R-SPL-C SAFETYPLUS - COUNTERSUNK

High performance mechanical anchor - countersunk version

FEATURES AND BENEFITS

Integral controlled collapse and anti-rotation feature ensures fixture is firmly secured.

Fire resistant.

Design of SafetyPlus allows for easy through fixing.

Case-hardened nut with optimum taper angle for enhanced expansion.

Unique zig-zag feature provides balanced expansion, ensuring secure setting and maximised load-bearing capacity.

High performance in non-cracked concrete confirmed by ETA Option 7.

SUBSTRATES

- Non-cracked concrete C20/25-C50/60
- Unreinforced concrete
- Reinforced concrete
- High-density natural stone



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APPLICATIONS

- Barriers
- Concrete structures
- Gates
- Poles and road signs
- Steel structures
- Storage racks
- Ventilated facades

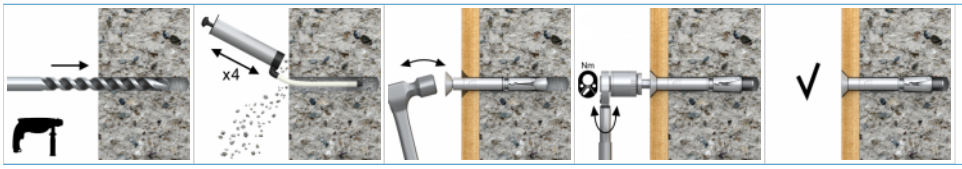




Wrocław, Poland
The Municipal Stadium, Wrocław

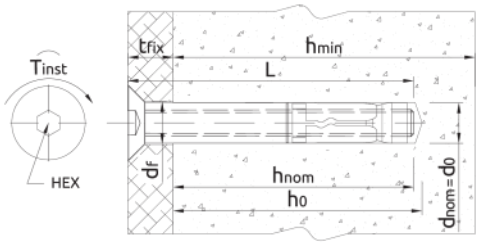
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INSTALLATION GUIDE



1. Drill a hole of required diameter and depth.
2. Remove debris and thoroughly clean hole with brush and pump.
3. Lightly tap the anchor through the fixture into hole with hammer, until fixing depth is reached.
4. Insert bolt through fixture and tighten to the recommended torque.

INSTALLATION DATA



Size			M8	M10	M12
Thread diameter	d	[mm]	8	10	12
Hole diameter in substrate	d_0	[mm]	12	15	18
Hole diameter in fixture	d_f	[mm]	14	17	20
Installation torque	T_{inst}	[Nm]	25	50	80
Wrench size	Sw	[mm]	13	17	19
Min. hole depth in substrate	$h_{0,s}$	[mm]	85	95	105
Min. installation depth	h_{nom}	[mm]	70	80	90
Min. substrate thickness	h_{min}	[mm]	100	105	120
Min. spacing	s_{min}	[mm]	60	70	80
Min. edge distance	c_{min}	[mm]	90	105	120

MECHANICAL PROPERTIES

Size			M8	M10	M12
Nominal ultimate tensile strength - tension	f_{uk}	[N/mm²]	800	800	800
Nominal yield strength	f_{yk}	[N/mm²]	640	640	640
Cross sectional area	A_s	[mm²]	36,6	58,0	84,3
Elastic section modulus	W_{el}	[mm³]	50,3	98,2	169,7
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	45,0	87,9	152,0
Design bending resistance	M	[Nm]	36,0	70,3	121,6

BASIC PERFORMANCE DATA

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

Size			M8	M10	M12
Effective embedment depth	h_{ef}	[mm]	60	70	80
MEAN ULTIMATE RESISTANCE					
Tension load	$N_{Ru,m}$	[kN]	9,90	13,20	17,60
Shear load	$V_{Ru,m}$	[kN]	21,12	33,00	47,52
CHARACTERISTIC RESISTANCE					
Tension load	N_{Rk}	[kN]	9,00	12,00	16,00

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Size			M8	M10	M12
Shear load	V_{Rk}	[kN]	19,20	30,00	43,20
DESIGN RESISTANCE					
Tension load	N_{Rd}	[kN]	5,00	6,67	8,89
Shear load	V_{Rd}	[kN]	15,36	24,00	34,56

DESIGN PERFORMANCE DATA

Static loads

Size			M8	M10	M12
Effective embedment depth	h_{ef}	[mm]	60	70	80
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	29,3	46,4	57,4
Partial safety factor	γ_{MS}	[-]	1,5	1,5	1,5
PULL-OUT FAILURE					
Characteristic resistance in uncracked concrete C20/25	$N_{Rk,p,ucr}$	[kN]	9,0	12,0	16,0
Installation safety factor	γ_{inst}	[-]	1,2	1,2	1,2
Increasing factors for concrete C30/37	Ψ_c	[-]	1,22	1,22	1,22
Increasing factors for concrete C40/50	Ψ_c	[-]	1,41	1,41	1,41
Increasing factors for concrete C50/60	Ψ_c	[-]	1,55	1,55	1,55
CONCRETE CONE FAILURE					
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11,0	11,0	11,0
Installation safety factor	γ_{inst}	[-]	1,2	1,2	1,2
Spacing	$s_{cr,N}$	[mm]	180	210	240
Edge distance	$c_{cr,N}$	[mm]	90	105	120
CONCRETE SPLITTING FAILURE					
Spacing	$s_{cr,N}$	[mm]	180	210	240
Edge distance	$c_{cr,N}$	[mm]	90	105	120
Installation safety factor	γ_{inst}	[-]	1,2	1,2	1,2
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V^0_{Rk,s}$	[kN]	19,20	30,00	43,20
Ductility factor	k_7	[-]	0,8	0,8	0,8
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	45,04	87,97	152,01
Partial safety factor	γ_{MS}	[-]	1,25	1,25	1,25
CONCRETE PRY-OUT FAILURE					
Factor	k	[-]	2,0	2,0	2,0
Installation safety factor	γ_{inst}	[-]	1,0	1,0	1,0
CONCRETE EDGE FAILURE					
Effective length of anchor	ℓ_f	[mm]	60	70	80
Anchor diameter	d_{nom}	[mm]	8	10	12
Installation safety factor	γ_{inst}	[-]	1,5	1,5	1,5

LOGISTICAL DATA

SKU	Base-sales unit	Unit pack	Bulk pack	Pallet	Single Package - Gross Weight	Bulk Package - Gross Weight	Palette - Gross Weight	Barcode
R-SPL-C-08090/20	pcs.	50.0	50.0	8000.0	3.6	3.6	600.0	5010445502101
R-SPL-C-10105/25	pcs.	50.0	50.0	8000.0	6.6	6.6	1079.7	5010445502200
R-SPL-C-12125/30	pcs.	25.0	25.0	4000.0	5.7	5.7	944.2	5010445502354
R-SPL-C-16145/30	pcs.	10.0	10.0	1600.0	4.6	4.6	758.4	5010445502507

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** 			
ANCHORING	Hammer **RT-HAM-0500** 	MECHANICAL ANCHOR SETTING TOOL SDS PLUS **RT-SDSI-MA** 	Torque wrench **RT-RW-20-400** 	