

GENERAL INFORMATION

TOGGLE BOLT

Hollow Wall Anchor

PRODUCT DESCRIPTION

The Toggle Bolt is a spring wing type hollow wall anchor designed for use in block, wallboard, plaster, plywood, light gauge steel as well as other hollow base materials. The Toggle Bolt is a two-part assembly consisting of -a machine screw and a spring wing toggle. Sizes range from 1/8" diameter to 1/2" diameter in various lengths with combo round, flat mushroom, tie-wire or slotted hex head styles.

FEATURES AND BENEFITS

- + Adjustable to accommodate various wall and fixture thicknesses
- + Easy to use and works in a variety of base materials

MATERIAL SPECIFICATIONS

Anchor Component	Component Material
Wing	Carbon Steel
Trunion Nut ¹	Carbon Steel
Bolt	Carbon Steel
Zinc Plating	ASTM B633, SC1, Type III, (Fe/Zn 5)

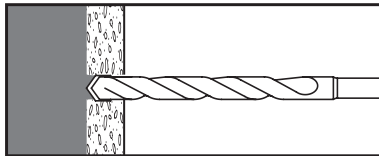
1. The trunion nut for the 1/2" toggle bolt is made from Zamac alloy.

INSTALLATION SPECIFICATIONS

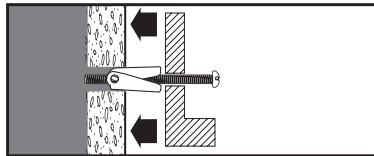
Dimensions		Anchor Size					
		1/8"	3/16"	1/4"	5/16"	3/8"	1/2"
Wall Board	Suggested Drill Bit Size (in.)	3/8	1/2	5/8	7/8	7/8	1-1/4
Hollow CMU and Hollow Core Concrete (ANSI)		1/2	9/16	3/4	7/8	1	1-1/4
Plywood and Light Gauge Steel		7/16	5/8	3/4	7/8	1	1-3/8
Wing Clearance (in.)		1-1/16	1-3/8	1-1/2	2-1/8	2-1/8	3
Thread Size, TPI (UNC)		6-32	10-24	1/4-20	5/16-18	3/8-16	1/2-13

INSTALLATION GUIDELINES

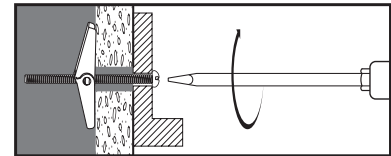
Select the recommended drill bit type and diameter; then drill the hole through the base material.



Insert the bolt through the fixture to be fastened, thread on wings, then fold the wings completely back and insert through the hole until wings spring open.



Pull back on assembly to hold the wings inside the cavity to prevent the wings from spinning while tightening bolt. Turn the bolt with the screwdriver until firmly tightened.



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TOGGLE BOLT

ANCHOR MATERIALS

- Carbon Steel

ANCHOR SIZE RANGE (TYP.)

- 1/8" to 1/2" diameters

SUITABLE BASE MATERIALS

- Wallboard
- Plaster
- Hollow Concrete Masonry
- Hollow Core Concrete Plank
- Plywood
- Light Gauge Steel

PERFORMANCE DATA

WALL ANCHORS

TOGGLE BOLT
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Ultimate Load Capacities for Toggle Bolt in Wallboard¹

Anchor Diameter in.	3/8" Wallboard		1/2" Wallboard		5/8" Wallboard		3/4" Wallboard	
	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/8	115 (0.5)	120 (0.5)	150 (0.7)	135 (0.6)	190 (0.9)	180 (0.8)	220 (1.0)	210 (0.9)
3/16	130 (0.6)	140 (0.6)	185 (0.8)	190 (0.9)	235 (1.1)	235 (1.1)	290 (1.3)	280 (1.3)
1/4 ²	215 (1.0)	210 (0.9)	235 (1.1)	235 (1.1)	265 (1.2)	260 (1.2)	315 (1.4)	300 (1.4)
5/16	240 (1.1)	240 (1.1)	250 (1.1)	280 (1.3)	275 (1.2)	300 (1.4)	320 (1.4)	340 (1.5)
3/8	245 (1.1)	250 (1.1)	255 (1.1)	295 (1.3)	290 (1.3)	315 (1.4)	340 (1.5)	355 (1.6)
1/2	255 (1.1)	275 (1.2)	325 (1.5)	315 (1.4)	390 (1.8)	375 (1.7)	415 (1.9)	400 (1.8)

1. Ultimate load capacities are provided for reference and must be reduced by a minimum safety factor of 4.0 or greater to determine allowable working loads.
2. Data for the 1/4" diameter also applies to the 1/4" Tie-Wire Acoustical Toggle.

Allowable Load Capacities for Toggle Bolt in Wallboard¹

Anchor Diameter in.	3/8" Wallboard		1/2" Wallboard		5/8" Wallboard		3/4" Wallboard	
	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/8	30 (0.1)	30 (0.1)	40 (0.2)	35 (0.2)	50 (0.2)	45 (0.2)	55 (0.2)	55 (0.2)
3/16	35 (0.2)	35 (0.2)	45 (0.2)	50 (0.2)	60 (0.3)	60 (0.3)	75 (0.3)	70 (0.3)
1/4 ²	55 (0.2)	55 (0.2)	60 (0.3)	60 (0.3)	65 (0.3)	65 (0.3)	80 (0.4)	75 (0.3)
5/16	60 (0.3)	60 (0.3)	65 (0.3)	70 (0.3)	70 (0.3)	75 (0.3)	80 (0.4)	85 (0.4)
3/8	60 (0.3)	65 (0.3)	65 (0.3)	75 (0.3)	75 (0.3)	80 (0.4)	85 (0.4)	90 (0.4)
1/2	65 (0.3)	70 (0.3)	80 (0.4)	80 (0.4)	100 (0.5)	95 (0.4)	105 (0.5)	100 (0.5)

1. Allowable load capacities listed are calculated using an applied safety factor of 4.0.
2. Data for the 1/4" diameter also applies to the 1/4" Tie-Wire Acoustical Toggle.

Ultimate and Allowable Load Capacities for Toggle Bolt in Hollow Concrete Masonry and Hollow Core Concrete^{1,2}

Anchor Diameter in.	Ultimate Load		Allowable Load	
	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/8	195 (0.9)	180 (0.8)	40 (0.2)	35 (0.2)
3/16	250 (1.1)	355 (1.6)	50 (0.2)	70 (0.3)
1/4 ³	350 (1.6)	595 (2.7)	70 (0.3)	120 (0.5)
5/16	430 (1.9)	680 (3.1)	85 (0.4)	135 (0.6)
3/8	710 (3.2)	705 (3.2)	140 (0.6)	140 (0.6)
1/2	1,160 (3.2)	800 (3.6)	230 (0.6)	160 (0.7)

1. Tabulated load values are for anchors installed in minimum 6-inch wide, Grade N, Type II, medium and normal-weight concrete masonry units; data is also applicable to hollow core concrete. Masonry and concrete compressive strength must be at the specified minimum at the time of installation.
2. Allowable load capacities listed are calculated using an applied safety factor of 5.0.
3. Data for the 1/4" diameter also applies to the 1/4" Tie-Wire Acoustical Toggle.

Ultimate and Allowable Tension Capacities for Toggle Bolt in 3/4" Plywood¹

Anchor Diameter in.	Ultimate Load	Allowable Load
1/8	100 (0.4)	35 (0.2)
3/16	270 (1.2)	90 (0.4)
1/4 ²	420 (1.9)	140 (0.6)
5/16	505 (2.2)	170 (0.8)
3/8	505 (2.2)	170 (0.8)
1/2	630 (2.8)	210 (0.9)

1. Allowable load capacities listed are calculated using an applied safety factor of 3.0.
2. Data for the 1/4" diameter also applies to the 1/4" Tie-Wire Acoustical Toggle.

Ultimate and Allowable Tension Capacities for Toggle Bolt in Light Gauge Steel¹

Anchor Diameter in.	24 Gauge		20 Gauge		18 Gauge	
	Ultimate Load	Allowable Load	Ultimate Load	Allowable Load	Ultimate Load	Allowable Load
1/8	100 (0.4)	35 (0.2)	115 (0.5)	40 (0.2)	115 (0.5)	40 (0.2)
3/16	270 (1.2)	90 (0.4)	315 (1.2)	105 (0.5)	315 (1.2)	105 (0.5)
1/4 ²	420 (1.9)	140 (0.6)	495 (2.2)	165 (0.7)	495 (2.2)	165 (0.7)
5/16	505 (2.2)	170 (0.8)	595 (2.6)	200 (0.9)	595 (2.6)	200 (0.9)
3/8	505 (2.2)	170 (0.8)	595 (2.6)	200 (0.9)	595 (2.6)	200 (0.9)
1/2	630 (2.8)	210 (0.9)	750 (3.3)	250 (1.1)	750 (3.3)	250 (1.1)

1. Allowable load capacities listed are calculated using an applied safety factor of 3.0.
2. Data for the 1/4" diameter also applies to the 1/4" Tie-Wire Acoustical Toggle.

ORDERING INFORMATION

WALL ANCHORS

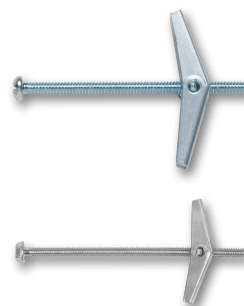
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Mushroom and Slotted Hex Head Toggle Bolt

Catalog Number		Anchor Size	Head Size (O.D.)		Drill Diameter*	Pack Qty.	Standard Carton
MH	SHH		MH	SHH			
04023-PWR	–	1/8" x 2"	5/16"	-	3/8"	50	500
04033-PWR	04038-PWR	1/8" x 3"	5/16"	11/32"	3/8"	50	500
04043-PWR	–	1/8" x 4"	5/16"	-	3/8"	50	500
04133-PWR	–	3/16" x 3"	7/16"	-	1/2"	50	500
04143-PWR	–	3/16" x 4"	7/16"	-	1/2"	50	500
04233-PWR	–	1/4" x 3"	17/32"	-	5/8"	50	500
04243-PWR	–	1/4" x 4"	17/32"	-	5/8"	50	500

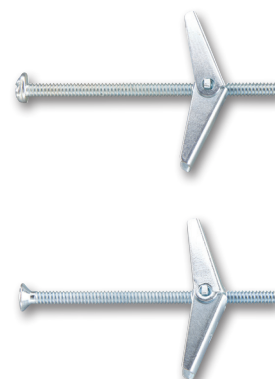
MH = Mushroom Head (Phillips Drive) SHH = Slotted Hex Head
Phillips drive sizes: #2 - 1/8" & 3/16" anchors; #3 - 1/4" anchors (All anchors feature a head slot)
Hex drive size: 1/4"
Length is measured from under the head.
*The drill diameter for Wallboard is specified. Please see the Installation Specifications section for drill sizes in other materials



Round and Flat Hex Head Toggle Bolt

Catalog Number		Anchor Size	Head Size (O.D.)		Drill Diameter*	Pack Qty.	Standard Carton
RH	FH		RH	FH			
04021-PWR	–	1/8" x 2"	1/4"	-	3/8"	50	500
04031-PWR	–	1/8" x 3"	1/4"	-	3/8"	50	500
04041-PWR	–	1/8" x 4"	1/4"	-	3/8"	50	500
04121-PWR	–	3/16" x 2"	23/64"	-	1/2"	50	500
04131-PWR	04132-PWR	3/16" x 3"	23/64"	23/64"	1/2"	50	500
04141-PWR	04142-PWR	3/16" x 4"	23/64"	23/64"	1/2"	50	500
04151-PWR	–	3/16" x 5"	23/64"	-	1/2"	50	500
04161-PWR	–	3/16" x 6"	23/64"	-	1/2"	50	500
04231-PWR	04232-PWR	1/4" x 3"	29/64"	1/2"	5/8"	50	500
04241-PWR	–	1/4" x 4"	29/64"	-	5/8"	50	500
04251-PWR	–	1/4" x 5"	29/64"	-	5/8"	50	500
04261-PWR	–	1/4" x 6"	29/64"	-	5/8"	50	500
04341-PWR	–	5/16" x 4"	37/64"	-	7/8"	25	250
04431-PWR	–	3/8" x 3"	45/64"	-	7/8"	25	250
04441-PWR	–	3/8" x 4"	45/64"	-	7/8"	25	250
04451-PWR	–	3/8" x 5"	45/64"	-	7/8"	25	125
04461-PWR	–	3/8" x 6"	45/64"	-	7/8"	25	125
04541-PWR	–	1/2" x 4"	25/32"	-	1-1/4"	25	125

RH = Round Head (Phillips Drive) FH = Flat Head (slotted drive)
Phillips drive sizes: #2 - 1/8" & 3/16" anchors; #3 - 1/4" anchors; #4 - 5/16", 3/8" and 1/2" anchors.
Length is measured from under the head of the Round Head style and from the top of the Flat Head style.
*The drill diameter for Wallboard is specified. Please see the Installation Specifications section for drill sizes in other materials.



Toggle Wings Only

Catalog Number	Anchor Size	Drill Diameter*	Pack Qty.	Std. Carton
04000-PWR	1/8"	3/8"	100	500
04020-PWR	3/16"	1/2"	100	1,000
04220-PWR	1/4"	5/8"	100	1,000
04330-PWR	5/16"	7/8"	50	500
04430-PWR	3/8"	7/8"	50	500
04540-PWR	1/2"	1 1/4"	25	125

*The drill diameter for Wallboard is specified. Please see the Installation Specifications section for drill sizes in other materials.



Tie Wire Acoustical Toggle

Catalog Number	Anchor Size	Tie Wire Hole Size	Head Width	Drill Diameter*	Pack Qty.
04247-PWR	1/4" x 4"	7/32"	13/32"	5/8"	100
04257-PWR	1/4" x 5"	7/32"	13/32"	5/8"	100

Length includes the eyelet portion. Subtract 1-inch to get thread length.
*The drill diameter for Wallboard is specified. Please see the Installation Specifications section for drill sizes in other materials.

