

R-KEX-II EPOXY BONDED CHEMICAL RESIN WITH THREADED RODS

High-quality bonded anchor based on epoxy resin, approved for cracked concrete, as well as reinforced and unreinforced concrete



FEATURES AND BENEFITS

Approved for use with post-installed rebars concrete (EAD 330087-01-0601).

Approved for use in non-cracked concrete (EAD 330499-02-0601), working life up to 100 years.

Seismic approval for categories C1 and C2.

The extended open time allows bar insertion to the required depth even at high temperatures. The short curing time enables continuation of work on the same day.

Extended working time ensures easy installation.

Suitable for use in dry and wet substrates including under water.

High parameter stability at elevated temperatures.

SUBSTRATES



Cracked concrete C20/25-C50/60



Non-cracked concrete C20/25-C50/60



Reinforced concrete

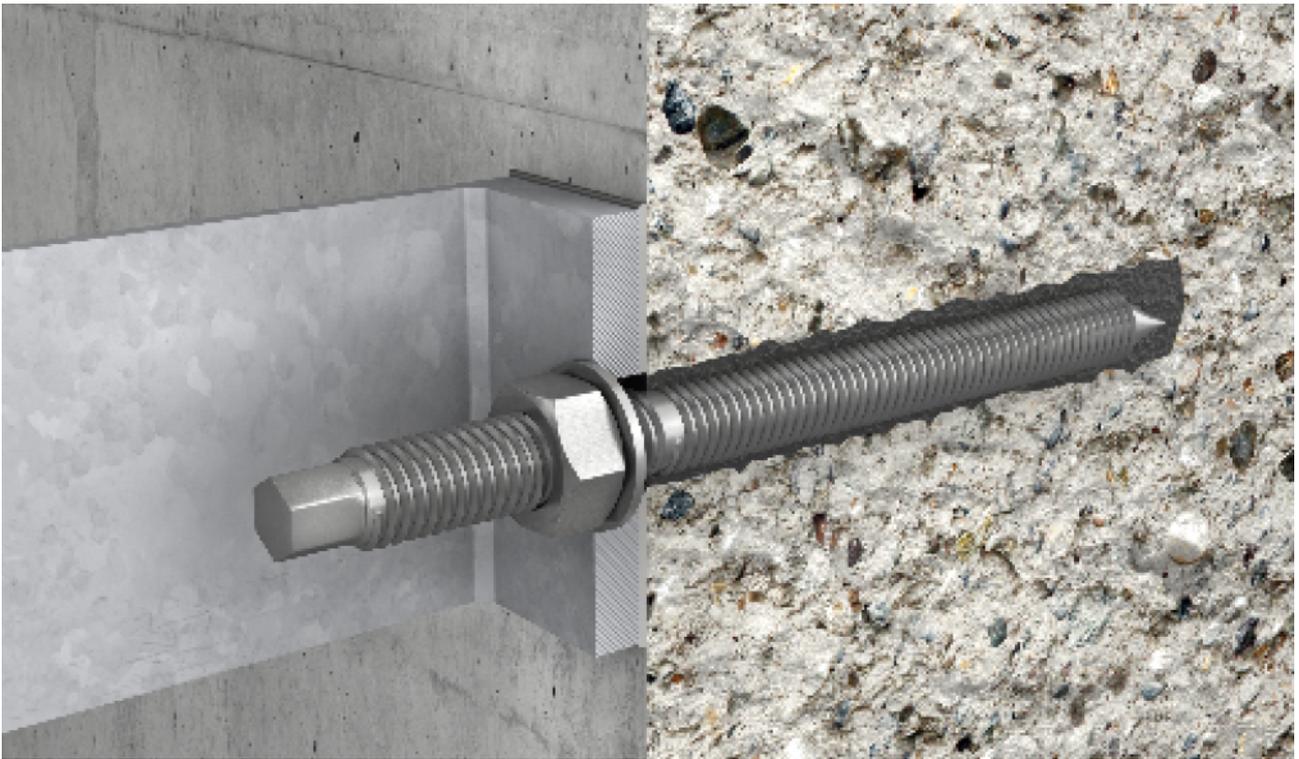


Unreinforced concrete



High-density natural stone





APPLICATIONS

Anchoring glued in with reinforcing bars

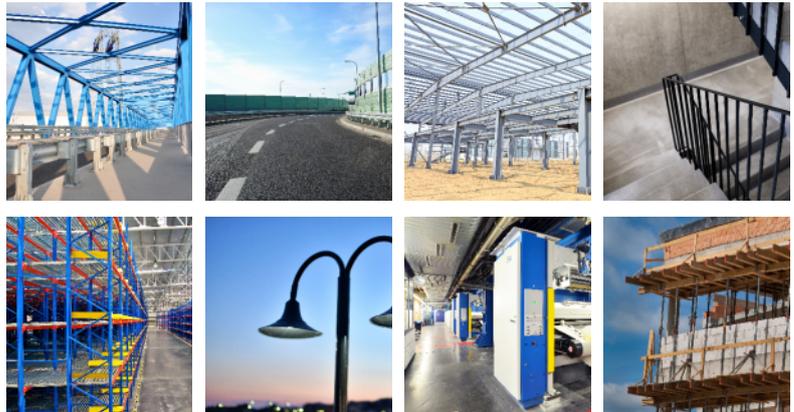
Anchoring glued in with threaded rods

Concrete structures

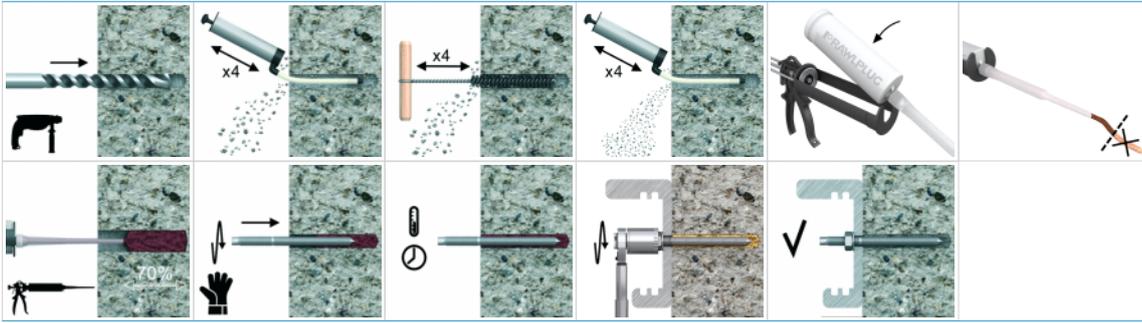
Elevators and escalators

Roads and bridges

Steel structures

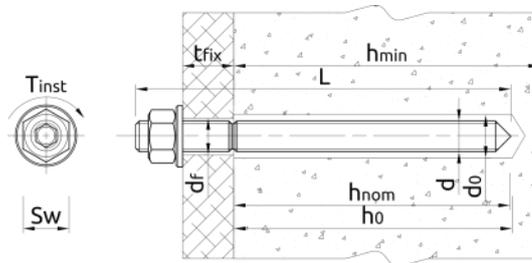


INSTALLATION GUIDE 



1. Drill a hole of required diameter and depth.
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. When starting dispensing from a new package, discard a portion of the resin (approximately 10 cm) to ensure thorough mixing of the components.
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.
7. Leave the fixing undisturbed until the curing time elapses.
8. Place the fixture and tighten until secure with use of a nut and optional washer.

INSTALLATION DATA 



Size			M8	M10	M12	M16	M20	M24	M30
Thread diameter	d	[mm]	8	10	12	16	20	24	30
Hole diameter in substrate	do	[mm]	10	12	14	18	24	28	35
Hole diameter in fixture	df	[mm]	9	12	14	18	22	26	33
Min. installation depth	h _{nom,min}	[mm]	60	70	80	100	120	140	165
Max. installation depth	h _{nom,max}	[mm]	160	200	240	320	400	480	600
Min. hole depth in substrate	ho	[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} + 2do			
Installation torque	T _{inst}	[Nm]	10	20	40	80	120	180	200
Min. spacing	s _{min}	[mm]	40	40	40	50	60	70	85
Min. edge distance	c _{min}	[mm]	40	40	40	50	60	70	85

1) For wet condition and flooded holes the curing time must be doubled.

Concrete temperature [°C]		+5	+10	+20	+30	
Mortar temperature	-	[°C]	+5	+10	+20	+25
Max. processing time	-	[min]	150	120	35	12
Min. curing time ¹⁾	-	[min]	2880 (48h)	1080 (18h)	480 (8h)	300 (5h)

MECHANICAL PROPERTIES

			M8	M10	M12	M16	M20	M24	M30
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Nominal ultimate tensile strength - tension	F_{uk}	[N/mm ²]	500	500	500	500	500	500	500
Nominal yield strength	F_{yk}	[N/mm ²]	400	400	400	400	400	400	400
Cross sectional area	A_s	[mm ²]	36,6	58	84,3	157	245	352,8	559,8
Elastic section modulus	W_{el}	[mm ³]	31,2	62,3	109,2	277,5	541	935	1868
Characteristic bending resistance	$M_{Rk,s}^0$	[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
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Nominal ultimate tensile strength - tension	F_{uk}	[N/mm ²]	800	800	800	800	800	800	800
Nominal yield strength	F_{yk}	[N/mm ²]	640	640	640	640	640	640	640
Cross sectional area	A_s	[mm ²]	36,6	58	84,3	157	245	352,8	559,8
Elastic section modulus	W_{el}	[mm ³]	31,2	62,3	109,2	277,5	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
R-STUDS Metric Threaded Rods - A4									
Nominal ultimate tensile strength - tension	F_{uk}	[N/mm ²]	700	700	700	700	700	700	700
Nominal yield strength	F_{yk}	[N/mm ²]	450	450	450	450	450	450	450
Cross sectional area	A_s	[mm ²]	36,6	58	84,3	157	245	352,8	559,8
Elastic section modulus	W_{el}	[mm ³]	31,2	62,3	109,2	277,5	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

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

Size			M8	M10	M12	M16	M20	M24	M30
UNCRACKED CONCRETE C20/25									
MEAN ULTIMATE RESISTANCE									
TENSION LOAD $N_{Ru,m}$									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	18,90	30,45	44,10	67,50	88,73	111,81	143,06
Maximum embedment depth	-	[kN]	18,90	30,45	44,10	81,90	128,10	184,80	294,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	28,65	39,53	48,33	67,50	88,73	111,81	143,06
Maximum embedment depth	-	[kN]	30,45	48,30	70,35	132,30	205,80	296,10	471,05
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	27,30	39,53	48,30	67,05	88,73	111,81	143,06
Maximum embedment depth	-	[kN]	27,30	43,05	61,95	115,50	179,55	259,35	412,65
SHEAR LOAD $V_{Ru,m}$									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	11,34	18,27	26,46	49,14	76,86	110,88	176,40
Maximum embedment depth	-	[kN]	11,34	18,27	26,46	49,14	76,86	110,88	176,40
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	18,27	28,98	42,21	79,38	123,48	177,66	282,87
Maximum embedment depth	-	[kN]	18,27	28,98	42,21	79,38	123,48	177,66	282,87
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	16,38	16,38	37,17	69,30	107,73	155,61	247,59
Maximum embedment depth	-	[kN]	16,38	16,38	37,17	69,30	107,73	155,61	247,59
CHARACTERISTIC RESISTANCE									
TENSION LOAD N_{Rk}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	18,00	28,81	35,20	49,19	64,67	81,49	104,26
Maximum embedment depth	-	[kN]	18,00	29,00	42,00	78,00	122,00	176,00	280,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	22,86	28,81	35,20	49,19	64,67	81,49	104,26
Maximum embedment depth	-	[kN]	29,00	46,00	67,00	126,00	196,00	282,00	449,00
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	22,86	28,81	35,20	49,19	64,67	81,49	104,26
Maximum embedment depth	-	[kN]	26,00	41,00	59,00	110,00	171,00	247,00	393,00
SHEAR LOAD V_{Rk}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	9,00	14,00	21,00	39,00	61,00	88,00	140,00
Maximum embedment depth	-	[kN]	9,00	14,00	21,00	39,00	61,00	88,00	140,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									

Size			M8	M10	M12	M16	M20	M24	M30
Minimum embedment depth	-	[kN]	15,00	23,00	34,00	63,00	98,00	141,00	208,53
Maximum embedment depth	-	[kN]	15,00	23,00	34,00	63,00	98,00	141,00	224,00
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	13,00	20,00	29,00	55,00	86,00	124,00	196,00
Maximum embedment depth	-	[kN]	13,00	20,00	29,00	55,00	86,00	124,00	196,00
DESIGN RESISTANCE									
TENSION LOAD N_{rd}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	12,00	19,21	23,47	32,80	43,11	54,33	69,51
Maximum embedment depth	-	[kN]	12,00	19,33	28,00	52,00	81,33	117,33	186,67
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	15,24	19,21	23,47	32,80	43,11	54,33	69,51
Maximum embedment depth	-	[kN]	19,33	30,67	44,67	84,00	130,67	188,00	299,33
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	13,90	19,21	23,47	32,80	43,11	54,33	69,51
Maximum embedment depth	-	[kN]	13,90	21,93	31,55	58,82	91,44	132,09	210,16
SHEAR LOAD V_{rd}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	7,20	11,20	16,80	31,20	48,80	70,40	112,00
Maximum embedment depth	-	[kN]	7,20	11,20	16,80	31,20	48,80	70,40	112,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	12,00	18,40	27,20	50,40	78,40	108,65	139,02
Maximum embedment depth	-	[kN]	12,00	18,40	27,20	50,40	78,40	112,80	179,20
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	8,33	12,82	18,59	35,26	55,13	79,49	125,64
Maximum embedment depth	-	[kN]	8,33	12,82	18,59	35,26	55,13	79,49	125,64
RECOMMENDED LOAD									
TENSION LOAD N_{rec}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	8,57	13,72	16,67	23,43	30,79	38,80	49,65
Maximum embedment depth	-	[kN]	8,57	13,81	20,00	37,14	58,10	83,81	133,33
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	8,57	13,72	16,67	23,43	30,79	38,80	49,65
Maximum embedment depth	-	[kN]	13,81	21,90	31,90	60,00	93,33	134,29	213,81
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	9,93	13,72	16,76	23,43	30,79	38,80	49,65
Maximum embedment depth	-	[kN]	9,93	15,66	22,54	42,02	65,32	94,35	150,11
SHEAR LOAD V_{rec}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	5,14	8,00	12,00	22,29	34,86	50,29	80,00
Maximum embedment depth	-	[kN]	5,14	8,00	12,00	22,29	34,86	50,29	80,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	8,57	13,14	19,43	36,00	56,00	77,61	99,30
Maximum embedment depth	-	[kN]	8,57	13,14	19,43	36,00	56,00	80,57	128,00
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	5,95	9,16	13,28	25,18	39,38	56,78	89,74
Maximum embedment depth	-	[kN]	5,95	9,16	13,28	25,18	39,38	56,78	89,74
Size			M8	M10	M12	M16	M20	M24	M30
CRACKED CONCRETE C20/25									
MEAN ULTIMATE RESISTANCE									
TENSION LOAD N_{Rum}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	18,90	27,82	33,99	47,50	62,44	76,68	100,67
Maximum embedment depth	-	[kN]	18,90	30,45	44,10	81,90	128,10	184,80	294,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	22,08	27,82	33,99	47,50	62,44	76,68	100,67
Maximum embedment depth	-	[kN]	30,45	48,30	70,35	132,30	205,80	196,10	471,45
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	22,08	27,82	33,99	47,50	62,44	76,68	100,67
Maximum embedment depth	-	[kN]	27,30	43,05	61,95	115,50	179,55	259,35	412,65
SHEAR LOAD V_{Rum}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	11,34	18,27	26,46	49,14	76,86	110,88	176,40
Maximum embedment depth	-	[kN]	11,34	18,27	26,46	49,14	76,86	110,88	176,40
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	18,27	28,98	42,21	79,38	123,48	153,37	201,35
Maximum embedment depth	-	[kN]	18,27	28,98	42,21	79,38	123,48	177,66	282,87
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	16,38	25,83	31,17	69,30	107,73	155,61	201,35
Maximum embedment depth	-	[kN]	16,38	25,83	31,17	69,30	107,73	155,61	47,59
CHARACTERISTIC RESISTANCE									

Size			M8	M10	M12	M16	M20	M24	M30
TENSION LOAD N_{rk}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	12,06	17,59	21,11	34,44	45,27	57,04	72,98
Maximum embedment depth	-	[kN]	18,00	29,00	42,00	78,00	122,00	176,00	280,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	12,06	17,59	21,11	34,44	45,27	57,04	72,98
Maximum embedment depth	-	[kN]	29,00	46,00	63,33	112,59	175,93	217,15	282,74
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	12,06	17,59	21,11	34,44	45,27	57,04	72,98
Maximum embedment depth	-	[kN]	26,00	41,00	59,00	110,00	171,00	217,15	282,74
SHEAR LOAD V_{rk}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	9,00	14,00	21,00	39,00	61,00	88,00	140,00
Maximum embedment depth	-	[kN]	9,00	14,00	21,00	39,00	61,00	88,00	140,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	15,00	23,00	34,00	63,00	90,53	114,08	145,98
Maximum embedment depth	-	[kN]	15,00	23,00	34,00	63,00	90,53	114,08	224,00
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	13,00	20,00	29,00	55,00	86,00	114,08	145,98
Maximum embedment depth	-	[kN]	13,00	20,00	29,00	55,00	86,00	124,0	196,0
DESIGN RESISTANCE									
TENSION LOAD N_{rd}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	8,04	11,73	14,07	22,96	30,18	38,03	48,66
Maximum embedment depth	-	[kN]	12,00	19,33	28,00	52,00	81,33	117,33	186,67
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	8,04	11,73	14,07	22,96	30,18	38,03	48,66
Maximum embedment depth	-	[kN]	19,33	30,67	42,22	75,06	117,29	144,76	188,50
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	8,04	11,73	14,07	22,96	30,18	38,03	48,66
Maximum embedment depth	-	[kN]	13,90	21,93	31,55	58,82	91,44	132,09	188,50
SHEAR LOAD V_{rd}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	7,20	11,20	16,80	31,20	48,80	70,40	97,31
Maximum embedment depth	-	[kN]	7,20	11,20	16,80	31,20	48,80	70,40	112,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	12,00	18,40	27,20	45,91	60,36	76,06	97,31
Maximum embedment depth	-	[kN]	12,00	18,40	27,20	50,40	78,40	112,80	179,20
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	8,33	12,82	18,59	35,26	55,13	76,06	97,31
Maximum embedment depth	-	[kN]	8,33	12,82	18,59	35,26	55,13	79,49	125,64
RECOMMENDED LOAD									
TENSION LOAD N_{rd}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	5,74	8,38	10,05	16,40	21,56	27,16	34,75
Maximum embedment depth	-	[kN]	8,57	13,81	20,00	37,14	58,10	83,81	133,33
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	5,74	8,38	10,05	16,40	21,56	27,16	34,75
Maximum embedment depth	-	[kN]	13,81	21,90	30,16	55,62	83,78	103,40	134,64
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	5,74	8,38	10,05	16,40	21,56	27,16	34,75
Maximum embedment depth	-	[kN]	9,93	15,66	22,54	42,02	65,32	94,35	134,64
SHEAR LOAD V_{rec}									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
Minimum embedment depth	-	[kN]	5,14	8,00	12,00	22,29	34,86	50,29	69,51
Maximum embedment depth	-	[kN]	5,14	8,00	12,00	22,29	34,86	50,29	80,00
R-STUDS Metric Threaded Rods - Steel Class 8.8									
Minimum embedment depth	-	[kN]	8,57	13,14	19,43	32,80	43,11	54,33	69,51
Maximum embedment depth	-	[kN]	8,57	13,14	19,43	36,00	56,00	80,57	128,00
R-STUDS Metric Threaded Rods - A4									
Minimum embedment depth	-	[kN]	5,95	9,16	13,28	25,18	39,38	54,33	69,51
Maximum embedment depth	-	[kN]	5,95	9,16	13,28	25,18	39,38	54,33	89,74

DESIGN PERFORMANCE DATA ✓

Static load

Size	M8	M10	M12	M16	M20	M24	M30		
TENSION LOAD									
STEEL FAILURE; STEEL CLASS 5.8									
Characteristic resistance	$N_{Rk,s}$	[kN]	18,00	29,00	42,00	78,00	122,00	176,00	280,00
Partial safety factor	γ_{MS}	[-]	1,50	1,50	1,50	1,50	1,50	1,50	1,50
STEEL FAILURE; STEEL CLASS 8.8									
Characteristic resistance	$N_{Rk,s}$	[kN]	29,00	46,00	67,00	126,00	196,00	282,00	448,00
Partial safety factor	γ_{MS}	[-]	1,50	1,50	1,50	1,50	1,50	1,50	1,50
STEEL FAILURE; STEEL GRADE A4-70									
Characteristic resistance	$N_{Rk,s}$	[kN]	26,00	41,00	59,00	110,00	171,00	247,00	392,00
Partial safety factor	γ_{MS}	[-]	1,87	1,87	1,87	1,87	1,87	1,87	1,87
WORKING LIFE 50 YEARS									
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; UNCRACKED CONCRETE C20/25 - HAMMER DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	17,00	16,00	17,00	15,00	15,00	13,00	12,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	15,00	14,00	15,00	13,00	13,00	12,00	10,00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; UNCRACKED CONCRETE C20/25 - DIAMOND DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	14,00	15,00	16,00	14,00	14,00	12,00	11,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	12,00	14,00	14,00	13,00	13,00	11,00	10,00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE C20/25 - HAMMER DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	8,00	8,00	7,00	7,00	7,00	6,00	5,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	7,00	7,00	6,00	6,00	6,00	5,00	4,00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE C20/25 - DIAMOND DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	5,50	7,00	8,00	7,00	8,00	7,00	4,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	5,00	6,50	7,50	6,50	7,00	6,50	3,50
FACTORS									
Factor of the influence of sustained load (40°C/24°C)	ψ_{sus}^0	[-]	0,75	0,75	0,75	0,75	0,75	0,75	0,75
Factor of the influence of sustained load (80°C/50°C)	ψ_{sus}^0	[-]	0,72	0,72	0,72	0,72	0,72	0,72	0,72
WORKING LIFE 100 YEARS									
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; UNCRACKED CONCRETE C20/25 - HAMMER DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	17,00	16,00	17,00	15,00	15,00	13,00	12,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	15,00	14,00	15,00	13,00	13,00	12,00	10,00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; UNCRACKED CONCRETE C20/25 - DIAMOND DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	14,00	15,00	16,00	14,00	14,00	12,00	11,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	12,00	14,00	14,00	13,00	13,00	11,00	10,00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE C20/25 - HAMMER DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	8,00	8,00	6,50	7,00	7,00	6,00	5,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	6,50	7,00	6,00	6,00	6,00	5,00	4,00
COMBINED PULL-OUT AND CONCRETE CONE FAILURE; CRACKED CONCRETE C20/25 - DIAMOND DRILLING									
Characteristic bond resistance (40°C/24°C)	τ_{Rk}	[N/mm ²]	5,50	7,00	8,00	7,00	7,00	6,00	4,00
Characteristic bond resistance (80°C/50°C)	τ_{Rk}	[N/mm ²]	5,00	6,50	7,00	6,00	6,50	5,00	3,50
FACTORS									
Factor of the influence of sustained load (40°C/24°C)	ψ_{sus}^0	[-]	0,60	0,60	0,60	0,60	0,60	0,60	0,60
Factor of the influence of sustained load (80°C/50°C)	ψ_{sus}^0	[-]	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 concrete C30/37	ψ_c	[-]	1,04	1,04	1,04	1,04	1,04	1,04	1,04
Increasing factors for concrete C40/50	ψ_c	[-]	1,07	1,07	1,07	1,07	1,07	1,07	1,07
Increasing factors for concrete 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 uncracked concrete	$k_{ucr,N}$	[-]	11,00	11,00	11,00	11,00	11,00	11,00	11,00
Edge distance	$c_{cr,N}$	[mm]	1,50	1,50	1,50	1,50	1,50	1,50	1,50
Spacing	$s_{cr,N}$	[mm]	3,00	3,00	3,00	3,00	3,00	3,00	3,00
CONCRETE SPLITTING FAILURE									
Installation safety factor	γ_{inst}	[-]	1,00	1,00	1,00	1,00	1,00	1,00	1,00
 SHEAR LOAD									
R-STUDS Metric Threaded Rods - Steel Class 5.8									
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_γ	[-]	1,0	1,0	1,0	1,0	1,0	1,0	1,0
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	γ_{MS}	[-]	1,25	1,25	1,25	1,25	1,25	1,25	1,25
STEEL FAILURE; STEEL CLASS 8.8									
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_γ	[-]	1,0	1,0	1,0	1,0	1,0	1,0	1,0

Allowable values for resistance in case of Seismic performance category C1

Size			M8	M10	M12	M16	M20	M24	M30
TENSION LOAD FOR SEISMIC C1									
STEEL FAILURE; STEEL CLASS 5.8									
Characteristic resistance	$N_{Rk,s,C1}$	[kN]	18,00	29,00	42,00	78,00	122,00	176,00	280,00
Partial safety factor	$V_{MkN,seisC1}$	[-]	1,50	1,50	1,50	1,50	1,50	1,50	1,50
STEEL FAILURE; STEEL CLASS 8.8									
Characteristic resistance	$N_{Rk,s,C1}$	[kN]	29,00	46,00	67,00	126,00	196,00	282,00	448,00
Partial safety factor	$V_{MkN,seisC1}$	[-]	1,50	1,50	1,50	1,50	1,50	1,50	1,50
STEEL FAILURE; STEEL GRADE A4-70									
Characteristic resistance	$N_{Rk,s,C1}$	[kN]	25,00	40,00	59,00	109,00	171,00	247,00	392,00
Partial safety factor	$V_{MkN,seisC1}$	[-]	1,87	1,87	1,87	1,87	1,87	1,87	1,87
COMBINED PULL-OUT AND CONCRETE CONE FAILURE									
WORKING LIFE 50 YEARS									
Characteristic bond resistance (40°C/24°C)	$\tau_{Rk,C1}$	[N/mm ²]	6,00	7,00	6,50	7,00	6,00	5,50	5,00
Characteristic bond resistance (80°C/50°C)	$\tau_{Rk,C1}$	[N/mm ²]	5,00	6,50	5,50	6,00	5,50	5,00	3,50
WORKING LIFE 100 YEARS									
Characteristic bond resistance (40°C/24°C)	$\tau_{Rk,C1}$	[N/mm ²]	6,00	7,00	6,00	6,50	6,00	5,50	4,00
Characteristic bond resistance (80°C/50°C)	$\tau_{Rk,C1}$	[N/mm ²]	5,00	6,50	5,50	6,00	5,50	5,00	3,50
Installation safety factor	V_{Inst}	[-]	1,00	1,00	1,00	1,00	1,00	1,00	1,00
SEISMIC C1									
STEEL FAILURE; STEEL CLASS 5.8									
Characteristic resistance without lever arm	$V_{Rk,s,C1}$	[kN]	6,30	10,10	14,70	27,30	42,70	61,60	98,00
Partial safety factor	$V_{MkV,seisC1}$	[-]	1,25	1,25	1,25	1,25	1,25	1,25	1,25
STEEL FAILURE; STEEL CLASS 8.8									
Characteristic resistance without lever arm	$V_{Rk,s,C1}$	[kN]	10,20	16,10	23,50	44,10	68,60	98,70	156,80
Partial safety factor	$V_{MkV,seisC1}$	[-]	1,25	1,25	1,25	1,25	1,25	1,25	1,25
STEEL FAILURE; STEEL GRADE A4-70									
Characteristic resistance without lever arm	$V_{Rk,s,C1}$	[kN]	9,10	14,40	20,70	38,50	59,90	86,50	137,40
Partial safety factor	$V_{MkV,seisC1}$	[-]	1,56	1,56	1,56	1,56	1,56	1,56	1,56

Allowable values for resistance in case of Seismic performance category C2

Size			M8	M10	M12	M16
TENSION LOAD FOR SEISMIC C2						
STEEL FAILURE; STEEL CLASS 5.8						
Characteristic resistance	$N_{Rk,s,C2}$	[kN]	42,00	78,00	122,00	176,00
Partial safety factor	$V_{MkN,seisC2}$	[-]	1,50	1,50	1,50	1,50
STEEL FAILURE; STEEL CLASS 8.8						
Characteristic resistance	$N_{Rk,s,C2}$	[kN]	67,00	126,00	196,00	282,00
Partial safety factor	$V_{MkN,seisC2}$	[-]	1,50	1,50	1,50	1,50
STEEL FAILURE; STEEL GRADE A4-70						
Characteristic resistance	$N_{Rk,s,C2}$	[kN]	59,00	109,00	171,00	247,00
Partial safety factor	$V_{MkN,seisC2}$	[-]	1,87	1,87	1,87	1,87
COMBINED PULL-OUT AND CONCRETE CONE FAILURE						
Characteristic bond resistance (40°C/24°C)	$\tau_{Rk,C2}$	[N/mm ²]	5,65	3,93	5,18	3,65
Characteristic bond resistance (80°C/50°C)	$\tau_{Rk,C2}$	[N/mm ²]	5,03	3,50	4,61	3,25
Installation safety factor	V_{Inst}	[-]	1,00	1,00	1,00	1,00
SEISMIC C2						
STEEL FAILURE; STEEL CLASS 5.8						
Characteristic resistance without lever arm	$V_{Rk,s,C2}$	[kN]	11,60	13,70	26,30	47,00
Partial safety factor	$V_{MkV,seisC2}$	[-]	1,25	1,25	1,25	1,25
STEEL FAILURE; STEEL CLASS 8.8						
Characteristic resistance without lever arm	$V_{Rk,s,C2}$	[kN]	18,50	22,00	42,10	75,10
Partial safety factor	$V_{MkV,seisC2}$	[-]	1,25	1,25	1,25	1,25
STEEL FAILURE; STEEL GRADE A4-70						
Characteristic resistance without lever arm	$V_{Rk,s,C2}$	[kN]	15,80	19,20	36,90	66,00
Partial safety factor	$V_{MkV,seisC2}$	[-]	1,56	1,56	1,56	1,56

LOGISTICAL DATA

SKU	Base-sales unit	Unit pack	Bulk pack	Pallet	Single Package - Gross Weight	Bulk Package - Gross Weight	Palette - Gross Weight	Barcode
R-KEX-II-385	pcs.	10.0	10.0	560.0	6.7	6.7	389.0	5906675028538
R-KEX-II-600	pcs.	7.0	7.0	588.0	7.0	7.0	590.3	5906675293721

RELATED PRODUCTS 

SAFETY	Protective gloves for power tools R-PGL 			
DRILLING	Rotary Hammer Drill SDS plus; 850W; 26mm; 2.5J R-PRH-26850 	Cordless Hammer 18V SDS plus R-PRH18 	Drill bits Aggressor SDS plus RT-SDSA 	Drill bits Rebardrill SDS plus RT-SDSR 
CLEANING	Blow Pump R-BLOWPUMP 	Steel wire brushes for cleaning holes R-BRUSH-TC 	Extension hose for the applications R-NOZ-EXT 	Blow nozzle for cleaning holes R-NOZ-ADAPTER 
DOZING	Manual gun for bonded anchors in cartridge R-GUN-MULTI 	Extension hose for the applications R-NOZ-EXT 	Piston Plug R-NOZ-P-16-26 	RawDispenser for R-KEX-II R-PCG18-SBS600-XS 
ANCHORING	Hammer RT-HAM-0500 	Torque wrench RT-RW-20-400 		