The proven bonded anchor for non-cracked concrete

High-bay warehouses

Collision protection

VERSIONS

- zinc-plated steel
- stainless steel
- highly corrosion-resistant steel
- hot-dip galvanised steel

ASSESSMENT/APPROVAL

BUILDING MATERIALS

Approved for:

- Concrete C20/25 to C50/60, non-cracked

Also suitable for:

- Concrete C12/15, non-cracked
- Natural stone with dense structure

ADVANTAGES

- The pre-portioned resin capsule is especially economical for individual applications and overhead installations.
- The choice between standard and intensive cleaning allows for individual adaptation either to achieve rapid progress or to obtain the maximum load level.
- The wide range of approved steel types allows for use in all corrosion resistance classes and offers the best possible application safety.
- The extensive range of RG M from M8-M30 opens up a wide range of applications and therefore offers great flexibility.
- The larger anchorage depths of the RG M E variants allow for an even greater load level. Thus fewer fixing points are required.

APPLICATIONS

- Steel constructions
- Timber constructions
- Guard rails
- Staircases
- Column bases
- Machines
- Masts

Ideal for:

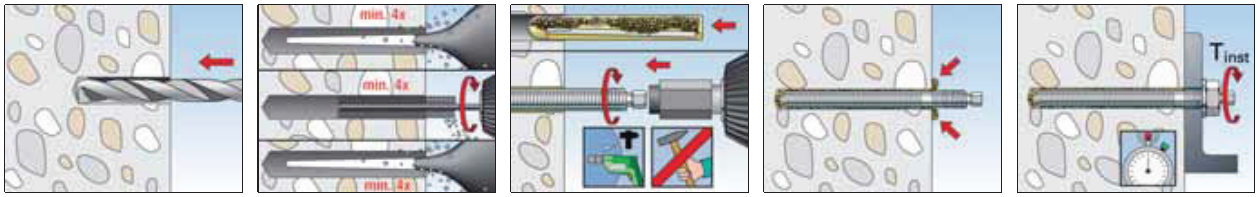
- Overhead installations
- Water-filled drill holes

FUNCTIONING

- The resin anchor R is suitable for pre-positioned installation when combined with the threaded rod RG M.
- The 2-component resin capsule R M contains quick-setting styrene-free vinyl ester resin and hardener.
- The threaded rod RG M is set using a hammer drill and the accompanying setting tool in rotating and hitting motions.
- During setting, the oblique edge of the RG M destroys the capsule, and mixes and activates the mortar.
- The mortar bonds the entire surface of the threaded rod with the drill hole wall and seals the drill hole.

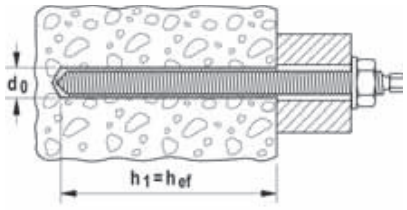
Resin anchor R with threaded rod RG M

INSTALLATION



TECHNICAL DATA

Resin capsule **R M**



Item	Art.-No.	Approval ETA	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Effect. anchorage depth h_{ef} [mm]	Suitable for anchor rod	Sales unit [pcs]	
R M 8	**050270** 1)	■	10	80	80	RG M 8	10	
R M 10	**050271** 1)	■	12	90	90	RG M10	10	
R M 12	**050272**	■	14	110	110	RG M 12	10	
R M 14	**050278** 2)	■	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 22	**512763**	–	30	190	190	RG M 22	5	
R M 24	**050275**	■	28	210	210	RG M 24	5	
R M 27	**079843**	■	32	250	250	RG M 27	5	
R M 30	**050276**	■	35	280	280	RG M 30	5	

1) No ETA-approval in combination with internal-threaded anchor RG MI.

2) No ETA-approval in combination with threaded rod RG M.

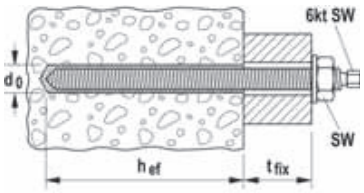
CURING TIME

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.

TECHNICAL DATA

Threaded rod **RG M**



	zinc plated, steel grade 5.8	zinc plated, steel grade 8.8	stainless steel	Approval	Drill hole diameter	Effect. anchorage depth	Max. fixture thickness	Hexagon drive	Hexagon nut	Fits capsules	Sales unit
	Art.-No.	Art.-No.	Art.-No.	ETA	d_0 [mm]	h_{ef} [mm]	t_{fix} [mm]	6kt SW [mm]	⬡ SW [mm]		[pcs]
Item	gvz	gvz	A4								
RG M 8 x 110	**050256**	–	**050263**	■	10	80	14	5	13	50270 RM 8	10
RG M 8 x 150	**095698**	**519443**	**050293**	■	10	80	54	5	13	50270 RM 8	10
RG M 10 x 130	**050257**	–	**050264**	■	12	90	20	7	17	50271 RM 10	10
RG M 10 x 165	**050280**	–	**050294**	■	12	90	55	7	17	50271 RM 10	10
RG M 10 x 190	**050281**	–	**050296**	■	12	90	80	7	17	50271 RM 10	10
RG M 10 x 220	–	**519444**	–	■	12	90	110	7	17	50271 RM 10	10
RG M 10 x 250	**095703**	–	**095701**	■	12	90	140	7	17	50271 RM 10	10
RG M 10 x 350	–	–	**095709** 1)	■	12	90	240	7	17	50271 RM 10	10
RG M 10 x 350	**095718** 3)	–	–	■	12	90	240	–	17	50271 RM 10	10
RG M 12 x 160	**050258**	–	**050265**	■	14	110	26	8	19	50272 RM 12	10
RG M 12 x 200 E	–	–	**050576** 2)	■	14	150	26	8	19	50272 RM 12	10
RG M 12 x 220	**050283**	–	**050297**	■	14	110	86	8	19	50272 RM 12	10
RG M 12 x 250	**050284**	–	**095702**	■	14	110	116	8	19	50272 RM 12	10
RG M 12 x 300	**050285**	–	**095705**	■	14	110	166	8	19	50272 RM 12	10
RG M 12 x 380	**095720** 3)	–	**095710** 1)	■	14	110	246	8	19	50272 RM 12	10
RG M 14 x 170	**050286**	–	–	–	16	120	38	10	22	50278 RM 14	10
RG M 16 x 165	**050287**	–	**095704**	■	18	125	8	12	24	50273 RM 16	10
RG M 16 x 190	**050259**	–	**050266**	■	18	125	33	12	24	50273 RM 16	10
RG M 16 x 250	**050288**	–	**050298**	■	18	125	93	12	24	50273 RM 16	10
RG M 16 x 270	–	**519446**	–	■	18	125	113	12	24	50273 RM 16	10
RG M 16 x 300	**050289**	–	**050299**	■	18	125	143	12	24	50273 RM 16	10
RG M 16 x 380	**095722** 3)	–	**095712** 1)	■	18	125	223	–	24	50273 RM 16	10
RG M 16 x 500	**095723** 3)	–	**095713** 1)	■	18	125	343	–	24	50273 RM 16	10
RG M 20 x 260	**050260**	–	**050267**	■	25	170	54	12	30	50274 RM 20	10
RG M 20 x 290	–	**519447**	–	■	25	170	84	12	30	50274 RM 20	10
RG M 20 x 350	**095707**	–	**095706**	■	25	170	124	12	30	50274 RM 20	10
RG M 20 x 500	**095725** 1)	–	–	■	25	170	294	–	30	50274 RM 20	10
RG M 22 x 280	**512252** 1)	–	–	–	30	190	65	–	32	512763 RM 22	5
RG M 24 x 295	–	**519448** 1)	–	■	28	210	56	–	36	50275 RM 24	10
RG M 24 x 300	**050261** 1)	–	**050268** 1)	■	28	210	61	–	36	50275 RM 24	10
RG M 24 x 400	**095727** 1)	–	**095715** 1)	■	28	210	161	–	36	50275 RM 24	10
RG M 24 x 600	**095728**	–	–	■	28	210	361	–	36	50275 RM 24	5
RG M 27 x 340	**090720** 1)	–	**090725** 1)	■	32	250	60	–	41	79843 RM 27	5
RG M 30 x 380	**050262** 1)	–	**090726** 1)	■	35	280	65	–	46	50276 RM 30	5
RG M 30 x 500	**095730** 1)	–	–	■	35	280	185	–	46	50276 RM 30	5

1) Straight cut, additional setting tool required

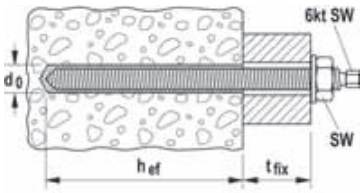
2) Delivery time on request.

3) Straight cut, setting tool is enclosed.

Resin anchor R with threaded rod RG M

TECHNICAL DATA

Threaded rod **RG M**

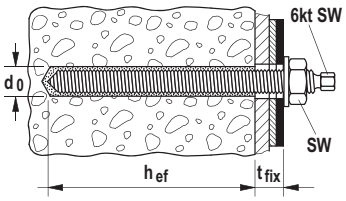


	highly corrosion resistant steel	hot-dip galvanised steel	Approval	Drill hole diameter	Effect. anchorage depth	Max. fixture thickness	Hexagon drive	Hexagon nut	Fits capsules	Sales unit
	Art.-No.	Art.-No.	ETA	d_0 [mm]	h_{ef} [mm]	t_{fix} [mm]	6kt SW [mm]	○ SW [mm]		[pcs]
Item	C	fvz								
RG M 10 x 130	096217 1)	—	■	12	90	20	7	17	50271 RM 10	10
RG M 12 x 160	096218 1)	512247	■	14	110	25	8	19	50272 RM 12	10
RG M 16 x 190	096219 1)	512250	■	18	125	35	12	24	50273 RM 16	10

1) Delivery time on request.

TECHNICAL DATA

R Set-O-



	Art.-No.	Approval	Drill hole diameter	Effect. anchorage depth	Max. fixture thickness	Hexagon drive	Hexagon nut	Sales unit
		ETA	d_0 [mm]	h_{ef} [mm]	t_{fix} [mm]	6kt SW [mm]	○ SW [mm]	[pcs]
Item								
R Set-O-16 x180/20 8.8 fvz	**524702**	■	18	125	20	12	24	20

ACCESSORIES DRILL HOLE CLEANING

Cleaning brush **BS** for concrete

Item	Art.-No.	Brush diameter [mm]	Thread	Sales unit [pcs]
BS ø 10	**078178**	11	M 8	1
BS ø 12	**078179**	13	M 10	1
BS ø 14	**078180**	16	M 12	1
BS ø 16/18	**078181**	20	M 14, M 16	1
BS ø 25	**097806**	27	M 20	1
BS ø 28	**078183**	30	M 24	1
BS ø 35	**078184**	40	M 22, M 27, M 30	1

Compressed-air cleaning tool

Blow-out pump **ABG**

Item	Art.-No.		Sales unit [pcs]
Compressed-air cleaning tool	**093286**		1
Blow-out pump ABG	**089300**		1

ACCESSORIES


Machine setting tool **RA-SDS**


Adapter **SDS max 1/2" VK**


Adapter **SDS max 3/4" VK**


Adapter **SDS plus 1/2" VK**


Adapter **SK SW 8 1/2" VK**

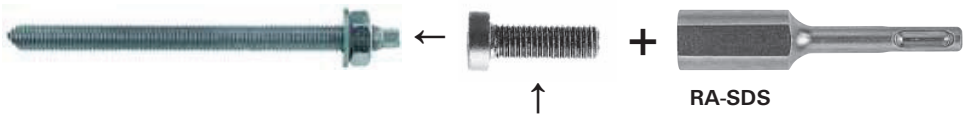
Item	Art.-No.	Match		Sales unit [pcs]
RA-SDS	**062420**	Adapter suitable fits set screw		1
SK SW 8 1/2	**001536**	Adapter suitable fits threaded rods M8 - M22		1
SDS plus 1/2	**001537**	Adapter suitable fits threaded rods M8 - M16		1
SDS max 1/2	**001538**	Adapter suitable fits threaded rods M16 - M20		1
SDS max 3/4	**001539**	Adapter suitable fits threaded rods M20 - M30		1

1) Delivery time on request.

SETTING TOOLS

Setting tool with SDS adapter

For simple installation of bonded anchors for example Resin anchor R, Highbond anchor FHB II, Superbond resin capsule RSB.



included with each package

Adapter for installing anchor rods

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

Important: use counter nut!


SDS max 1/2" VK


SDS max 3/4" VK


SDS plus 1/2" VK


SK SW 8 1/2" VK

LOADS

Resin anchor R with threaded rod RG M (grade 5.8)
Highest permissible loads for a single anchor[1) 6)] in concrete C20/25[4)]
For the design the complete approval ETA - 08/0010 has to be considered.

				Non-cracked concrete			
Type	**Effective anchorage depth h_{ef} [mm]**	**Minimum member thickness h_{min} [mm]**	**Installation torque T_{inst} [Nm]**	**Permissible tensile load N_{perm}[3)] [kN]**	**Permissible shear load V_{perm}[3)] [kN]**	**Min. spacing s_{min}[2)] [mm]**	**Min. edge distance c_{min}[2)] [mm]**
RG M 8	80	110	10,0	6,4	5,1	40	40
RG M 10	90	120	20,0	8,4	8,6	45	45
RG M 12	110	150	40,0	12,3	12,0	55	55
RG M 16	125	160	60,0	18,7	22,3	65	65
RG M 16E	190	250	60,0	28,4	22,3	95	95
RG M 20	170	220	120,0	27,6	34,9	85	85
RG M 20E	240	300	120,0	38,9	34,9	120	120
RG M 24	210	280	150,0	40,8	50,9	105	105
RG M 27	250	330	200,0	54,7	65,7	125	125
RG M 30	280	370	300,0	68,1	80,6	140	140

1) The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of γ_L = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$. Accurate data see approval.
2) Minimum possible axial spacings resp. edge distance while reducing the permissible load.
3) For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.
4) For higher concrete strength classes up to C50/60 higher permissible loads may be possible.
6) The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

LOADS

Resin anchor R with threaded rod RG M A4 (grade A4-70)
Highest permissible loads for a single anchor[1) 6)] in concrete C20/25[4)]
For the design the complete approval ETA - 08/0010 has to be considered.

				Non-cracked concrete			
Type	**Effective anchorage depth h_{ef} [mm]**	**Minimum member thickness h_{min} [mm]**	**Installation torque T_{inst} [Nm]**	**Permissible tensile load N_{perm}[3)] [kN]**	**Permissible shear load V_{perm}[3)] [kN]**	**Min. spacing s_{min}[2)] [mm]**	**Min. edge distance c_{min}[2)] [mm]**
RG M 8 A4	80	110	10,0	6,4	6,0	40	40
RG M 10 A4	90	120	20,0	8,4	9,2	45	45
RG M 12 A4	110	150	40,0	12,3	13,7	55	55
RG M 12E A4	150	200	40,0	16,8	13,7	75	75
RG M 16 A4	125	160	60,0	18,7	25,2	65	65
RG M 16E A4	190	250	60,0	28,4	25,2	95	95
RG M 20 A4	170	220	120,0	27,6	39,4	85	85
RG M 20E A4	240	300	120,0	38,9	39,4	120	120
RG M 24 A4	210	280	150,0	40,8	56,8	105	105
RG M 27 A4	250	330	200,0	54,7	73,7	125	125
RG M 30 A4	280	370	300,0	68,1	90,2	140	140

1) The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of γ_L = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$. Accurate data see approval.
2) Minimum possible axial spacings resp. edge distance while reducing the permissible load.
3) For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.
4) For higher concrete strength classes up to C50/60 higher permissible loads may be possible.
6) The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

LOADS

Resin anchor R with threaded rod RG M C (material 1.4529)
Highest permissible loads for a single anchor[1) 6)] in concrete C20/25[4)]
For the design the complete approval ETA - 08/0010 has to be considered.

				Non-cracked concrete			
Type	**Effective anchorage depth h_{ef} [mm]**	**Minimum member thickness h_{min} [mm]**	**Installation torque T_{inst} [Nm]**	**Permissible tensile load N_{perm}[3)] [kN]**	**Permissible shear load V_{perm}[3)] [kN]**	**Min. spacing s_{min}[2)] [mm]**	**Min. edge distance c_{min}[2)] [mm]**
RG M 8 C	80	110	10,0	6,4	7,4	40	40
RG M 10 C	90	120	20,0	8,4	11,4	45	45
RG M 12 C	110	150	40,0	12,3	17,1	55	55
RG M 16 C	125	160	60,0	18,7	31,4	65	65
RG M 16E C	190	250	60,0	28,4	31,4	95	95
RG M 20 C	170	220	120,0	27,6	49,1	85	85
RG M 20E C	240	300	120,0	38,9	49,1	120	120
RG M 24 C	210	280	150,0	40,8	70,9	105	105
RG M 27 C	250	330	200,0	54,7	92,0	125	125
RG M 30 C	280	370	300,0	68,1	112,6	140	140

[1)] The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of γ_L = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$. Accurate data see approval.
[2)] Minimum possible axial spacings resp. edge distance while reducing the permissible load.
[3)] For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.
[4)] For higher concrete strength classes up to C50/60 higher permissible loads may be possible.
[6)] The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.