

X3 High Performance Long Plug

The X3 plugs in Ø8 and Ø10 mm versions in combination with countersunk / hexagon head screws are approved for multiple fixings in concrete and masonry.

Features

Material

Plug: nylon

Screw: white zinc plated steel

Benefits

- Extraordinary performance on all base materials.
- Up to 3 embedment depths
- Extreme versatility and significant reduction in installation time.
- Increased expansion
- Designed for facades and heavy carpentry.

Applications

Applications

- Ventilated facades
- Steel carpentry
- Wood carpentry

Suitable for

Non-cracked concrete

Solid brick

Honeycomb brick

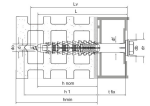
- Cell like clay brick
- Lightweight honeycomb brick
- Hollow dense aggregate block
- Hollow light aggregate block
- Aerated concrete
- Solid stone



X3
High Performance Long Plug

Technical Data

Product Dimensions Countersunk TX Screw

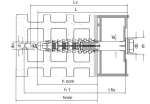


References	Product Reference	Plug [ØxL] [mm]	Screw [ØxL] [mm]	Reduced fixture thickness [t_{fix}] [mm]	Standard fixture thickness [t_{fix}] [mm]	Increased* fixture thickness [t_{fix}] [mm]	Ø drilling fixture [df] [mm]	Bit	Qty per box	Qty per outer box
64602B0806000	X3	Ø8x60	6x68	20	10	-	8.5	T-30	50	500
64602B0808000		Ø8x80	6x88	40	30	-	8.5	T-30	50	500
64602B0810000		Ø8x100	6x108	60	50	-	8.5	T-30	50	500
64602B0812000		Ø8x120	6x128	80	70	-	8.5	T-30	50	500
64602B1006000		Ø10x60	7x68	10	-	-	10.5	T-40	50	500
64602B1008000		Ø10x80	7x88	30	10	-	10.5	T-40	50	500
64602B1010000		Ø10x100	7x108	50	30	10	10.5	T-40	50	500
64602B1012000		Ø10x120	7x128	70	50	30	10.5	T-40	50	500
64602B1014000		Ø10x140	7x148	90	70	50	10.5	T-40	50	300
64602B1016000		Ø10x160	7x168	110	90	70	10.5	T-40	50	250
64602B1026000		Ø10x260	7x268	210	190	170	10.5	T-40	50	-
64602B1029000		Ø10x290	7x298	240	220	200	10.5	T-40	50	-

*Only for aerated concrete

NOTE: The thickness of the plaster must be included in the fixing thickness t_{fix}

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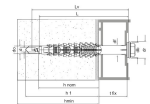


Product Dimensions Hex-head Screw

References	Product Reference	Plug [ØxL] [mm]	Screw [ØxL] [mm]	Reduced fixture thickness [t _{fix}] [mm]	Standard fixture thickness [t _{fix}] [mm]	Increased* fixture thickness [t _{fix}] [mm]	Ø drilling fixture [df] [mm]	Bit	Qty per box	Qty per outer box
64603B1006000	X3	Ø10x60	7x68	10	-	-	10.5	T-40	50	500
64603B1008000		Ø10x80	7x88	30	10	-	10.5	T-40	50	500
64603B1010000		Ø10x100	7x108	50	30	10	10.5	T-40	50	500
64603B1012000		Ø10x120	7x128	70	50	30	10.5	T-40	50	300
64603B1014000		Ø10x140	7x148	90	70	50	10.5	T-40	50	300
64603B1016000		Ø10x160	7x168	110	90	70	10.5	T-40	50	250

* Only for aerated concrete

NOTE: The thickness of the plaster must be included in the fixing thickness t_{fix}



Product Dimensions Large Rim Plug with Hex-head screw

References	Product Reference	Plug [ØxL] [mm]	Screw [ØxL] [mm]	Reduced fixture thickness [t _{fix}] [mm]	Standard fixture thickness [t _{fix}] [mm]	Increased* fixture thickness [t _{fix}] [mm]	Bit	Qty per box	Qty per outer box
64703B1006000	X3	Ø10x60	7x68	10	-	-	T-40	50	500
64703B1008000		Ø10x80	7x88	30	10	-	T-40	50	500
64703B1010000		Ø10x100	7x108	50	30	10	T-40	50	500
64703B1012000		Ø10x120	7x128	70	50	30	T-40	50	300
64703B1014000		Ø10x140	7x148	90	70	50	T-40	50	300
64703B1016000		Ø10x160	7x168	110	90	70	T-40	50	250

*Only for aerated concrete

NOTE: The thickness of the plaster must be included in the fixing thickness t_{fix}

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Design capacities - single anchor - no edge distances

References	Design capacities - single anchor - no edge distances								
	Design capacity								
	Tension - NRd				Shear - VRd				Bending moment - MRd [Nm]
	Non-cracked concrete C12/25 [kN]	Non-cracked concrete C16/20 [kN]	Autoclaved aerated concrete AAC 2 [kN]	Solid brick (BP400) [kN]	Non-cracked concrete C12/15 [kN]	Non-cracked concrete C16/20 [kN]	Autoclaved aerated concrete AAC 2 [kN]	Solid brick (BP400) [kN]	
64603B1006000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1008000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1010000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1012000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1014000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1016000	0.65	0.83	0.25	1.6	-	-	-	-	11.3
64602B0806000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B0808000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B0810000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B0812000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B1006000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1008000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1010000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1012000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1014000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1016000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1026000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1029000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1006000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1008000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1010000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1012000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1014000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1016000	1.8	2.5	0.25	1.6	-	-	-	-	18.2

1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing $s \geq 15$ cm (any diameter) or with a rebar spacing $s \geq 10$ cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges ($c \leq \max [10 \text{ hef}; 60d]$) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is $\sigma_L + \sigma_R \leq 0$. In the absence of detailed verification $\sigma_R = 3 \text{ N/mm}^2$ can be assumed (σ_L equals the tensile stress within the concrete induced by external loads, anchors loads included).

*Not covered by ETA-11/0080

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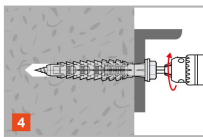
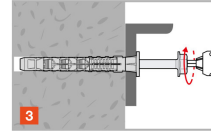
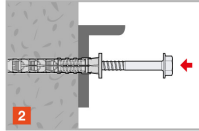
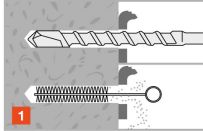
Recommended capacities - single anchor - no edge distances

References	Design capacities - single anchor - no edge distances								
	Design capacity								
	Tension - NRd				Shear - VRd				Bending moment - MRd [Nm]
	Non-cracked concrete C12/25 [kN]	Non-cracked concrete C16/20 [kN]	Autoclaved aerated concrete AAC 2 [kN]	Solid brick (BP400) [kN]	Non-cracked concrete C12/15 [kN]	Non-cracked concrete C16/20 [kN]	Autoclaved aerated concrete AAC 2 [kN]	Solid brick (BP400) [kN]	
64603B1006000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1008000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1010000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1012000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1014000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64603B1016000	0.65	0.83	0.25	1.6	-	-	-	-	11.3
64602B0806000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B0808000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B0810000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B0812000	0.65	0.83	-	1.4	-	-	-	-	11.3
64602B1006000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1008000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1010000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1012000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1014000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1016000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1026000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64602B1029000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1006000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1008000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1010000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1012000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1014000	1.8	2.5	0.25	1.6	-	-	-	-	18.2
64703B1016000	1.8	2.5	0.25	1.6	-	-	-	-	18.2

1. The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of $\gamma_F=1.4$. The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing $s \geq 15$ cm (any diameter) or with a rebar spacing $s \geq 10$ cm, if the rebar diameter is 10 mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges ($c \leq \max [10 \text{ hef}; 60d]$) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is $\sigma_L + \sigma_R \leq 0$. In the absence of detailed verification $\sigma_R = 3 \text{ N/mm}^2$ can be assumed (σ_L equals the tensile stress within the concrete induced by external loads, anchors loads included).

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High Performance Long Plug

Installation



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Spacings and edge distances

References	Product Reference	Plug [ØxL] [mm]	Spacings and edge distances									
			Non-cracked concrete C12/15				Non-cracked concrete C16/20				Autoclaved aerated concrete	
			Min. edge distance [cmin] [mm]	Min. spacing [smin] [mm]	Characteristic edge distance [ccr,N] [mm]	Minimum thickness of support [mm]	Min. edge distance [mm]	Min. spacing [mm]	Characteristic edge distance [mm]	Minimum thickness of support [mm]	Min. edge distance [cmin] [mm]	Min. spacing [smin] [mm]
64603B1006000	X3	Ø10x60	70	70	140	100	50	50	100	100	100	250
64603B1008000	X3	Ø10x80	70	70	140	100	50	50	100	100	100	250
64603B1010000	X3	Ø10x100	70	70	140	100	50	50	100	100	100	250
64603B1012000	X3	Ø10x120	70	70	140	100	50	50	100	100	100	250
64603B1014000	X3	Ø10x140	70	70	140	100	50	50	100	100	100	250
64603B1016000	X3	Ø10x160	70	70	140	100	50	50	100	100	100	250
64602B0806000	X3	Ø8x60	70	85	85	100	50	60	60	100	100	250
64602B0808000	X3	Ø8x80	70	85	85	100	50	60	60	100	100	250
64602B0810000	X3	Ø8x100	70	85	85	100	50	60	60	100	100	250
64602B0812000	X3	Ø8x120	70	85	85	100	50	60	60	100	100	250
64602B1006000	X3	Ø10x60	70	70	140	100	50	50	100	100	100	250
64602B1008000	X3	Ø10x80	70	70	140	100	50	50	100	100	100	250
64602B1010000	X3	Ø10x100	70	70	140	100	50	50	100	100	100	250
64602B1012000	X3	Ø10x120	70	70	140	100	50	50	100	100	100	250
64602B1014000	X3	Ø10x140	70	70	140	100	50	50	100	100	100	250
64602B1016000	X3	Ø10x160	70	70	140	100	50	50	100	100	100	250
64602B1026000	X3	Ø10x260	70	70	140	100	50	50	100	100	100	250
64602B1029000	X3	Ø10x290	70	70	140	100	50	50	100	100	100	250
64703B1006000	X3	Ø10x60	70	70	140	100	50	50	100	100	100	250
64703B1008000	X3	Ø10x80	70	70	140	100	50	50	100	100	100	250
64703B1010000	X3	Ø10x100	70	70	140	100	50	50	100	100	100	250
64703B1012000	X3	Ø10x120	70	70	140	100	50	50	100	100	100	250
64703B1014000	X3	Ø10x140	70	70	140	100	50	50	100	100	100	250
64703B1016000	X3	Ø10x160	70	70	140	100	50	50	100	100	100	250

* Not included in the approval

X3 High Performance Long Plug

Installation data

References	Installation data		
	Ø drilling hole [d0] [mm]	Min. drill depth [h1] [mm]	Ø drilling fixture [df] [mm]
64603B1006000	10	65	10.5
64603B1008000	10	65	10.5
64603B1010000	10	65	10.5
64603B1012000	10	65	10.5
64603B1014000	10	65	10.5
64603B1016000	10	65	10.5
64602B0806000	8	55	8.5
64602B0808000	8	55	8.5
64602B0810000	8	55	8.5
64602B0812000	8	55	8.5
64602B1006000	10	65	10.5
64602B1008000	10	65	10.5
64602B1010000	10	65	10.5
64602B1012000	10	65	10.5
64602B1014000	10	65	10.5
64602B1016000	10	65	10.5
64602B1026000	10	65	10.5
64602B1029000	10	65	10.5
64703B1006000	10	65	10.5
64703B1008000	10	65	10.5
64703B1010000	10	65	10.5
64703B1012000	10	65	10.5
64703B1014000	10	65	10.5
64703B1016000	10	65	10.5

