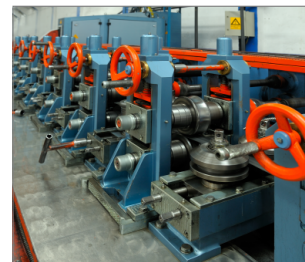
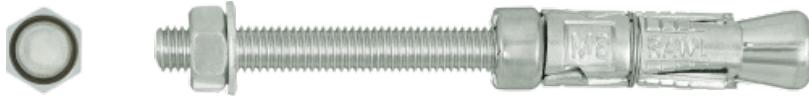


# R-RBP Rawlbolt - Bolt Projecting

World's most popular all-purpose expanding shield anchor - bolt projecting version



## Product information

### Features and benefits

- Provides a projecting stud, offering support to fixture during installation and removal
- Ferrule marked with hole diameter to ensure correct installation
- Pressed steel segments ensure consistent dimensional accuracy
- Optimum taper nut angle for optimum expansion in all recommended substrates

### Applications

- Roller shutter doors
- Fire doors
- Wall plates
- Security grills
- Signs
- Fencing

### Base materials

#### Approved for use in:

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

#### Also suitable for use in:

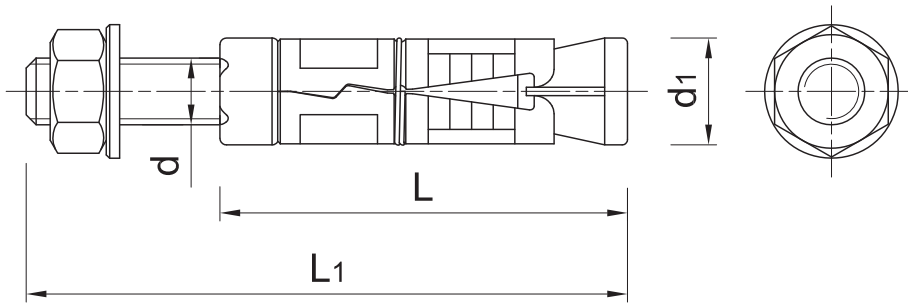
- Natural Stone
- Hollow-core Slab
- Hollow Brick

## Installation guide



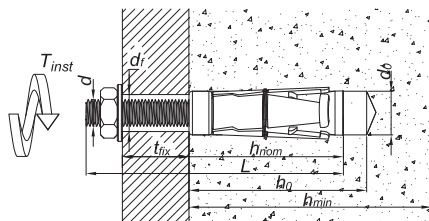
1. Drill a hole of required diameter and depth. Note: When fixing into brickwork, mortar joints should be avoided
2. Remove debris and thoroughly clean hole with brush and pump
3. Remove nut and washer and insert anchor into hole. Tap home with hammer until flush with surface
4. Position fixture over the projecting bolt
5. Add washer and nut and tighten to recommended torque

**Product information**



Size	Product Code	Anchor				Fixture		
		Diameter	External diameter	Length	Thread diameter	Max. thickness	Min. thickness	Hole diameter
		$d$	$d_1$	$L$	$d$	$t_{fix}$		$d_f$
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
M6	R-RBP-M06/10W	6	12	65	10	10	0	6,5
	R-RBP-M06/25W	6	12	80	25	25	0	6,5
	R-RBP-M06/60W	6	12	115	60	60	0	6,5
M8	R-RBP-M08/10W	8	14	75	10	10	0	9
	R-RBP-M08/25W	8	14	90	25	25	0	9
	R-RBP-M08/60W	8	14	125	60	60	0	9
M10	R-RBP-M10/15W	10	16	90	15	15	0	11
	R-RBP-M10/30W	10	16	105	30	30	0	11
	R-RBP-M10/60W	10	16	135	60	60	0	11
M12	R-RBP-M12/15W	12	20	110	15	15	0	13
	R-RBP-M12/30W	12	20	125	30	30	0	13
	R-RBP-M12/75W	12	20	170	75	75	0	13
M16	R-RBP-M16/15W	16	25	150	15	15	0	17
	R-RBP-M16/35W	16	25	170	35	35	10	17
	R-RBP-M16/75W	16	25	210	75	75	35	17
M20	R-RBP-M20/15W	20	32	170	15	15	0	22
	R-RBP-M20/30W	20	32	185	30	30	10	22
	R-RBP-M20/100W	20	32	255	100	100	30	22
M24	R-RBP-M24/75W	24	38	255	75	75	0	26
	R-RBP-M24/120W	24	38	300	120	120	75	26

**Installation data**



Size	M6	M8	M10	M12	M16	M20	M24		
Thread diameter	$d$	[mm]	6	8	10	12	16	20	24
Hole diameter in substrate	$d_0$	[mm]	12	14	16	20	25	32	38
Installation torque	$T_{inst}$	[Nm]	6.5	15	27	50	120	230	400
Min. hole depth in substrate	$h_0$	[mm]	50	55	65	85	125	140	160
Installation depth	$h_{nom}$	[mm]	45	50	60	80	120	135	155
Min. substrate thickness	$h_{min}$	[mm]	100			142.5	172.5	240	
Min. spacing	$s_{min}$	[mm]	35	40	50	60	95	115	210
Min. edge distance	$c_{min}$	[mm]	53	60	75	90	143	173	188

## Mechanical properties

Size			M6	M8	M10	M12	M16	M20	M24
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> ]	20.1	36.6	58	84.3	157	245	353
Elastic section modulus	$W_{el}$	[mm <sup>3</sup> ]	12.7	31.2	62.3	109.2	277.5	540.9	935.5
Characteristic bending resistance	$M_{Rk,s}^0$	[Nm]	7.6	19	37	66	166	325	561
Design bending resistance	M	[Nm]	6.1	15	30	52	133	260	449

## Basic performance data

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

Size		M6	M8	M10	M12	M16	M20	M24
<b>NON-CRACKED CONCRETE</b>								
Embedment depth $h_{ef}$	[mm]	35.0	40.0	50.0	60.0	95.0	115.0	125.0
<b>CRACKED CONCRETE</b>								
Embedment depth $h_{ef}$	[mm]	35.0	40.0	50.0	60.0	95.0	115.0	-
<b>MEAN ULTIMATE LOAD</b>								
<b>TENSION LOAD <math>N_{Ru,m}</math></b>								
NON-CRACKED CONCRETE	[kN]	6.36	8.35	15.2	18.5	48.8	56.6	94.3
CRACKED CONCRETE	[kN]	4.06	5.31	7.12	12.0	18.2	34.2	-
<b>SHEAR LOAD <math>V_{Ru,m}</math></b>								
NON-CRACKED CONCRETE	[kN]	6.04	11.0	17.4	25.3	47.1	73.5	105.9
CRACKED CONCRETE	[kN]	6.04	11.0	17.4	25.3	47.1	73.5	-
<b>CHARACTERISTIC LOAD</b>								
<b>TENSION LOAD <math>N_{Rk}</math></b>								
NON-CRACKED CONCRETE	[kN]	6.00	7.50	12.0	16.0	40.0	50.0	70.0
CRACKED CONCRETE	[kN]	4.00	5.00	6.00	12.0	16.0	30.0	-
<b>SHEAR LOAD <math>V_{Rk}</math></b>								
NON-CRACKED CONCRETE	[kN]	5.03	7.50	12.0	21.1	39.3	61.3	88.3
CRACKED CONCRETE	[kN]	4.00	5.00	6.00	21.1	32.0	60.0	-
<b>DESIGN LOAD</b>								
<b>TENSION LOAD <math>N_{Rd}</math></b>								
NON-CRACKED CONCRETE	[kN]	3.33	4.17	6.67	8.89	22.2	27.8	38.9
CRACKED CONCRETE	[kN]	2.22	2.78	3.33	6.67	8.89	16.7	-
<b>SHEAR LOAD <math>V_{Rd}</math></b>								
NON-CRACKED CONCRETE	[kN]	3.33	4.17	6.67	16.9	31.4	49.0	70.6
CRACKED CONCRETE	[kN]	2.22	2.78	3.33	13.3	17.8	33.3	-
<b>RECOMMENDED LOAD</b>								
<b>TENSION LOAD <math>N_{rec}</math></b>								
NON-CRACKED CONCRETE	[kN]	2.38	2.98	4.76	6.35	15.9	19.8	27.8
CRACKED CONCRETE	[kN]	1.59	1.99	2.38	4.76	6.35	11.9	-
<b>SHEAR LOAD <math>V_{rec}</math></b>								
NON-CRACKED CONCRETE	[kN]	2.38	2.98	4.76	12.1	22.4	35.0	50.4
CRACKED CONCRETE	[kN]	1.59	1.99	2.38	9.52	12.7	23.8	-

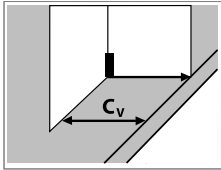
## Design performance data

Size			M6	M8	M10	M12	M16	M20	M24
Embedment depth	$h_{ef}$	[mm]	35.0	40.0	50.0	60.0	95.0	115.0	125.0
<b>TENSION LOAD</b>									
<b>STEEL FAILURE</b>									
Characteristic resistance	$N_{Rk,s}$	[kN]	10.1	18.3	29.0	42.2	78.5	122.5	176.5
Design resistance $V_{Ms} = 1.5$	$N_{Rd,s}$	[kN]	6.70	12.2	19.3	28.1	52.3	81.7	117.6
<b>PULL-OUT FAILURE; NON-CRACKED CONCRETE C20/25</b>									
Characteristic resistance	$N_{Rk,p}$	[kN]	6.00	7.50	12.0	16.0	40.0	50.0	70.0
Design resistance $V_{Mp} = 1.8$	$N_{Rd,p}$	[kN]	3.33	4.17	6.67	8.89	22.2	27.8	38.9
<b>PULL-OUT FAILURE; CRACKED CONCRETE C20/25</b>									
Characteristic resistance	$N_{Rk,p}$	-	4.00	5.00	6.00	12.0	16.0	30.0	-
Design resistance $V_{Mp} = 1.8$	$N_{Rd,p}$	-	2.22	2.78	3.33	6.67	8.89	16.7	-
Spacing	$s_{cr,N}$	[mm]	105.0	120.0	150.0	180.0	285.0	345.0	375.0
Edge distance	$c_{cr,N}$	[mm]	53.0	60.0	75.0	90.0	143.0	173.0	188.0
<b>EDGE FAILURE; NON-CRACKED CONCRETE C20/25</b>									
<b>CONCRETE EDGE FAILURE; NON-CRACKED CONCRETE C20/25</b>									
Edge distance	$c_1$	[mm]	53.0	60.0	75.0	90.0	143.0	173.0	188.0
Characteristic resistance for $c_1$	$V_{Rk,c}$	[kN]	7.38	9.11	13.0	17.7	36.8	50.8	58.9
Design resistance $V_{Mc} = 1.8$	$V_{Rd,c}$	[kN]	4.10	5.06	7.24	9.84	20.4	28.2	32.7
<b>CONCRETE EDGE FAILURE; CRACKED CONCRETE C20/25</b>									
Edge distance	$c_1$	-	53.0	60.0	75.0	90.0	143.0	173.0	-
Characteristic resistance for $c_1$	$V_{Rk,c}$	-	5.16	6.46	9.23	12.6	25.9	35.9	-
Design resistance $V_{Mc} = 1.8$	$V_{Rd,c}$	-	2.87	3.59	5.13	6.97	14.4	19.9	-
<b>CONCRETE PRY-OUT FAILURE; NON-CRACKED CONCRETE C20/25</b>									
	$k$	-	1.00	1.00	1.00	2.00	2.00	2.00	2.00
Characteristic resistance	$V_{Rk,cp}$	[kN]	6.00	7.50	12.0	32.0	80.0	100.0	140.0
Design resistance $V_{Mc} = 1.8$	$V_{Rd,cp}$	[kN]	3.33	4.17	6.67	17.8	44.4	55.6	77.8
<b>CONCRETE PRY-OUT FAILURE; CRACKED CONCRETE C20/25</b>									
	$k$	-	1.00	1.00	1.00	2.00	2.00	2.00	2.00
Characteristic resistance	$V_{Rk,cp}$	-	4.00	5.00	6.00	24.0	32.0	60.0	-
Design resistance $V_{Mc} = 1.8$	$V_{Rd,cp}$	-	2.22	2.78	3.33	13.3	17.8	33.3	-
<b>STEEL FAILURE</b>									
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	5.03	9.15	14.5	21.1	39.3	61.3	88.3
Design resistance $V_{Ms} = 1.25$	$V_{Rd,s}$	[kN]	4.02	7.32	11.6	16.9	31.4	49.0	70.6

## Design performance data

Reduction / increasing resistance factors for edge distance and spacing

Edge distance (shear)

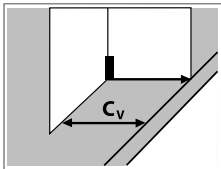


Tables only valid for one edge  $>c_{min}$  and  $s \geq 3c_v$  For other cases use the Rawlplug Anchor Calculator

Increasing factors for edge distance  $>c_{min}$  applicable to  $V_{Rd,c}$  for non-cracked concrete from 'Design Performance' table

$c_v$ [mm]	M6		M8		M10		M12		M16		M20		M24	
	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$
55	0,81	0,81												
60			0,82	0,82										
75					0,92	0,92								
90							1,00	0,86						
100							1,15	0,94						
135							1,72	1,21						
145							1,28	1,00	0,82					
160							1,39	1,16	0,89					
175							1,50	1,30	0,96	1,00	0,82			
190							1,61	1,45	1,03	1,13	0,88	1,00	0,82	
200							1,69	1,56	1,07	1,21	0,92	1,09	0,86	
240									1,25	1,53	1,06	1,38	0,99	
265									1,36	1,75	1,15	1,57	1,08	
305									1,53		1,29	1,88	1,21	
350											1,45		1,35	
430											1,73		1,60	
550													1,98	

Edge distance (shear)



Tables only valid for one edge  $>c_{min}$  and  $s \geq 3c_v$  For other cases use the Rawlplug Anchor Calculator

Increasing factors for edge distance  $>c_{min}$  applicable to  $V_{Rd,c}$  for cracked concrete from 'Design Performance' table.

$c_v$ [mm]	M6		M8		M10		M12		M16		M20	
	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$	$h \geq 1.5c_v$	$h_{min}$
55	0,78	0,78										
60			0,77	0,77								
75					0,65	0,65						
90							1,00	0,86				
100							1,15	0,94				
145							1,89	1,28	1,02	0,83		
165								1,43	1,21	0,92		
175								1,50		0,96	1,02	0,83
200								1,69		1,08	1,21	0,92
230								1,91		1,21	1,45	1,03
255											1,67	1,12
340												1,42
380												1,56
410												1,66

## Design performance data

### Edge distance (tension)

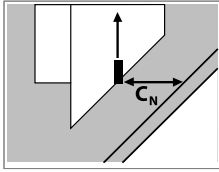


Table only valid for one edge  $<C_{cr,N}$  and  $S \geq S_{cr,N}$ . For other cases use the Rawlplug Anchor Calculator

Reduction factors for edge distance  $<C_{cr,N}$  applicable to  $N_{rd}$  or  $N_{rec}$  for cracked and non-cracked concrete from 'Basic Performance' table

$C_N$ [mm]	M6		M8		M10		M12		M16		M20		M24	
	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$
55	1,0	1,0												
60			1,0	1,0										
75					1,0	1,0								
90							1,0	1,0						
145									1,0	1,0				
175											1,0	1,0		
190													1,0	1,0

### Spacing

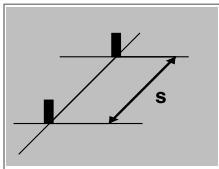


Table only valid for one spacing  $<S_{cr,N}$  and  $c \geq c_{cr,N}$ . For other cases use the Rawlplug Anchor Calculator

Reduction factors for spacing  $<S_{cr,N}$  applicable to  $N_{rd}/V_{rd}$  or  $N_{rec}/V_{rec}$  for non-cracked concrete from 'Basic Performance' table

s [mm]	M6		M8		M10		M12		M16		M20		M24	
	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$
35	0,67	0,67												
40	0,69	0,69	0,67	0,67										
50	0,74	0,74	0,71	0,71	0,67	0,67								
60	0,79	0,79	0,75	0,75	0,70	0,70	0,67	0,67						
80	0,88	0,88	0,83	0,83	0,77	0,77	0,72	0,72						
95	0,95	0,95	0,90	0,90	0,82	0,82	0,76	0,76	0,67	0,67				
100	0,98	0,98	0,92	0,92	0,83	0,83	0,78	0,78	0,68	0,68				
105	1,00	1,00	0,94	0,94	0,85	0,85	0,79	0,79	0,68	0,68				
115			0,98	0,98	0,88	0,88	0,82	0,82	0,70	0,70	0,67	0,67		
120			1,00	1,00	0,90	0,90	0,83	0,83	0,71	0,71	0,67	0,67		
150					1,00	1,00	0,92	0,92	0,76	0,76	0,72	0,72	0,70	0,70
180							1,00	1,00	0,82	0,82	0,76	0,76	0,74	0,74
200									0,85	0,85	0,79	0,79	0,77	0,77
220									0,89	0,89	0,82	0,82	0,79	0,79
250									0,94	0,94	0,86	0,86	0,83	0,83
285									1,00	1,00	0,91	0,91	0,88	0,88
300											0,93	0,93	0,90	0,90
345											1,00	1,00	0,96	0,96
375													1,00	1,00

## Design performance data

### Spacing

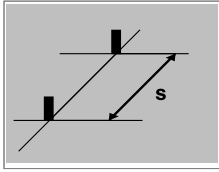


Table only valid for one spacing  $< s_{cr,N}$  and  $c \geq c_{cr,N}$ . For other cases use the Rawlplug Anchor Calculator

Reduction factors for spacing  $< S_{cr,N}$  applicable to  $N_{Rd}/V_{Rd}$  or  $N_{rec}/V_{rec}$  for cracked concrete from 'Basic Performance' table

s [mm]	M6		M8		M10		M12		M16		M20	
	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$	$h \geq 1.84h_{min}$	$h_{min}$
35	0,67	0,67										
40	0,69	0,69	0,67	0,67								
50	0,74	0,74	0,71	0,71	0,67	0,67						
60	0,79	0,79	0,75	0,75	0,70	0,70	0,67	0,67				
80	0,88	0,88	0,83	0,83	0,77	0,77	0,72	0,72				
95	0,95	0,95	0,90	0,90	0,82	0,82	0,76	0,76	0,67	0,67		
100	0,98	0,98	0,92	0,92	0,83	0,83	0,78	0,78	0,68	0,68		
105	1,00	1,00	0,94	0,94	0,85	0,85	0,79	0,79	0,68	0,68		
115			0,98	0,98	0,88	0,88	0,82	0,82	0,70	0,70	0,67	0,67
120			1,00	1,00	0,90	0,90	0,83	0,83	0,71	0,71	0,67	0,67
140					0,97	0,97	0,89	0,89	0,75	0,75	0,70	0,70
150					1,00	1,00	0,92	0,92	0,76	0,76	0,72	0,72
180							1,00	1,00	0,82	0,82	0,76	0,76
200									0,85	0,85	0,79	0,79
285									1,00	1,00	0,91	0,91
300											0,93	0,93
345											1,00	1,00

## Design performance data

Resistance to tension and shear loads under fire exposure

Size			M6	M8	M10	M12	M16	M20
<b>R (for EI) = 30 min</b>								
<b>TENSION LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.20	0.40	0.90	1.70	3.10	4.90
<b>PULL-OUT FAILURE</b>								
Characteristic resistance	$N_{Rk,p}$	[kN]	1.00	1.30	1.50	3.00	4.00	7.50
<b>CONCRETE CONE FAILURE</b>								
Characteristic resistance	$N_{Rk,c}$	[kN]	1.30	1.80	3.20	5.00	15.7	25.4
<b>SHEAR LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.20	0.40	0.90	1.70	3.10	4.90
Characteristic resistance with lever arm	$M_{Rk,s}$	[kN]	0.20	0.40	1.10	2.60	6.70	13.0
<b>R (for EI) = 60 min</b>								
<b>TENSION LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.20	0.30	0.80	1.30	2.40	3.70
<b>PULL-OUT FAILURE</b>								
Characteristic resistance	$N_{Rk,p}$	[kN]	1.00	1.30	1.50	3.00	4.00	7.50
<b>CONCRETE CONE FAILURE</b>								
Characteristic resistance	$N_{Rk,c}$	[kN]	1.30	1.80	3.20	5.00	15.7	25.4
<b>SHEAR LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.20	0.30	0.80	1.30	2.40	3.70
Characteristic resistance with lever arm	$M_{Rk,s}$	[kN]	0.10	0.30	1.00	2.00	5.00	9.70
<b>R (for EI) = 90 min</b>								
<b>TENSION LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.10	0.30	0.60	1.10	2.00	3.20
<b>PULL-OUT FAILURE</b>								
Characteristic resistance	$N_{Rk,p}$	[kN]	1.00	1.30	1.50	3.00	4.00	7.50
<b>CONCRETE CONE FAILURE</b>								
Characteristic resistance	$N_{Rk,c}$	[kN]	1.30	1.80	3.20	5.00	15.7	25.4
<b>SHEAR LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.10	0.30	0.60	1.10	2.00	3.20
Characteristic resistance with lever arm	$M_{Rk,s}$	[kN]	0.10	0.30	0.70	1.70	4.30	8.40
<b>R (for EI) = 120 min</b>								
<b>TENSION LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.10	0.20	0.50	0.80	1.60	2.50
<b>PULL-OUT FAILURE</b>								
Characteristic resistance	$N_{Rk,p}$	[kN]	1.00	1.30	1.50	3.00	4.00	7.50
<b>CONCRETE CONE FAILURE</b>								
Characteristic resistance	$N_{Rk,c}$	[kN]	1.00	1.40	2.50	4.00	12.6	20.3
<b>SHEAR LOAD</b>								
<b>STEEL FAILURE</b>								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.10	0.20	0.50	0.80	1.60	2.50
Characteristic resistance with lever arm	$M_{Rk,s}$	[kN]	0.10	0.20	0.60	1.30	3.30	6.50

## Product commercial data

Size	Product Code	Anchor		Quantity [pcs]			Weight [kg]			Bar Codes	Art No.
		Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet		
M6	R-RBP-M06/10W	6	65	50	50	6300	2.8	2.8	382.8	5906675283593	77542
	R-RBP-M06/25W	6	80	50	50	15750	1.65	1.65	549.8	5906675283616	77546
	R-RBP-M06/60W	6	115	50	50	9000	2.0	2.0	390.0	5906675283630	77549
M8	R-RBP-M08/10W	8	75	50	50	15750	2.8	2.8	912.0	5906675283654	77553
	R-RBP-M08/25W	8	90	50	50	9000	3.1	3.1	588.0	5906675283678	77556
	R-RBP-M08/60W	8	125	50	50	9000	3.6	3.6	678.0	5906675283692	77559
M10	R-RBP-M10/15W	10	90	50	50	7500	4.9	4.9	765.0	5906675283715	77564
	R-RBP-M10/30W	10	105	50	50	7500	5.3	5.3	825.0	5906675283739	77567
	R-RBP-M10/60W	10	135	50	50	5400	6.0	6.0	678.0	5906675283753	77570
M12	R-RBP-M12/15W	12	110	25	25	4500	4.1	4.1	759.0	5906675283760	77574
	R-RBP-M12/30W	12	125	25	25	2250	5.0	5.0	475.5	5906675283777	77575
	R-RBP-M12/75W	12	170	25	25	2250	5.8	5.8	552.0	5906675283784	77577
M16	R-RBP-M16/15W	16	150	10	10	900	4.1	4.1	397.2	5906675283791	77580
	R-RBP-M16/35W	16	170	10	10	900	4.7	4.7	448.5	5906675283807	77581
	R-RBP-M16/75W	16	210	10	10	690	5.3	5.3	392.3	5906675283814	77582
M20	R-RBP-M20/15W	20	170	10	10	600	7.6	7.6	487.8	5906675283821	77584
	R-RBP-M20/30W	20	185	10	10	690	8.3	8.3	603.4	5906675283838	77585
	R-RBP-M20/100W	20	255	10	10	300	9.9	9.9	328.2	5906675284781	77583
M24	R-RBP-M24/75W	24	255	5	5	330	7.1	7.1	498.6	5906675283852	77587
	R-RBP-M24/120W	24	300								