The bonded anchor for cracked concrete with threaded rod RG M without drill hole cleaning

Crash barriers

Collision protection

VERSIONS

- Zinc-plated steel
- Stainless steel
- Highly corrosion-resistant steel
- Hot-dip galvanised steel

CERTIFICATES

BUILDING MATERIALS

Approved for:

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

Also suitable for:

- Natural stone with dense structure

ADVANTAGES

- RM II is the first bonded anchor with threaded rod RG M for cracked and non-cracked concrete that does not require drill hole cleaning. This allows for a rapid working progress and an economic installation.
- Moreover, there is a reduced exposition to drill dust on the building site. This increases the safety for the user.
- The pre-portioned resin capsule is easy to install and especially suitable for individual applications and overhead installations.

APPLICATIONS

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

Ideal for:

- Overhead installations
- Water-filled drill holes

FUNCTIONING

- The resin anchor RM II is suitable for pre-positioned installation when combined with the threaded rod RG M.
- The 2-component resin capsule RM II contains 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.

SEE ALSO

ANCHORS + SLEEVES
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DISPENSER
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ACCESSORIES
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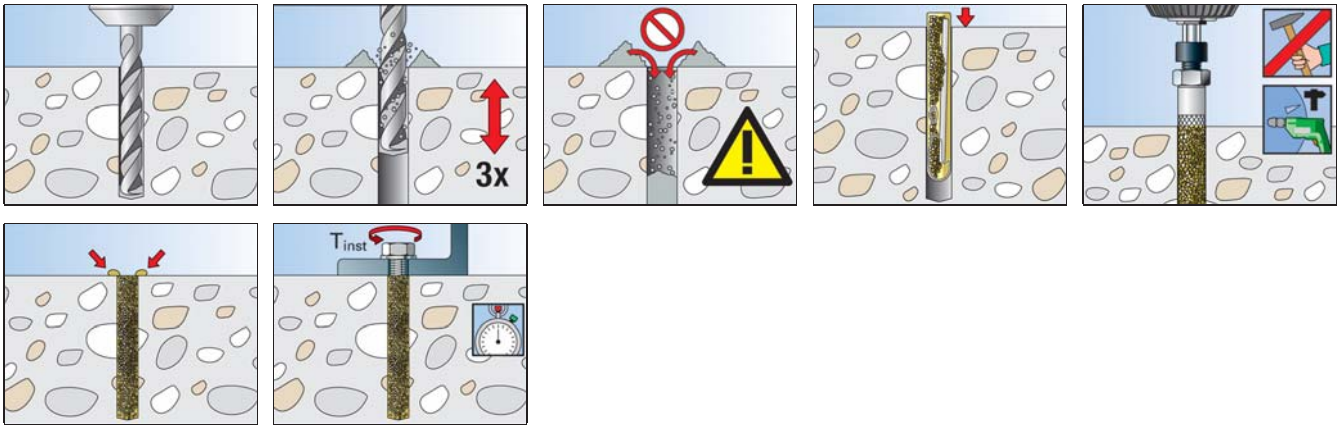
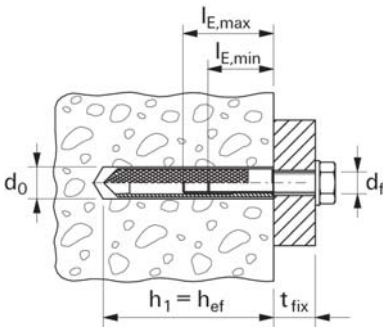
INSTALLATION IN CONCRETE WITH CAPSULE RM II AND RG M I



TECHNICAL DATA

Resin capsule **RM II**



		Approval	Drill diameter	Min. drill hole depth	Effect. anchorage depth	Suitable for internal-threaded anchor	Sales unit
		ETA	d_0 [mm]	h_1 [mm]	h_{ef} [mm]		[pcs]
Item	**Art.-No.**						
RM II 10	**539797**	■	14	90	90	RG M8 I	10
RM II 12	**539798**	■	18	90	90	RG M10 I	10
RM II 16	**539800**	■	20	125	125	RG M12 I	10
RM II 16 E	**539801**	■	24	160	160	RG M16 I	10
RM II 24	**539803**	■	32	200	200	RG M20 I	5

CURING TIME

Temperature at anchoring base	Curing time
-15 °C - -11 °C	30 hrs.
- 10 °C - - 6 °C	16 hrs.
- 5 °C - - 1 °C	10 hrs.
+ 0 °C - + 4 °C	45 min.
+ 5 °C - + 9 °C	30 min.
+10 °C - +19 °C	20 min.
+20 °C - +29 °C	5 min.
+30 °C - +40 °C	3 min.

Internal-threaded anchor RG M I

Column bases

Pumps

ADVANTAGES

- The system internal threaded anchor RG M I and an injection mortar for concrete can be individually selected based on requirements, thus allowing for a wide range of applications.
- The internal threaded anchor RG MI allows for surface flush removal and reuse of the fixing point, and therefore offers the best possible flexibility.
- The metric internal thread allows for the use of standard screws or threaded rods for the ideal adaptation to suit the intended use.

VERSIONS

- Zinc-plated steel
- Stainless steel

BUILDING MATERIALS

Approved for:

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

Also suitable for:

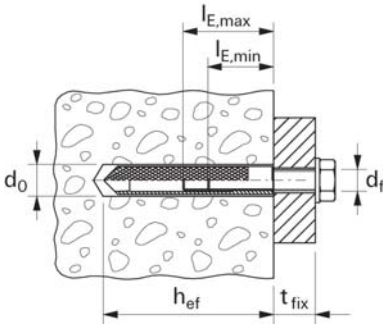
- Concrete C12/15, non-cracked

FUNCTIONING

- The injection system is suitable for pre-positioned installation when combined with the internal threaded anchor RG MI.
- The mortar is extruded bubble free from the drill hole base.
- The mortar bonds the entire surface of the internal threaded anchor with the drill hole wall and seals the drill hole.
- The internal threaded anchor is set manually, by lightly rotating it until it reaches the drill hole base.

TECHNICAL DATA IN CONCRETE

Internal threaded anchor **RG M I**



	Zinc-plated steel	Stainless steel	Approval	Drill hole diameter	Effect. anchorage depth	Min. bolt penetration	Max. bolt penetration	Fits capsules	Sales unit
	Art.-No.	Art.-No.	ETA	d_0 [mm]	h_{ef} [mm]	$l_{E,min}$ [mm]	$l_{E,max}$ [mm]		[pcs]
Item	**gvz**	**A4**							
RG 8 x 75 M 5 I	**048221** 1)	—	–	10	75	8	14	539796 RM II 8	10
RG 10 x 75 M 6 I	**048222** 1)	—	–	12	75	10	16	539797 RM II 10	10
RG 12 x 90 M8 I	**050552** 1)	**050565** 1)	–	14	90	8	18	539797 RM II 10	10
RG 16 x 90 M10 I	**050553** 1)	**050566** 1)	–	18	90	10	23	539798 RM II 12	10
RG 18 x 125 M12 I	**050562** 1)	**050567** 1)	–	20	125	12	26	539800 RM II 16	10
RG 22 x 160 M16 I	**050563** 1)	**050568** 1)	–	24	160	16	35	539801 RM II 16 E	5
RG 28 x 200 M20 I	**050564** 1)	**050569** 1)	–	32	200	20	45	539803 RM II 24	5

1) Setting tool is included in each package.

ACCESSORIES


Machine setting tool **RA-SDS**


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


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


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

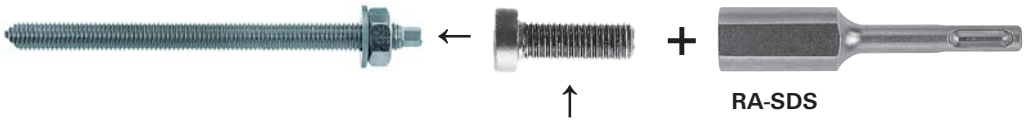

Adapter **SK SW 8 1/2" VK**

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

SETTING TOOLS

Setting tool with SDS adapter

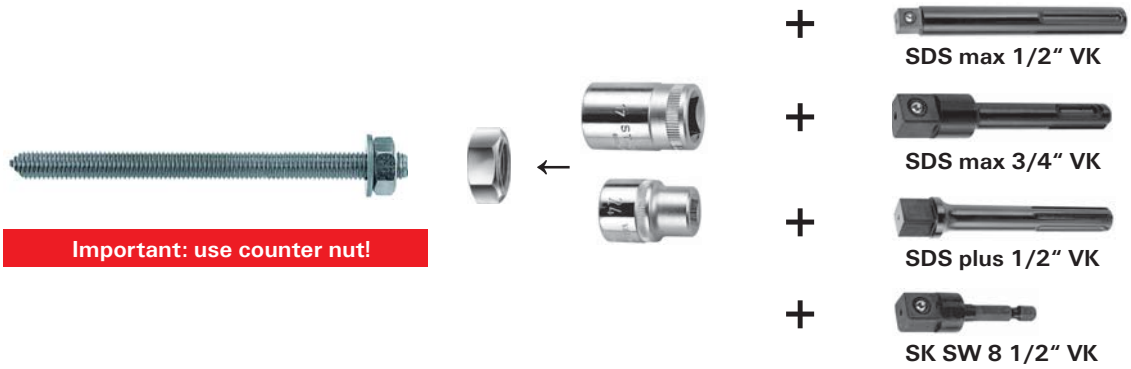
For simple installation of bonded anchors for example Resin anchor RM II, Highbond anchor FHB II, Superbond resin capsule RSB.



included with each package

Adapter for installing threaded rods

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



Important: use counter nut!

LOADS

Resin anchor RM II: Resin capsule RM II with Internal threaded anchor RG M I

zinc plated steel / stainless steel A4

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) [1) 2) 3) 4) 7)]										Minimum spacings while reducing the load	
Type	Screw steel property/ surface	Min. member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Maximum torque moment T_{max} [Nm]	Permissible tensile load N_{perm} [4)] [kN]	Permissible shear load V_{perm} [4)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for: Max. Load s_{cr} [mm]	Min. spacing s_{min} [5)] [mm]	Min. edge distance c_{min} [5)] [mm]
RG M 8 I	5.8	120	90	10	4,7	5,3	135	85	270	55	55
	8.8					8,3		145			
	A4-70					5,9		95			
RG M 10 I	5.8	130	90	20	6,3	8,3	135	135	270	65	65
	8.8					13,3		235			
	A4-70					9,3		155			
RG M 12 I	5.8	170	125	40	9,8	12,1	190	165	375	75	75
	8.8					19,3		285			
	A4-70					13,5		185			
RG M 16 I	5.8	210	160	80	15,4	22,4	240	275	480	95	95
	8.8					30,9		405			
	A4-70					25,1		315			
RG M 20 I	5.8	270	200	120	24,4	35,4	300	385	600	125	125
	8.8					51,4		600			
	A4-70					39,4		435			

For the design the complete assessment ETA-16/0340 has to be considered. [6)]

1) The partial safety factors for material resistance as regulated in the ETA-16/0340 as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \cdot h_{ef}$ and an edge distance $c \geq 1,5 \cdot h_{ef}$. Accurate data see ETA-16/0340.

2) For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

3) Drill method hammer drilling. For further allowable application conditions see ETA-16/0340.

4) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.

5) Minimum possible axial spacings resp. edge distance while reducing the permissible load.

6) The given loads refer to the European Technical Assessment ETA-16/0340, issue date 06.10.2017. Design of the loads according ETAG 001, Technical Report TR 029 (for static resp. quasi-static loads).

7) A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at $w_k \sim 0,3$ mm.

LOADS

Resin anchor RM II: Resin capsule RM II with Internal threaded anchor RG M I

zinc plated steel / stainless steel A4

Permissible loads of a single anchor in non-cracked normal concrete (concrete compression zone) of strength class C20/25 (~B25) [1) 2) 3)]										Minimum spacings while reducing the load	
Type	Screw steel property/ surface	Min. member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Maximum torque moment T_{max} [Nm]	Permissible tensile load N_{perm} [4)] [kN]	Permissible shear load V_{perm} [4)] [kN]	Required edge distance (with one edge) for Max. tension load c [mm]	Required edge distance (with one edge) for Max. shear load c [mm]	Required spacing for Max. Load s_{cr} [mm]	Min. spacing s_{min} [5)] [mm]	Min. edge distance c_{min} [5)] [mm]
RG M 8 I	5.8	120	90	10	9,0	5,3	85	65	270	55	55
	8.8				12,8	8,3	135	95			
	A4-70				9,9	5,9	95	70			
RG M 10 I	5.8	130	90	20	13,8	8,3	140	90	270	65	65
	8.8				17,1	13,3	190	155			
	A4-70				15,7	9,3	170	100			
RG M 12 I	5.8	170	125	40	20,5	12,1	180	110	375	75	75
	8.8				26,6	19,3	265	190			
	A4-70				22,5	13,5	210	125			
RG M 16 I	5.8	210	160	80	37,6	22,4	330	180	480	95	95
	8.8				40,6	30,9	365	265			
	A4-70					25,1		205			
RG M 20 I	5.8	270	200	120	56,7	35,4	445	250	600	125	125
	8.8					51,4		400			
	A4-70					39,4		285			

For the design the complete assessment ETA-16/0340 has to be considered. [6)]

1) The partial safety factors for material resistance as regulated in the ETA-16/0340 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 $s \geq 3 \cdot h_{ef}$ and an edge distance $c \geq 1{,}5 \cdot h_{ef}$. Accurate data see ETA-16/0340.

2) For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

3) Drill method hammer drilling. For further allowable application conditions see ETA-16/0340.

4) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.

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