

R-HLX-CS

**INDUCTION HARDENED CONCRETE SCREW. NEW
THREAD SHAPE WITH ADDITIONAL TEETH ENSURING
QUICK AND EASY INSTALLATION**

Concrete screws induction hardened



ETA - 23/0707

FEATURES AND BENEFITS ✓

The new thread geometry with additional cutting teeth ensures quick and easy installation, also in reinforced concrete C20/25 - C50/60

R-HLX concrete screws can be used in earthquake-prone zones - seismic category C1 and C2

Protected with zinc, aluminium flake coating corrosion class C1-C4

Possibility of installation near the edge of concrete and at short distances from adjacent screws

Induction hardening ensures high surface hardness and high core impact strength

Different head types for any application

Possibility of disassembly and repeated use after verifying thread wear with a tester

The highest parameters in cracked and uncracked concrete C20/25 - C50/60 confirmed in the ETA

SUBSTRATES ✓



Uncracked concrete C20/25-C50/60



Cracked concrete C20/25-C50/60



Unreinforced concrete,
Reinforced concrete



Solid masonry (after site testing)





The R-HLX concrete screw has a new thread shape with additional cutting teeth, ensuring quick and easy installation, also in reinforced concrete C20/25 – C50/60

APPLICATIONS

Construction work

Poles and road signs

Roads and bridges

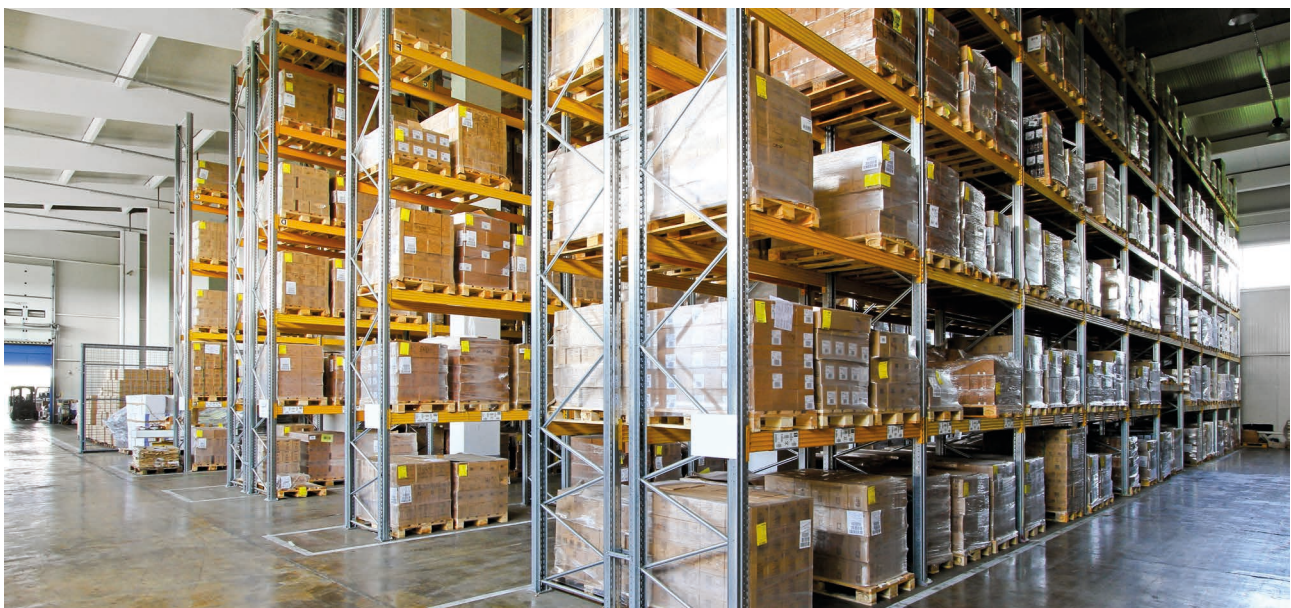
Satellite dishes

Seats in public facilities

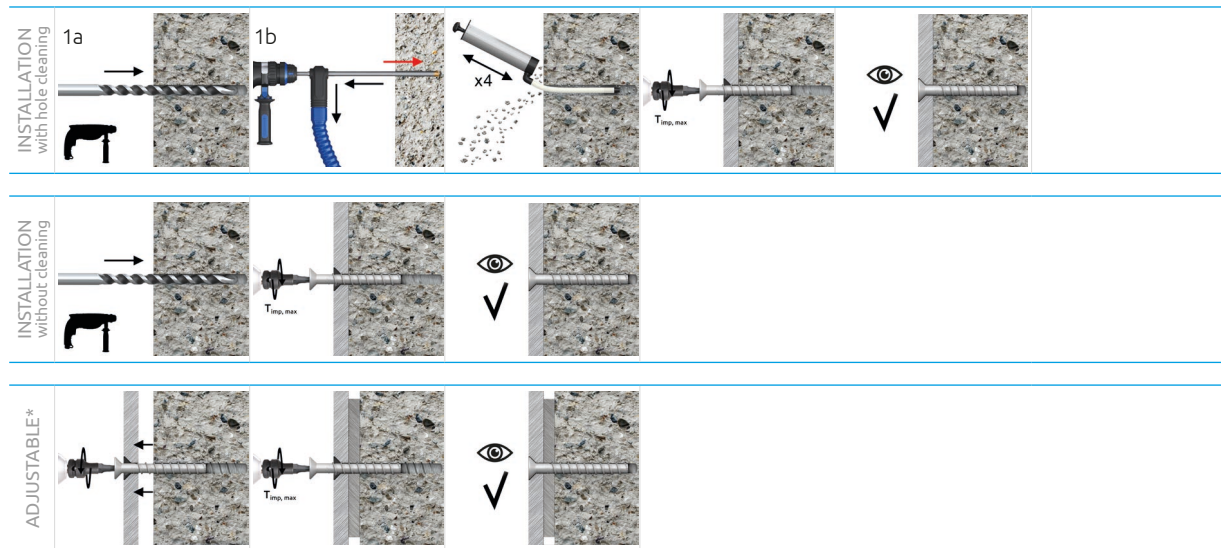
Steel structures

Storage racks

Fixing the installation

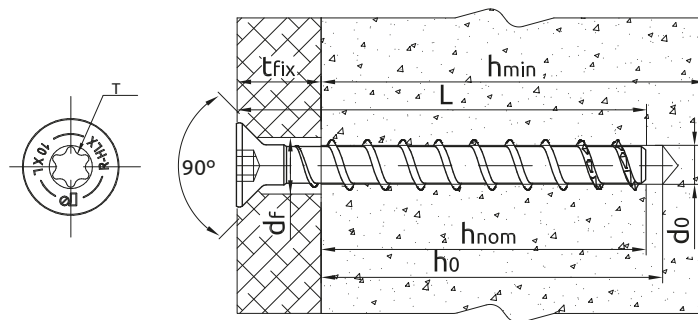


INSTALLATION GUIDE



1. Drill the hole with a hammer drill (1a) or a dust-free drill (1b) to the required depth according to the table.
2. Clean the hole (blow dust at least 4 times with the hand pump). When using a dust-free drill bit (1b), it is not necessary to clean the hole.
When installing using a hammer drill and without cleaning the holes, the hole should be 25 mm deeper.
3. Screw the concrete screw into the hole with an impact wrench and a suitable impact socket. Tighten until the fixture is clamped to the substrate. Installation with any tangential impact wrench.
4. Finish screwing when the screw head touches the fastened element/substrate. The screw head must not be damaged.
5. Possibility to unscrew the fixed anchor to a maximum height of 10mm. In the adjustment process, the permissible thickness of the fastened elements (T_{fix}) must be observed.
6. Adjust the element and tighten until the fixture is clamped to the substrate. Installation with any impact wrench.
7. Finish screwing when the anchor touches the fastened element. The adjustment operation can be performed twice.

INSTALLATION DATA



R-HLX			6	8	10
Thread diameter	d	[mm]	7,9	10,4	12,7
Hole diameter in substrate	d_0	[mm]	6	8	10
Wrench size	SW	-	10	13	15
Torx socket	TX	-	T40	T50	T50
Max. torque for impact screw driver	$T_{imp,max}$	[Nm]	250	350	650
Standard embedment depth					
Min. hole depth in substrate	$h_{0,s}$	[mm]	65	85	95
Real hole depth in substrate	h_0	[mm]	$L+10-t_{fix}$	$L+10-t_{fix}$	$L+10-t_{fix}$
Nominal embedment depth	h_{nom}	[mm]	55	70	85
Min. substrate thickness	h_{min}	[mm]	80	110	130
Min. spacing	s_{min}	[mm]	35	35	60
Min. edge distance	c_{min}	[mm]	35	35	60

INSTALLATION DATA

R-HLX			6	8	10
Reduced embedment depth					
Min. hole depth in substrate	$h_{0,r}$	[mm]	50	70	85
Real hole depth in substrate	h_0	[mm]	$L+10-t_{fix}$	$L+10-t_{fix}$	$L+10-t_{fix}$
Nominal embedment depth	h_{nom}	[mm]	40	60	75
Min. substrate thickness	h_{min}	[mm]	80	110	120
Min. spacing	s_{min}	[mm]	35	35	60
Min. edge distance	c_{min}	[mm]	35	35	60
Minimum embedment depth					
Min. hole depth in substrate	$h_{0,min}$	[mm]	45	60	65
Real hole depth in substrate	h_0	[mm]	$L+10-t_{fix}$	$L+10-t_{fix}$	$L+10-t_{fix}$
Nominal embedment depth	h_{nom}	[mm]	35	50	55
Min. substrate thickness	h_{min}	[mm]	80	110	100
Min. spacing	s_{min}	[mm]	35	35	60
Min. edge distance	c_{min}	[mm]	35	35	60

MECHANICAL PROPERTIES

Size			6	8	10
Nominal ultimate tensile strength - tension	f_{uk}	[N/mm ²]	800	800	800
Nominal yield strength - tension	f_{yk}	[N/mm ²]	640	640	640
Cross sectional area - tension	A_s	[mm ²]	24.6	44.2	67.9
Elastic section modulus	W_{el}	[mm ³]	17.24	41.42	75.97
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	16.6	39.8	75.8
Design bending resistance	M	[Nm]	13.2	31.8	60.6

BASIC PERFORMANCE DATA

Size			6	8	10
UNCRACKED CONCRETE C20/25					
Standard embedment depth	h_{nom}	[mm]	55,00	70,00	85,00
Reduced embedment depth	h_{nom}	[mm]	40,00	60,00	75,00
Minimum embedment depth	h_{nom}	[mm]	35,00	50,00	55,00
CRACKED CONCRETE C20/25					
Standard embedment depth	h_{nom}	[mm]	55,00	70,00	85,00
Reduced embedment depth	h_{nom}	[mm]	40,00	60,00	75,00
Minimum embedment depth	h_{nom}	[mm]	35,00	50,00	55,00
MEAN ULTIMATE LOAD					
TENSION LOAD $N_{Ru,m}$					
UNCRACKED CONCRETE C20/25					
Standard embedment depth		[kN]	18,99	26,34	37,85
Reduced embedment depth		[kN]	11,09	19,03	30,59
Minimum embedment depth		[kN]	8,32	16,44	18,37
CRACKED CONCRETE C20/25					
Standard embedment depth		[kN]	10,88	12,24	26,64
Reduced embedment depth		[kN]	7,11	11,59	21,53
Minimum embedment depth		[kN]	4,02	9,86	12,93
SHEAR LOAD $V_{Ru,m}$					
UNCRACKED CONCRETE C20/25					
Standard embedment depth		[kN]	10,67	19,47	29,92
Reduced embedment depth		[kN]	10,67	19,47	29,92
Minimum embedment depth		[kN]	8,95	16,44	18,37
CRACKED CONCRETE C20/25					
Standard embedment depth		[kN]	10,67	19,47	29,92
Reduced embedment depth		[kN]	7,81	19,47	29,92
Minimum embedment depth		[kN]	6,30	11,57	12,93

BASIC PERFORMANCE DATA

Size		6	8	10
CHARACTERISTIC LOAD				
TENSION LOADE N_{Rk}				
UNCRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	13,80	20,60	27,58
Reduced embedment depth	[kN]	8,00	13,87	22,29
Minimum embedment depth	[kN]	4,50	11,90	13,39
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	3,50	11,00	19,30
Reduced embedment depth	[kN]	2,00	9,00	15,60
Minimum embedment depth	[kN]	2,00	8,00	9,37
SHEAR LOAD V_{Rk}				
UNCRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	9,70	17,70	27,20
Reduced embedment depth	[kN]	8,08	17,70	27,20
Minimum embedment depth	[kN]	6,52	11,98	13,39
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	9,70	17,70	27,20
Reduced embedment depth	[kN]	5,66	17,70	27,20
Minimum embedment depth	[kN]	4,57	8,39	9,37
DESIGN LOAD				
TENSION LOADE N_{Rd}				
UNCRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	9,20	13,73	18,39
Reduced embedment depth	[kN]	5,33	9,25	14,86
Minimum embedment depth	[kN]	3,00	7,93	8,93
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	2,33	7,33	12,87
Reduced embedment depth	[kN]	1,33	6,00	10,40
Minimum embedment depth	[kN]	1,33	5,33	6,25
SHEAR LOAD V_{Rd}				
UNCRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	7,76	14,16	21,76
Reduced embedment depth	[kN]	5,39	14,16	21,76
Minimum embedment depth	[kN]	4,35	7,99	8,93
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	6,47	14,16	21,76
Reduced embedment depth	[kN]	3,77	12,95	20,81
Minimum embedment depth	[kN]	3,04	5,59	6,25
RECOMMENDED LOAD				
TENSION LOADE N_{rec}				
UNCRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	6,57	9,81	13,14
Reduced embedment depth	[kN]	3,81	6,61	10,62
Minimum embedment depth	[kN]	2,14	5,67	6,38
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	1,67	5,24	9,19
Reduced embedment depth	[kN]	0,95	4,29	7,43
Minimum embedment depth	[kN]	0,95	3,81	4,46
SHEAR LOAD V_{rec}				
UNCRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	5,54	10,11	15,54
Reduced embedment depth	[kN]	3,85	10,11	15,54
Minimum embedment depth	[kN]	3,11	5,71	6,38
CRACKED CONCRETE C20/25				
Standard embedment depth	[kN]	4,62	10,11	15,54
Reduced embedment depth	[kN]	2,69	9,25	14,86
Minimum embedment depth	[kN]	2,17	3,99	4,46

DESIGN PERFORMANCE DATA

Size			6			10			10		
Nominal embedment depth	h_{nom}	[mm]	35.00	40.00	55.00	50.00	60.00	70.00	55.00	75.00	85.00
Effective embedment depth	h_{ef}	[mm]	26.00	30.00	43.00	39.00	43.00	56.00	42.00	59.00	68.00
TENSION LOADE											
STEEL FAILURE											
Characteristic resistance	$N_{Rk,s}$	[kN]	19.4	19.4	19.4	35.4	35.4	35.4	54.3	54.3	54.3
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
PULL-OUT FAILURE; NON-CRACKED CONCRETE C20/25											
Characteristic resistance	$N_{Rk,p}$	[kN]	4.5	8.0	13.8	11.9	16.3	20.6	13.4	22.3	27.6
PULL-OUT FAILURE; CRACKED CONCRETE C20/25											
Characteristic resistance	$N_{Rk,p}$	[kN]	2.0	2.0	3.5	8.0	9.0	11.0	9.4	15.6	19.3
PULL-OUT FAILURE											
Installation safety factor	γ_{inst}	-	1.0 ¹⁾	1.0 ¹⁾	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Increasing factors for $N_{Rd,p}$ - C30/37	ψ_c	-	1.17	1.17	1.17	1.17	1.17	1.17	1.22	1.22	1.22
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	1.32	1.32	1.32	1.32	1.32	1.32	1.41	1.41	1.41
Increasing factors for $N_{Rd,p}$ - C50/60	ψ_c	-	1.42	1.42	1.42	1.42	1.42	1.42	1.55	1.55	1.55
CONCRETE CONE FAILURE											
Installation safety factor	γ_{inst}	-	1.0 ¹⁾	1.0 ¹⁾	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Factor for cracked concrete	$k_{cr,N}$	-	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Spacing	$s_{cr,N}$	[mm]	78.0	90.0	129.0	117.0	129.0	168.0	126.0	177.0	204.0
Edge distance	$c_{cr,N}$	[mm]	39.0	45.0	64.5	58.5	64.5	84.0	63.0	88.5	102.0
CONCRETE SPLITTING FAILURE											
Installation safety factor	γ_{inst}	-	1.0 ¹⁾	1.0 ¹⁾	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Spacing	$s_{cr,sp}$	[mm]	80.0	90.0	130.0	120.0	150.0	170.0	120.0	180.0	200.0
Edge distance	$c_{cr,sp}$	[mm]	40.0	45.0	65.0	60.0	75.0	85.0	60.0	90.0	100.0
SHEAR LOAD											
STEEL FAILURE											
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	9.7	9.7	9.7	17.7	17.7	17.7	27.2	27.2	27.2
Ductility factor	k_7	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	16.1	16.1	16.1	39.8	39.8	39.8	75.8	75.8	75.8
Partial safety factor	γ_{Ms}	-	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
CONCRETE PRY-OUT FAILURE											
Factor	k	-	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Installation safety factor	γ_{inst}	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CONCRETE EDGE FAILURE											
Effective length of anchor	ℓ_f	[mm]	35.00	40.00	55.00	50.00	60.00	70.00	55.00	75.00	85.00
Anchor diameter	d_{nom}	[mm]	6.00	6.00	6.00	8.00	8.00	8.00	10.00	10.00	10.00
Installation safety factor	γ_{inst}	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

¹⁾ Robustness without cleaning $\gamma_{inst}=1,2$

FIRE RESISTANCE

Size			6			8			10		
R(dla EI) = 30min											
Nominal embedment depth	h _{nom}	[mm]	35	40	55	50	60	70	55	75	85
TENSION LOADE											
STEEL FAILURE											
Characteristic resistance	N _{Rk,s}	[kN]	1.8			3.8			6.6		
PULL-OUT FAILURE											
Characteristic resistance	N _{Rk,p}	[kN]	0.5	0.5	0.8	2.0	2.2	2.7	2.3	3.9	4.8

FIRE RESISTANCE

Size	6				8				10			
SHEAR LOAD												
STEEL FAILURE												
Characteristic resistance without lever arm	V _{Rk,s}	[kN]	1.8				3.8				6.6	
Characteristic resistance with lever arm	M _{Rk,s}	[Nm]	1.5				4.3				9.3	
R(dIa EI) = 60min												
Nominal embedment depth	h _{nom}	[mm]	35	40	55	50	60	70	55	75	85	
TENSION LOAD												
STEEL FAILURE												
Characteristic resistance	N _{Rk,s}	[kN]	1.4				2.9				5	
PULL-OUT FAILURE												
Characteristic resistance	N _{Rk,p}	[kN]	0.5	0.5	0.8	2	2.2	2.7	2.3	3.9	4.8	
SHEAR LOAD												
STEEL FAILURE												
Characteristic resistance without lever arm	V _{Rk,s}	[kN]	1.4				2.9				5.0	
Characteristic resistance with lever arm	M _{Rk,s}	[Nm]	1.2				3.3				7.0	
R(dIa EI) = 90min												
Nominal embedment depth	h _{nom}	[mm]	35	40	55	50	60	70	55	75	85	
TENSION LOAD												
STEEL FAILURE												
Characteristic resistance	N _{Rk,s}	[kN]	1.0				2.0				3.4	
PULL-OUT FAILURE												
Characteristic resistance	N _{Rk,p}	[kN]	0.5	0.5	0.8	2	2.2	2.7	2.3	3.9	4.8	
SHEAR LOAD												
STEEL FAILURE												
Characteristic resistance without lever arm	V _{Rk,s}	[kN]	1.0				2.0				3.4	
Characteristic resistance with lever arm	M _{Rk,s}	[Nm]	0.8				2.3				4.8	
R(dIa EI) = 120min												
Nominal embedment depth	h _{nom}	[mm]	35	40	55	50	60	70	55	75	85	
TENSION LOAD												
STEEL FAILURE												
Characteristic resistance	N _{Rk,s}	[kN]	0.8				1.6				2.6	
PULL-OUT FAILURE												
Characteristic resistance	N _{Rk,p}	[kN]	0.4	0.4	0.7	1.6	1.8	2.2	1.8	3.1	3.8	
SHEAR LOAD												
STEEL FAILURE												
Characteristic resistance without lever arm	V _{Rk,s}	[kN]	0.8				1.6				2.6	
Characteristic resistance with lever arm	M _{Rk,s}	[Nm]	0.7				1.8				3.7	

SEISMIC

Allowable values for resistance in case of Seismic performance category C1

Size			6		8			10		
Nominal embedment depth	h_{nom}	[mm]	40	55	50	60	70	55	75	85
TENSION LOADE. STEEL FAILURE										
Characteristic resistance	$N_{Rk,s,C1}$	[kN]	19.4		35.4			54.3		
TENSION LOADE. PULL-OUT FAILURE										
Characteristic resistance	$N_{Rk,p,C1}$	[kN]	2.0	3.5	7.6	8.6	10.5	8.6	14.4	17.8
SHEAR LOAD. STEEL FAILURE										
Characteristic resistance without lever arm	$V_{Rk,s,C1}$	[kN]	4.7		10.6			18.7		

SEISMIC

Allowable values for resistance in case of Seismic performance category C2

Size			6	8	10
Nominal embedment depth	h_{nom}	[mm]	-	70	85
TENSION LOAD, STEEL FAILURE					
Characteristic resistance	$N_{Rk,s,C2}$	[kN]	-	35.4	54.3
TENSION LOAD, PULL-OUT FAILURE					
Characteristic resistance	$N_{Rk,p,C2}$	[kN]	-	2.0	8.3
SHEAR LOAD, STEEL FAILURE					
Characteristic resistance without lever arm	$V_{Rk,s,C2}$	[kN]	-	3.6	8.0

LOGISTICS DATA

Product Code	Quantity	Box	Outer	Pallet	Box weight	Outer weight	Pallet weight	EAN
R-HLX-06X050-CS-ZF	pcs	100	100	41600	1,41	1,41	586,56	5906675556475
R-HLX-06X060-CS-ZF	pcs	100	100	41600	1,61	1,61	669,76	5906675556482
R-HLX-06X075-CS-ZF	pcs	100	100	25600	1,95	1,95	499,2	5906675556499
R-HLX-06X090-CS-ZF	pcs	100	100	25600	2,28	2,28	583,68	5906675556505
R-HLX-06X100-CS-ZF	pcs	100	100	25600	2,49	2,49	637,44	5906675556512
R-HLX-06X120-CS-ZF	pcs	100	100	25600	2,96	2,96	757,76	5906675556529
R-HLX-06X130-CS-ZF	pcs	100	100	25600	3,13	3,13	671,2	5906675556536
R-HLX-08X075-CS-ZF	pcs	100	100	22400	3,16	3,16	707,84	5906675556543
R-HLX-08X090-CS-ZF	pcs	100	100	19200	3,945	3,945	757,44	5906675556550
R-HLX-08X100-CS-ZF	pcs	100	100	16800	4,23	4,23	710,64	5906675556567
R-HLX-08X120-CS-ZF	pcs	50	50	12800	2,115	2,115	541,44	5906675556574
R-HLX-08X130-CS-ZF	pcs	50	50	12800	2,88	2,88	737,28	5906675556581
R-HLX-08X150-CS-ZF	pcs	50	50	11200	3,06	3,06	685,44	5906675556598
R-HLX-10x070-CS-ZF	pcs	50	50	12800	2,54	2,54	650,24	5906675534039
R-HLX-10x090-CS-ZF	pcs	50	50	11200	3,125	3,125	700	5906675534046
R-HLX-10x100-CS-ZF	pcs	50	50	11200	3,405	3,405	762,72	5906675534053
R-HLX-10x120-CS-ZF	pcs	25	25	6400	2,09	2,09	535,04	5906675534060
R-HLX-10x140-CS-ZF	pcs	25	25	8000	2,305	2,305	737,6	5906675534077
R-HLX-10X160-CS-ZF	pcs	20	20	6400	2,272	2,272	751,2	5906675640914

RELATED PRODUCT

DRILLING	POWER TOOLS	Hammer drill SDS-PLUS, 850 W, 2,5 J R-PRH26850 	Hammer drill 18 V SDS-PLUS 2,5 J R-PRH18 	Impact wrench 18 V 1000 Nm 1/2" R-PIW18 	Impact driver 18 V 315 Nm 1/2" R-PID18-315 
	POWER TOOL ACCESSORIES	Drill bit Aggressor SDS Plus RT-SDSA 	Drill bit Rebardrill SDS Plus RT-SDSR 	Impact bits 1/2" RT-IS 	T type impact screwdriver bit RT-IBIT-T 