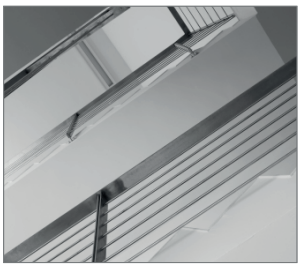
# R-LX-CS-ZP Zinc Plated Countersunk Concrete Screw Anchor

## Self-tapping concrete screwbolt



## Approvals and Reports

- ETA 17/0783
- UKTA-22/6346

## 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
- 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

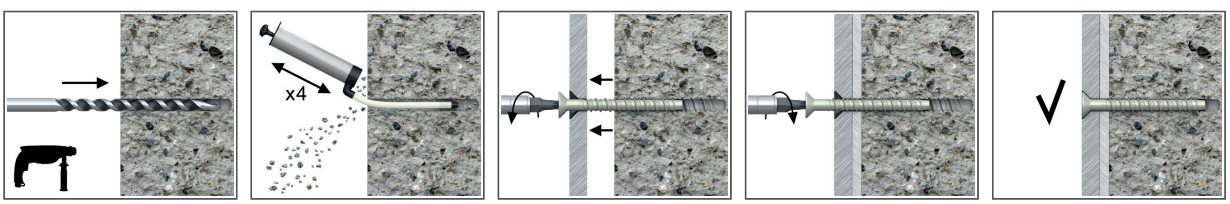
- Through-fixing
- Temporary anchorages
- Formwork support systems
- Balustrading & handrails
- Fencing & gates manufacturing and installation
- Racking systems
- Public seating
- Scaffolding

### Base materials

**Approved for use in:**

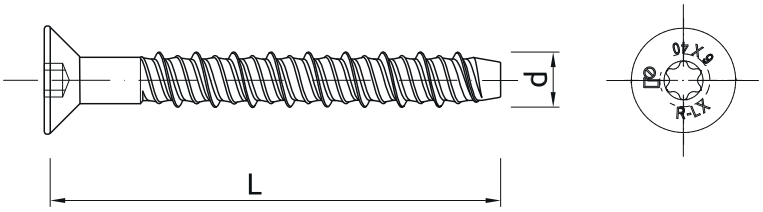
- Cracked concrete C20/25-C50/60
- Non-cracked concrete C20/25-C50/60
- Reinforced concrete
- Unreinforced concrete

## Installation guide



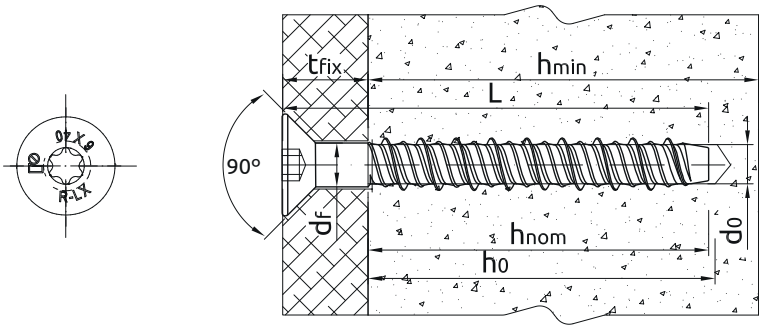

1. Drill the hole with rotary hammer drilling machine. Drill to a required depth.
2. Blow out dust at least 4 times with a hand pump.
3. Possibility of unscrewing and re-screwing.
4. Tighten to the recommended torque.
5. After installation.

## Product information




| Size | Product Code | Anchor | | Fixture | | |
|---|---|---|---|---|---|---|
| | | Diameter | Length | Max. thickness $t_{fix}$ for: | | Hole diameter |
| | | d | L | $h_{nom,red}$ | $h_{nom,std}$ | $d_f$ |
| | | [mm] | [mm] | [mm] | [mm] | [mm] |
| 5 | R-LX-05X050-CS-ZP | 6.2 | 50 | - | 7 | 7 |
| | R-LX-05X075-CS-ZP | 6.2 | 75 | - | 32 | 7 |
| 6 | R-LX-06X050-CS-ZP | 7.5 | 50 | 7 | - | 9 |
| | R-LX-06X060-CS-ZP | 7.5 | 60 | 17 | 5 | 9 |
| | R-LX-06X075-CS-ZP | 7.5 | 75 | 32 | 20 | 9 |
| | R-LX-06X090-CS-ZP | 7.5 | 90 | 47 | 35 | 9 |
| | R-LX-06X100-CS-ZP | 7.5 | 100 | 57 | 45 | 9 |
| | R-LX-06X120-CS-ZP | 7.5 | 120 | 77 | 65 | 9 |
| | R-LX-06X130-CS-ZP | 7.5 | 130 | 87 | 75 | 9 |
| | R-LX-06X140-CS-ZP | 7.5 | 140 | 97 | 85 | 9 |
| | R-LX-06X150-CS-ZP | 7.5 | 150 | 107 | 95 | 9 |
| | R-LX-06X160-CS-ZP | 7.5 | 160 | 117 | 105 | 9 |
| 8 | R-LX-08X060-CS-ZP | 9.9 | 60 | 10 | - | 12 |
| | R-LX-08X075-CS-ZP | 9.9 | 75 | 25 | 5 | 12 |
| | R-LX-08X090-CS-ZP | 9.9 | 90 | 40 | 20 | 12 |
| | R-LX-08X100-CS-ZP | 9.9 | 100 | 50 | 30 | 12 |
| | R-LX-08X120-CS-ZP | 9.9 | 120 | 70 | 50 | 12 |
| | R-LX-08X130-CS-ZP | 9.9 | 130 | 80 | 60 | 12 |
| | R-LX-08X150-CS-ZP | 9.9 | 150 | 100 | 80 | 12 |
| 10 | R-LX-10X060-CS-ZP | 12.4 | 60 | 5 | - | 14 |
| | R-LX-10X065-CS-ZP | 12.4 | 65 | 10 | - | 14 |
| | R-LX-10X075-CS-ZP | 12.4 | 75 | 20 | - | 14 |
| | R-LX-10X085-CS-ZP | 12.4 | 85 | 30 | - | 14 |
| | R-LX-10X090-CS-ZP | 12.4 | 90 | 35 | 5 | 14 |
| | R-LX-10X100-CS-ZP | 12.4 | 100 | 45 | 15 | 14 |
| | R-LX-10X110-CS-ZP | 12.4 | 110 | 55 | 25 | 14 |
| | R-LX-10X120-CS-ZP | 12.4 | 120 | 65 | 35 | 14 |
| | R-LX-10X130-CS-ZP | 12.4 | 130 | 75 | 45 | 14 |
| | R-LX-10X140-CS-ZP | 12.4 | 140 | 85 | 55 | 14 |
| | R-LX-10X150-CS-ZP | 12.4 | 150 | 95 | 65 | 14 |
| | R-LX-10X160-CS-ZP | 12.4 | 160 | 105 | 75 | 14 |

# Installation data




Normal concrete

| Size | | | 5 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|
| Hole diameter in substrate | $d_0$ | [mm] | 5 | 6 | 8 | 10 |
| Hole diameter in fixture | $d_f$ | [mm] | 7 | 9 | 12 | 14 |
| Screw drive | - | [-] | T25 | T40 | T50 | T50 |
| Head diameter | | [mm] | 10.9 | 15.9 | 21.3 | 21.3 |
| Max. torque for impact screw driver | $T_{imp,max}$ | [Nm] | 200 | 400 | 500 | 950 |
| **MINIMUM EMBEDMENT DEPTH** | | | | | | |
| Min. hole depth in substrate | $h_{0,min}$ | [mm] | - | 45 | - | - |
| Real hole depth in substrate | $h_0$ | [mm] | - | L + 10 - $t_{fix}$ | - | - |
| Min. installation depth | $h_{nom,min}$ | [mm] | - | 35 | - | - |
| Min. substrate thickness | $h_{min,min}$ | [mm] | - | 80 | - | - |
| Min. spacing | $s_{min,min}$ | [mm] | - | 45 | - | - |
| Min. edge distance | $c_{min,min}$ | [mm] | - | 45 | - | - |
| **REDUCED EMBEDMENT DEPTH** | | | | | | |
| Min. hole depth in substrate | $h_{0,r}$ | [mm] | 35 | 50 | 60 | 65 |
| Real hole depth in substrate | $h_0$ | [mm] | L + 10 - $t_{fix}$ | L + 10 - $t_{fix}$ | L + 10 - $t_{fix}$ | L + 10 |
| Min. installation depth | $h_{nom,r}$ | [mm] | 25 | 39 | 50 | 55 |
| Min. substrate thickness | $h_{min,r}$ | [mm] | 80 | 80 | 80 | 80 |
| Min. spacing | $s_{min,r}$ | [mm] | 40 | 45 | 50 | 60 |
| Min. edge distance | $c_{min,r}$ | [mm] | 40 | 45 | 50 | 60 |
| **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] | 40 | 55 | 70 | 85 |
| Min. substrate thickness | $h_{min,s}$ | [mm] | 80 | 84 | 110 | 130 |
| Min. spacing | $s_{min,s}$ | [mm] | 40 | 45 | 50 | 60 |
| Min. edge distance | $c_{min,s}$ | [mm] | 40 | 45 | 50 | 60 |

Hollow concrete slab

| Size | | | 6 |
|---|---|---|---|
| Thread diameter | d | [mm] | 7.5 |
| Hole diameter in substrate | $d_0$ | [mm] | 6 |
| Screw drive | - | [-] | T25 |
| Head diameter | | [mm] | 10.9 |
| Max. torque for impact screw driver | $T_{imp,max}$ | [Nm] | 400 |
| **MINIMUM EMBEDMENT DEPTH** | | | |
| Min. hole depth in substrate | $h_{0,min}$ | [mm] | 45 |
| Real hole depth in substrate | $h_0$ | [mm] | L + 10 - $t_{fix}$ |
| Min. installation depth | $h_{nom,min}$ | [mm] | 35 |
| Minimum distance between anchor groups | $a_{min,min}$ | [mm] | 100 |
| Min. spacing | $s_{min,min}$ | [mm] | 100 |
| Min. edge distance | $c_{min,min}$ | [mm] | 100 |

## Mechanical properties

| Size | | | 5 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|
| Nominal ultimate tensile strength - tension | $f_{uk}$ | [N/mm²] | 1300 | 1250 | 1200 | 1050 |
| Nominal yield strength - tension | $f_{yk}$ | [N/mm²] | 1150 | 1100 | 1050 | 950 |
| Cross sectional area - tension | $A_s$ | [mm²] | 19.6 | 28.3 | 50.3 | 78.5 |
| Elastic section modulus | $W_{el}$ | [mm³] | 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 |
|---|---|---|---|---|---|
| **CRACKED AND NON-CRACKED CONCRETE** | | | | | |
| Reduced embedment depth $h_{nom}$ | [mm] | 25.00 | 39.00 | 50.00 | 55.00 |
| Standard embedment depth $h_{nom}$ | [mm] | 40.00 | 55.00 | 70.00 | 85.00 |
| Minimum embedment depth $h_{nom}$ | [mm] | - | 35.00 | - | - |
| **HOLLOW CORE SLAB** | | | | | |
| Minimum embedment depth $h_{nom}$ | [mm] | - | 35.00 | - | - |
| **CHARACTERISTIC LOAD** | | | | | |
| **TENSION AND SHEAR LOAD $F_{Rk}$** | | | | | |
| **CRACKED AND NON-CRACKED CONCRETE** | | | | | |
| Reduced embedment depth | [kN] | 3.00 | 6.00 | 7.50 | 9.00 |
| Standard embedment depth | [kN] | 5.00 | 9.00 | 12.00 | 20.00 |
| Minimum embedment depth | [kN] | - | 3.00 | - | - |
| **HOLLOW CORE SLAB** | | | | | |
| Minimum embedment depth | [kN] | - | 6.00 | - | - |
| **DESIGN LOAD** | | | | | |
| **TENSION AND SHEAR LOAD $F_{Rd}$** | | | | | |
| **CRACKED AND NON-CRACKED CONCRETE** | | | | | |
| Reduced embedment depth | [kN] | 1.67 | 4.00 | 5.00 | 6.00 |
| Standard embedment depth | [kN] | 2.77 | 6.00 | 8.00 | 13.30 |
| Minimum embedment depth | [kN] | - | 2.00 | - | - |
| **HOLLOW CORE SLAB** | | | | | |
| Minimum embedment depth | [kN] | - | 4.00 | - | - |
| **RECOMMENDED LOAD** | | | | | |
| **TENSION AND SHEAR LOAD $F_{rec}$** | | | | | |
| **CRACKED AND NON-CRACKED CONCRETE** | | | | | |
| Reduced embedment depth | [kN] | 1.19 | 2.85 | 3.57 | 4.28 |
| Standard embedment depth | [kN] | 1.98 | 4.29 | 5.71 | 9.52 |
| Minimum embedment depth | [kN] | - | 1.42 | - | - |
| **HOLLOW CORE SLAB** | | | | | |
| Minimum embedment depth | [kN] | - | 2.85 | - | - |

# Design performance data

Normal concrete

| Size | | | 5 | | 6 | | | 8 | | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Min. installation depth | $h_{nom}$ | [mm] | 25.00 | 40.00 | 35.00 | 39.00 | 55.00 | 50.00 | 70.00 | 55.00 | 80.00 |
| Effective embedment depth | $h_{ef}$ | [mm] | 17.50 | 30.00 | 24.70 | 30.00 | 42.00 | 37.00 | 53.00 | 40.00 | 65.00 |
| **TENSION AND SHEAR LOAD** | | | | | | | | | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 3.00 | 5.00 | 3.00 | 6.00 | 9.00 | 7.50 | 12.00 | 9.00 | 20.00 |
| Installation safety factor | $\gamma_{inst}$ | - | 1.20 | 1.20 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Increasing factors for $N_{Rd,p}$ - C30/37 | $\Psi_c$ | - | 1.08 | 1.08 | 1.00 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 |
| Increasing factors for $N_{Rd,p}$ - C40/50 | $\Psi_c$ | - | 1.15 | 1.15 | 1.00 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| Increasing factors for $N_{Rd,p}$ - C50/60 | $\Psi_c$ | - | 1.19 | 1.19 | 1.00 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 |
| Spacing | $s_{cr,N}$ | - | 70.00 | 90.00 | 100.0 | 90.00 | 126.0 | 120.0 | 160.0 | 120.0 | 196.0 |
| Edge distance | $c_{cr,N}$ | - | 35.00 | 45.00 | 50.00 | 45.00 | 63.00 | 60.00 | 80.00 | 60.00 | 98.00 |
| **SHEAR LOAD** | | | | | | | | | | | |
| **STEEL FAILURE** | | | | | | | | | | | |
| Characteristic resistance with lever arm | $M_{Rk,s}$ | [Nm] | 19.00 | 19.00 | 31.80 | 31.80 | 31.80 | 72.40 | 72.40 | 123.6 | 123.6 |
| Partial safety factor | $\gamma_{Ms}$ | - | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |

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

| Size | | | 5 | 6 | | 8 | | 10 | |
|---|---|---|---|---|---|---|---|---|---|
| **TENSION AND SHEAR LOAD** | | | | | | | | | |
| Spacing | $s_{cr}$ | [mm] | 120.00 | 120.00 | 168.00 | 148.00 | 212.00 | 160.00 | 260.00 |
| Edge distance | $c_{cr}$ | [mm] | 60.00 | 60.00 | 84.00 | 74.00 | 106.00 | 80.00 | 130.00 |
| **R (for EI) = 30 min** | | | | | | | | | |
| Effective embedment depth | $h_{ef}$ | [mm] | 30.00 | 30.00 | 42.00 | 37.00 | 53.00 | 40.00 | 65.00 |
| **TENSION AND SHEAR LOAD** | | | | | | | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 0.20 | 0.28 | 0.28 | 0.75 | 0.75 | 1.57 | 1.57 |
| **R (for EI) = 60 min** | | | | | | | | | |
| Effective embedment depth | $h_{ef}$ | [mm] | 30.00 | 30.00 | 42.00 | 37.00 | 53.00 | 40.00 | 65.00 |
| **TENSION AND SHEAR LOAD** | | | | | | | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 0.18 | 0.25 | 0.25 | 0.65 | 0.75 | 1.18 | 1.18 |
| **R (for EI) = 90 min** | | | | | | | | | |
| Effective embedment depth | $h_{ef}$ | [mm] | 30.00 | 30.00 | 42.00 | 37.00 | 53.00 | 40.00 | 65.00 |
| **TENSION AND SHEAR LOAD** | | | | | | | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 0.14 | 0.20 | 0.20 | 0.50 | 0.75 | 1.02 | 1.02 |
| **R (for EI) = 120 min** | | | | | | | | | |
| Effective embedment depth | $h_{ef}$ | [mm] | 30.00 | 30.00 | 42.00 | 37.00 | 53.00 | 40.00 | 65.00 |
| **TENSION AND SHEAR LOAD** | | | | | | | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 0.10 | 0.14 | 0.14 | 0.40 | 0.75 | 0.79 | 0.79 |

## Design performance data

Hollow concrete slab

| Size | | | 6 |
|---|---|---|---|
| Min. installation depth | $h_{nom}$ | [mm] | 35.00 |
| Effective embedment depth | $h_{ef}$ | [mm] | 24.70 |
| Min. bottom flange thickness | $d_b$ | [mm] | 35.00 |
| **TENSION AND SHEAR LOAD** | | | |
| **HOLLOW CONCRETE SLAB C30/37** | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 5.00 |
| **HOLLOW CONCRETE SLAB C40/50** | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 6.00 |
| **HOLLOW CONCRETE SLAB C50/60** | | | |
| Characteristic resistance | $F_{Rk}$ | [kN] | 6.00 |
| Installation safety factor | $\gamma_{inst}$ | - | 1.00 |
| Spacing | $s_{cr,N}$ | [mm] | 100.00 |
| Edge distance | $c_{cr,N}$ | [mm] | 50.00 |
| **SHEAR LOAD** | | | |
| **STEEL FAILURE** | | | |
| Characteristic resistance with lever arm | $M_{Rk,s}$ | [Nm] | 31.80 |
| Partial safety factor | $\gamma_{Ms}$ | - | 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-ZP [1)] | 50 | 100 | 100 | 38400 | 0.91 | 0.91 | 379.4 | 5906675127859 |
| R-LX-05X075-CS-ZP [1)] | 75 | 100 | 100 | 38400 | 1.29 | 1.29 | 526.9 | 5906675128054 |
| R-LX-06X050-CS-ZP [1)] | 50 | 100 | 100 | 38400 | 1.59 | 1.59 | 640.6 | 5906675128801 |
| R-LX-06X060-CS-ZP [1)] | 60 | 100 | 100 | 38400 | 1.52 | 1.52 | 611.8 | 5906675442488 |
| R-LX-06X075-CS-ZP [1)] | 75 | 100 | 100 | 38400 | 1.76 | 1.76 | 705.8 | 5906675129280 |
| R-LX-06X090-CS-ZP [1)] | 90 | 100 | 100 | 38400 | 2.2 | 2.2 | 856.8 | 5906675442495 |
| R-LX-06X100-CS-ZP [1)] | 100 | 100 | 100 | 25600 | 2.3 | 2.3 | 618.8 | 5906675129297 |
| R-LX-06X120-CS-ZP [1)] | 120 | 100 | 100 | 25600 | 2.9 | 2.9 | 759.6 | 5906675478173 |
| R-LX-06X130-CS-ZP [1)] | 130 | 100 | 100 | 25600 | 3.0 | 3.0 | 785.2 | 5906675129303 |
| R-LX-06X140-CS-ZP [1)] | 140 | 100 | 100 | 25600 | 3.3 | 3.3 | 862.0 | 5906675478197 |
| R-LX-06X150-CS-ZP [1)] | 150 | 100 | 100 | 25600 | 3.5 | 3.5 | 919.9 | 5906675129310 |
| R-LX-06X160-CS-ZP [1)] | 160 | 100 | 100 | 25600 | 3.6 | 3.6 | 938.8 | 5906675478210 |
| R-LX-08X060-CS-ZP [1)] | 60 | 100 | 100 | 25600 | 2.7 | 2.7 | 728.9 | 5906675129327 |
| R-LX-08X075-CS-ZP [1)] | 75 | 100 | 100 | 25600 | 3.2 | 3.2 | 849.2 | 5906675129334 |
| R-LX-08X090-CS-ZP [1)] | 90 | 100 | 100 | 19200 | 3.8 | 3.8 | 757.7 | 5906675129341 |
| R-LX-08X100-CS-ZP [1)] | 100 | 100 | 100 | 19200 | 4.2 | 4.2 | 830.6 | 5906675129358 |
| R-LX-08X120-CS-ZP [1)] | 120 | 50 | 50 | 12800 | 2.5 | 2.5 | 662.3 | 5906675442471 |
| R-LX-08X130-CS-ZP [1)] | 130 | 50 | 50 | 12800 | 2.7 | 2.7 | 712.2 | 5906675129365 |
| R-LX-08X150-CS-ZP [1)] | 150 | 50 | 50 | 12800 | 3.1 | 3.1 | 812.1 | 5906675129372 |

## Product commercial data

| Product Code | Anchor | Quantity [pcs] | | | Weight [kg] | | | Bar Codes |
|---|---|---|---|---|---|---|---|---|
| | Length [mm] | Box | Outer | Pallet | Box | Outer | Pallet | |
| R-LX-10X060-CS-ZP [1] | 60 | 50 | 50 | 14400 | 2.1 | 2.1 | 647.5 | 5906675442426 |
| R-LX-10X065-CS-ZP [1] | 65 | 50 | 50 | 14400 | 2.2 | 2.2 | 672.2 | 5906675129389 |
| R-LX-10X075-CS-ZP [1] | 75 | 50 | 50 | 12800 | 2.6 | 2.6 | 690.2 | 5906675129396 |
| R-LX-10X085-CS-ZP [1] | 85 | 50 | 50 | 12800 | 2.8 | 2.8 | 757.0 | 5906675129402 |
| R-LX-10X090-CS-ZP [1] | 90 | 50 | 50 | 12800 | 3.1 | 3.1 | 813.1 | 5906675442433 |
| R-LX-10X100-CS-ZP [1] | 100 | 50 | 50 | 12800 | 3.4 | 3.4 | 892.5 | 5906675129419 |
| R-LX-10X110-CS-ZP [1] | 110 | 50 | 50 | 12800 | 3.6 | 3.6 | 947.8 | 5906675442440 |
| R-LX-10X120-CS-ZP [1] | 120 | 25 | 25 | 6400 | 2.0 | 2.0 | 551.2 | 5906675129426 |
| R-LX-10X130-CS-ZP [1] | 130 | 25 | 25 | 9600 | 2.1 | 2.1 | 842.2 | 5906675442457 |
| R-LX-10X140-CS-ZP [1] | 140 | 25 | 25 | 9600 | 2.3 | 2.3 | 896.9 | 5906675129433 |
| R-LX-10X150-CS-ZP [1] | 150 | 20 | 20 | 7680 | 2.0 | 2.0 | 778.0 | 5906675442464 |
| R-LX-10X160-CS-ZP [1] | 160 | 20 | 20 | 7680 | 2.1 | 2.1 | 838.7 | 5906675129440 |

1) ETA 17/0783