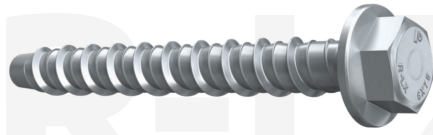


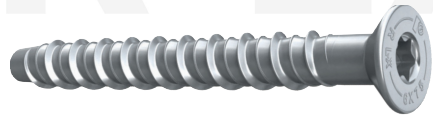
R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

Self-tapping concrete screwbolt



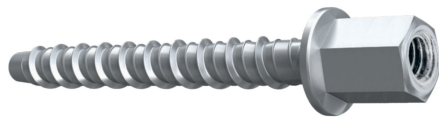
Hexagonal head
screw with washer

R-LX-HF



Countersunk
head screw

R-LX-CS



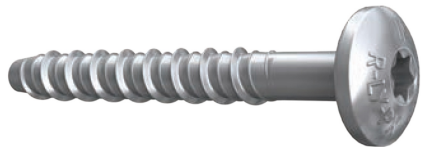
Internally threaded
head screw

R-LX-I



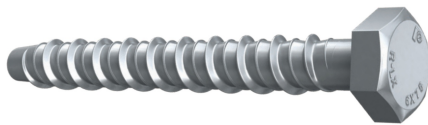
Externally threaded
head screw

R-LX-E



Panhead XL
screw

R-LX-PX-ZP



Hexagonal head screw
for temporary installation

R-LX-H*

*not included in the approval



ETA 17/0185



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
- Non-expansion functioning ensures low risk of damage to base material and makes R-LX ideal for installation near edges and adjacent anchors
- Special zinc flake corrosion-resistant coating
- High performance in both uncracked and 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)

R-LX-HF HEXAGONAL HEAD SCREW WITH WASHER



INSTALLATION GUIDE

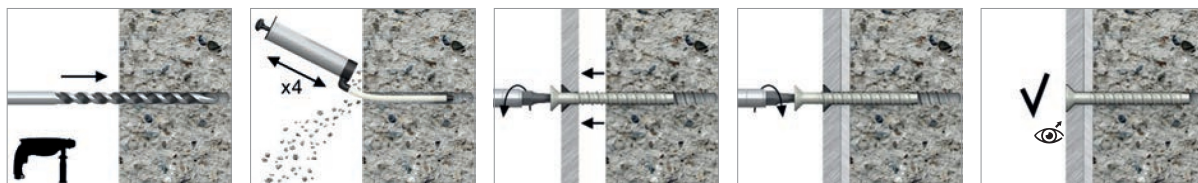


1. Drill the hole with rotary percussive machine. Drill to a required depth.
2. Blow out dust at least 4 times with a hand pump.
3. Possibility of unscrewing and re-screwing.
4. Tighten to the recommended torque.
5. After installation.

R-LX-CS COUNTERSUNK HEAD SCREW



INSTALLATION GUIDE



1. Drill the hole with rotary percussive 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.

R-LX-I INTERNALLY THREADED HEAD SCREW



INSTALLATION GUIDE



1. Drill the hole with rotary percussive 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.

R-LX-E EXTERNALLY THREADED HEAD SCREW



INSTALLATION GUIDE



1. Drill the hole with rotary percussive 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.

R-LX-PX-ZP PANHEAD XL SCREW



INSTALLATION GUIDE



1. Drill the hole with rotary percussive machine. Drill to a required depth
2. Blow out dust at least 4 times with a hand pump
3. Tighten to the recommended torque
4. After installation.

R-LX-H HEXAGONAL HEAD SCREW FOR TEMPORARY INSTALLATION



INSTALLATION GUIDE

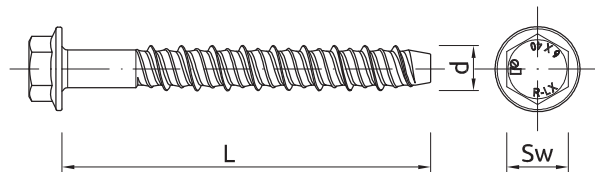


1. Drill the hole with rotary percussive machine. Drill to a required depth.
2. Blow out dust at least 4 times with a hand pump.
3. Possibility of unscrewing and re-screwing.
4. Tighten to the recommended torque.
5. After installation.

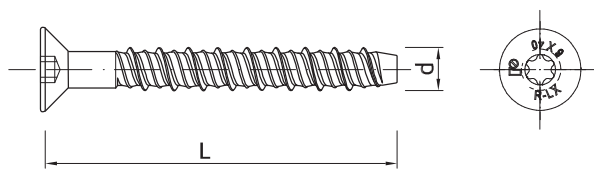
R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

PRODUCT INFORMATION

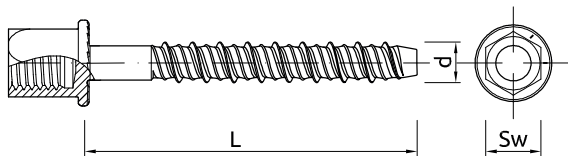
R-LX-HF HEXAGONAL HEAD SCREW WITH WASHER



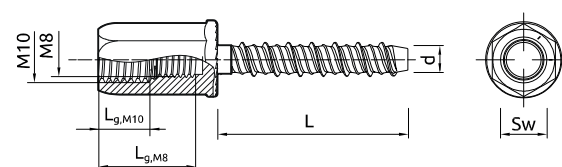
R-LX-CS COUNTERSUNK HEAD SCREW



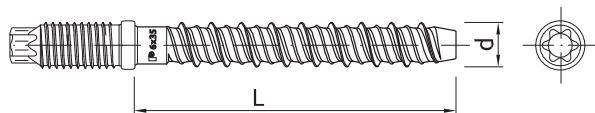
R-LX-I INTERNALLY THREADED HEAD SCREW



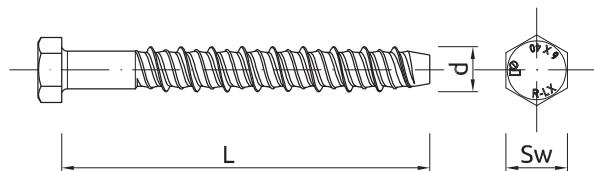
R-LX-I 8/10 INTERNALLY THREADED HEAD SCREW



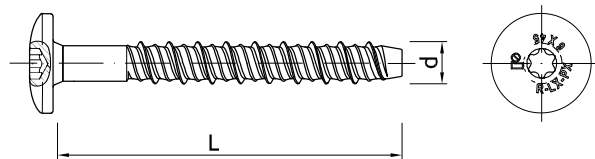
R-LX-E EXTERNALLY THREADED HEAD SCREW



R-LX-H HEXAGONAL HEAD SCREW FOR TEMPORARY INSTALLATION



R-LX-PX-ZP PANHEAD XL SCREW



PRODUCT INFORMATION

	Product Code		Drill	Anchor			Fixture		
				Diameter	Length	Internal thread	Max. thickness t_{fix} for:		Hole diameter
				d	L		$h_{nom,s}$	$h_{nom,r}$	d_f
				[mm]	[mm]		[mm]	[mm]	[mm]
R-LX-HF Hex with Flange									
	R-LX-HF-ZF	R-LX-HF-ZP							
5	R-LX-05X050-HF-ZF	R-LX-05X050-HF-ZP	5	6.3	50	-	7	-	7
	R-LX-05X075-HF-ZF	R-LX-05X075-HF-ZP	5	6.3	75	-	32	-	7
	R-LX-06X050-HF-ZF	R-LX-06X050-HF-ZP	6	7.5	50	-	-	7	9
6	-	R-LX-06X060-HF-ZP	6	7.5	60	-	5	17	9
	R-LX-06X075-HF-ZF	R-LX-06X075-HF-ZP	6	7.5	75	-	20	32	9
	-	R-LX-06X090-HF-ZP	6	7.5	90	-	35	47	9
	R-LX-06X100-HF-ZF	R-LX-06X100-HF-ZP	6	7.5	100	-	45	57	9
	R-LX-06X130-HF-ZF	R-LX-06X130-HF-ZP	6	7.5	130	-	75	87	9
	R-LX-06X150-HF-ZF	R-LX-06X150-HF-ZP	6	7.5	150	-	95	107	9
8	R-LX-08X060-HF-ZF	R-LX-08X060-HF-ZP	8	10	60	-	-	10	12
	R-LX-08X075-HF-ZF	R-LX-08X075-HF-ZP	8	10	75	-	5	30	12
	R-LX-08X090-HF-ZF	R-LX-08X090-HF-ZP	8	10	90	-	20	40	12
	R-LX-08X100-HF-ZF	R-LX-08X100-HF-ZP	8	10	100	-	30	50	12
	-	R-LX-08X120-HF-ZP	8	10	120	-	50	70	12
	R-LX-08X130-HF-ZF	R-LX-08X130-HF-ZP	8	10	130	-	60	80	12
	R-LX-08X150-HF-ZF	R-LX-08X150-HF-ZP	8	10	150	-	80	100	12
10	-	R-LX-10X060-HF-ZP	10	12.5	60	-	-	5	14
	R-LX-10X065-HF-ZF	R-LX-10X065-HF-ZP	10	12.5	65	-	-	10	14
	R-LX-10X075-HF-ZF	R-LX-10X075-HF-ZP	10	12.5	75	-	-	20	14
	R-LX-10X085-HF-ZF	R-LX-10X085-HF-ZP	10	12.5	85	-	-	30	14
	-	R-LX-10X090-HF-ZP	10	12.5	90	-	5	35	14
	R-LX-10X100-HF-ZF	R-LX-10X100-HF-ZP	10	12.5	100	-	15	45	14
	-	R-LX-10X110-HF-ZP	10	12.5	110	-	25	55	14
	R-LX-10X120-HF-ZF	R-LX-10X120-HF-ZP	10	12.5	120	-	35	65	14
	-	R-LX-10X130-HF-ZP	10	12.5	130	-	45	75	14
	R-LX-10X140-HF-ZF	R-LX-10X140-HF-ZP	10	12.5	140	-	55	85	14
12	-	R-LX-10X150-HF-ZP	10	12,5	150	-	65	95	14
	R-LX-12X075-HF-ZF	R-LX-12X075-HF-ZP	12	14	75	-	-	10	16
	R-LX-12X100-HF-ZF	R-LX-12X100-HF-ZP	12	14	100	-	-	35	16
	R-LX-12X130-HF-ZF	R-LX-12X130-HF-ZP	12	14	130	-	30	65	16
	R-LX-12X150-HF-ZF	R-LX-12X150-HF-ZP	12	14	150	-	50	85	16

R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

PRODUCT INFORMATION

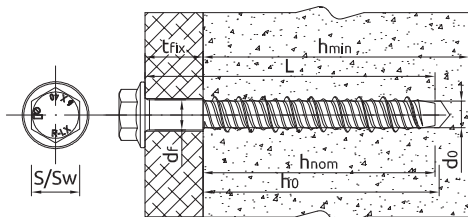
	Product Code		Drill	Anchor			Fixture		
				Diameter	Length	Internal thread	Max. thickness t_{fix} for:		Hole diameter
				d	L		$h_{nom,s}$	$h_{nom,f}$	d_f
				[mm]	[mm]		[mm]	[mm]	[mm]
14	R-LX-14X080-HF-ZF	R-LX-14X080-HF-ZP	14	17	80	-	-	5	18
	R-LX-14X105-HF-ZF	R-LX-14X105-HF-ZP	14	17	105	-	-	30	18
	R-LX-14X115-HF-ZF	R-LX-14X115-HF-ZP	14	17	115	-	-	40	18
	R-LX-14X135-HF-ZF	R-LX-14X135-HF-ZP	14	17	135	-	15	60	18
	-	R-LX-14X160-HF-ZP	14	17	160	-	40	85	18
R-LX-CS Countersunk head screw									
	R-LX-CS-ZF	R-LX-CS-ZP							
5	R-LX-05X050-CS-ZF	R-LX-05X050-CS-ZP	5	6.3	50	-	7	-	7
	R-LX-05X075-CS-ZF	R-LX-05X075-CS-ZP	5	6.3	75	-	32	-	7
6	R-LX-06X050-CS-ZF	R-LX-06X050-CS-ZP	6	7.5	50	-	-	7	9
	-	R-LX-06X060-CS-ZP	6	7.5	60	-	5	17	9
	R-LX-06X075-CS-ZF	R-LX-06X075-CS-ZP	6	7.5	75	-	20	32	9
	-	R-LX-06X090-CS-ZP	6	7.5	90	-	35	47	9
	R-LX-06X100-CS-ZF	R-LX-06X100-CS-ZP	6	7.5	100	-	45	57	9
	R-LX-06X130-CS-ZF	R-LX-06X130-CS-ZP	6	7.5	130	-	75	87	9
	R-LX-06X150-CS-ZF	R-LX-06X150-CS-ZP	6	7.5	150	-	95	107	9
	-	-	-	-	-	-	-	-	-
8	R-LX-08X060-CS-ZF	R-LX-08X060-CS-ZP	8	10	60	-	-	10	12
	R-LX-08X075-CS-ZF	R-LX-08X075-CS-ZP	8	10	75	-	5	30	12
	R-LX-08X090-CS-ZF	R-LX-08X090-CS-ZP	8	10	90	-	20	40	12
	R-LX-08X100-CS-ZF	R-LX-08X100-CS-ZP	8	10	100	-	30	50	12
	-	R-LX-08X120-CS-ZP	8	10	120	-	50	70	12
	R-LX-08X130-CS-ZF	R-LX-08X130-CS-ZP	8	10	130	-	60	80	12
	R-LX-08X150-CS-ZF	R-LX-08X150-CS-ZP	8	10	150	-	80	100	12
	-	-	-	-	-	-	-	-	-
10	-	R-LX-10X060-CS-ZP	10	12.5	60	-	-	5	14
	R-LX-10X065-CS-ZF	R-LX-10X065-CS-ZP	10	12.5	65	-	-	10	14
	R-LX-10X075-CS-ZF	R-LX-10X075-CS-ZP	10	12.5	75	-	-	20	14
	R-LX-10X085-CS-ZF	R-LX-10X085-CS-ZP	10	12.5	85	-	-	30	14
	-	R-LX-10X090-CS-ZP	10	12.5	90	-	5	35	14
	R-LX-10X100-CS-ZF	R-LX-10X100-CS-ZP	10	12.5	100	-	15	45	14
	-	R-LX-10X110-CS-ZP	10	12.5	110	-	25	55	14
	R-LX-10X120-CS-ZF	R-LX-10X120-CS-ZP	10	12.5	120	-	35	65	14
	-	R-LX-10X130-CS-ZP	10	12.5	130	-	45	75	14
	R-LX-10X140-CS-ZF	R-LX-10X140-CS-ZP	10	12.5	140	-	55	85	14
	-	R-LX-10X150-CS-ZP	10	12.5	150	-	65	95	14
	R-LX-10X160-CS-ZF	R-LX-10X160-CS-ZP	10	12.5	160	-	75	105	14
R-LX-I Internally threaded head									
		R-LX-I-ZP							
5	-	R-LX-05X025-I06-ZP	5	6	35	M8	-	-	-
6	-	R-LX-06X035-I06-ZP	6	7.5	35	M8	-	-	-
	-	R-LX-06X035-I08/10Z	6	7.5	35	M8	-	-	-
	-	R-LX-06X055-I08/10Z	6	7.5	35	M8	-	-	-
	-	R-LX-06X055-I08-ZP	6	7.5	55	M8	-	-	-
	-	R-LX-06X055-I10-ZP	6	7.5	55	M10	-	-	-
	-	R-LX-06X035-I06-ZP	6	7.5	35	M8	-	-	-
	-	R-LX-06X035-I08-ZP	6	7.5	35	M8	-	-	-
	-	R-LX-06X055-I08-ZP	6	7.5	55	M8	-	-	-
	-	R-LX-06X035-I10-ZP	6	7.5	35	M10	-	-	-
	-	R-LX-06X055-I10-ZP	6	7.5	55	M10	-	-	-
	-	R-LX-06X035-I08/10Z	6	7.5	35	M8	-	-	-
	-	R-LX-06X055-I08/10Z	7	7.6	55	M9	-	-	-
8	-	R-LX-08X050-I12-ZP	8	10	50	M12	-	-	-
10	-	R-LX-10X055-I16-ZP	10	12.5	55	M16	-	-	-
R-LX-E Externally threaded head									
		R-LX-E-ZP							
6	-	R-LX-06X055-E-ZP	6	7.5	55	-	-	-	-
R-LX-PX-ZP Pan-head XL									
		R-LX-PX-ZP							
6	-	R-LX-06X035-PX-ZP	6	7.5	35	-	-	-	9
	-	R-LX-06X050-PX-ZP	6	7.5	50	-	15	11	9
R-LX-H Hexagonal head									
		R-LX-H-ZP							
8	*R-LX-08X060-H-ZF	*R-LX-08X060-H-ZP	8	10	60	-	-	10	12
	*R-LX-08X075-H-ZF	*R-LX-08X075-H-ZP	8	10	75	-	5	25	12
	*R-LX-08X090-H-ZF	*R-LX-08X090-H-ZP	8	10	90	-	20	40	12
	*R-LX-08X100-H-ZF	*R-LX-08X100-H-ZP	8	10	100	-	30	50	12
	*R-LX-08X130-H-ZF	*R-LX-08X130-H-ZP	8	10	130	-	60	80	12
	*R-LX-08X150-H-ZF	*R-LX-08X150-H-ZP	8	10	150	-	80	100	12
10	*R-LX-10X065-H-ZF	*R-LX-10X065-H-ZP	10	12.5	65	-	-	10	14
	*R-LX-10X075-H-ZF	*R-LX-10X075-H-ZP	10	12.5	75	-	-	20	14
	*R-LX-10X085-H-ZF	*R-LX-10X085-H-ZP	10	12.5	85	-	-	30	14
	*R-LX-10X100-H-ZF	*R-LX-10X100-H-ZP	10	12.5	100	-	15	45	14
	*R-LX-10X120-H-ZF	*R-LX-10X120-H-ZP	10	12.5	120	-	35	65	14
	*R-LX-10X140-H-ZF	*R-LX-10X140-H-ZP	10	12.5	140	-	55	85	14

*not included in the approval

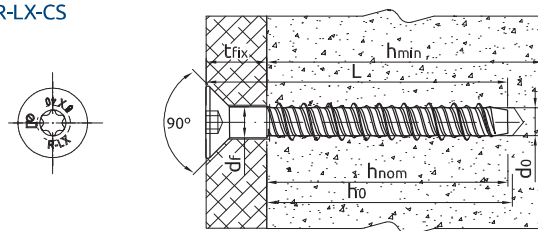
R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

INSTALLATION DATA

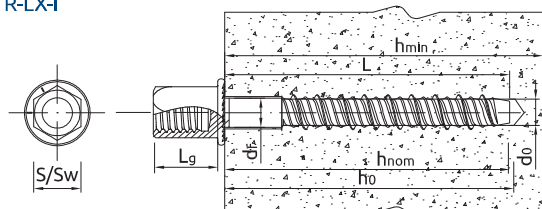
R-LX-HF



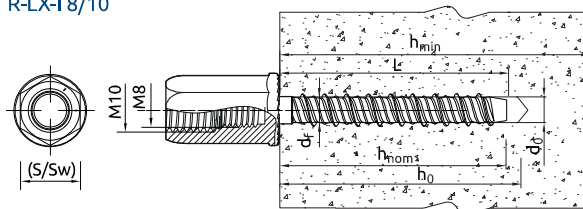
R-LX-CS



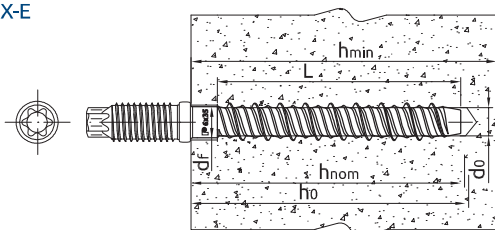
R-LX-I



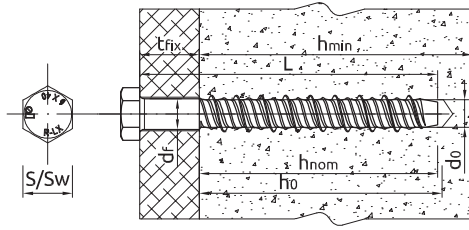
R-LX-I8/10



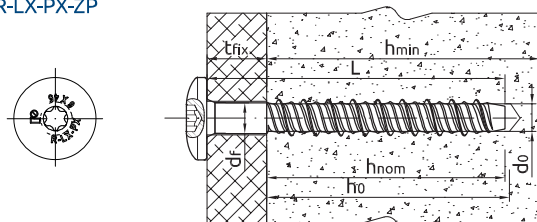
R-LX-E



R-LX-



R-LX-PX-ZP



Size			5	6	8	10	12	14
Thread diameter	d	[mm]	6.3	7.5	10	12.5	14.9	17
Hole diameter in substrate	d ₀	[mm]	5	6	8	10	12	14
Wrench size for hex head	Sw	[mm]	8	10	13	15	17	19
Wrench size for internally threaded head	Sw _i	[mm]	10	13	15	21	-	-
Torx driver for externally threaded head			-	E7	-	-	-	-
Torx driver for countersunk and pan head			T25	T30	T45	T50	-	-
Max. installation torque for impact driver	T _{imp,max}	[Nm]	200	400	900	950	950	950
STANDARD EMBEDMENT DEPTH								
Min. hole depth in substrate	h _{0,s}	[mm]	50	65	80	95	110	130
Real hole depth in substrate	h ₀	[mm]	L + 10 - t _{fix}	L + 10 - t _{fix}	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	100	120
Min. substrate thickness	h _{min,s}	[mm]	100	100	110	130	155	190
Min. spacing	s _{min,s}	[mm]	40	45	50	60	80	100
Min. edge distance	c _{min,s}	[mm]	40	45	50	60	80	100
REDUCED EMBEDMENT DEPTH								
Min. hole depth in substrate	h _{0,r}	[mm]	-	50	60	65	70	85
Real hole depth in substrate	h ₀	[mm]	-	L + 10 - t _{fix}	L + 10 - t _{fix}	L + 10 - t _{fix}	L + 10 - t _{fix}	L + 10 - t _{fix}
Min. installation depth	h _{nom,r}	[mm]	-	43	50	55	60	75
Min. substrate thickness	h _{min,r}	[mm]	-	100	100	100	110	110
Min. spacing	s _{min,r}	[mm]	-	45	50	60	80	100
Min. edge distance	c _{min,r}	[mm]	-	45	50	60	80	100

MECHANICAL PROPERTIES

Size			5	6	8	10	12	14
Nominal ultimate tensile strength - tension	F _{yk}	[N/mm²]	1300	1250	1200	1050	1000	1020
Nominal yield strength - tension	F _{yk}	[N/mm²]	1150	1100	1050	950	900	800
Cross sectional area - tension	A _s	[mm²]	19.6	28.3	50.3	78.5	113.1	153.9
Elastic section modulus	W _{el}	[mm³]	12.2	21.2	50.3	98.1	169.6	269.3
Characteristic bending resistance	M ⁰ _{Rk,s}	[Nm]	19.0	31.8	72.4	123.6	203.3	329.6
Design bending resistance	M	[Nm]	12.7	12.2	48.3	82.4	135.5	219.8

R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

BASIC PERFORMANCE DATA ✓

Performance data for single anchor without influence of edge distance and spacing - ETAG001

Size		5	6	8	10	12	14
Standard embedment depth h_{nom}	[mm]	43.00	55.00	70.00	85.00	100.00	120.00
Reduced embedment depth h_{nom}	[mm]	-	43.00	50.00	55.00	60.00	75.00
MEAN ULTIMATE LOAD							
TENSION LOAD N_{Rm}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	10.10	14.80	26.04	35.37	-	59.96
Reduced embedment depth	[kN]	-	11.09	15.19	17.08	-	27.53
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	7.10	11.10	18.33	24.89	-	41.92
Reduced embedment depth	[kN]	-	7.81	10.69	12.02	-	19.37
SHEAR LOAD V_{Rm}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	10.10	14.80	26.04	49.46	-	94.19
Reduced embedment depth	[kN]	-	11.09	15.19	17.08	-	27.53
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	7.10	11.10	18.33	49.46	-	83.83
Reduced embedment depth	[kN]	-	7.81	10.69	12.02	-	19.37
CHARACTERISTIC LOAD							
TENSION LOAD N_{Rk}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	7.00	12.00	19.49	26.46	33.46	44.56
Reduced embedment depth	[kN]	-	9.14	10.91	12.78	12.00	20.04
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	4.50	7.00	13.00	18.87	23.85	31.77
Reduced embedment depth	[kN]	-	6.52	7.50	8.00	7.00	13.00
SHEAR LOAD V_{Rk}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	9.14	13.75	19.49	41.20	57.00	78.50
Reduced embedment depth	[kN]	-	9.14	10.91	12.78	13.75	20.04
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	6.52	9.80	13.89	37.73	47.70	63.54
Reduced embedment depth	[kN]	-	6.52	7.78	9.11	9.80	14.29
DESIGN LOAD							
TENSION LOAD N_{Rd}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	3.89	8.00	12.99	17.64	22.31	29.71
Reduced embedment depth	[kN]	-	6.09	7.27	8.52	8.00	13.36
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	2.50	4.67	8.67	12.58	15.90	21.18
Reduced embedment depth	[kN]	-	4.34	5.00	5.33	4.67	8.67
SHEAR LOAD V_{Rd}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	6.09	9.16	12.99	27.47	38.00	52.33
Reduced embedment depth	[kN]	-	6.09	7.27	8.52	9.16	13.36
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	4.34	6.53	9.26	25.15	31.8	42.36
Reduced embedment depth	[kN]	-	4.34	5.18	6.07	6.53	9.52
RECOMMENDED LOAD							
TENSION LOAD N_{rec}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	2.78	5.71	9.28	12.60	15.93	21.22
Reduced embedment depth	[kN]	-	4.35	5.19	6.09	5.71	9.54
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	1.79	3.34	6.19	8.98	11.35	15.13
Reduced embedment depth	[kN]	-	3.10	3.57	3.81	3.33	6.19
SHEAR LOAD V_{rec}							
NON-CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	4.35	6.54	9.28	19.62	27.14	37.38
Reduced embedment depth	[kN]	-	4.35	5.19	6.09	6.55	9.54
CRACKED CONCRETE C20/25							
Standard embedment depth	[kN]	3.10	4.66	6.61	17.96	22.72	30.26
Reduced embedment depth	[kN]	-	3.10	3.70	4.34	4.67	6.80

R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

DESIGN PERFORMANCE DATA

Standard embedment depth

Size			5	6	8	10	12	14
Min. installation depth	h_{nom}	[mm]	43.0	55.0	70.0	85.0	100.0	120.0
Effective embedment depth	h_{ef}	[mm]	32.0	42.0	53.0	65.0	76.0	92.0
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	25.50	35.40	60.40	82.40	113.0	157.00
Partial safety factor	γ_{Ms}	-	1.40	1.40	1.40	1.40	1.4	1.50
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	13.00	-	-	-
PULL-OUT FAILURE								
Installation safety factor	γ_2	-	1.20	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
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	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
CONCRETE CONE FAILURE								
Installation safety factor	γ_2	-	1.20	1.00	1.00	1.00	1.00	1.00
Factor for cracked concrete	k	-	7.20	7.20	7.20	7.20	7.20	7.20
Factor for cracked concrete	$k_{cr,N}$	-	7.70	7.70	7.70	7.70	7.70	7.70
Factor for non-cracked concrete	k	-	10.10	10.10	10.10	10.10	10.10	10.10
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	11.00	11.00	11.00	11.00	11.00
Spacing	$s_{cr,N}$	[mm]	90.00	126.00	160.00	196.00	228.00	276.00
Edge distance	$c_{cr,N}$	[mm]	45.00	63.00	80.00	98.00	114.00	138.00
CONCRETE SPLITTING FAILURE								
Installation safety factor	γ_2	-	1.20	1.00	1.00	1.00	1.00	1.00
Spacing	$s_{cr,sp}$	[mm]	90.00	126.00	160.00	222.00	228.00	312.00
Edge distance	$c_{cr,sp}$	[mm]	45.00	63.00	80.00	111.00	114.00	156.00
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	12.70	17.70	30.20	41.20	57.00	78.50
Ductility factor	k_γ	-	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	72.40	123.60	203.30	329.60
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50	1.50	1.50	1.50
CONCRETE PRY-OUT FAILURE								
Factor	k	-	1.00	1.00	1.00	2.00	2.00	2.00
Installation safety factor	γ_2	-	1.00	1.00	1.00	1.00	1.00	1.00
CONCRETE EDGE FAILURE								
Effective length of anchor	ℓ_f	[mm]	32.00	42.00	53.00	65.00	100.00	92.00
Anchor diameter	d_{nom}	[mm]	6.00	6.00	8.00	10.00	12.00	14.00
Installation safety factor	γ_2	-	1.00	1.00	1.00	1.00	1.00	1.00

(-) failure is not decisive

R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

DESIGN PERFORMANCE DATA

Characteristic Resistance under fire exposure in concrete C20/25 to C50/60 - standard embedment depth

Size			5	6	8	10	12	14
TENSION LOAD								
Edge distance	c_{cr}	[mm]	64.00	84.00	106.00	130.00	152.00	184.00
Spacing	s_{cr}	[mm]	128.00	168.00	212.00	260.00	304.00	368.00
R (for EI) = 30 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.20	0.28	0.75	1.57	2.26	3.08
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	1.13	1.75	3.25	4.75	6.5	8.50
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.20	0.28	0.75	1.57	2.26	3.08
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.15	0.25	0.90	2.36	4.07	6.47
R (for EI) = 60 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.18	0.25	0.65	1.18	1.70	2.31
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	1.13	1.75	3.25	4.75	6.50	8.50
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.18	0.25	0.65	1.18	1.70	2.31
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.13	0.23	0.78	1.77	3.05	4.85
R (for EI) = 90 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.14	0.20	0.50	1.02	1.47	2.00
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	1.13	1.75	3.25	4.75	6.05	8.50
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.14	0.20	0.50	1.02	1.47	2.00
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.10	0.18	0.60	1.53	2.65	4.20
R (for EI) = 120 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	0.10	0.14	0.40	0.79	1.13	1.54
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	0.90	1.40	2.60	3.80	5.20	6.80
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	0.10	0.14	0.40	0.79	1.13	1.54
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	0.07	0.13	0.48	1.18	2.04	3.23

Allowable values for resistance in case of Seismic performance category C1 - standard embedment depth

Size			5	6	8	10	12	14
Effective embedment depth	h_{ef}	[mm]	-	-	53.0	65.0	-	92.0
TENSION LOAD, STEEL FAILURE								
Characteristic resistance	$N_{Rk,s,seisC1}$	[kN]	-	-	60.00	82.00	-	157.00
Partial safety factor	$\gamma_{Ms,seisC1}$	-	-	-	1.40	1.40	-	1.50
TENSION LOAD, PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p,seisC1}$	[kN]	-	-	5.00	13.00	-	19.00
Partial safety factor	$\gamma_{Mp,seisC1}$	-	-	-	1.50	1.50	-	1.50
SHEAR LOAD, STEEL FAILURE								
Characteristic resistance	$V_{Rk,s,seisC1}$	[kN]	-	-	15.10	27.40	-	52.30
Partial safety factor	$\gamma_{Ms,seisC1}$	-	-	-	1.50	1.50	-	1.50

R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

DESIGN PERFORMANCE DATA

Allowable values for resistance in case of Seismic performance category C2 - standard embedment depth

Size			5	6	8	10	12	14
Effective embedment depth	h_{ef}	[mm]	-	-	53.0	65.0	-	92.0
TENSION LOAD, STEEL FAILURE								
Characteristic resistance	$N_{Rk,s,seisC2}$	[kN]	-	-	60.00	82.00	-	157.00
Partial safety factor	$\gamma_{Ms,seisC2}$	-	-	-	1.40	1.40	-	1.50
TENSION LOAD, PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p,seisC2}$	[kN]	-	-	1.50	4.90	-	14.80
Partial safety factor	$\gamma_{Mp,seisC2}$	-	-	-	1.50	1.50	-	1.50
SHEAR LOAD, STEEL FAILURE								
Characteristic resistance	$V_{Rk,s,seisC2}$	[kN]	-	-	9.90	20.60	-	35.10
Partial safety factor	$\gamma_{Ms,seisC2}$	-	-	-	1,50	1.50	-	1.50

DESIGN PERFORMANCE DATA

Reduced embedment depth

Size			5	6	8	10	12	14
Min. installation depth	h_{nom}	[mm]	-	43.00	50.00	55.00	60.00	75.00
Effective embedment depth	h_{ef}	[mm]	-	32.00	36.00	40.00	42.00	54.00
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	-	35.40	60.40	82.40	113.00	157.00
Partial safety factor	γ_{Ms}	-	-	1.40	1.40	1.40	1.40	1.50
PULL-OUT FAILURE; NON-CRACKED CONCRETE C20/25								
Characteristic resistance	$N_{Rk,p}$	[kN]	-	-	-	-	12	-
PULL-OUT FAILURE; CRACKED CONCRETE C20/25								
Characteristic resistance	$N_{Rk,p}$	[kN]	-	-	7.50	8.00	7.00	13.00
PULL-OUT FAILURE								
Installation safety factor	γ_2	-	-	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
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	-	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
CONCRETE CONE FAILURE								
Installation safety factor	γ_2	-	-	1.00	1.00	1.00	1.00	1.00
Factor for cracked concrete	k	-	-	7.20	7.20	7.20	7.20	7.20
Factor for cracked concrete	$k_{cr,N}$	-	-	7.70	7.70	7.70	7.70	7.70
Factor for non-cracked concrete	k	-	-	10.10	10.10	10.10	10.10	10.10
Factor for non-cracked concrete	$k_{ucr,N}$	-	-	11.00	11.00	11.00	11.00	11.00
Spacing	$s_{cr,N}$	[mm]	-	126.00	160.00	196.00	126.00	276.00
Edge distance	$c_{cr,N}$	[mm]	-	63.00	80.00	98.00	63.00	138.00
CONCRETE SPLITTING FAILURE								
Installation safety factor	γ_2	-	-	1.00	1.00	1.00	1.00	1.00
Spacing	$s_{cr,sp}$	[mm]	-	90.00	112.00	136.00	126.00	188.00
Edge distance	$c_{cr,sp}$	[mm]	-	45.00	56.00	68.00	63.00	94.00
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	17.70	30.20	41.20	57.00	78.50
Ductility factor	k_γ	-	-	0.80	0.80	0.80	0.80	0.80
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	31.80	72.40	123.60	203.30	329.60
Partial safety factor	γ_{Ms}	-	-	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
Installation safety factor	γ_2	-	-	1.00	1.00	1.00	1.00	1.00
CONCRETE EDGE FAILURE								
Effective length of anchor	ℓ_f	[mm]	-	32.00	36.00	40.00	60.00	54.00
Anchor diameter	d_{nom}	[mm]	-	6.00	8.00	10.00	12.00	14.00
Installation safety factor	γ_2	-	-	1.00	1.00	1.00	1.00	1.00

R-LX CONCRETE SCREW ANCHORS - STRUCTURAL FIXINGS

DESIGN PERFORMANCE DATA

Characteristic Resistance under fire exposure in concrete C20/25 to C50/60 - reduced embedment depth

Size			5	6	8	10	12	14
TENSION LOAD								
Edge distance	c_{cr}	[mm]	-	64.00	72.00	80.00	84.00	108.00
Spacing	s_{cr}	[mm]	-	128.00	144.00	160.00	168.00	216.00
R (for EI) = 30 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.28	0.75	1.57	2.26	3.08
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	-	1.38	1.88	2.00	1.75	3.25
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.28	0.75	1.57	2.06	3.08
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	0.25	0.90	2.36	4.07	6.47
R (for EI) = 60 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.25	0.65	1.18	1.70	2.31
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	-	1.38	1.88	2.00	1.75	3.25
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.25	0.65	1.18	1.70	2.31
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	0.23	0.78	1.77	3.05	4.85
R (for EI) = 90 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.20	0.50	1.02	1.47	2.00
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	-	1.38	1.88	2.00	1.75	3.25
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.20	0.50	1.02	1.47	2.00
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	0.18	0.60	1.53	2.65	4.20
R (for EI) = 120 min								
TENSION LOAD								
STEEL FAILURE								
Characteristic resistance	$N_{Rk,s}$	[kN]	-	0.14	0.40	0.79	1.13	1.54
PULL-OUT FAILURE								
Characteristic resistance	$N_{Rk,p}$	[kN]	-	1.10	1.50	1.60	1.40	2.60
SHEAR LOAD								
STEEL FAILURE								
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	-	0.14	0.40	0.79	1.13	1.54
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	-	1.10	1.50	1.60	2.04	2.60