

R-LX-CS-ZF Zinc Flake coated Countersunk Concrete Screw Anchor

Self-tapping concrete screwbolt



Approvals and Reports

- ETA 17/0806



Product information

Features and benefits

- Time-efficient installation through streamlined procedure - simply drill and drive
- Completely removable with possibility of reuse
- Unique design with patented threadform ensures high performance for relatively small hole diameter and low torque level during installation even in high strength concrete
- Non-expansion functioning ensures low risk of damage to base material and makes R-LX ideal for installation near edges and adjacent anchors
- Highest performance in both cracked and non-cracked concrete
- Special zinc flake coating for increased corrosion resistance
- Different head types for any application
- Possibility of multiple use in high-strength concrete
- Allround product for any application

Applications

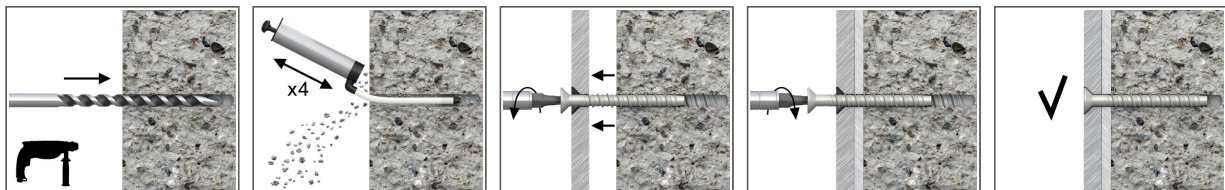
- Through-fixing
- Temporary anchorages
- Formwork support systems
- Balustrading & handrails
- Fencing & gates manufacturing and installation
- Racking systems
- Public seating
- Scaffolding

Base materials

Approved for use in:

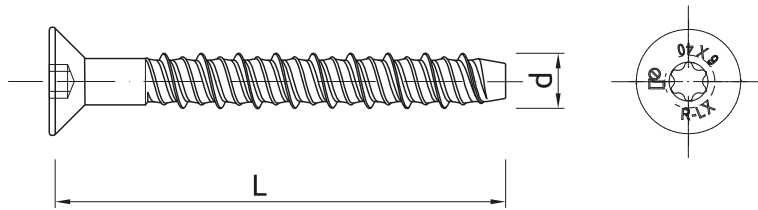
- Cracked concrete C20/25-C50/60
- Non-cracked concrete C20/25-C50/60
- Reinforced concrete
- Unreinforced concrete

Installation guide



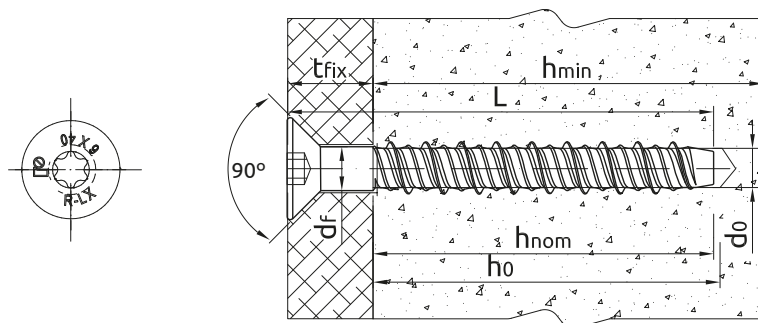
1. Drill the hole with rotary hammer drilling machine. Drill to a required depth.
2. Blow out dust at least 4 times with a hand pump.
3. Possibility of unscrewing and re-screwing.
4. Tighten to the recommended torque.
5. After installation.

Product information



Size	Product Code	Anchor		Fixture		
		Diameter	Length	Max. thickness t_{fix} for:		Hole diameter
		d [mm]	L [mm]	$h_{nom,red}$ [mm]	$h_{nom,std}$ [mm]	d_f [mm]
5	R-LX-05X050-CS-ZF	6.3	50	-	7	7
	R-LX-05X075-CS-ZF	6.3	75	-	32	7
6	R-LX-06X050-CS-ZF	7.5	50	7	-	9
	R-LX-06X075-CS-ZF	7.5	75	32	20	9
	R-LX-06X100-CS-ZF	7.5	100	57	45	9
	R-LX-06X120-CS-ZF	7.5	120	77	65	9
	R-LX-06X130-CS-ZF	7.5	130	87	75	9
	R-LX-06X140-CS-ZF	7.5	140	97	85	9
	R-LX-06X150-CS-ZF	7.5	150	107	95	9
	R-LX-06X160-CS-ZF	7.5	160	117	105	9
8	R-LX-08X060-CS-ZF	10	60	10	-	12
	R-LX-08X075-CS-ZF	10	75	25	5	12
	R-LX-08X090-CS-ZF	10	90	40	20	12
	R-LX-08X100-CS-ZF	10	100	50	30	12
	R-LX-08X130-CS-ZF	10	130	80	60	12
10	R-LX-10X065-CS-ZF	12.5	65	10	-	14
	R-LX-10X075-CS-ZF	12.5	75	20	-	14
	R-LX-10X085-CS-ZF	12.5	85	30	-	14
	R-LX-10X100-CS-ZF	12.5	100	45	15	14
	R-LX-10X120-CS-ZF	12.5	120	65	35	14
	R-LX-10X140-CS-ZF	12.5	140	85	55	14
	R-LX-10X160-CS-ZF	12.5	160	105	75	14

Installation data



Size			5	6	8	10
Thread diameter	d	[mm]	6.3	7.5	10	12.5
Hole diameter in substrate	d_0	[mm]	5	6	8	10
Screw drive	-	[-]	T25	T30	T45	T50
Head diameter		[mm]	10.9	13.2	17.9	21.3
Max. torque for impact screw driver	$T_{imp,max}$	[Nm]	200	400	900	950

Installation data

Size			5	6	8	10
STANDARD EMBEDMENT DEPTH						
Min. hole depth in substrate	$h_{0,s}$	[mm]	50	65	80	95
Real hole depth in substrate	h_0	[mm]	$L + 10 - t_{fix}$	$L + 10 - t_{fix}$	$L + 10 - t_{fix}$	$L + 10 - t_{fix}$
Min. installation depth	$h_{nom,s}$	[mm]	43	55	70	85
Min. substrate thickness	$h_{min,s}$	[mm]	100	100	110	130
Min. spacing	$s_{min,s}$	[mm]	40	45	50	60
Min. edge distance	$c_{min,s}$	[mm]	40	45	50	60
REDUCED EMBEDMENT DEPTH						
Min. hole depth in substrate	$h_{0,r}$	[mm]	-	50	60	65
Real hole depth in substrate	h_0	[mm]	-	$L + 10 - t_{fix}$	$L + 10 - t_{fix}$	$L + 10 - t_{fix}$
Min. installation depth	$h_{nom,r}$	[mm]	-	43	50	55
Min. substrate thickness	$h_{min,r}$	[mm]	-	100	100	100
Min. spacing	$s_{min,r}$	[mm]	-	45	50	60
Min. edge distance	$c_{min,r}$	[mm]	-	45	50	60

Mechanical properties

Size			5	6	8	10
Nominal ultimate tensile strength - tension	f_{uk}	[N/mm ²]	1300	1250	1200	1050
Nominal yield strength - tension	f_{yk}	[N/mm ²]	1150	1100	1050	950
Cross sectional area - tension	A_s	[mm ²]	19.6	28.3	50.3	78.5
Elastic section modulus	W_{el}	[mm ³]	12.2	21.2	50.3	98.1
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	19	31.8	72.4	123.6
Design bending resistance	M	[Nm]	12.7	21.2	48.3	82.4

Basic performance data

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

Size		5	6	8	10
NON-CRACKED CONCRETE C20/25					
Standard embedment depth h_{nom}	[mm]	43.00	35.00	70.00	85.00
Reduced embedment depth h_{nom}	[mm]	-	43.00	50.00	55.00
CRACKED CONCRETE C20/25					
Standard embedment depth h_{nom}	[mm]	43.00	35.00	70.00	85.00
Reduced embedment depth h_{nom}	[mm]	-	43.00	50.00	55.00
MEAN ULTIMATE LOAD					
TENSION LOAD $N_{Ru,m}$					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	10.10	14.80	26.04	35.37
Reduced embedment depth	[kN]	-	12.22	14.58	17.08
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	7.10	11.10	16.10	24.89
Reduced embedment depth	[kN]	-	8.60	10.10	10.70
SHEAR LOAD $V_{Ru,m}$					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	14.66	18.37	26.04	51.91
Reduced embedment depth	[kN]	-	12.22	14.58	17.08
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	10.32	12.93	18.33	49.78
Reduced embedment depth	[kN]	-	8.60	10.26	12.02

Basic performance data

Size		5	6	8	10
CHARACTERISTIC LOAD					
TENSION LOAD N_{Rk}					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	7.00	12.00	18.98	25.78
Reduced embedment depth	[kN]	-	8.90	10.63	12.45
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	4.50	7.00	13.00	18.05
Reduced embedment depth	[kN]	-	6.23	7.00	8.00
SHEAR LOAD V_{Rk}					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	8.90	13.39	18.98	41.20
Reduced embedment depth	[kN]	-	8.90	10.63	12.45
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	6.23	9.37	13.29	36.09
Reduced embedment depth	[kN]	-	6.23	7.44	8.71
DESIGN LOAD					
TENSION LOAD N_{Rd}					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	3.89	8.00	12.65	17.19
Reduced embedment depth	[kN]	-	5.94	7.08	8.30
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	2.50	4.67	8.67	12.03
Reduced embedment depth	[kN]	-	4.16	4.67	5.33
SHEAR LOAD V_{Rd}					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	5.94	8.93	12.65	27.47
Reduced embedment depth	[kN]	-	5.94	7.08	8.30
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]	4.16	6.25	8.86	24.06
Reduced embedment depth	[kN]	-	4.16	4.96	5.81

Design performance data

(-) failure is not decisive

Size			5		6		8		10	
Min. installation depth	h_{nom}	[mm]	43.00	-	43.00	55.00	50.00	70.00	55.00	85.00
Effective embedment depth	h_{ef}	[mm]	32.00	-	32.00	42.00	36.00	53.00	40.00	65.00
TENSION LOAD										
STEEL FAILURE										
Characteristic resistance	$N_{Rk,s}$	[kN]	25.50	-	35.40	35.40	60.40	60.40	82.40	82.40
Partial safety factor	γ_{Ms}	-	1.40	-	1.40	1.40	1.40	1.40	1.40	1.40
PULL-OUT FAILURE; NON-CRACKED CONCRETE C20/25										
Characteristic resistance	$N_{Rk,p}$	[kN]	7.00	-	-	12.00	-	-	-	-
PULL-OUT FAILURE; CRACKED CONCRETE C20/25										
Characteristic resistance	$N_{Rk,p}$	[kN]	4.50	-	-	7.00	7.00	13.00	8.00	-
PULL-OUT FAILURE										
Installation safety factor	γ_{inst}	-	1.20	-	1.00	1.00	1.00	1.00	1.00	1.00
Increasing factors for $N_{Rd,p}$ - C30/37	ψ_c	-	1.08	-	1.08	1.08	1.08	1.08	1.08	1.08
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	1.15	-	1.15	1.15	1.15	1.15	1.15	1.15
Increasing factors for $N_{Rd,p}$ - C50/60	ψ_c	-	1.19	-	1.19	1.19	1.19	1.19	1.19	1.19
CONCRETE CONE FAILURE										
Installation safety factor	γ_{inst}	-	1.20	-	1.00	1.00	1.00	1.00	1.00	1.00
Factor for cracked concrete	$k_{cr,N}$	-	7.70	-	7.70	7.70	7.70	7.70	7.70	7.70
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	-	11.00	11.00	11.00	11.00	11.00	11.00
Spacing	$s_{cr,N}$	[mm]	90.00	-	90.00	126.00	112.00	160.00	120.00	196.00
Edge distance	$c_{cr,N}$	[mm]	45.00	-	45.00	63.00	56.00	80.00	60.00	98.00
CONCRETE SPLITTING FAILURE										
Installation safety factor	γ_{inst}	-	1.20	-	1.00	1.00	1.00	1.00	1.00	1.00
Spacing	$s_{cr,sp}$	[mm]	90.00	-	90.00	126.00	112.00	160.00	136.00	222.00
Edge distance	$c_{cr,sp}$	[mm]	45.00	-	45.00	63.00	56.00	80.00	68.00	111.00
SHEAR LOAD										
STEEL FAILURE										
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	12.70	-	17.70	17.70	30.20	30.20	41.20	41.20
Ductility factor	k_γ	-	0.80	-	0.80	0.80	0.80	0.80	0.80	0.80
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	19.00	-	31.80	31.80	72.40	72.40	123.60	123.60
Partial safety factor	γ_{Ms}	-	1.50	-	1.50	1.50	1.50	1.50	1.50	1.50
CONCRETE PRY-OUT FAILURE										
Factor	k	-	1.00	-	1.00	1.00	1.00	1.00	1.00	2.00
Installation safety factor	γ_{inst}	-	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00
CONCRETE EDGE FAILURE										
Effective length of anchor	ℓ_f	[mm]	43.00	-	43.00	35.00	50.00	70.00	55.00	85.00
Anchor diameter	d_{nom}	[mm]	5.00	-	6.00	6.00	8.00	8.00	10.00	10.00
Installation safety factor	γ_{inst}	-	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

Design performance data

Characteristic Resistance under fire exposure in concrete C20/25 to C50/60

Size			5	6	8	10
TENSION LOAD						
Edge distance	c_{cr}	[mm]	-	-	-	-
Spacing	s_{cr}	[mm]	-	-	-	-
R (for EI) = 30 min						
TENSION LOAD						
STEEL FAILURE						
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.20	0.28	0.75
PULL-OUT FAILURE						
Characteristic resistance	$N_{Rk,p}$	[kN]	-	1.13	1.38	1.88
SHEAR LOAD						
STEEL FAILURE						
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.20	0.28	0.75
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	0.15	0.25	0.90
Effective embedment depth	h_{ef}	[mm]	-	32.00	32.00	36.00
R (for EI) = 60 min						
TENSION LOAD						
STEEL FAILURE						
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.18	0.25	0.65
PULL-OUT FAILURE						
Characteristic resistance	$N_{Rk,p}$	[kN]	-	1.13	1.38	1.88
SHEAR LOAD						
STEEL FAILURE						
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.18	0.25	0.65
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	0.13	0.23	0.78
Effective embedment depth	h_{ef}	[mm]	-	32.00	32.00	36.00
R (for EI) = 90 min						
TENSION LOAD						
STEEL FAILURE						
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.14	0.20	0.50
PULL-OUT FAILURE						
Characteristic resistance	$N_{Rk,p}$	[kN]	-	1.13	1.38	1.88
SHEAR LOAD						
STEEL FAILURE						
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.14	0.20	0.50
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	0.10	0.18	0.60
Effective embedment depth	h_{ef}	[mm]	-	32.00	32.00	36.00
R (for EI) = 120 min						
TENSION LOAD						
STEEL FAILURE						
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.10	0.14	0.40
PULL-OUT FAILURE						
Characteristic resistance	$N_{Rk,p}$	[kN]	-	0.90	1.10	1.50
SHEAR LOAD						
STEEL FAILURE						
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.10	0.14	0.40
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	0.07	0.13	0.48
Effective embedment depth	h_{ef}	[mm]	-	32.00	32.00	36.00

Design performance data

Allowable values for resistance in case of Seismic performance category C1

Size			8	10
Effective embedment depth	h_{ef}	[mm]	53.00	65.00
TENSION LOAD, STEEL FAILURE				
Characteristic resistance	$N_{Rk,s}$	[kN]	60.40	82.40
Partial safety factor	$\gamma_{MsN,seisC1}$	-	1.40	1.40
TENSION LOAD, PULL-OUT FAILURE				
Characteristic resistance	$N_{Rk,p}$	[kN]	5.40	13.50
Installation safety factor	γ_{inst}	-	1.00	1.00
SHEAR LOAD, STEEL FAILURE				
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	15.10	27.40
Partial safety factor	$\gamma_{MsV,seisC1}$	-	1.50	1.50

Allowable values for resistance in case of Seismic performance category C2

Size			8	10
Effective embedment depth	h_{ef}	[mm]	53.00	65.00
TENSION LOAD, STEEL FAILURE				
Characteristic resistance	$N_{Rk,s}$	[kN]	60.40	82.40
Partial safety factor	$\gamma_{MsN,seisC2}$	-	1.40	1.40
TENSION LOAD, PULL-OUT FAILURE				
Characteristic resistance	$N_{Rk,p}$	[kN]	1.57	4.91
Installation safety factor	γ_{inst}	-	1.00	1.00
SHEAR LOAD, STEEL FAILURE				
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	9.90	20.60
Partial safety factor	$\gamma_{MsV,seisC2}$	-	1.50	1.50

Product commercial data

Product Code	Anchor	Quantity [pcs]			Weight [kg]			Bar Codes
	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-LX-05X050-CS-ZF ₁₎	50	100	100	38400	0.89	0.89	372.9	5906675130217
R-LX-05X075-CS-ZF ₁₎	75	100	100	38400	1.27	1.27	516.5	5906675130224
R-LX-06X050-CS-ZF ₁₎	50	100	100	38400	1.59	1.59	640.6	5906675130231
R-LX-06X075-CS-ZF ₁₎	75	100	100	38400	1.83	1.83	734.3	5906675130248
R-LX-06X100-CS-ZF ₁₎	100	100	100	25600	2.4	2.4	639.8	5906675130255
R-LX-06X120-CS-ZF ₁₎	120	100	100	25600	3.0	3.0	785.2	5906675478180
R-LX-06X130-CS-ZF ₁₎	130	100	100	25600	3.0	3.0	799.8	5906675130262
R-LX-06X140-CS-ZF ₁₎	140	100	100	25600	3.2	3.2	849.2	5906675478203
R-LX-06X150-CS-ZF ₁₎	150	100	100	25600	3.4	3.4	897.8	5906675130279
R-LX-06X160-CS-ZF ₁₎	160	100	100	25600	3.5	3.5	926.0	5906675478227
R-LX-08X060-CS-ZF ₁₎	60	100	100	25600	2.7	2.7	725.6	5906675130385
R-LX-08X075-CS-ZF ₁₎	75	100	100	25600	3.3	3.3	880.2	5906675130392
R-LX-08X090-CS-ZF ₁₎	90	100	100	19200	4.0	4.0	791.3	5906675130408
R-LX-08X100-CS-ZF ₁₎	100	100	100	19200	4.4	4.4	866.2	5906675130415

Product commercial data

Product Code	Anchor	Quantity [pcs]			Weight [kg]			Bar Codes
	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-LX-08X130-CS-ZF ₁₎	130	50	50	12800	2.8	2.8	744.2	5906675130422
R-LX-08X150-CS-ZF ₁₎	150	50	50	12800	3.1	3.1	812.1	5906675130439
R-LX-10X065-CS-ZF ₁₎	65	50	50	14400	2.3	2.3	701.6	5906675130453
R-LX-10X075-CS-ZF ₁₎	75	50	50	12800	2.6	2.6	704.0	5906675130460
R-LX-10X085-CS-ZF ₁₎	85	50	50	12800	2.8	2.8	757.0	5906675130477
R-LX-10X100-CS-ZF ₁₎	100	50	50	12800	3.3	3.3	873.5	5906675130491
R-LX-10X120-CS-ZF ₁₎	120	25	25	6400	2.0	2.0	529.8	5906675130514
R-LX-10X140-CS-ZF ₁₎	140	25	25	9600	2.3	2.3	922.8	5906675130521
R-LX-10X160-CS-ZF ₁₎	160	20	20	7680	2.1	2.1	842.9	5906675130538

1) ETA 17/0806