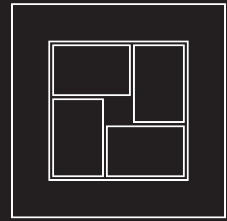


Recommended Tensile Pullout Design Loads for FEROTie Systems Compatible

FASTENERS



Recommended Tensile Pullout Design Load

Self-Tapping Sheet Metal Screw Size	Thickness of Metal Stud		
	20 ga. (0.940 mm)	16 ga. (1.435 mm)	14 ga. (1.727 mm)
No. 8	430N (97 lbs)	1,050N (237 lbs)	1,395N (314 lbs)
No. 10	415N (93 lbs)	1,045N (235 lbs)	1,475N (332 lbs)
No. 12	600N (135 lbs)	945N (212 lbs)	1,430N (322 lbs)
No. 14	525N (118 lbs)	1,060N (238 lbs)	1,670N (376 lbs)

Notes

1. The above pullout design loads correspond to a factor of safety of 3.0 (as per Table 3 of CSA CAN3-A370-04 "Connectors for Masonry", ACI/ASCE/TMS/518 and U.B.C.). Note (1) of Table 3 in A370 states "Where a single tie secures less than 0.5 m of masonry, the factors of safety may be reduced to 75% of the tabulated value" (i.e. 75% of 4.0 = 3.0).
2. To arrive at the pullout design values, 5 screws of each size were tested with two studs (from different runs) of each stud gauge. The actual thickness of each stud size was as follows: 20 gauge: 0.940 and 0.978 mm, 16 gauge: 1.435 and 1.511 mm and 14 gauge: 1.727 and 1.740 mm.
3. The sheet metal screw physical properties are as follows:

Screw Size	Thread Diameter	Shank Diameter	Threads per inch (Threads per 25 mm)
No. 8	4.22 mm (0.166")	3.05 mm (0.120")	19
No. 10	4.75 mm (0.187")	3.48 mm (0.137")	17
No. 12	5.51 mm (0.217")	3.12 mm (0.123")	13
No. 14	6.20 mm (0.244")	4.83 mm (0.190")	14

Recommended Tensile Pullout Design Load for FERO Tie Systems Compatible Fasteners

Type of Fastener	CONCRETE BLOCK		20.7 MPa Concrete (3000 psi)
	Light Weight (105 pcf)	Normal Weight (150 pcf)	
U-Drive Anchor (Ucan)	215N (48 lbs)	960N (216 lbs)	1,390N (312 lbs)
Tapcon (Ucan) (i) 3/16" \emptyset (ii) 1/4" \emptyset	310N (69 lbs) 600N (135 lbs)	575N (129 lbs) 1,080N (243 lbs)	735N (165 lbs) 1,440N (324 lbs)
Ucan Confixx (i) No. 12 (ii) No. 14	360N (81 lbs) 640N (144 lbs)	200N (45 lbs) 590N (132 lbs)	1,190N (267 lbs) 1,390N (312 lbs)
Zamac Pin Bolt (Ucan) (i) 3/16" \emptyset (ii) 1/4" \emptyset	630N (141 lbs) 975N (219 lbs)	655N (147 lbs) 1,150N (258 lbs)	1,040N (234 lbs) 1,215N (273 lbs)

Notes

1. The above pullout design loads correspond to a minimum embedment length of 32 mm (1 1/4") for all of the fasteners listed, with the exception of the 3/16" \emptyset Zamac Pin Bolt which was tested with a 22 mm (7/8") embedment length. See Ucan product literature for pullout loads pertaining to other embedment lengths.
2. The tabulated pullout design loads correspond to a Factor of Safety of 3.0 (as per Table 3 of CSA CAN3-A370-04 "Connectors for Masonry", ACI/ASCE/TMS/518 and U.B.C.). Note (1) of Table 3 in A370 states "Where a single tie secures less than 0.5 m² of masonry, the factors of safety may be reduced to 75% of the tabulated value" (i.e. 75% of 4.0 = 3.0).
3. Manufacturers guidelines must be followed for fastener application; i.e. recommended edge distance, drill bit diameter, hole depth, type of drill, fastener installation, etc.
4. The pullout design loads incorporated in the above table were either taken directly from Ucan product literature or obtained from tests performed by Fero.



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