Hollow Drop-In Design Information — Concrete and Masonry

Allowable Tension Loads for Hollow Drop-In Anchor in Normal-Weight Concrete

Model No.	Size in. (mm)	Drill Bit Dia. in. (mm)	Embed Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Tension Load			
						$f'_c \geq$ 2,500 psi (17.2 MPa)		$f'_c \geq$ 4,000 psi (27.6 MPa)	
						Ultimate lb. (kN)	Allowable lb. (kN)	Ultimate lb. (kN)	Allowable lb. (kN)
HDIA25, HDIA25SS	¼ (6.4)	⅜ (9.5)	⅞ (22)	2⅝ (67)	3½ (89)	1,180 (5.2)	295 (1.3)	1,220 (5.4)	305 (1.4)
HDIA31	5⁄16 (7.9)	⅝ (15.9)	1½ (38)	4½ (114)	6 (152)	3,000 (13.3)	750 (3.3)	3,420 (15.2)	855 (3.8)
HDIA37, HDIA37SS	⅜ (9.5)	⅝ (15.9)	1½ (38)	4½ (114)	6 (152)	3,000 (13.3)	750 (3.3)	3,420 (15.2)	855 (3.8)
HDIA50	½ (12.7)	¾ (19.1)	2 (51)	6 (152)	8 (203)	4,260 (18.9)	1,065 (4.7)	5,500 (24.5)	1,375 (6.1)
HDIA62	⅝ (15.9)	1 (25.4)	2¼ (57)	6¾ (171)	9 (229)	6,100 (27.1)	1,525 (6.8)	6,300 (28.0)	1,575 (7.0)

1. The allowable loads listed are based on a safety factor of 4.0.
2. The minimum concrete thickness is 1½ times the embedment depth.
3. Allowable loads may be linearly interpolated between concrete strengths listed.

Allowable Shear Loads for Hollow Drop-In Anchor in Normal-Weight Concrete

Model No.	Size in. (mm)	Drill Bit Dia. in. (mm)	Embed Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Shear Load Based on Anchor Strength		Shear Load Based on Steel Strength	
						$f'_c \geq$ 2,500 psi (17.2 MPa)		F1554 Grade 36	A193 Grade B7
						Ultimate lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)
HDIA25, HDIA25SS	¼ (6.4)	⅜ (9.5)	⅞ (22)	2⅝ (67)	3½ (89)	1,840 (8.2)	460 (2.0)	485 (2.2)	1,045 (4.6)
HDIA31	5⁄16 (7.9)	⅝ (15.9)	1½ (38)	4½ (114)	6 (152)	2,660 (11.8)	665 (3.0)	755 (3.4)	1,630 (7.3)
HDIA37, HDIA37SS	⅜ (9.5)	⅝ (15.9)	1½ (38)	4½ (114)	6 (152)	3,580 (15.9)	895 (4.0)	1,085 (4.8)	2,340 (10.4)
HDIA50	½ (12.7)	¾ (19.1)	2 (51)	6 (152)	8 (203)	8,220 (36.6)	2,055 (9.1)	1,930 (8.6)	4,160 (18.5)
HDIA62	⅝ (15.9)	1 (25.4)	2¼ (57)	6¾ (171)	9 (229)	10,180 (45.3)	2,545 (11.3)	3,025 (13.5)	6,520 (29.0)

1. The allowable loads listed are based on a safety factor of 4.0.
2. The minimum concrete thickness is 1½ times the embedment depth.
3. Allowable load must be the lesser of the load based on anchor strength or steel strength.

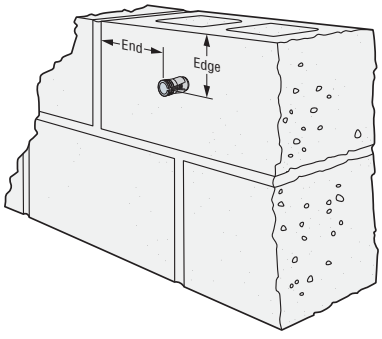
* See p. 13 for an explanation of the load table icons.

Hollow Drop-In Design Information — Concrete and Masonry

Allowable Tension and Shear Loads for Hollow Drop-In Anchor in 8" Lightweight, Medium-Weight and Normal-Weight Hollow CMU

Model No.	Size in. (mm)	Drill Bit Dia. in. (mm)	Embed Depth[4] in. (mm)	Minimum Edge Dist. in. (mm)	Minimum End Dist. in. (mm)	Minimum Spacing in. (mm)	Tension Load		Shear Load	
							Ultimate lb. (kN)	Allowable lb. (kN)	Ultimate lb. (kN)	Allowable lb. (kN)
HDIA25, HDIA25SS	¼ (6.4)	⅜ (9.5)	¾ (19)	4 (102)	4⅝ (117)	8 (203)	500 (2.2)	100 (0.4)	975 (4.3)	195 (0.9)
HDIA31	5⁄16 (7.9)	⅝ (15.9)	1¼ (32)	4 (102)	4⅝ (117)	8 (203)	500 (2.2)	100 (0.4)	1,450 (6.4)	290 (1.3)
HDIA37, HDIA37SS	⅜ (9.5)	⅝ (15.9)	1¼ (32)	4 (102)	4⅝ (117)	8 (203)	500 (2.2)	100 (0.4)	1,450 (6.4)	290 (1.3)
HDIA50	½ (12.7)	¾ (19.1)	1¾ (44)	4 (102)	4⅝ (117)	8 (203)	1,525 (6.8)	305 (1.4)	2,300 (10.2)	460 (2.0)
HDIA62	⅝ (15.9)	1 (25.4)	2 (51)	4 (102)	4⅝ (117)	8 (203)	1,525 (6.8)	305 (1.4)	2,325 (10.3)	465 (2.1)

1. The allowable loads listed are based on a safety factor of 5.0.
2. Values for 8-inch wide lightweight, medium-weight, and normal-weight CMU.
3. The minimum specified compressive strength of masonry, f'_m, at 28 days with a minimum face shell thickness of 1¼" is 1,500 psi.
4. The installed end of the anchor may extend into the CMU cavity depending upon face shell thickness.



Tension and Shear Loads for Hollow Drop-In Anchor in Hollow-Core Concrete Panel

Model No.	Size in. (mm)	Drill Bit Dia. in. (mm)	Embed Depth[4] in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Tension Load		Shear Load Based on Anchor Strength		Shear Load Based on Steel Strength of Threaded Rod	
						$f'_c \geq$ 5,000 psi (34.5 Mpa)		$f'_c \geq$ 5,000 psi (34.5 MPa)		F1554 Grade 36	A193 Grade B7
						Ultimate lb. (kN)	Allowable lb. (kN)	Ultimate lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)
HDIA25, HDIA25SS	¼ (6.4)	⅜ (9.5)	¾ (19)	3 (76)	4½ (114)	1,340 (6.0)	335 (1.5)	2,040 (9.1)	510 (2.3)	485 (2.2)	1,045 (4.6)
HDIA31	5⁄16 (7.9)	⅝ (15.9)	1¼ (32)	5 (127)	7½ (191)	1,820 (8.1)	455 (2.0)	3,240 (14.4)	810 (3.6)	755 (3.4)	1,630 (7.3)
HDIA37, HDIA37SS	⅜ (9.5)	⅝ (15.9)	1¼ (32)	5 (127)	7½ (191)	1,820 (8.1)	455 (2.0)	4,560 (20.3)	1,140 (5.1)	1,085 (4.8)	2,340 (10.4)
HDIA50	½ (12.7)	¾ (19.1)	1¾ (44)	7 (178)	10½ (267)	2,840 (12.6)	710 (3.2)	5,820 (25.9)	1,455 (6.5)	1,930 (8.6)	4,160 (18.5)
HDIA62	⅝ (15.9)	1 (25.4)	2 (51)	8 (203)	12 (305)	2,980 (13.3)	745 (3.3)	8,700 (38.7)	2,175 (9.7)	3,025 (13.5)	6,520 (29.0)

1. The allowable loads listed are based on a safety factor of 4.0.
2. The minimum concrete cover over the open cores is 1¼".
3. The minimum specified compressive strength of the concrete used in the hollow-core panel, f'_c, is 5,000 psi (34.5 MPa).
4. The installed end of the anchor may extend into the panel cavity depending upon face shell thickness.

* See p. 13 for an explanation of the load table icons.