GENERAL INFORMATION

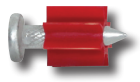
.300" HEAD DRIVE PINS

Standard Pins with 0.145" Shank Diameter

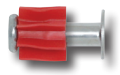
SECTION CONTENTS

INTRODUCTION

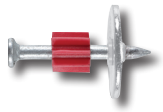
Drive pins with a 0.300" diameter head are designed for permanently fastening a fixture to concrete, some types of masonry and A36 or A572 structural steel. Drive pins are manufactured with a 0.145" diameter shank in various lengths. Knurled shank designs are available to increase performance in steel base materials. A plastic flute is mounted over the point to retain the drive pin in the fastener guide of the tool providing guidance during the driving operation.



.300" HEAD DRIVE PIN



.300" HEAD DRIVE PINS WITH TOP HAT



.300" HEAD DRIVE PINS WITH WASHER

GENERAL APPLICATIONS AND USES

- Attaching Steel to Concrete, Block or Steel
- Attaching Wood members to Concrete, Block or Steel
- Attaching accessories to Concrete, Block or Steel

APPROVALS AND LISTINGS

- International Code Council, Evaluation Service (ICC-ES), ESR-2024

SELECTION CHART GUIDE

Pins		Dimensions		Base				Powers Tools										Other Tools																												Approvals & Listings
		Shank Length	Shank Diameter	Concrete	Lightweight Concrete	Grout-filled CMU	Steel	P1000	T1000	P2201	P35s	P7201	P3500/PA3500	P3600	P60	Sniper	721	M70	D45	D60/D60L	D45/D60/D60L	MD380	SA270	Cobra	Viper	DX E37	DXE72	DX400	DXE72/DX400	DX600N	DX35	DX350/DX351/DX36M	DX451	DXA40	DXA41	DX2	DX460										
0.300" Head Drive Pins	.300 Head Pin	1/2" to 1-1/2"	0.145"	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●		●	●	●				●		●	●		●	○	●	○										ICC-ES ESR-2024
	.300 Head Pin	1-3/4" to 3"	0.145"	●	●	○		●	●	●			●		●			●			●		●	●		●			●			●	●		○	●										ICC-ES ESR-2024
	.300 Head Pin w Top Hat	1/2" to 1"	0.145"	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●			●		●	●	●				●		●	●	●	●	○	●	○										ICC-ES ESR-2024
	.300 Head Pin w Washer	3/4" to 1-1/2"	0.145"	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●		●	●	●	●			●		●	●	●	●	○	●	○										ICC-ES ESR-2024
	.300 Head Pin w Washer	2" to 3"	0.145"	●	●	○		●	●	●			●		●			●			●		●	●		●			●			●	●		○	●										ICC-ES ESR-2024

● Suitable ○ May be Suitable

PERFORMANCE DATA

Ultimate Load Capacities for Powder Actuated Fasteners in Normal-Weight Concrete[1,2,3,4,5,6]

Fastener Description	Minimum Embed. Depth h_v in. (mm)	Minimum Concrete Compressive Strength (f'c)							
		2,000psi		3,000psi		4,000psi		5,000psi	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
0.300" Head Drive Pin (0.145" Shank)	5/8 (15.9)	300 (1.3)	475 (2.1)	300 (1.3)	475 (2.1)	300 (1.3)	475 (2.1)	300 (1.3)	475 (2.1)
	3/4 (19.1)	300 (1.3)	475 (2.1)	475 (2.1)	625 (2.8)	475 (2.1)	625 (2.8)	500 (2.2)	625 (2.8)
	1 (25.4)	500 (2.2)	700 (3.1)	650 (2.9)	775 (3.4)	775 (3.4)	775 (3.4)	870 (3.9)	1,000 (4.4)
	1-1/4 (31.8)	550 (2.4)	775 (3.4)	775 (3.4)	825 (3.7)	975 (4.3)	825 (3.7)	1,175 (5.2)	1,000 (4.4)
	1-1/2 (38.1)	575 (2.6)	875 (3.9)	900 (4)	875 (3.9)	1,175 (5.2)	1,175 (5.2)	1,450 (6.4)	1,000 (4.4)

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength.
2. The tabulated tension and shear values are for the fasteners only. Steel or wood members connected with the substrate must be investigated for compliance with the applicable code.
3. Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC70; the minimum applied factor of safety is 5.0 or greater. Consideration of additional safety factors may be necessary depending on the application such as life safety.
4. Concrete member thickness must be a minimum of three times the fastener embedment depth.
5. Fasteners must have a minimum spacing distance of 3 inches and a minimum edge distance of 3 inches in accordance with ASTM E 1190. Consideration of smaller spacing and edge distances may be given based on application or jobsite testing.
6. Multiple fasteners are recommended for any attachment for increased reliability.

Allowable Load Capacities for Powder Actuated Fasteners in Normal-Weight Concrete[1,2,3,4,5,6]

Fastener Description	Minimum Embed. Depth h_v in. (mm)	Minimum Concrete Compressive Strength (f'c)							
		2,000psi		3,000psi		4,000psi		5,000psi	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
0.300" Head Drive Pin (0.145" Shank)	5/8 (15.9)	25 (0.1)	45 (0.2)	60 (0.3)	95 (0.4)	45 (0.2)	95 (0.4)	25 (0.1)	95 (0.4)
	3/4 (19.1)	60 (0.3)	95 (0.4)	95 (0.4)	125 (0.6)	95 (0.4)	125 (0.6)	100 (0.4)	125 (0.6)
	1 (25.4)	100 (0.4)	140 (0.6)	130 (0.6)	155 (0.7)	155 (0.7)	155 (0.7)	180 (0.8)	200 (0.9)
	1-1/4 (31.8)	110 (0.5)	155 (0.7)	155 (0.7)	165 (0.7)	195 (0.9)	165 (0.7)	235 (1)	200 (0.9)
	1-1/2 (38.1)	115 (0.5)	175 (0.8)	180 (0.8)	175 (0.8)	235 (1)	175 (0.8)	290 (1.3)	200 (0.9)

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength.
2. The tabulated tension and shear values are for the fasteners only. Steel or wood members connected with the substrate must be investigated for compliance with the applicable code.
3. Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC70; the minimum applied factor of safety is 5.0 or greater. Consideration of additional safety factors may be necessary depending on the application such as life safety.
4. Concrete member thickness must be a minimum of three times the fastener embedment depth.
5. Fasteners must have a minimum spacing distance of 3 inches and a minimum edge distance of 3 inches in accordance with ASTM E 1190. Consideration of smaller spacing and edge distances may be given based on application or jobsite testing.
6. Multiple fasteners are recommended for any attachment for increased reliability.

Ultimate and Allowable Load Capacities for Powder Actuated Fasteners in Lightweight Concrete and Sand-Lightweight Concrete With or Without Steel Deck[1,2,3,8]

Fastener Description	Minimum Embed. Depth h_v in. (mm)	Minimum Concrete Compressive Strength, f 'c = 3,000 psi											
		Directly into Concrete[4,5]				Through Soffit of Steel Deck Into Concrete (3-inch Deep Profile)							
						Upper Flute[6,7]				Lower Flute[6,7]			
		Tension		Shear		Tension		Shear		Tension		Shear	
		Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)
0.300 Head Drive Pin (0.145 Shank)	3/4 (19)	445 (2.0)	70 (0.3)	465 (2.1)	70 (0.3)	375 (1.7)	75 (0.3)	675 (3.0)	135 (0.6)	350 (1.6)	70 (0.3)	600 (2.7)	120 (0.5)
	7/8 (22)	675 (3.0)	135 (0.6)	725 (3.2)	145 (0.6)	625 (2.8)	125 (0.6)	1,075 (4.8)	215 (1.0)	475 (2.1)	95 (0.4)	1,025 (4.6)	205 (0.9)
	1 (25)	1,000 (4.4)	200 (0.9)	1,075 (4.8)	215 (1.0)	875 (3.9)	175 (0.8)	1,450 (6.4)	290 (1.3)	600 (2.7)	120 (0.5)	1,450 (6.4)	290 (1.3)
	1-1/4 (32)	1,250 (5.6)	250 (1.1)	1,525 (6.8)	305 (1.4)	1,400 (6.2)	280 (1.2)	1,700 (7.6)	340 (1.5)	950 (4.2)	190 (0.8)	1,700 (7.6)	340 (1.5)
	1-1/2 (38)	1,700 (7.6)	340 (1.5)	1,875 (8.3)	375 (1.7)	1,400 (6.2)	280 (1.2)	1,900 (8.5)	380 (1.7)	1,175 (5.2)	235 (1.0)	1,900 (8.5)	380 (1.7)

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength. For a concrete compressive strength of 4,000 psi, the tabulated allowable loads may be increased by 12 percent.
2. The tabulated tension and shear values are for the fasteners only. Steel or wood members connected with the substrate must be investigated for compliance with the applicable code.
3. Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC70; the minimum applied factor of safety is 5.0 or greater. Consideration of additional safety factors may be necessary depending on the application such as life safety.
4. For fasteners installed directly into concrete, the member thickness must be a minimum of 3.25 inches. Tabulated values are also applicable to the tops of concrete-filled steel deck profiles.
5. Fasteners must have a minimum spacing distance of 3 inches and a minimum edge distance 3 inches in accordance with ASTM E 1190. Consideration of smaller spacing and edge distances may be given based on application or jobsite testing.
6. For fasteners installed into the upper flute of the steel deck profile, the concrete thickness above the deck (topping thickness) must be a minimum of 3.25 inches. For fasteners installed into the lower flute of the steel deck profile, the concrete thickness above the deck (topping thickness) must be a minimum of 2.25 inches.
7. Fasteners installed into the steel deck profile must have a minimum spacing distance of 4 inches (upper and lower flute) and a minimum edge distance of 1-1/8 inches (lower flute); there is no minimum edge distance requirement for fasteners installed in the upper flute. Consideration of smaller spacing distances may be given based on application or jobsite testing.
8. Embedment is measured from the surface of the steel deck; the steel deck panel must have a base-metal thickness of 0.030-inch (22 gage) to 0.048-inch (18 gage). Consideration for the thickness of the material fastened to the base material must be given to achieve the required embedment for the fasteners.
9. Multiple fasteners are recommended for any attachment for increased reliability.

Ultimate and Allowable Load Capacities for Powder Actuated Fasteners used to Install Wood Sill Plates into Normal-Weight Concrete[1,2,3,4,5,6,7,8,9]

Fastener Description	Minimum Embedment Depth hv in. (mm)	Minimum Concrete Compressive Strength, f 'c = 2,000 psi					
		Tension		Load Perpendicular to Edge		Load Parallel to Edge	
				Tension		Shear	
		Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)
0.300 Head Drive Pin (0.145 Shank)	1-1/2 (38)	625 (2.8)	125 (0.6)	750 (3.3)	150 (0.7)	1,150 (5.1)	230 (1.0)

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength.
2. The tabulated tension and shear values are for the fasteners only. Wood members connected with the substrate must be investigated for compliance with the applicable code.
3. Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC70; the minimum applied factor of safety is 5.0 or greater. Consideration of additional safety factors may be necessary depending on the application such as life safety.
4. Concrete member thickness must be a minimum of three times the fastener embedment depth.
5. Fasteners must have a minimum spacing distance of 3 inches and a minimum edge distance of 1-3/4 inches.
6. Minimum nominal washer size is 7/8 inch; minimum washer bearing area is 0.55 inch^2.
7. Fastener bending yield strength (F_{yb}) is 90,000 psi and dowel bearing strength (F_e) is 7,500 psi.
8. For interior nonstructural walls, fasteners must be placed at 6 inches from ends of the sill plates with a maximum fastener spacing of 3 feet which is applicable to a maximum wall height of 14 feet in accordance with ICC-ES AC70. Interior nonstructural walls are limited to locations where bearing walls, shear walls or braced walls are not required by the approved plans. Other attachments including perimeter anchorage must be investigated for compliance with the applicable code using the tabulated and noted information.
9. Multiple fasteners are recommended for any attachment for increased reliability.

Ultimate and Allowable Load Capacities for Powder Actuated Fasteners in Masonry[1,2,3,9,10]

Fastener Description	Min. Embed. Depth h_v in. (mm)	Minimum Masonry Compressive Strength, f 'c = 1,500 psi											
		Hollow CMU[4,5]				Grout-filled Concrete Masonry[6,7,8]							
		Cell Face				Cell Face				Mortar Joint			
		Tension		Shear		Tension		Shear		Tension		Shear	
		Ultimate lbs. (kN)	Allowable lbs (kN)	Ultimate lbs. (kN)	Allowable lbs (kN)	Ultimate lbs. (kN)	Allowable lbs (kN)	Ultimate lbs. (kN)	Allowable lbs (kN)	Ultimate lbs. (kN)	Allowable lbs (kN)	Ultimate lbs. (kN)	Allowable lbs (kN)
0.300 Head Drive Pin (0.145 Shank)	1 (25)	280 (1.2)	35 (0.2)	475 (2.1)	95 (0.4)	520 (2.3)	65 (0.3)	575 (2.6)	115 (0.5)	440 (2.0)	55 (0.2)	600 (2.7)	120 (0.5)

1. Fasteners must not be driven until the masonry has reached the minimum designated compressive strength. Concrete masonry must be minimum 8-inch wide, minimum Grade N, Type II, lightweight, medium-weight or normal-weight units conforming to ASTM C90. Mortar must be minimum Type N.
2. The tabulated tension and shear values are for the fasteners only. Steel or wood members connected with the substrate must be investigated for compliance with the applicable code.
3. Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC70; the minimum applied factor of safety is 5.0 or greater. Consideration of additional safety factors may be necessary depending on the application such as life safety.
4. Fasteners installed into the face or end of hollow CMU must have a minimum end distance of 3-3/4 inches. No more than one fastener may be installed in an individual hollow concrete masonry unit cell.
5. For installations into hollow CMU walls, fasteners may not be placed into the mortar joint.
6. Fasteners installed into grout-filled concrete masonry must have a minimum spacing distance of 4 inches and a minimum edge distance 3-3/4 inches.
7. For installations into grout-filled concrete masonry walls, fasteners may be placed into the bed joint (horizontal mortar joint) provided the fasteners have a minimum spacing distance of 8 inches along the bed joint and have a minimum edge distance of 8 inches.
8. Installations directly into the head joint (vertical mortar joint) and within 1-1/2 inch of the head joint is not recommended and must not be permitted.
9. Multiple fasteners are recommended for any attachment for increased reliability.
10. Successful fastening into the face shell of hollow CMU and into the horizontal mortar joint is typically conducted with the lightest powder load level.

Ultimate and Allowable Load Capacities for Powder Actuated Fasteners in ASTM A36 Steel[1,2,3,5,6]

Fastener Description	Load Capacity	Nominal Steel Thickness (inch)									
		1/8		3/16		1/4		3/8		1/2 [4]	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
0.300 Head Drive Pin (0.145 Knurled Shank)	Ultimate	1,100 (4.9)	990 (4.4)	1,705 (7.6)	3,050 (13.6)	2,240 (10.0)	2,800 (12.5)	2,600 (11.6)	3,025 (13.5)	2,650 (11.8)	2,875 (12.8)
	Allowable	220 (1.0)	200 (0.9)	340 (1.5)	610 (2.7)	445 (2.0)	560 (2.5)	520 (2.3)	605 (2.7)	490 (2.2)	575 (2.6)
0.300 Head Drive Pin (0.145 Smooth Shank)	Ultimate	865 (3.8)	1,325 (5.9)	1,775 (7.9)	2,825 (12.6)	2,050 (9.1)	2,800 (12.5)	2,410 (10.7)	2,620 (11.7)	1,970 (8.8)	2,600 (11.6)
	Allowable	170 (0.8)	265 (1.2)	355 (1.6)	565 (2.5)	410 (1.8)	560 (2.5)	465 (2.1)	390 (1.7)	390 (1.7)	520 (2.3)

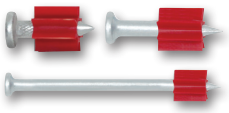
1. Fastener capacities are based on the base steel with a minimum yield strength (F_y) of 36 ksi and a minimum ultimate tensile strength (F_u) of 58 ksi. The pointed portion of the fastener must penetrate the steel member unless otherwise noted.
2. The tabulated tension and shear values are for the fasteners only. Steel or wood members connected to the steel substrate must be investigated for compliance with the applicable code.
3. Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC70; the minimum applied factor of safety is 5.0 or greater. Consideration of additional safety factors may be necessary depending on the application such as life safety.
4. The fasteners must be embedded a minimum of 0.50 inch into the steel; fastener point penetration through the steel is not necessary provided the minimum embedment is achieved.
5. Fasteners must have a minimum spacing distance of 1-1/2 inches and a minimum edge distance of 1/2 inch in accordance with ASTM E 1190. Consideration of smaller spacing distances may be given based on application or jobsite testing.
6. Multiple fasteners are recommended for any attachment for increased reliability.

Ultimate and Allowable Tensile Pullover Capacities for Light Steel Framing with Powder Actuated Fasteners[1,2,3]

Fastener Description	Minimum Thickness of Sheet Steel or Framing Member									
	16 Gage		18 Gage		20 Gage		22 Gage		25 Gage	
	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Allowable lbs (kN)
0.300" Head Drive Pin with 7/8" washer (0.145" Shank)	790 (3.6)	160 (0.7)	790 (3.6)	160 (0.7)	790 (3.6)	160 (0.7)	645 (2.9)	130 (0.6)	500 (2.3)	100 (0.5)
0.300" Head Drive Pin (0.145" Shank)	-	-	1,470 (6.6)	295 (1.3)	1,050 (4.7)	210 (0.9)	730 (3.3)	145 (0.7)	415 (1.9)	85 (0.4)

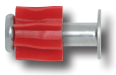
1. Tabulated allowable pullover load values were tested in accordance with ICC-ES AC70 and are based on an applied safety factor of 5.0.
2. Allowable pullover capacities of sheet steel or framing member should be compared to the fastener tensile load capacities in concrete, steel and masonry to determine the controlling resistance load.
3. For pins with washer assemblies, the washer thickness is 14 gage minimum.

ORDERING INFORMATION



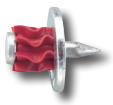
.300" Head Drive Pins

Cat.No.	Shank Length	Shank Diameter	Std. Box	Std. Carton
50012-PWR	1/2" (K)	0.145"	100	5,000
50016-PWR	5/8" (K)	0.145"	100	5,000
50022-PWR	3/4"	0.145"	100	5,000
50023-PWR	3/4" Black	0.145"	100	5,000
50026-PWR	1"	0.145"	100	5,000
50032-PWR	1-1/4"	0.145"	100	1,000
50034-PWR	1-1/2"	0.145"	100	1,000
50038-PWR	2"	0.145"	100	1,000
50040-PWR	2-1/4"	0.145"	100	1,000
50044-PWR	2-1/2"	0.145"	100	1,000
50048-PWR	3"	0.145"	100	1,000
(K) = knurled				



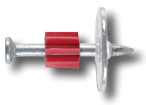
.300" Head Drive Pins with Top Hat

Cat.No.	Shank Length	Shank Diameter	Std. Box	Std. Carton
50136-PWR	1/2" (K)	0.145"	100	5,000
50138-PWR	5/8" (K)	0.145"	100	5,000
50140-PWR	3/4"	0.145"	100	5,000
(K) = knurled				



.300" Head Drive Pins with 3/4" Washer

Cat.No.	Shank Length	Shank Diameter	Std. Box	Std. Carton
50070-PWR	3/4"	0.145"	100	1,000
50080-PWR	2-1/2"	0.145"	100	5,000



.300" Head Drive Pins with 7/8" Washer

Cat.No.	Shank Length	Shank Diameter	Std. Box	Std. Carton
50090-PWR	1"	0.145"	100	1,000
50092-PWR	1-1/4"	0.145"	100	1,000
50094-PWR	1-1/2"	0.145"	100	1,000
50096-PWR	2"	0.145"	100	1,000
50098-PWR	2-1/2"	0.145"	100	1,000
50100-PWR	3"	0.145"	100	1,000

.300" Head Drive Pins with 1" Washer

Cat.No.	Shank Length	Shank Diameter	Std. Box	Std. Carton
50108-PWR	1-1/4"	0.145"	100	1,000
50110-PWR	1-1/2"	0.145"	100	1,000
50112-PWR	2"	0.145"	100	1,000
50114-PWR	2-1/4"	0.145"	100	1,000
50116-PWR	3"	0.145"	100	1,000

.300" Head Drive Pins (Mechanically Galvanized)

Cat.No.	Shank Length	Head Dia.	Shank Dia.	Std. Box	Std. Carton
50034MG-PWR	1-1/2"	0.300"	0.145"	1000	5000
50038MG-PWR	2"	0.300"	0.145"	1000	5000
50045MG-PWR	2-1/2"	0.300"	0.145"	1000	5000
50047MG-PWR	3"	0.300"	0.145"	1000	5000

.300" Head Drive Pins with 1" washer (Mechanically Galvanized)

Cat.No.	Shank Length	Head Dia.	Shank Dia.	Std. Box	Std. Carton
50110MG-PWR	1-1/2"	0.300"	0.145"	1000	5000
50112MG-PWR	2"	0.300"	0.145"	1000	5000
50113MG-PWR	2-1/2"	0.300"	0.145"	1000	5000
50115MG-PWR	3"	0.300"	0.145"	1000	5000

Powers Mechanically Galvanized (MG) Powder Actuated Fasteners are designed for fastening through pressure treated lumber into concrete and grout filled masonry. The fasteners are available with a round washer for increased pullover resistance.