

W-HLX Concrete Screws

superior performance concrete screws for multiple use for non-structural applications in concrete and precast prestressed hollow core slabs

Anchor types



W-HLX-H 6x40 6x60

- **W-HLX-H** concrete screw with hexagon head and a pre-pressed washer with zinc flake coating for improved corrosion resistance



W-HLX-P 6x40

- **W-HLX-P** concrete screw with a $\varnothing 14.6$ mm pan head and torx T30 drive with zinc flake coating for improved corrosion resistance
- suits installation with Walraven RapidRail® Light-Duty Channel



W-HLX-PX 6x40 6x60

- **W-HLX-PX** concrete screw with a $\varnothing 17.0$ mm pan head and torx T30 drive with zinc flake coating for improved corrosion resistance
- suits installation with Walraven RapidStrut® Channel



W-HLX-N 6x35 6x55

- **W-HLX-N** unibody zinc-plated concrete screw with an internal socket: M8, M10 or M8/M10 thread

Features and benefits

- ETA according to EAD 330747-00-0601 for multiple use for non-structural applications
- The new thread geometry ensures quick and simple installation
- Induction hardened technology ensures very high load capacity
- Zinc flake coating rated up to corrosivity category C4 for demanding environments
- Approved for use in precast prestressed hollow core slabs
- Compliance with VdS CEA 4001:2024-01 (08) for applications with sprinkler systems in concrete elements
- Up to 3 anchoring depths provide maximum installation and design flexibility
- Removable
- Reduced edge and anchor spacing distances
- Fire resistance class R30-R120 for design of anchorages under exposure to fire

Suitable base materials

Typical applications

- Non-cracked concrete, C20/25 to C50/60
- Cracked concrete, C20/25 to C50/60
- Prestressed hollow core slabs, C30/37 to C50/60 with bottom flange thickness ≥ 25 mm

- Rail and pipe support systems
- Suspended rails installations
- Ventilation systems and ducts
- Machinery



Concrete
(non-cracked)



Concrete
(cracked)



Hollow core
slabs

Approvals and certificates

- European Technical Assessment
- Fire Test Report

ETA-25/1138
ETA-25/1138



- Compliance with VdS requirements for applications with sprinkler systems in concrete elements

VdS CEA 4001:2024-01 (08)

1. Product details

Article	Description	Size	Length	Thread diameter	Max. Fixture Thickness*			Drive System
			L [mm]	d _s [mm]	t _{fix,max} [mm]			
					h _{nom} = STD	h _{nom} = MED	h _{nom} = MIN	
62510304	W-HLX-H 6x40	6	40	7.9	-	-	5	SW10
62510306	W-HLX-H 6x60	6	60	7.9	5	20	25	SW10
62511304	W-HLX-P 6x40	6	40	7.9	-	-	5	T30
62512304	W-HLX-PX 6x40	6	40	7.9	-	-	5	T30
62512306	W-HLX-PX 6x60	6	60	7.9	5	20	25	T30
62533304	W-HLX-N 6x35 M8/M10	6	35	7.9	-	-	□	SW13
62533314	W-HLX-N 6x35 M8	6	35	7.9	-	-	□	SW13
62533324	W-HLX-N 6x35 M10	6	35	7.9	-	-	□	SW13
62533305	W-HLX-N 6x55 M8/M10	6	55	7.9	□	□	□	SW13
62533315	W-HLX-N 6x55 M8	6	55	7.9	□	□	□	SW13
62533325	W-HLX-N 6x55 M10	6	55	7.9	□	□	□	SW13

*Articles without a valid fixture thickness cannot be designed and used according to ETA-25/1138

□ product not intended for application with fixture plate

2. Packaging details

Article	Description	Dimension	Pack 1					
			[pcs]	EAN13	length [mm]	width [mm]	height [mm]	weight [kg]
62510304	W-HLX-H	6x40	100	8719942184755	186	140	72	1.44
62510306	W-HLX-H	6x60	100	8719942184786	186	140	72	1.86
62511304	W-HLX-P	6x40	100	8719942185028	186	140	72	1.36
62512304	W-HLX-PX	6x40	100	8719942185059	186	140	72	1.41
62512306	W-HLX-PX	6x60	100	8719942185080	186	140	72	1.87
62533304	W-HLX-N M8/M10	6x35	100	8719942185257	186	140	72	2.73
62533314	W-HLX-N M8	6x35	100	8719942185271	186	140	72	2.18
62533324	W-HLX-N M10	6x35	100	8719942185295	186	140	72	1.95
62533305	W-HLX-N M8/M10	6x55	100	8719942185127	186	140	108	3.19
62533315	W-HLX-N M8	6x55	100	8719942185165	186	140	108	2.66
62533325	W-HLX-N M10	6x55	100	8719942185202	186	140	108	2.43

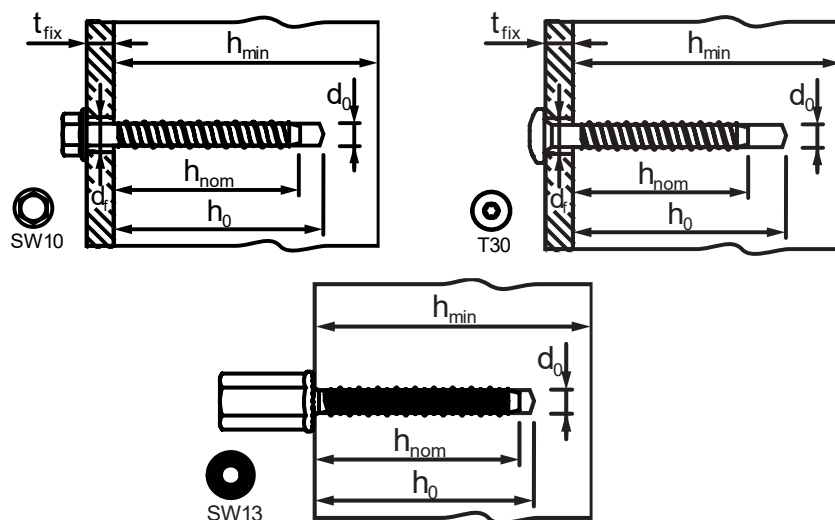
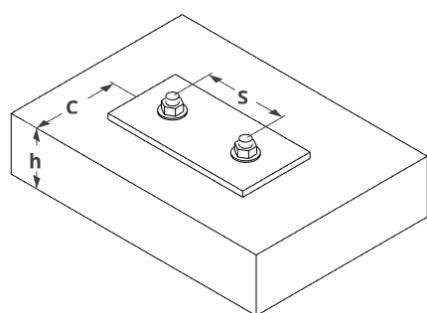
3. Mechanical properties

Property			ETA-25/1138
			W-HLX-H, W-HLX-P, W-HLX-PX, W-HLX-N
Material			Carbon Steel; rupture elongation A ₅ ≥ 12%
Coating			Zinc flake ≥ 5µm ISO 10683 or Zinc plated ≥ 5µm

3. Installation data

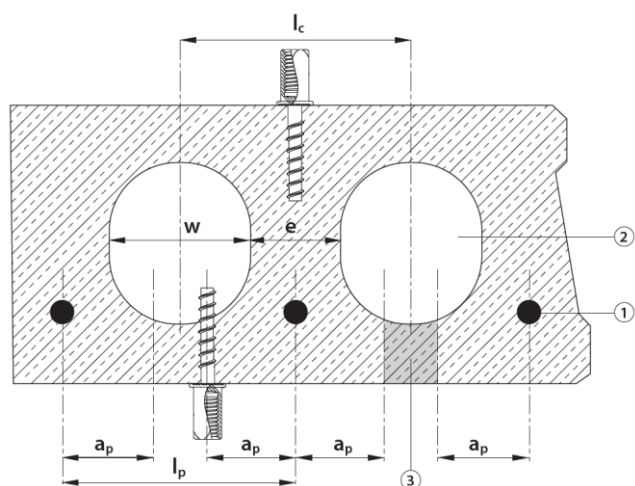
3.1 Installation parameters for cracked and non-cracked concrete

Anchor Type			W-HLX-H, W-HLX-P, W-HLX-PX, W-HLX-N		
Anchor Size			6	6	6
Nominal embedment depth	h_{nom}	[mm]	35	40	55
Drill hole diameter	d_0	[mm]	6		
Max cutting diameter	$d_{cut,max}$	[mm]	6.40	6.40	6.40
Depth of drill hole	$h_0 \geq$	[mm]	45	50	65
Diameter of clearing hole in the fixture	d_f	[mm]	9		
Max fixture thickness	$t_{fix,max}$	[mm]	$L - h_{nom}$		
Minimum concrete member thickness	h_{min}	[mm]	80	80	80
Minimum edge distance	c_{min}	[mm]	35	35	35
Minimum anchor spacing	s_{min}	[mm]	35	35	35
Characteristic spacing	s_{cr}	[mm]	140	200	220
Characteristic edge distance	c_{cr}	[mm]	70	100	110
Max. impact screw driver torque	$T_{imp,max}$	[Nm]	250	250	250

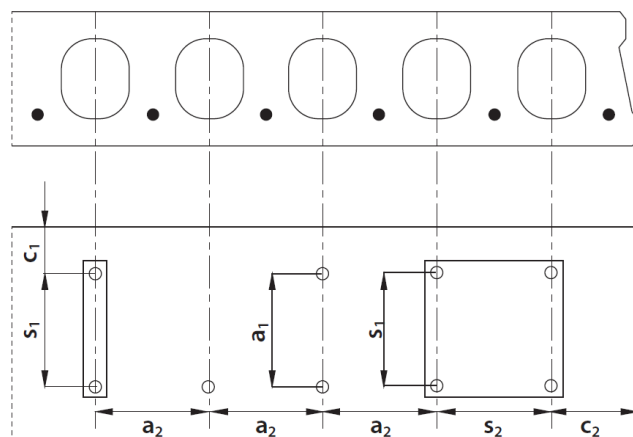
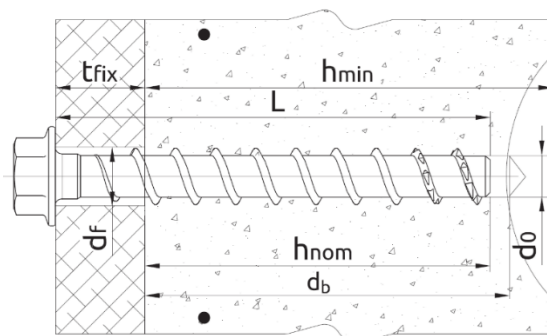


3.2 Installation parameters for precast prestressed hollow core concrete slabs

Anchor Type			W-HLX-H, W-HLX-P, W-HLX-PX, W-HLX-N		
Anchor Size			6	6	6
Nominal embedment depth	h_{nom}	[mm]	35	35	35
Drill hole diameter	d_0	[mm]	6		
Max. cutting diameter	$d_{cut,max}$	[mm]	6.40	6.40	6.40
Min. depth of drill hole	$h_0 \geq$	[mm]	45	45	45
Diameter of clearing hole in the fixture	d_f	[mm]	9		
Max fixture thickness	$t_{fix,max}$	[mm]	$L - h_{nom}$		
Bottom flange thickness	d_b	[mm]	25	30	35
Minimum edge distance	c_{min}	[mm]	35	35	35
Minimum anchor spacing	s_{min}	[mm]	35	35	35
Characteristic spacing	s_{cr}	[mm]	110	110	110
Characteristic edge distance	c_{cr}	[mm]	55	55	55
Max. impact screw driver torque	$T_{imp,max}$	[Nm]	250	250	250



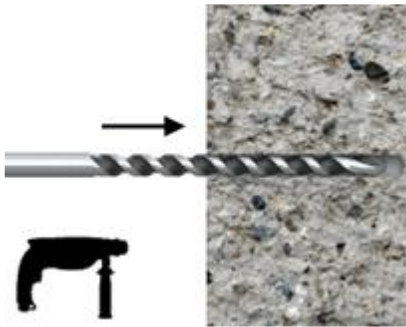
prestressing steel	①
hollow core	②
admissible anchor position	③
core width [w] / web thickness [e]	≤ 4.2
core distance	$l_c \geq 100 \text{ mm}$
prestressing steel	$l_p \geq 100 \text{ mm}$
distance anchor position and prestressing steel	$a_p \geq 50 \text{ mm}$



edge distance	C_1, C_2
anchor spacing	S_1, S_2
distance between anchor groups	a_1, a_2

3.3 Installation procedure for concrete

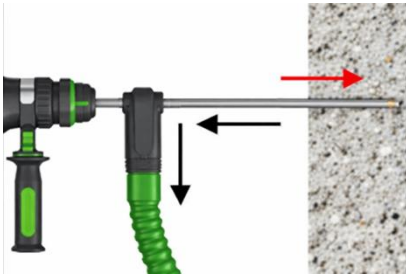
1a



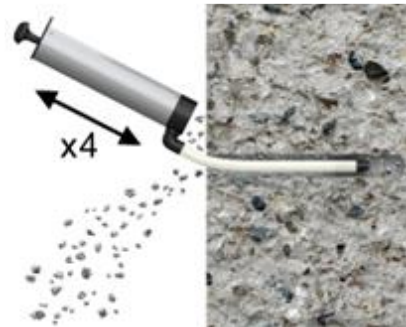
1. Drill the hole with a hammer drill (1a) or a dust-free drill (1b) to the required depth.

Drill hole depth: $h_1 \geq L - t_{fix} + 10 \text{ mm}$

1b



2.



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 by pump.

3.



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.

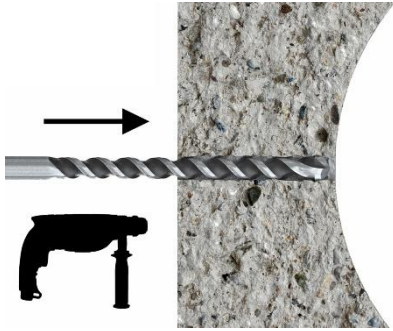
4.



4. Finish screwing when the screw head presses the fastened element/substrate. The screw head must not be damaged.

3.5 Installation procedure for precast prestressed hollow core concrete slabs

1



1. Drill the hole with a hammer drill to the required depth.

2.



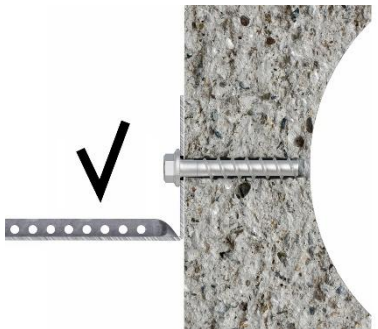
2. Clean the hole (blow dust at least 4 times with the hand pump).

3.



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.



4. Finish screwing when the screw head presses the fastened element/substrate. The screw head must not be damaged.

4. Performance information

4.1 Loading information for multiple use for non-structural applications in cracked and non-cracked concrete for all load directions for single anchors¹⁾

Anchor Type				W-HLX-H, W-HLX-P, W-HLX-PX, W-HLX-N		
Anchor Size	$\emptyset$			6	6	6
Nominal embedment depth	h_{nom}	[mm]		35	40	55
Any load direction						
Characteristic resistance	$C = C_{min}$	F_{Rk}^0	[kN]	2.3	2.3	2.5
	$C = C_{cr}$			2.5	4.5	7.0
Installation safety factor	γ_{inst}	[-]		1.0	1.0	1.0
Design load	$C = C_{min}$	F_{Rd}^0	[kN]	1.5	1.5	1.6
	$C = C_{cr}$			1.6	3.0	4.6
Recommended load ²⁾	$C = C_{min}$	F_{Rec}^0	[kN]	1.0	1.0	1.1
	$C = C_{cr}$			1.1	2.1	3.3
Characteristic spacing	s_{cr}	[mm]		140	200	220
Characteristic edge distance	c_{cr}	[mm]		70	100	110

1) Single anchors are anchors not affected by concrete edge and anchor spacing influence.

2) Recommended load includes partial safety factor and an overall partial safety factor for action of 1.4. The partial safety factor for action depends on the type of loading and shall be taken from national regulations. All anchor failure modes and the entire relevant product European Technical Assessment must be considered for anchor design.

4.2 Loading information for multiple use for non-structural applications in precast prestressed hollow core slabs C30/37 to C50/60 for single anchors¹⁾

Anchor Type				W-HLX-H, W-HLX-P, W-HLX-PX, W-HLX-N		
Anchor Size	$\emptyset$			6	6	6
Bottom flange thickness	d_b	[mm]		25	30	35
Any load direction						
Characteristic resistance	$C = C_{min}$	F_{Rk}^0	[kN]	2.5	3.9	3.9
	$C = C_{cr}$			2.5	4.0	4.5
Installation safety factor	γ_{inst}	[-]		1.2	1.2	1.2
Design load	$C = C_{min}$	F_{Rd}^0	[kN]	1.3	2.1	2.1
	$C = C_{cr}$			1.3	2.2	2.5
Recommended load ²⁾	$C = C_{min}$	F_{Rec}^0	[kN]	0.9	1.5	1.5
	$C = C_{cr}$			0.9	1.5	1.7
Characteristic spacing	s_{cr}	[mm]		110	110	110
Characteristic edge distance	c_{cr}	[mm]		55	55	55
Shear load steel failure with lever arm						
Characteristic bending moment	$M_{Rk,s}^0$	[Nm]		16.1		
Partial safety factor	$\gamma_{ms}^{3)}$	[-]		1.25		

1) Single anchors are anchors not affected by concrete edge and anchor spacing influence.

2) Recommended load includes partial safety factor and an overall partial safety factor for action of 1.4. The partial safety factor for action depends on the type of loading and shall be taken from national regulations. All anchor failure modes and the entire relevant product European Technical Assessment must be considered for anchor design.

3) In absence of other national regulations.

4.3 Characteristic values of resistance for all load directions to fire exposure¹⁾

Anchor Type				W-HLX-H, W-HLX-P, W-HLX-PX, W-HLX-N		
Anchor Size				6	6	6
Concrete solid material ≥ C20/25						
Nominal embedment depth		h_{nom}	[mm]	35	40	55
R30	Characteristic resistance for all directions	$F^0_{Rk,fi30}$	[kN]	0.59	0.85	1.75
R60		$F^0_{Rk,fi60}$	[kN]	0.59	0.85	1.41
R90		$F^0_{Rk,fi90}$	[kN]	0.59	0.85	1.01
R120		$F^0_{Rk,fi120}$	[kN]	0.47	0.68	0.81
Pre-stressed hollow core slabs ≥ C30/37						
Bottom flange thickness		d_b	[mm]	25	30	35
R30	Characteristic resistance for all directions	$F^0_{Rk,fi30}$	[kN]	0.59	0.94	0.94
R60		$F^0_{Rk,fi60}$	[kN]	0.59	0.94	0.94
R90		$F^0_{Rk,fi90}$	[kN]	0.59	0.94	0.94
R120		$F^0_{Rk,fi120}$	[kN]	0.47	0.75	0.75
Characteristic fire bending moment						
R30	Characteristic fire bending moment	$M^0_{Rk,s,fi(30)}$	[Nm]	1.50		
R60		$M^0_{Rk,s,fi(60)}$	[Nm]	1.17		
R90		$M^0_{Rk,s,fi(90)}$	[Nm]	0.84		
R120		$M^0_{Rk,s,fi(120)}$	[Nm]	0.67		
The design method covers anchors with a fire attack from one side only. In case of fire attack from more than one side, the edge distance shall be ≥ 300mm and ≥ 2 x h_{ef}						

1) In absence of other national regulations a partial safety factor of $\gamma_{M,fi} = 1.0$ is recommended.

5. The definition and requirements of redundant non-structural systems

The definition of multiple use according to the Member States is given in CEN / TR 17079. In the absence of a definition by a Member State the following default values may be taken:

Minimum number of fixing points	Minimum number of anchors per fixing point	Maximum design value of actions per fixing point
$[n_1]$	$[n_2]$	$[n_3]$
3	1	2.0 kN
4	1	3.0 kN

The maximum design value of actions per fixing point might be increased if in the design it is shown that the requirements on the strength and stiffness of the fixture in the serviceability and ultimate states after the failure of one anchor are fulfilled.

Design method for anchorages for redundant non-structural systems

The design of the fixture is such that, in the case of excessive slip or failure of one anchor, the load can be transmitted to neighbouring anchors without significantly violating the requirements on the fixture in the serviceability and ultimate limit state.

For example the design of the fixture may specify the number n_1 of fixing points to fasten the fixture and the number n_2 of anchors per fixing point. Furthermore by specifying the design value of actions N_{Sd} on a fixing point to a value $\leq n_3$ (kN) up to which the strength and stiffness of the fixture are fulfilled and the load transfer in the case of excessive slip or failure of one anchor need not to be taken into account in the design of the fixture.