor	$\ell_f$	[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	$\gamma_{inst}$	-	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 -  $N_{Rk,p}^0 = \psi^0_{sus} * \tau_{Rk} * n * d * h_{ef}$ ),  
 $h_{ef} = h_{nom}$

## Product commercial data

Product Code	Volume [ml]	Quantity [pcs]			Weight [kg]			Bar Codes
		Box	Outer	Pallet	Box	Outer	Pallet	
R-KEM-II-175 <sup>1)</sup>	175	10	10	840	3.8	3.8	348.1	5906675050249
R-KEM-II-300 <sup>1)</sup>	300	10	10	840	5.9	5.9	529.0	5906675050256
R-KEM-II-410 <sup>1)</sup>	410	10	10	560	8.4	8.4	498.7	5906675408163
R-KEM-II-300-W <sup>1)</sup>	300	10	10	840	5.9	5.9	527.2	5906675064666
R-KEM-II-300-S <sup>1)</sup>	300	10	50	600	6.0	30.0	390.0	5906675064642
R-KEM-II-175-SET <sup>1)</sup>	175	5	5	525	3.0	3.0	348.3	5906675057866
R-KEM-II-300-SET <sup>1)</sup>	300	5	5	320	4.9	4.9	345.9	5906675057859
R-KEM-II-300-STONE <sup>1)</sup>	300	10	10	840	6.0	6.0	534.0	5906675038124
R-KEM-II-410-STONE <sup>1)</sup>	410	10	10	560	8.4	8.4	498.7	5906675424958
R-KEM-II-300-GREY <sup>1)</sup>	300	10	10	840	6.0	6.0	534.0	5906675038131
R-KEM-II-410-GREY <sup>1)</sup>	410	10	10	560	8.4	8.4	498.7	5906675424941
R-KEM-II-300-SV <sup>1)</sup>	300	10	10	840	5.9	5.9	529.0	5906675417073

1) ETA-12/0394  
 2) ETA-21/0243