

R-LX-I-ZP Zinc plated Internally Threaded 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
- Unique design with patented threadform ensures high performance for relatively small hole diameter
- Non-expansion functioning ensures low risk of damage to base material and makes R-LX ideal for installation near edges and adjacent anchors
- High performance in non-cracked concrete
- Different head types for any application
- Oversize head for fixtures with elongated holes
- Excellent product for temporary fixing
- Suitable for standard and reduced embedment depth

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

Also suitable for use in:

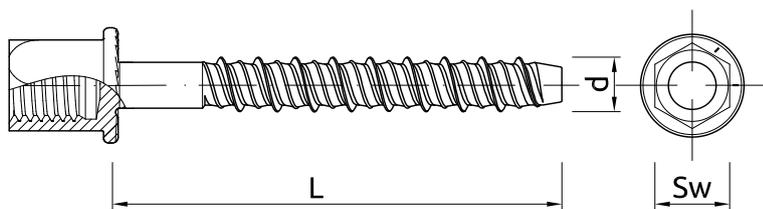
- Natural Stone (after site testing)

Installation guide



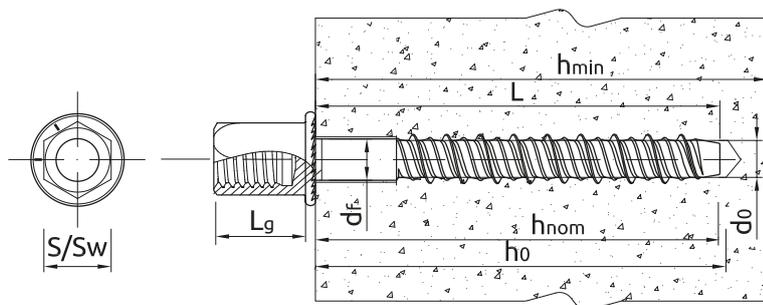
1. Drill the hole with rotary hammer drilling machine. Drill to a required depth.
2. Blow out dust at least 4 times with a hand pump.
3. Possibility of unscrewing and re-screwing.
4. Tighten to the recommended torque.
5. After installation.

Product information



Size	Product Code	Anchor	
		Diameter	Length
		d [mm]	L [mm]
6	R-LX-06X055-I08-ZP	7.5	55
	R-LX-06X055-I8/10Z	7.5	55
	R-LX-06X055-I10-ZP	7.5	55
8	R-LX-08X050-I12-ZP	10	50
	R-LX-10X055-I16-ZP	10	50

Installation data



Normal concrete

Size	6	8	10		
Thread diameter	d	[mm]	7.5	10	12.5
Hole diameter in substrate	d ₀	[mm]	6	8	10
Wrench size	Sw	[mm]	13	15	21
External diameter of washer		[mm]	16	18	24
Max. torque for impact screw driver	T _{imp,max}	[Nm]	400	900	950
STANDARD EMBEDMENT DEPTH					
Min. hole depth in substrate	h _{0,s}	[mm]	65	80	95
Real hole depth in substrate	h ₀	[mm]	L + 10 - t _{fix}	L + 10	L + 10
Min. installation depth	h _{nom,s}	[mm]	55	70	85
Min. substrate thickness	h _{min,s}	[mm]	100	110	130
Min. spacing	s _{min,s}	[mm]	45	50	60
Min. edge distance	c _{min,s}	[mm]	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	L + 10
Min. installation depth	h _{nom,r}	[mm]	43	50	55
Min. substrate thickness	h _{min,r}	[mm]	100	80	80
Min. spacing	s _{min,r}	[mm]	45	50	60
Min. edge distance	c _{min,r}	[mm]	45	50	60

Mechanical properties

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

Basic performance data

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

Size			6	8	10
NON-CRACKED CONCRETE C20/25					
Standard embedment depth h_{nom}	[mm]		55.00	-	-
Reduced embedment depth h_{nom}	[mm]		43.00	-	-
CRACKED CONCRETE C20/25					
Standard embedment depth h_{nom}	[mm]		55.00	-	-
Reduced embedment depth h_{nom}	[mm]		43.00	-	-
CRACKED AND NON-CRACKED CONCRETE					
Standard embedment depth h_{nom}	[mm]		-	70.00	85.00
Reduced embedment depth h_{nom}	[mm]		-	50.00	55.00
MEAN ULTIMATE LOAD					
TENSION LOAD $N_{Ru,m}$					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]		14.80	-	-
Reduced embedment depth	[kN]		11.09	-	-
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]		11.10	-	-
Reduced embedment depth	[kN]		7.81	-	-
SHEAR LOAD $V_{Ru,m}$					
NON-CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]		14.80	-	-
Reduced embedment depth	[kN]		11.09	-	-
CRACKED CONCRETE C20/25					
Standard embedment depth	[kN]		11.10	-	-
Reduced embedment depth	[kN]		7.81	-	-

Basic performance data

Size		6	8	10
CHARACTERISTIC LOAD				
TENSION LOAD N_{Rk}				
NON-CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	12.00	-	-
Reduced embedment depth	[kN]	9.14	-	-
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	7.00	-	-
Reduced embedment depth	[kN]	6.52	-	-
SHEAR LOAD V_{Rk}				
NON-CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	13.75	-	-
Reduced embedment depth	[kN]	9.14	-	-
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	9.80	-	-
Reduced embedment depth	[kN]	6.52	-	-
TENSION AND SHEAR LOAD F_{Rk}				
CRACKED AND NON-CRACKED CONCRETE				
Standard embedment depth	[kN]	-	12.00	20.00
Reduced embedment depth	[kN]	-	7.50	9.00
DESIGN LOAD				
TENSION LOAD N_{Rd}				
NON-CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	8.00	-	-
Reduced embedment depth	[kN]	6.09	-	-
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	4.67	-	-
Reduced embedment depth	[kN]	4.34	-	-
SHEAR LOAD V_{Rd}				
NON-CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	9.16	-	-
Reduced embedment depth	[kN]	6.09	-	-
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	6.53	-	-
Reduced embedment depth	[kN]	4.34	-	-
TENSION AND SHEAR LOAD F_{Rd}				
CRACKED AND NON-CRACKED CONCRETE				
Standard embedment depth	[kN]	-	8.00	13.30
Reduced embedment depth	[kN]	-	5.00	6.00
RECOMMENDED LOAD				
TENSION AND SHEAR LOAD F_{rec}				
CRACKED AND NON-CRACKED CONCRETE				
Standard embedment depth	[kN]	-	5.71	9.52
Reduced embedment depth	[kN]	-	3.57	4.28

Design performance data

Standard embedment depth

(-) failure is not decisive

Size			6	8	10
Min. installation depth	h_{nom}	[mm]	55.00	70.00	85.00
Effective embedment depth	h_{ef}	[mm]	42.00	53.00	65.00
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	35.40	-	-
Partial safety factor	γ_{Ms}	-	1.40	-	-
PULL-OUT FAILURE; NON-CRACKED CONCRETE C20/25					
Characteristic resistance	$N_{Rk,p}$	[kN]	12.00	-	-
PULL-OUT FAILURE; CRACKED CONCRETE C20/25					
Characteristic resistance	$N_{Rk,p}$	[kN]	7.00	-	-
PULL-OUT FAILURE					
Installation safety factor	γ_2	-	1.00	-	-
Increasing factors for $N_{Rd,p}$ - C30/37	ψ_c	-	1.08	-	-
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	1.15	-	-
Increasing factors for $N_{Rd,p}$ - C50/60	ψ_c	-	1.19	-	-
CONCRETE CONE FAILURE					
Installation safety factor	γ_2	-	1.00	-	-
Factor for cracked concrete	k	-	7.20	-	-
Factor for cracked concrete	$k_{cr,N}$	-	7.70	-	-
Factor for non-cracked concrete	k	-	10.10	-	-
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	-	-
Spacing	$s_{cr,N}$	[mm]	126.00	-	-
Edge distance	$c_{cr,N}$	[mm]	63.00	-	-
CONCRETE SPLITTING FAILURE					
Installation safety factor	γ_2	-	1.00	-	-
Spacing	$s_{cr,sp}$	[mm]	126.00	-	-
Edge distance	$c_{cr,sp}$	[mm]	63.00	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	12.00	20.00
Installation safety factor	γ_2	-	-	1.00	1.00
Increasing factors for $N_{Rd,p}$ - C30/37	ψ_c	-	-	1.08	1.08
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	-	1.15	1.15
Increasing factors for $N_{Rd,p}$ - C50/60	ψ_c	-	-	1.19	1.19
Spacing	$s_{cr,N}$	-	-	160.00	196.00
Edge distance	$c_{cr,N}$	-	-	80.00	98.00
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	17.70	-	-
Ductility factor	k_γ	-	0.80	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	31.80	72.40	123.60
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50
CONCRETE PRY-OUT FAILURE					
Factor	k	-	1.00	-	-
Installation safety factor	γ_2	-	1.00	-	-
CONCRETE EDGE FAILURE					
Effective length of anchor	ℓ_f	[mm]	55.00	-	-
Anchor diameter	d_{nom}	[mm]	6.00	-	-
Installation safety factor	γ_2	-	1.00	-	-

Design performance data

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

Size			6	8	10
TENSION LOAD					
Edge distance	c_{cr}	[mm]	84.00	-	-
Spacing	s_{cr}	[mm]	168.00	-	-
TENSION AND SHEAR LOAD					
Spacing	s_{cr}	[mm]	-	212.00	260.00
Edge distance	c_{cr}	[mm]	-	106.00	130.00
R (for EI) = 30 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.28	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.75	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.28	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.25	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.75	1.57
R (for EI) = 60 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.25	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.75	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.25	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.23	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.65	1.18
R (for EI) = 90 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.20	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.75	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.20	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.18	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.50	1.02

Design performance data

Size			6	8	10
R (For EI) = 120 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.14	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.40	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.14	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.13	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.40	0.79

Reduced embedment depth

(-) failure is not decisive

Size			6	8	10
Min. installation depth	h_{nom}	[mm]	43.00	50.00	55.00
Effective embedment depth	h_{ef}	[mm]	32.00	37.00	40.00
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	35.40	-	-
Partial safety factor	γ_{Ms}	-	1.40	-	-
PULL-OUT FAILURE; NON-CRACKED CONCRETE C20/25					
Characteristic resistance	$N_{Rk,p}$	[kN]	-	-	-
PULL-OUT FAILURE; CRACKED CONCRETE C20/25					
Characteristic resistance	$N_{Rk,p}$	[kN]	-	-	-
PULL-OUT FAILURE					
Installation safety factor	γ_2	-	1.00	-	-
Increasing factors for $N_{Rd,p}$ - C30/37	ψ_c	-	1.08	-	-
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	1.15	-	-
Increasing factors for $N_{Rd,p}$ - C50/60	ψ_c	-	1.19	-	-
CONCRETE CONE FAILURE					
Installation safety factor	γ_2	-	1.00	-	-
Factor for cracked concrete	k	-	7.20	-	-
Factor for cracked concrete	$k_{cr,N}$	-	7.70	-	-
Factor for non-cracked concrete	k	-	10.10	-	-
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	-	-
Spacing	$s_{cr,N}$	[mm]	90.00	-	-
Edge distance	$c_{cr,N}$	[mm]	45.00	-	-
CONCRETE SPLITTING FAILURE					
Installation safety factor	γ_2	-	1.00	-	-
Spacing	$s_{cr,sp}$	[mm]	90.00	-	-
Edge distance	$c_{cr,sp}$	[mm]	45.00	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	7.50	9.00
Installation safety factor	γ_2	-	-	1.00	1.00
Increasing factors for $N_{Rd,p}$ - C30/37	ψ_c	-	-	1.08	1.08
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	-	1.15	1.15
Increasing factors for $N_{Rd,p}$ - C50/60	ψ_c	-	-	1.19	1.19
Spacing	$s_{cr,N}$	-	-	120.00	120.00
Edge distance	$c_{cr,N}$	-	-	60.00	60.00

Design performance data

Size			6	8	10
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	17.70	-	-
Ductility factor	k_γ	-	0.80	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	31.80	72.40	123.60
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50
CONCRETE PRY-OUT FAILURE					
Factor	k	-	1.00	-	-
Installation safety factor	γ_2	-	1.00	-	-
CONCRETE EDGE FAILURE					
Effective length of anchor	ℓ_f	[mm]	43.00	-	-
Anchor diameter	d_{nom}	[mm]	6.00	-	-
Installation safety factor	γ_2	-	1.00	-	-

Design performance data

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

Size			6	8	10
TENSION LOAD					
Edge distance	c_{cr}	[mm]	64.00	-	-
Spacing	s_{cr}	[mm]	128.00	-	-
TENSION AND SHEAR LOAD					
Spacing	s_{cr}	[mm]	-	148.00	160.00
Edge distance	c_{cr}	[mm]	-	74.00	80.00
R (for EI) = 30 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.28	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.38	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.28	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.25	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.75	1.57
R (for EI) = 60 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.25	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.38	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.25	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.23	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.65	1.18
R (for EI) = 90 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.20	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.38	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.20	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.18	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.50	1.02

Design performance data

Size			6	8	10
R (for EI) = 120 min					
TENSION LOAD					
STEEL FAILURE					
Characteristic resistance	$N_{Rk,s}$	[kN]	0.14	-	-
PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p}$	[kN]	1.10	-	-
SHEAR LOAD					
STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.14	-	-
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.13	-	-
TENSION AND SHEAR LOAD					
Characteristic resistance	F_{Rk}	[kN]	-	0.40	0.79

Product commercial data

Product Code	Anchor	Quantity [pcs]			Weight [kg]			Bar Codes
	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-LX-06X055-I08-ZP ₁₎	55	100	100	25600	2.5	2.5	680.2	5906675416083
R-LX-06X055-I8/10Z ₁₎	55	100	100		2.5	2.5		5906675468990
R-LX-06X055-I10-ZP ₁₎	55	100	100	25600	2.4	2.4	644.4	5906675416090
R-LX-08X050-I12-ZP ₁₎	50	100	100	19200	3.9	3.9	778.8	5906675460741
R-LX-10X055-I16-ZP ₁₎	50	100	100		4.1	4.1		5906675468976

1) ETA 17/0806

** the remaining range of anchoring depth includes ETA-17/0783*