

Crimp Drive® Design Information — Concrete

Carbon-Steel Crimp Drive Allowable Tension and Shear Loads
in Normal-Weight Concrete



Size (in.)	Drill Bit Diameter (in.)	Embed. Depth (in.)	Minimum Spacing (in.)	Minimum Edge Distance (in.)	Tension Load		Shear Load	
					$f'_c \geq 2,000$ psi Concrete	$f'_c \geq 4,000$ psi Concrete	$f'_c \geq 2,000$ psi Concrete	$f'_c \geq 4,000$ psi Concrete
					Allowable Load (lb.)	Allowable Load (lb.)	Allowable Load (lb.)	Allowable Load (lb.)
Mushroom/Countersunk Head								
3/16	3/16	1 1/4	3	3	145	250	340	450
1/4	1/4	1 1/4	3	3	175	275	395	610
3/8	3/8	1 3/4	4	4	365	780	755	1,305
Duplex Head								
1/4	1/4	1 1/4	3	3	175	275	395	610
Tie Wire								
1/4	1/4	1 1/8	3	3	155	215	265	325
Rod Coupler⁴								
1/4	3/16	1 1/4	3	3	145	250	—	—
3/8	1/4	1 1/2	4	4	265	600	—	—

1. The allowable loads listed are based on a safety factor of 4.0.

2. The minimum concrete thickness is 1 1/2 times the embedment depth.

3. Allowable loads may be linearly interpolated between concrete strengths listed.

4. For rod coupler, mechanical and plumbing design codes may prescribe lower allowable loads; verify with local codes.

Crimp Drive® Design Information — Concrete

Carbon-Steel Crimp Drive Allowable Tension and Shear Loads in Sand-Lightweight Concrete over Steel Deck



Mechanical Anchors

Size (in.)	Drill Bit Diameter (in.)	Embed. Depth (in.)	Minimum Spacing (in.)	Minimum Edge Distance (in.)	Tension Load (Install in Concrete)	Tension Load (Install Through Steel Deck)	Shear Load (Install in Concrete)	Shear Load (Install Through Steel Deck)
					$f'_c \geq 3,000$ psi Concrete	$f'_c \geq 3,000$ psi Concrete	$f'_c \geq 3,000$ psi Concrete	$f'_c \geq 3,000$ psi Concrete
					Allowable Load (lb.)	Allowable Load (lb.)	Allowable Load (lb.)	Allowable Load (lb.)
Mushroom/Countersunk Head								
3/16	3/16	1 1/4	4	4	115	85	345	600
1/4	1/4	1 1/4	4	4	145	130	375	890
3/8	3/8	1 3/4	5 1/2	5 1/2	315	330	1,030	1,085
Duplex Head								
1/4	1/4	1 1/4	4	4	145	130	375	890
Tie Wire								
1/4	1/4	1 1/8	3	3	130	90	275	210
Rod Coupler⁴								
1/4	3/16	1 1/4	4	4	115	85	—	—
3/8	1/4	1 1/2	5	5	300	280	—	—

1. The allowable loads listed are based on a safety factor of 4.0.
2. The minimum concrete thickness is 1 1/2 times the embedment depth.
3. Anchors may be installed off-center in the flute, up to 1" from the center of flute.
4. Anchor may be installed in either upper or lower flute.
5. Deck profile shall be 3" deep, 20-gauge minimum.
6. For rod coupler, mechanical and plumbing design codes may prescribe lower allowable loads; verify with local codes.

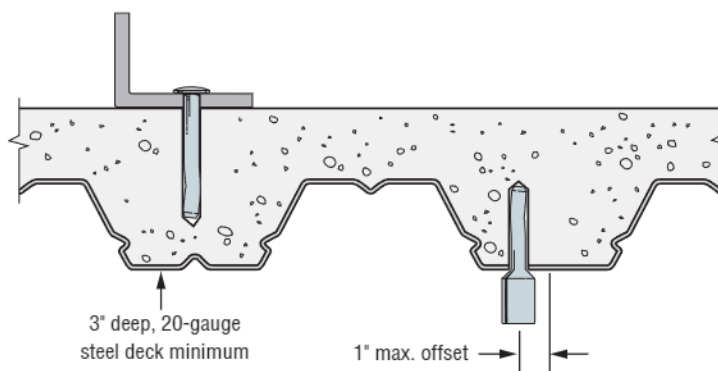


Figure 1. Sand-Lightweight Concrete on Steel Deck

*See p. 14 for an explanation of the load table icons.