EN

DECLARATION OF PERFORMANCE

according to Annex III of the Regulation (EU) Nr. 305/2011 (Construction Products Regulation)

Hilti powder-actuated fastener X-CR52 P8 S15, X-CR48 P8 S15 and X-CR-FOX 53 P8 S15
No. Hilti-DX-DoP-004

1. Unique identification code of the product-type: Hilti powder-actuated fastener X-CR52 P8 S15, X-CR48 P8 S15 and X-CR-FOX 53 P8 S15 in combination with Hilti powder-actuated fastening tool DX 6, DX 5 and DX 460

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4): Type and lot number are displayed on the packaging

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

Intended use	Powder-actuated fastener for multiple uses in concrete for non-structural applications
Base material	Reinforced or unreinforced normal weight concrete according to EN 206-1:2000. Strength classes C20/25 to C50/60 according to EN 206-1:2000. Cracked and non-cracked concrete. The fasteners are driven into a pre-drilled hole with a pre-drilled depth of 23 mm.
Environmental condition	Structures subject to dry indoor conditions and structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal conditions, if no particular aggressive conditions exist
Loading	Static and quasi-static loads

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

Hilti Aktiengesellschaft, Business Unit Direct Fastening, 9494 Schaan, Fürstentum Liechtenstein

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2): n.a.

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V: System 2+

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard: n.a.

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

DIBt, Deutsches Institut für Bautechnik issued ETA-14/0426 on the basis of EAD 330083-02-0601, March 2018. The notified body MPA-Stuttgart 0672 performed third party tasks under system 2+ and issued the certificate of conformity of the factory production control 0672-CPR-0431.

9. Declared performance:

Essential characteristics	Performance
Characteristic and design values of resistance and displacements in non-cracked and cracked concrete	Table 3, Table 4 and Table 5 of Annex C1 and Annex C2 of ETA-14/0426 (details see below)
Durability	Structures subject to dry conditions. Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal conditions, if no particular aggressive conditions exist. Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).
Reaction to fire	Class A1
Resistance to fire	Table 6 of Annex C4 of ETA-14/0426 (details see below)

Performance tables from ETA-14/0426

Table 3: Characteristic values, uncracked concrete, Design method C

Hilti X-CR DX-Kwik powder-actuated fasteners			**X-CR48 P8 S15, X-CR52 P8 S15 X-CR-FOX 53 P8 S15**
Characteristic resistance for all load directions	F_{Rk}	[kN]	5.3
Partial safety factor [1]	γ_M	[-]	1.5
Characteristic bending resistance of fastener shank [2]	$M^0_{Rk,s}$	[Nm]	13.6
Spacing	$s_1 = s_2 = s_{cr} = s_{min}$	[mm]	100
Edge distance	$c_{cr} = c_{min}$	[mm]	150
Reduced edge distance for the specific case of double fastenings ($n_2 = 2$) according to Annex C3	c_1	[mm]	100
Displacement in tension direction at $F_{Rk}/(\gamma_M \cdot \gamma_F)$	δ_{N0}	[mm]	< 0.1
	$\delta_{N\infty}$	[mm]	< 0.1
Displacement in shear direction at $F_{Rk}/(\gamma_M \cdot \gamma_F)$ [3]	δ_{V0}	[mm]	1.11
	$\delta_{V\infty}$	[mm]	1.15

[1] In the absence of national regulations.

[2] For intermediate layers (e.g. plastic for thermal insulation of brackets of ventilated facades) up to a thickness of 5 mm for the X-CR52 P8 S15 and up to 6 mm for the X-CR-FOX 53 P8 S15, it is not required to consider the lever arm in case of shear loads.

[3] Displacements in shear direction are to be increased with 0.75 mm, if the clearance hole in the fixture is $>$ 5 mm and $\leq$ 6.5 mm.

Table 4: Characteristic values, cracked concrete, Design method C

Hilti X-CR DX-Kwik powder-actuated fasteners				X-CR48 P8 S15 and X-CR52 P8 S15
Characteristic resistance for all load directions		F_{Rk}	[kN]	2.0
Partial safety factor [1]		γ_M	[-]	1.5
Characteristic bending resistance of fastener shank [2]		$M^0_{Rk,s}$	[Nm]	13.6
Spacing		$s_1 = s_2 = s_{cr} = s_{min}$	[mm]	100
Edge distance		$c_{cr} = c_{min}$	[mm]	150
Displacement in tension direction at $F_{Rk}/(\gamma_M \cdot \gamma_F)$	δ_{N0}	δ_{N0}	[mm]	< 0.1
		$\delta_{N\infty}$	[mm]	< 0.1
Displacement in shear direction at $F_{Rk}/(\gamma_M \cdot \gamma_F)$ [3]		δ_{V0}	[mm]	0.63
		$\delta_{V\infty}$	[mm]	0.95

[1] In the absence of national regulations.

[2] For intermediate layers (e.g. plastic for thermal insulation of brackets of ventilated facades) up to a thickness of 5 mm, it is not required to consider the lever arm in case of shear loads.

[3] Displacements in shear direction are to be increased with 0.75 mm, if the clearance hole in the fixture is > 5 mm and ≤ 6.5 mm.

Table 5: Characteristic values, cracked concrete, Design method C

Hilti X-CR DX-Kwik powder-actuated fasteners				X-CR-FOX 53 P8 S15
Characteristic resistance for all load directions		F_{Rk}	[kN]	2.85
Partial safety factor [1]		γ_M	[-]	1.5
Characteristic bending resistance of fastener shank [2]		$M^0_{Rk,s}$	[Nm]	13.6
Spacing		$s_1 = s_2 = s_{cr} = s_{min}$	[mm]	50
Edge distance		$c_{cr} = c_{min}$	[mm]	150
Displacement in tension direction at $F_{Rk}/(\gamma_M \cdot \gamma_F)$	δ_{N0}	δ_{N0}	[mm]	< 0.1
		$\delta_{N\infty}$	[mm]	< 0.1
Displacement in shear direction at $F_{Rk}/(\gamma_M \cdot \gamma_F)$ [3]		δ_{V0}	[mm]	0.63
		$\delta_{V\infty}$	[mm]	0.95

[1] In the absence of national regulations.

[2] For intermediate layers (e.g. plastic for thermal insulation of brackets of ventilated facades) up to a thickness of 6 mm, it is not required to consider the lever arm in case of shear loads.

[3] Displacements in shear direction are to be increased with 0.75 mm, if the clearance hole in the fixture is > 5 mm and ≤ 6.5 mm.

Table 6: Characteristic resistance in case of a fire for all load directions

Fire resistance class	Hilti X-CR DX-Kwik powder-actuated fasteners			X-CR48 P8 S15 X-CR52 P8 S15 X-CR-FOX 53 P8 S15
R30	Characteristic resistance	$F_{Rk,fi(30)}$	[kN]	0.40
	Characteristic bending resistance	$M^0_{Rk,fi(30)}$	[Nm]	0.25
R60	Characteristic resistance	$F_{Rk,fi(60)}$	[kN]	0.35
	Characteristic bending resistance	$M^0_{Rk,fi(60)}$	[Nm]	0.20
R90	Characteristic resistance	$F_{Rk,fi(90)}$	[kN]	0.25
	Characteristic bending resistance	$M^0_{Rk,fi(90)}$	[Nm]	0.15
R120	Characteristic resistance	$F_{Rk,fi(120)}$	[kN]	0.20
	Characteristic bending resistance	$M^0_{Rk,fi(120)}$	[Nm]	0.10
	Partial safety factor [1)]	$\gamma_{M,fi}$	[-]	1.00
R30 to R120	Spacing	$s_{cr} = s_{min}$	[mm]	200
	Edge distance with fire attack from one side	$c_{cr} = c_{min}$	[mm]	150
	Edge distance with fire attack from more than one side			300

1) In the absence of national regulations.

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Mario Grazioli
Head of Quality Direct Fastening
Hilti Aktiengesellschaft, Schaan: April 28, 2021