

GENERAL INFORMATION

THREADED STUDS, ROD HANGERS, AND ASSEMBLIES

INTRODUCTION

Powers offers speciality powder driven fasteners

- Threaded Studs in 1/4" and 3/8"
- Rod Hangers and Post-Nut Clip for 1/4" and 3/8" threaded rods
- BX cable and EMT attachments
- Rebar basket attachments

GENERAL APPLICATIONS AND USES

- Attaching ceiling clips and threaded rod to Concrete or Steel

APPROVALS AND LISTINGS

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

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SELECTION CHART GUIDE

		Dimensions		Base			Powers Tools							Other Tools																												
		Shank Length	Shank Diameter	Concrete	Lightweight Concrete	Grout-filled CMU	Steel	P1000	T1000	P2201	P35s	P7201	P3500/PA3500	P3801	P3600	PA351	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	Approvals & Listings		
Pins																																										
Threaded Studs	1/4"-20 Threaded Stud	1/2" to 1-1/4"	0.145"	●	●	○	●	●	●	●	●	●	○				●	●	●	●						●	●	●		●			●	●	●	●	○	●			ICC-ES ESR-2024	
	3/8" -16 Threaded Stud	3/4" to 1-1/4"	0.205"	●	●	○	●						●	●							●			●			●		●			●		●		●					ICC-ES ESR-2024	
Rod Hangers	Rod Hangers and Post Nut Clip (.300", 8mm)	1-1/8" to 1-1/4"	0.145"	●	●	○	●	●	●	○	●	●	●		●	●	●	○	○	●					●	●	●					●	●		●	●	●	●	●			ICC-ES ESR-2024
Clips & Assemblies	BX-EMT Conduit Clip Assemblies (.300", 8mm)	1" to 1-1/4"	0.145"	●	●	●	○	●	●	●	●	●	●			●	●	●	●	●				●	●	●	●	●	●			●	●		●	●		●	●			
	Rebar Basket Clip Assemblies (8mm)	2-7/16", 2-7/8"	0.145"	●	●	○	○	●	●	●		●			●				●	●				●	●			●	●				●		●	●	●					

● Suitable ○ May be Suitable

POWDER ACTUATED

THREADED STUDS, ROD HANGERS

FASTENERS

THREADED STUDS

PRODUCT DESCRIPTION

Threaded studs are available in 1/4"-20 and 3/8"-16 thread diameters with a variety of thread and shank lengths for use in concrete, some types of concrete block, and A36 or A572 structural steel. They are used for applications where it may be desirable to remove the fixture, where shimming may be required or for suspending sprinkler systems.

The shank diameter for the threaded studs is 0.145" for the 1/4"-20 diameter and 0.205" for the 3/8"-16 diameter. Both sizes have a specially designed point to allow proper penetration into the base material. 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 fasteners guide of the tool providing guidance during the driving operation. On the 1/4"-20 threaded studs a plastic cap is also provided to protect the threads of the fastener during the driving process as well as providing guidance during installation.

FASTENERS SIZE

1/4"-20 Threaded Studs

Cat.No.	Thread Length	Shank Length	Shank Dia.	Standard Box	Std. Carton	Wt./100
50322-PWR	3/4"	1/2" (K)	0.145"	100	1,000	1.1
50326-PWR	3/4"	3/4"	0.145"	100	1,000	1.2
50328-PWR	1/2"	1"	0.145"	100	1,000	1.2
50330-PWR	3/4"	1"	0.145"	100	1,000	1.4
50336-PWR	3/4"	1-1/4"	0.145"	100	1,000	1.5

(K) = knurled



3/8"-16 Threaded Studs

Cat.No.	Thread Length	Shank Length	Shank Dia.	Standard Box	Std. Carton	Wt./100
50340-PWR	1-1/4"	3/4" (K)	0.205"	100	1,000	3.6
50342-PWR	1-1/4"	1"	0.205"	100	1,000	3.8
50344-PWR	1-1/4"	1-1/4"	0.205"	100	1,000	3.8

(K) = knurled



ROD HANGERS

PRODUCT DESCRIPTION

Rod Hangers and Post-Nut hangers for suspending electrical metal tubing (EMT), mechanical and electrical components from concrete and steel. Rod Hangers and Post-Nut Clip accept either 1/4" or 3/8" threaded rod.

Spiral CSI and 8mm Head Drive Pins with Rod Hanger Clip

Catalog Number	Description	Shank Diameter	Standard Box	Standard Carton
50215-PWR	32mm (1-1/4") Spiral CSI Pin with 1/4"-20 Rod Hanger	0.157"	100	1,000
50219-PWR	32mm (1-1/4") Pin with 1/4"-20 Rod Hanger	0.145"	100	1,000
50221-PWR	32mm (1-1/4") Pin with 3/8"-16 Rod Hanger	0.145"	100	1,000



.300 Head Drive Pins with Post Nut Rod Hanger Clip

Catalog Number	Description	Shank Diameter	Standard Box	Standard Carton
50376-PWR	1-1/8" (29mm) Head Pin with Domed Right Angle Clip Rod Hanger	0.145"	100	1,000
50378-PWR	1-1/4" (32mm) Head Pin with Domed Right Angle Clip Rod Hanger	0.145"	100	1,000



BX AND CONDUIT CLIP ASSEMBLIES

PRODUCT DESCRIPTION

For the electrical trade, BX and conduit clips are provided in various sizes for attaching conduit to base materials where easy removal is not a requirement.

.300" Head Drive Pins with BX Cable Straps

Cat.No.	Shank Length	Shank Dia.	Standard Box	Std. Carton	Wt./100
50150-PWR	1"	0.145"	100	1,000	3.5

.300" Head Pins with Conduit Clips

Cat.No.	Shank Length	Shank Dia.	Standard Box	Std. Carton	Wt./100
50382-PWR	1/2" EMT 1" Pin	0.145"	100	1,000	3.3
50384-PWR	3/4" EMT 1 1/4"	0.145"	100	500	4.6
50385-PWR*	3/4" EMT 1" Pin	0.145"	100	500	5.3
50386-PWR	3/4" EMT 1-1/8" Pin	0.145"	100	500	4.7
50388-PWR*	1" EMT 1" Pin	0.145"	25	250	7.2

* With Top Hat

8mm Head Drive Pins with Conduit Clips

Cat.No.	Shank Length	Shank Dia.	Std. Box	Std. Carton	Wt./100
50276-PWR	27mm w/ 1/2" EMT	0.145"	100	1,000	3.2
50278-PWR	27mm w/ 3/4" EMT	0.145"	100	500	3.3
50280-PWR	27mm w/ 1" EMT	0.145"	25	250	6.2



REBAR BASKET ASSEMBLIES

PRODUCT DESCRIPTION

Rebar basket clips are typically used in highway construction and paving applications to hold the support baskets for the reinforcing bars in place while the concrete is being poured.

8mm Head Drive Pins with Rebar Basket Clip

Catalog Number	Shank Length	Shank Diameter	Standard Box	Standard Carton	Wt./100
50702-PWR	32mm (1-1/4") w/ basket clip	0.145"	100	100	4
50704-PWR	37mm (1-1/2") w/ basket clip	0.145"	100	100	4.1
50712-PWR	52mm (2") w/ basket clip	0.145"	100	100	4.4
50716-PWR	62mm (2-1/2") w/ basket clip	0.145"	100	100	4.6
50718-PWR	72mm (2-7/8") w/ basket clip	0.145"	100	100	4.8



PERFORMANCE DATA

Ultimate Load Capacities for Powder Actuated Fasteners in Normal-Weight Concrete^{1,2,3,4,5}

Pin Description	Minimum Embed. Depth h, 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)
1/4"-20 Threaded Stud (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)
3/8"-16 Threaded Stud (0.205" Shank)	1 (25.4)	475 (2.1)	675 (3)	475 (2.1)	675 (3)	800 (3.6)	675 (3)	800 (3.6)	675 (3)
	1-1/4 (31.8)	850 (3.8)	1,100 (4.9)	850 (3.8)	1,100 (4.9)	1,000 (4.4)	1,600 (7.1)	1,000 (4.4)	1,600 (7.1)
	1-1/2 (38.1)	1,150 (5.1)	1,375 (6.1)	1,375 (6.1)	1,625 (7.2)	1,475 (6.6)	1,975 (8.8)	1,475 (6.6)	1,975 (8.8)
Post Nut Rod Hanger Clip (0.145" Shank)	1 (25.4)	-	-	900 (4)	-	900 (4)	-	-	-
8mm Head Drive Pin with Rod Hanger Clip (0.145" Shank)	1 (25.4)	-	-	600 (2.7)	-	600 (2.7)	-	-	-
Spiral CSI Pin Rod Hanger (0.157" Shank)	1 (25.4)	-	-	550 (2.4)	-	550 (2.4)	-	-	-

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength.
2. Concrete thickness must be a minimum of three times the embedment depth.
3. The ultimate tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
4. The values listed above are ultimate load capacities which must be reduced by a factor of safety to determine the allowable working load. For allowable load capacities, see the allowable load tables.
5. 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}

Pin Description	Minimum Embed. Depth h, 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)
1/4"-20 Threaded Stud (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)
3/8"-16 Threaded Stud (0.205" Shank)	1 (25.4)	95 (0.4)	135 (0.6)	80 (0.4)	135 (0.6)	160 (0.7)	110 (0.5)	160 (0.7)	110 (0.5)
	1-1/4 (31.8)	170 (0.8)	220 (1)	165 (0.7)	220 (1)	200 (0.9)	320 (1.4)	200 (0.9)	320 (1.4)
	1-1/2 (38.1)	230 (1)	275 (1.2)	275 (1.2)	325 (1.4)	295 (1.3)	395 (1.8)	295 (1.3)	395 (1.8)
Post Nut Rod Hanger Clip (0.145" Shank)	1 (25.4)	-	-	180 (0.8)	-	180 (0.8)	-	-	-
8mm Head Drive Pin with Rod Hanger Clip (0.145" Shank)	1 (25.4)	-	-	120 (0.5)	-	120 (0.5)	-	-	-
Spiral CSI Pin Rod Hanger (0.157" Shank)	1 (25.4)	-	-	110 (0.5)	-	110 (0.5)	-	-	-

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength.
2. Concrete thickness must be a minimum of three times the embedment depth.
3. The allowable tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
4. The values listed above are allowable load capacities. The values are based on minimum required factors of safety. Consideration of additional safety factors may be necessary depending on the application, such as life safety or overhead.
5. Multiple fasteners are recommended for any attachment for increased reliability.

Ultimate Load Capacities for Powder Actuated Fasteners in Lightweight Concrete^{1,2,3,4,5}

Pin Description	Minimum Embed. Depth h, in. (mm)	Minimum Concrete Compressive Strength (f'c)					
		3,000psi Lightweight Concrete		3,000psi Lightweight Concrete, Over 20 Gage Deck			
		Tension lbs. (kN)	Shear lbs. (kN)	Lower Flute		Upper Flute	
				Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4"-20 Threaded Stud (0.145" Shank)	1 (25.4)	350 (1.6)	625 (2.8)	350 (1.6)	850 (3.8)	350 (1.6)	850 (3.8)
	1-1/4 (31.8)	650 (2.9)	900 (4)	525 (2.3)	875 (3.9)	525 (2.3)	875 (3.9)
3/8"-16 Threaded Stud (0.205" Shank)	1 (25.4)	350 (1.6)	650 (2.9)	350 (1.6)	825 (3.7)	350 (1.6)	825 (3.7)
	1-1/4 (31.8)	850 (3.8)	1,325 (5.9)	425 (1.9)	1,125 (5)	425 (1.9)	1,125 (5)

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength.
2. Concrete thickness must be a minimum of three times the embedment depth.
3. The ultimate tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
4. The values listed above are ultimate load capacities which should be reduced by a factor of safety to determine the allowable working load. For allowable load capacities, see the allowable load tables.
5. Multiple fasteners are recommended for any attachment for increased reliability.

Allowable Load Capacities for Powder Actuated Fasteners in Lightweight Concrete^{1,2,3,4,5}

Pin Description	Minimum Embed. Depth h, in. (mm)	Minimum Concrete Compressive Strength (f'c)					
		3,000psi Lightweight Concrete		3,000psi Lightweight Concrete, Over 20 Gage Deck			
		Tension lbs. (kN)	Shear lbs. (kN)	Lower Flute		Upper Flute	
				Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4"-20 Threaded Stud (0.145" Shank)	1 (25.4)	70 (0.3)	35 (0.2)	35 (0.2)	160 (0.7)	35 (0.2)	160 (0.7)
	1-1/4 (31.8)	70 (0.3)	125 (0.6)	65 (0.3)	170 (0.8)	65 (0.3)	170 (0.8)
3/8"-16 Threaded Stud (0.205" Shank)	1 (25.4)	70 (0.3)	130 (0.6)	45 (0.2)	165 (0.7)	45 (0.2)	165 (0.7)
	1-1/4 (31.8)	170 (0.8)	265 (1.2)	85 (0.4)	225 (1)	85 (0.4)	225 (1)

1. Fasteners must not be driven until the concrete has reached the minimum designated compressive strength.
2. Concrete thickness must be a minimum of three times the embedment depth.
3. The tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
4. The values listed above are allowable load capacities. The values are based on minimum required factors of safety. Consideration of additional safety factors may be necessary depending on the application, such as life safety or overhead.
5. Multiple fasteners are recommended for any attachment for increased reliability.

Ultimate Load Capacities for Powder Actuated Fasteners in ASTM A36 Steel^{1,2,3,4}

Pin Description	Shank Type	Nominal Steel Thickness							
		1/8"		3/16"		1/4"		3/8"	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4"-20 Threaded Stud (0.145" Shank)	Knurled	1,100 (4.9)	2,230 (9.9)	1,630 (7.3)	2,770 (12.3)	2,160 (9.6)	3,300 (14.7)	2,560 (11.4)	3,760 (16.7)
3/8"-16 Threaded Stud (0.205" Shank)	Knurled	1,120 (5.0)	2,770 (12.3)	2,700 (12.0)	5,460 (24.3)	3,730 (16.6)	8,090 (36.0)	-	-

1. The ultimate tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
2. The values listed above are ultimate load capacities which should be reduced by a factor of safety to determine the allowable working load. For allowable load capacities, see the allowable load tables.
3. Fasteners must be driven to obtain an embedment equivalent to the nominal steel thickness with the point of the fastener penetrating through the steel base material.
4. Multiple fasteners are recommended for any attachment for increased reliability.

Allowable Load Capacities for Powder Actuated Fasteners in ASTM A36 Steel^{1,2,3,4}

Pin Description	Shank Type	Nominal Steel Thickness							
		1/8"		3/16"		1/4"		3/8"	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4"-20 Threaded Stud (0.145" Shank)	Knurled	220 (1.0)	445 (2.0)	325 (1.4)	555 (2.5)	430 (1.9)	660 (2.9)	510 (2.3)	750 (3.3)
3/8"-16 Threaded Stud (0.205" Shank)	Knurled	225 (1.0)	555 (2.5)	540 (2.4)	1,090 (4.8)	745 (3.3)	620 (2.8)	-	-

1. The allowable tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
2. The values listed above are allowable load capacities. The values are based on minimum required factors of safety. Consideration of additional safety factors may be necessary depending on the application, such as life safety or overhead.
3. Fasteners must be driven to obtain an embedment equivalent to the nominal steel thickness with the point of the fastener penetrating through the steel base material.
4. Multiple fasteners are recommended for any attachment for increased reliability.

Ultimate Load Capacities for Powder Actuated Fasteners in Masonry ($f'm \geq 1,500$)^{1,2,3,4}

Pin Description	Minimum Embed. Depth h_v in. (mm)	Hollow CMU				Grout-filled Concrete Masonry	
		Face		Face		Mortar Joint	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4"-20 Threaded Stud (0.145" Shank)	1 (25.4)	320 (1.4)	740 (3.3)	570 (2.6)	900 (4.1)	510 (2.3)	960 (4.3)
3/8"-16 Threaded Stud (0.205" Shank)	1 (25.4)	160 (0.7)	670 (3.0)	860 (3.9)	1,460 (6.6)	1,060 (4.8)	1,030 (4.6)

1. Successful fastening to the face shell of Hollow CMU is typically done with the lightest powder load level.
2. The values listed above are ultimate load capacities which should be reduced by a factor of safety to determine the allowable working load. For allowable load capacities, see the allowable load tables.
3. Multiple fasteners are recommended for any attachment for increased reliability.
4. Concrete masonry units are typical 8 x 8 x 16 inch units meeting the requirements of ASTM C90, Grade N, lightweight block.

Allowable Load Capacities for Powder Actuated Fasteners in Masonry ($f'm \geq 1,500$)^{1,2,3,4}

Pin Description	Minimum Embedment Depth h_v in. (mm)	Hollow CMU		Grout-Filled Concrete Masonry			
		Cell		Cell		Mortar Joint	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4"-20 Threaded Stud (0.145" Shank)	1 (25.4)	35 (0.2)	95 (0.4)	65 (0.3)	115 (0.5)	55 (0.2)	120 (0.5)
3/8"-16 Threaded Stud (0.205" Shank)	1 (25.4)	20 (0.1)	85 (0.4)	110 (0.5)	185 (0.8)	135 (0.6)	130 (0.6)

1. Successful fastening to the face shell of Hollow CMU is typically done with the lightest powder load level.
2. The values listed above are allowable load capacities. The values are based on minimum required factors of safety. Consideration of additional safety factors may be necessary depending on the application, such as life safety or overhead.
3. Multiple fasteners are recommended for any attachment for increased reliability.
4. Concrete masonry units are typical 8 x 8 x 16 inch units meeting the requirements of ASTM C90, Grade N, lightweight block.