

3.3.3 X-CC Ceiling Clip and Hanger Assemblies

3.3.3.1 Product Description

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3.3.3.1 Product Description

Ceiling clip assemblies are an economical and recognized method of suspending acoustical ceiling grids and panels from concrete and steel. These pre-assembled ceiling clips consist of a sheet steel clip with a pre-mounted powder-actuated fastener and are typically pre-tied with a single

12 gauge wire of varying lengths depending on ceiling height requirements. When the fastening is made, the clip, fastener and wire are installed in one step. Further productivity can be achieved through the use of a Hilti powder-actuated pole tool.

3.3.3.2 Material Specifications

Item	Material	Steel Diameter/Thickness	Plating
X-C Fastener	Carbon Steel	0.138"	5 µm Zinc ¹
X-U Fastener	Carbon Steel	0.157"	5 µm Zinc ¹
CC27 Clip	Carbon Steel	13 GA	5 µm Zinc ¹
Wire ²	Carbon Steel	12, 9 or 8 GA	5 µm Zinc ¹

1 ASTM B633, SC 1, Type III. Reference Section 2.3.3.1 for more information.

2 Pre-mounted ASTM A641/A641M Class 1 wires come attached with a minimum of three tight turns in 1-1/2" length.

Listings/Approvals

ICC-ES (International Code Council)
ESR-2184

COLA (City of Los Angeles)
RR 25651



3.3.3.3 Technical Data

Allowable Loads for Hilti Ceiling Clip Assemblies Installed in Normal Weight Concrete^{1,2,3,4}

Ceiling Clip	Concrete Compressive Strength					
	4000 psi (27.6 MPa)			6000 psi (41.4 MPa)		
	Tension lb (kN)	Shear lb (kN)	45 Degree lb (kN)	Tension lb (kN)	Shear lb (kN)	45 Degree lb (kN)
X-CC27 C27	160 (0.71)	205 (0.91)	210 (0.93)	-	-	-
X-CC27 C32	220 (0.98)	270 (1.20)	260 (1.16)	-	-	-
X-CC27 U22	-	-	-	80 (0.36)	175 (0.78)	90 (0.40)
X-CC27 U27	160 (0.71)	205 (0.91)	210 (0.93)	125 (0.56)	205 (0.91)	150 (0.67)

1 The tabulated allowable load values apply to the powder-actuated ceiling clip assemblies only, using a safety factor that is greater than or equal to 5.0, calculated in accordance with ICC-ES AC70. Connected components, including wires*, must be investigated separately.

2 Allowable values are for fasteners installed in concrete having the designated compressive strength at the time of installation.

3 Concrete thickness at the point of penetration must be a minimum of the fastener embedment depth plus 1-1/2".

4 Multiple fasteners are recommended for any attachment.

* Note: For Hilti supplied wire, the recommended allowable load capacities of 12, 9 and 8 gauge wire are 210, 400 and 500 lb, respectively.

X-CC Ceiling Clip and Hanger Assemblies 3.3.3

Allowable Loads for Hilti Ceiling Clip Assemblies Installed in Lightweight Concrete Over Metal Deck^{1,2,3,4}

Ceiling Clip Assembly	$f'_c = 3000$ psi Concrete Compressive Strength											
	Lower Flute					Upper Flute						
	Tension		Shear		45 Degree	Tension		Shear		45 Degree		
	lb	(kN)	lb	(kN)	lb	(kN)	lb	(kN)	lb	(kN)		
X-CC27 C27	50	(0.22)	275	(1.22)	120	(0.53)	105	(0.47)	285	(1.27)	240	(1.07)
X-CC27 C32	65	(0.29)	325	(1.45)	130	(0.58)	130	(0.58)	325	(1.45)	265	(1.18)
X-CC27 U27	150	(0.69)	275	(1.22)	160	(0.71)	170	(0.76)	285	(1.27)	240	(1.07)

- The tabulated allowable load values apply to the powder-actuated ceiling clip assemblies only, using a safety factor that is greater than or equal to 5.0, calculated in accordance with ICC-ES AC70. Connected components, including wires*, must be investigated separately.
- Allowable values are for fasteners installed in concrete having the designated compressive strength at the time of installation.
- Testing completed in 3" deep composite floor deck having a minimum steel deck thickness of 20 gauge (0.0358") and a minimum yield strength $F_y = 38$ ksi. Lower and upper flute width must be a minimum of 3-7/8". Figure 3 in Section 3.3.1.3 shows nominal flute dimensions, fastener locations and load orientations for the steel deck profile. Concrete thickness at the point of penetration must be a minimum of the fastener embedment plus 1-1/2".
- Multiple fasteners are recommended for any attachment.

* Note: For Hilti supplied wire, the recommended allowable load capacities of 12, 9 and 8 gauge wire are 210, 400 and 500 lb, respectively.

Allowable Loads for Hilti Ceiling Clip Assemblies in Minimum ASTM A36 ($F_y \geq 36$ ksi, $F_u \geq 58$ ksi)^{1,2}

Ceiling Clip Assembly	Steel Thickness (in.)							
	1/4		3/8		1/2			
	Tension	Shear	Tension	Shear	Tension	Shear		
lb	(kN)	lb	(kN)	lb	(kN)	lb	(kN)	
X-CC27 U19 X-CC27 U22	375	(1.62)	410	(1.82)	375	(1.62)	410	(1.82)

- The tabulated allowable load values apply to the powder-actuated ceiling clip assemblies only, using a safety factor that is greater than or equal to 5.0, calculated in accordance with ICC-ES AC70. Connected components, including wires*, must be investigated separately.
- Multiple fasteners are recommended for any attachment.

* Note: For Hilti supplied wire, the recommended allowable load capacities of 12, 9 and 8 gauge wire are 210, 400 and 500 lb, respectively.

3.3.3.4 Ordering Information

Fastener Description ¹	Fastener Length in. (mm)	Shank Ø in. (mm)	Washer Ø	Packaging Qty ¹
X-CC27 C27P8T	1 (27)	0.138 (3.5)	8 mm metal tophat	100 or 1000 pcs
X-CC27 C32P8T	1-1/4 (32)	0.138 (3.5)	8 mm metal tophat	100 or 1000 pcs
X-CC27 U22P8T	7/8 (22)	0.157 (4.0)	8 mm metal tophat	100 or 1000 pcs
X-CC27 U27P8T	1 (27)	0.157 (4.0)	8 mm metal tophat	100 or 1000 pcs

¹ Ceiling clip and fastener combinations can be assembled with pre-tied wire lengths of 4', 6', 8', 10' and 12'.

