

# Resin anchor R

The expansion-free anchoring in non-cracked concrete.

## OVERVIEW



Resin capsule R M



Threaded rod  
RG M, zinc-plated  
steel



Threaded rod  
RG M A4 / C  
stainless steel of  
the corrosion resi-  
stance class III e.g.  
A4 or highly corro-  
sion-resistant steel  
of the corrosion-  
resistance class IV  
e.g. 1.4529

### Approved for:

- Non-cracked concrete  $\geq$  C20/25 and maximum C50/60



### Also suitable for:

- Natural stone with dense structure



### For fixing of:

- Steel constructions
- Railings
- Consoles
- Ladders
- Cable trays
- Machines
- S taircases
- Gat es
- F acades
- High racks
- S tand-off installations
- Wooden constructions

## DESCRIPTION

- This established fixing system consists of the RG M threaded rod and the resin capsule RM
- The 2-component resin capsule RM contains quick-setting styrene-free vinylester resin and hardener.
- During setting, the edges of the threaded rod destroy the capsule in the drill hole, which mix and activate the mortar.
- The resin adheres to the entire surface of the threaded rod, bonding it to the wall of the drilled hole.



### Advantages/Benefits

- Threaded rods are supplied with an easy to use hexagonal installation drive or can be installed with an adapter.
- High-performance resin guarantees high loads in non-cracked concrete.
- The resin anchoring is free of expansion forces and permits small axial spacings and edge distances.
- Wide range for many applications.
- New European design method enables optimum use of the anchor system for cost-efficient fixing.

## INSTALLATION

### Type of installation

- Pre-positioned installation

### Installation information

- Suitable for use in wet concrete and under water.
- Threaded rod must be placed with an impact-rotational process by using an electric tool (percussion drill, hammer drill).
- Brushes see page 55.



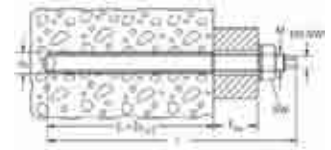
# Resin anchor R

## TECHNICAL DATA

FEB RM 12

Resin capsule **RM**

Type	Art.-No.	approval	drill-Ø	min. drill hole depth	effect. anchoring depth	fits	Qty. per box
		■ ETA	$d_0$ [mm]	$t$ [mm]	$h_{ef}$ [mm]		pcs.
R M 8	050270	■	10	80	80	RG M 8	10
R M 10	050271	■	12	90	90	RG M 10	10
R M 12	050272	■	14	110	110	RG M 12	10
R M 12 E	048501	■	14	150	150	RG M 12 E	10
R M 14	050278	■	16	120	120	RG M 14	10
R M 16	050273	■	18	125	125	RG M 16	10
R M 16 E	079838	■	18	190	190	RG M 16 E	10
R M 20	050274	■	25	170	170	RG M 20	10
R M 20 E	079840	■	25	240	240	RG M 20 E	5
R M 24	050275	■	28	210	210	RG M 24	5
R M 24 E	079842	■	28	290	290	RG M 24 E	5
R M 27	079843	■	32	250	250	RG M 27	5
R M 30	050276	■	35	280	280	RG M 30	5



Threaded rod **RG M**,  
zinc-plated steel 5.8

Type	Art.-No.	approval	effect. anchoring depth	max. usable length	width across nut	hexagon nut	fits capsules	Qty. per box
		■ ETA	$h_{ef}$ [mm]	$l_{fix}$ [mm]	[mm]	○ SW [mm]		pcs.
RG M 8 x 110	050256	■	80	13	5	13	50270 RM 8	10
RG M 8 x 150	095698	■	80	60	5	13	50270 RM 8	10
RG M 8 x 250	095699	■	80	160	5	13	50270 RM 8	10
RG M 10 x 130	050257	■	90	20	7	17	50271 RM 10	10
RG M 10 x 165	050280	■	90	57	7	17	50271 RM 10	10
RG M 10 x 190	050281	■	90	82	7	17	50271 RM 10	10
RG M 10 x 250	2) 095703	■	90	150	7	17	50271 RM 10	10
RG M 10 x 350	2) 095718	■	90	250	7	17	50271 RM 10	10
RG M 12 x 160	050258	■	110	25	8	19	50272 RM 12	10
RG M 12 x 220	050283	■	110	90	8	19	50272 RM 12	10
RG M 12 x 250	050284	■	110	120	8	19	50272 RM 12	10
RG M 12 x 300	050285	■	110	170	8	19	50272 RM 12	10
RG M 12 x 380	2) 095720	■	110	255	-	19	50272 RM 12	10
RG M 12 x 200 E	050572	■	150	30	8	19	48501 RM 12 E	10
RG M 12 x 230 E	050574	■	150	60	8	19	48501 RM 12 E	10
RG M 12 x 290 E	050575	■	150	120	8	19	48501 RM 12 E	10
RG M 14 x 170	050286	■	120	38	10	22	50278 RM 14	10
RG M 16 x 165	050287	■	125	13	12	24	50273 RM 16	10
RG M 16 x 190	050259	■	125	35	12	24	50273 RM 16	10
RG M 16 x 250	050288	■	125	98	12	24	50273 RM 16	10
RG M 16 x 300	050289	■	125	148	12	24	50273 RM 16	10
RG M 16 x 380	2) 095722	■	125	235	-	24	50273 RM 16	10
RG M 16 x 500	2) 095723	■	125	355	-	24	50273 RM 16	10
RG M 16 x 235 E	090716	■	190	20	12	24	79838 RM 16 E	10
RG M 20 x 260	050260	■	170	65	12	30	50274 RM 20	10
RG M 20 x 350	1) 095707	■	170	155	12	30	50274 RM 20	10
RG M 20 x 500	1) 095725	■	170	305	-	30	50274 RM 20	10
RG M 20 x 330 E	090718	■	240	60	12	30	79840 RM 20 E	10
RG M 24 x 300	1) 050261	■	210	65	-	36	50275 RM 24	10
RG M 24 x 400	1) 095727	■	210	165	-	36	50275 RM 24	10
RG M 24 x 600	1) 095728	■	210	365	-	36	50275 RM 24	5
RG M 24 x 380 E	1) 090719	■	290	60	-	36	79842 RM 24 E	5
RG M 27 x 340	1) 090720	■	250	60	-	41	79843 RM 27	5
RG M 30 x 380	1) 050262	■	280	65	-	46	50276 RM 30	5
RG M 30 x 500	1) 095730	■	280	185	-	46	50276 RM 30	5

1) Straight cut, additional setting tool required  
2) Straight cut, setting tool is enclosed

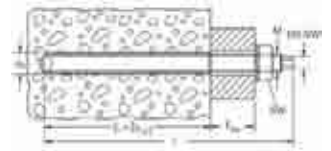
## TECHNICAL DATA



Threaded rod **RG M**,  
stainless steel of the corrosion  
resistance class III e.g. A4



Threaded rod **RG M**,  
highly corrosion-resistant steel of  
the corrosion resistance class IV  
e.g. 1.4529



Type	Art.No.	approval	effect	anchoring depth	max. usable length	width across nut	hexagon nut	fits capsules	Qty. per box
		ETA		$h_{ef}$ [mm]	$l_{fix}$ [mm]	[mm]	SW [mm]		pcs.
RG M 8 x 110 A4	<b>050263</b>	■		80	13	5	13	50270 RM 8	10
RG M 8 x 150 A4	<b>050293</b>	■		80	60	5	13	50270 RM 8	10
RG M 8 x 250 A4	<b>095700</b>	■		80	160	5	13	50270 RM 8	10
RG M 10 x 130 A4	<b>050264</b>	■		90	20	7	17	50271 RM 10	10
RG M 10 x 165 A4	<b>050294</b>	■		90	57	7	17	50271 RM 10	10
RG M 10 x 190 A4	<b>050296</b>	■		90	82	7	17	50271 RM 10	10
RG M 10 x 250 A4	<b>095701</b>	■		90	150	7	17	50271 RM 10	10
RG M 10 x 350 A4	2) <b>095709</b>	■		90	250	7	17	50271 RM 10	10
RG M 12 x 160 A4	<b>050265</b>	■		110	25	8	19	50272 RM 12	10
RG M 12 x 220 A4	<b>050297</b>	■		110	90	8	19	50272 RM 12	10
RG M 12 x 250 A4	<b>095702</b>	■		110	120	8	19	50272 RM 12	10
RG M 12 x 300 A4	<b>095705</b>	■		110	170	8	19	50272 RM 12	10
RG M 12 x 380 A4	2) <b>095710</b>	■		110	255	-	19	50272 RM 12	10
RG M 12 x 600 A4	2) <b>095711</b>	■		110	475	-	19	50272 RM 12	10
RG M 12 x 200 E A4	<b>050576</b>	■		150	30	8	19	48501 RM 12 E	10
RG M 12 x 230 E A4	<b>050577</b>	■		150	60	8	19	48501 RM 12 E	10
RG M 12 x 290 E A4	<b>050578</b>	■		150	120	8	19	48501 RM 12 E	10
RG M 16 x 165 A4	<b>095704</b>	■		125	13	12	24	50273 RM 16	10
RG M 16 x 190 A4	<b>050266</b>	■		125	35	12	24	50273 RM 16	10
RG M 16 x 250 A4	<b>050298</b>	■		125	98	12	24	50273 RM 16	10
RG M 16 x 300 A4	<b>050299</b>	■		125	148	12	24	50273 RM 16	10
RG M 16 x 380 A4	2) <b>095712</b>	■		125	235	-	24	50273 RM 16	10
RG M 16 x 500 A4	2) <b>095713</b>	■		125	355	-	24	50273 RM 16	10
RG M 16 x 235 E A4	<b>090721</b>	■		190	20	12	24	79838 RM 16 E	10
RG M 16 x 275 E A4	<b>090722</b>	■		190	60	12	24	79838 RM 16 E	10
RG M 20 x 260 A4	<b>050267</b>	■		170	65	12	30	50274 RM 20	10
RG M 20 x 350 A4	1) <b>095706</b>	■		170	155	12	30	50274 RM 20	10
RG M 24 x 300 A4	1) <b>050268</b>	■		210	65	-	36	50275 RM 24	10
RG M 24 x 400 A4	1) <b>095715</b>	■		210	165	-	36	50275 RM 24	10
RG M 27 x 340 A4	1) <b>090725</b>	■		250	60	-	41	79843 RM 27	5
RG M 30 x 380 A4	1) <b>090726</b>	■		280	65	-	46	50276 RM 30	5
RG M 8 x 110 C	<b>096316</b>	■		80	13	5	13	50270 RM 8	10
RG M 10 x 130 C	<b>096217</b>	■		90	20	7	17	50271 RM 10	10
RG M 12 x 160 C	<b>096218</b>	■		110	25	8	19	50272 RM 12	10
RG M 16 x 190 C	<b>096219</b>	■		125	35	12	24	50273 RM 16	10

1) Straight cut, additional setting tool required (see page 56).

2) Straight cut, setting tool is enclosed.



Cleaning brush for concrete



Compressed-air cleaning gun **ABP**

Type	Art.No.	for thread	qty. per box
		M	pcs.
BS ø 8	<b>078177</b>	M 6	1
BS ø 10	<b>078178</b>	M 8	1
BS ø 12	<b>078179</b>	M 10	1
BS ø 14	<b>078180</b>	M 12	1
BS ø 18	<b>078181</b>	M 16	1
BS ø 25	<b>097806</b>	M 20	1
BS ø 28	<b>078183</b>	M 24	1
BS ø 35	<b>078184</b>	M 27/30	1
ABP	<b>059456</b>	Compressed-air cleaning gun ABP	1

# Resin anchor R

## CURING TIME

### Curing time Resin capsule RM

Temperature at anchoring base	Curing time
- 5°C - ± 0°C	240 min.
± 0°C - + 10°C	45 min.
+10°C - + 20°C	20 min.
≥ + 20°C	10 min.

**Please note:** The curing times apply for dry anchoring bases. In damp anchoring bases they should be doubled. Remove water from drill hole.

## TECHNICAL DATA

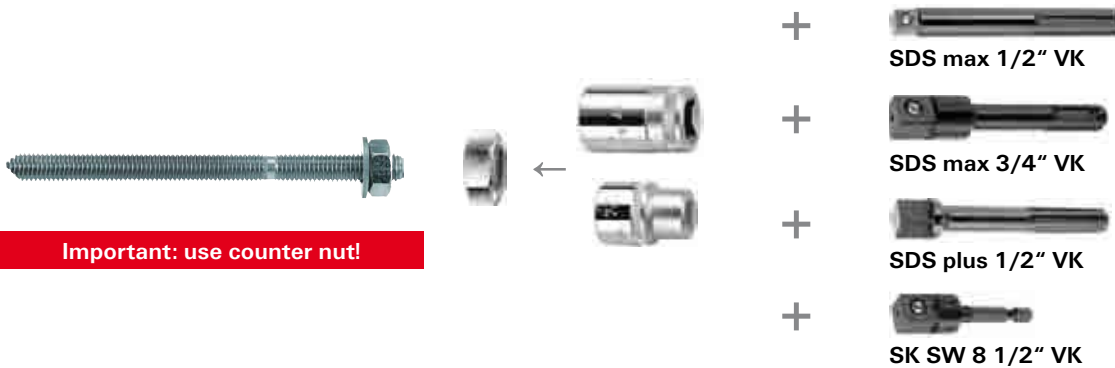
### Setting tool with SDS adapter

For simple installation of bonded anchors for example Resin anchor R, Highbond anchor FHB II



### Adapter for installing anchor rods

Threaded rods without external hex-drive (special lengths).



**Important: use counter nut!**

Type	Art.No.		qty. per box
RA-SDS	<b>062420</b>	Adapter suitable for set screw	1
SK SW 8 1/2" VK	<b>001536</b>	Adapter suitable fits threaded rods M8 - M22	1
SDS plus 1/2" VK	<b>001537</b>	Adapter suitable fits threaded rods M8 - M16	1
SDS max 1/2" VK	<b>001538</b>	Adapter suitable fits threaded rods M16 - M20	1
SDS max 3/4" VK	<b>001539</b>	Adapter suitable fits threaded rods M20-M30	1

## LOADS

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Resin anchor R used with fischer threaded rods RG M with large spacing and edge distance.

		Non-cracked concrete																			
Anchor size		RG M 8				RG M 10				RG M 12				RG M 12 E							
Kind of steel		gvz			A4	C	gvz			A4	C	gvz			A4	C					
Steel grade		5.8	8.8	10.9	A4-70	1.4529	5.8	8.8	10.9	A4-70	4529	5.8	8.8	10.9	A4-70	1.4529	5.8	8.8	10.9	A4-70	4529
Effektive anchorage depth	$h_{ef}$ [mm]	80				90				110				150							
Drill hole depth	$h_D \geq$ [mm]	80				90				110				150							
Drill hole diameter	$d_D$ [mm]	10				12				14				14							
<b>Mean ultimate loads <math>N_U</math> and <math>V_U</math> [kN]</b>																					
Tensile 0°	$N_U$ [kN]	19.0*	29.0*	29.5	26.0*	30.0*	41.5	41.0*	44.0*	55.3				44.0*	59.0*						
Shear 90°	$V_U$ [kN]	9.2*	14.6*	17.0*	12.8*	14.5*	23.2*	27.0*	20.3*	21.1*	33.7*	40.0*	29.5*		21.1*	29.5*					
<b>Design resistant loads <math>N_{Rd}</math> and <math>V_{Rd}</math> [kN]</b>																					
Tensile 0°	$N_{Rd}$ [kN]	12.3				17.3				27.6				29.5	37.7	31.6	37.7				
Shear 90°	$V_{Rd}$ [kN]	7.4	11.7	11.3	8.2	10.2	11.6	18.6	18.0	13.0	16.2	16.9	27.0	26.7	18.9	23.6	16.9	27.0	26.7	18.9	23.6
<b>Recommended loads <math>N_{rec}</math> and <math>V_{rec}</math> [kN]</b>																					
Tensile 0°	$N_{rec}$ [kN]	8.8				12.3				19.7				21.1	26.9	22.5	26.9				
Shear 90°	$V_{rec}$ [kN]	5.3	8.3	8.1	5.9	7.3	8.3	13.3	12.9	9.3	11.6	12.1	19.3	19.0	13.5	16.9	12.1	19.3	19.0	13.5	16.9
<b>Recommended bending moment <math>M_{rec}</math> [Nm]</b>																					
	$M_{rec}$ [Nm]	11.1	17.1	17.9	12.0	15.0	22.2	34.2	35.6	23.9	29.9	38.9	59.8	62.3	41.9	52.3	38.9	59.8	62.3	41.9	52.3
<b>Component dimensions, minimum axial spacings and edge distances</b>																					
Characteristic spacing	$s_{cr, Np}$ [mm]	195				250				280				280							
Characteristic edge distance	$c_{cr, Np}$ [mm]	100				125				140				140							
Minimum spacing <sup>1)</sup>	$s_{min}$ [mm]	40				45				55				75							
Minimum edge distance <sup>1)</sup>	$c_{min}$ [mm]	40				45				55				75							
Minimum structural component thickness	$h_{min}$ [mm]	110				120				150				200							
Clearance-hole in fixture to be attached	$d_f \leq$ [mm]	9				12				14				14							
Required torque	$T_{inst}$ [Nm]	10				20				40				40							
Corresponding mortar capsule	FEB RM [-]	FEB RM 8				FEB RM 10				FEB RM 12				FEB RM 12 E							

		Non-cracked concrete																											
Anchor size		RG M 16				RG M 16 E				RG M 20				RG M 20 E															
Kind of steel		gvz			A4	C	gvz			A4	C	gvz			A4	C													
Steel grade		5.8	8.8	10.9	A4-70	1.4529	5.8	8.8	10.9	A4-70	4529	5.8	8.8	10.9	A4-70	1.4529	5.8	8.8	10.9	A4-70	4529								
Effektive anchorage depth	$h_{ef}$ [mm]	125				190				170				240															
Drill hole depth	$h_D \geq$ [mm]	125				190				170				240															
Drill hole diameter	$d_D$ [mm]	18				18				25				25															
<b>Mean ultimate loads <math>N_U</math> and <math>V_U</math> [kN]</b>																													
Tensile 0°	$N_U$ [kN]	79.6				82.0*				110.0*				127.0*				128.2				127.0*				172.0*			
Shear 90°	$V_U$ [kN]	39.2*	62.8*	74.0*	54.8*	39.2*	54.8*				61.2*	98.0*	115.0*	85.7*		61.2*	85.7*												
<b>Design resistant loads <math>N_{Rd}</math> and <math>V_{Rd}</math> [kN]</b>																													
Tensile 0°	$N_{Rd}$ [kN]	39.8				55.0				60.5				64.1				85.2				90.5							
Shear 90°	$V_{Rd}$ [kN]	31.4	50.2	49.3	35.1	43.8	31.4	50.2	49.3	35.1	43.8	49.0	78.4	76.7	54.9	68.6	49.0	78.4	76.7	54.9	68.6								
<b>Recommended loads <math>N_{rec}</math> and <math>V_{rec}</math> [kN]</b>																													
Tensile 0°	$N_{rec}$ [kN]	28.4				39.3				43.2				45.8				60.9				64.6							
Shear 90°	$V_{rec}$ [kN]	22.4	35.9	35.2	25.1	31.3	22.4	35.9	35.2	25.1	31.3	35.0	56.0	54.8	39.2	49.0	35.0	56.0	54.8	39.2	49.0								
<b>Recommended bending moment <math>M_{rec}</math> [Nm]</b>																													
	$M_{rec}$ [Nm]	98.6	151.7	158.0	106.4	132.8	98.6	151.7	158.0	106.4	132.8	192.6	296.3	308.7	207.8	259.3	192.6	296.3	308.7	207.8	259.3								
<b>Component dimensions, minimum axial spacings and edge distances</b>																													
Characteristic spacing	$s_{cr, Np}$ [mm]	370				370				450				450															
Characteristic edge distance	$c_{cr, Np}$ [mm]	185				185				225				225															
Minimum spacing <sup>1)</sup>	$s_{min}$ [mm]	65				95				85				120															
Minimum edge distance <sup>1)</sup>	$c_{min}$ [mm]	65				95				85				120															
Minimum structural component thickness	$h_{min}$ [mm]	160				250				220				300															
Clearance-hole in fixture to be attached	$d_f \leq$ [mm]	18				18				22				22															
Required torque	$T_{inst}$ [Nm]	60				60				120				120															
Corresponding mortar capsule	FEB RM [-]	FEB RM 16				FEB RM 16 E				FEB RM 20				FEB RM 20 E															

\* Steel failure

<sup>1)</sup> For minimum spacing and minimum edge distance the above described loads have to be reduced (See "fischer Technical Handbook" or design software "CC-COMPUFIX")!

Values given above are valid under the following assumptions:

- Premium cleaning process according to European technical approval ETA.

- Dry concrete, temperature range from - 40 °C up to + 50 °C long term temperature and + 80 °C short term temperature.

All values apply for concrete C20/25 without edge or spacing influences.

Design resistant loads: material safety factor  $\gamma_M$  is included. Material safety factor  $\gamma_M$  depends on the type of anchor.

Recommended loads: material safety factor  $\gamma_M$  and safety factor for load  $\gamma_L = 1.4$  are included.

Continued next page.

# Resin anchor R

## LOADS

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Resin anchor R used with fischer threaded rods RG M with large spacing and edge distance.

		Non-cracked concrete																													
Anchor size		RG M 24					RG M 24 E					RG M 27					RG M 30														
Kind of steel		gvz			A4	C	gvz			A4	C	gvz			A4	C	gvz			A4	C										
Steel grade		5.8	8.8	10.9	A4-70	1.4529	5.8	8.8	10.9	A4-70	4529	5.8	8.8	10.9	A4-70	1.4529	5.8	8.8	10.9	A4-70	4529										
Effective anchorage depth	$h_{ef}$ [mm]	210					290					250					280														
Drill hole depth	$h_D \geq$ [mm]	210					290					250					280														
Drill hole diameter	$d_D$ [mm]	28					28					32					35														
<b>Mean ultimate loads <math>N_u</math> and <math>V_u</math> [kN]</b>																															
Tensile 0°	$N_u$ [kN]	179.4					183.0*					247.0*					239.0*					240.3					281.5				
Shear 90°	$V_u$ [kN]	88.2*	141.2*	166.0*	123.4*	88.2*	123.4*					105.1*					161.7*	202.1*	160.8*	140.2*	224.4*	264.0*	196.2*								
<b>Design resistant loads <math>N_{Rd}</math> and <math>V_{Rd}</math> [kN]</b>																															
Tensile 0°	$N_{Rd}$ [kN]	89.7					122.8					123.9					120.2					140.7									
Shear 90°	$V_{Rd}$ [kN]	70.6	113.0	110.7	79.1	98.7	70.6	113.0	110.7	79.1	98.7	84.1	129.4	134.7	103.1	128.6	112.2	179.5	176.0	125.8	157.0										
<b>Recommended loads <math>N_{rec}</math> and <math>V_{rec}</math> [kN]</b>																															
Tensile 0°	$N_{rec}$ [kN]	64.1					87.7					88.5					85.8					100.5									
Shear 90°	$V_{rec}$ [kN]	50.4	80.7	79.0	56.5	70.5	50.4	80.7	79.0	56.5	70.5	60.1	92.4	96.2	73.6	91.9	80.1	128.2	125.7	89.8	112.1										
<b>Recommended bending moment <math>M_{rec}</math> [Nm]</b>																															
	$M_{rec}$ [Nm]	332.9	512.1	533.4	359.0	448.1	332.9	512.1	533.4	359.0	448.1	495.2	761.8	793.6	534.2	666.6	667.6	1027.1	1069.9	720.1	898.7										
<b>Component dimensions, minimum axial spacings and edge distances</b>																															
Characteristic spacing	$s_{cr, Np}$ [mm]	530					530					600					640														
Characteristic edge distance	$c_{cr, Np}$ [mm]	265					265					300					320														
Minimum spacing <sup>1)</sup>	$s_{min}$ [mm]	105					145					125					140														
Minimum edge distance <sup>1)</sup>	$c_{min}$ [mm]	105					145					125					140														
Minimum structural component thickness	$h_{min}$ [mm]	280					380					330					370														
Clearance-hole in fixture to be attached	$d_f \leq$ [mm]	26					26					30					33														
Required torque	$T_{inst}$ [Nm]	150					150					200					300														
Corresponding mortar capsule	FEB RM [-]	FEB RM 24					FEB RM 24 E					FEB RM 27					FEB RM 30														

\* Steel failure

<sup>1)</sup> For minimum spacing and minimum edge distance the above described loads have to be reduced (See "fischer Technical Handbook" or design software "CC-COMPUFIX")!

Values given above are valid under the following assumptions:

- Premium cleaning process according to European technical approval ETA.
- Dry concrete, temperature range from - 40 °C up to + 50 °C long term temperature and + 80 °C short term temperature.

All values apply for concrete C20/25 without edge or spacing influences.

Design resistant loads: material safety factor  $\gamma_M$  is included. Material safety factor  $\gamma_M$  depends on the type of anchor.

Recommended loads: material safety factor  $\gamma_M$  and safety factor for load  $\gamma_L = 1.4$  are included.