

GENERAL INFORMATION

LAG SHIELD™

Shell Expansion Anchor

PRODUCT DESCRIPTION

The Lag Shield is a screw style anchor designed for use with lag bolts. It is suitable for use in concrete and the mortar joints of block or brick walls. In harder masonry materials, short style Lag Shields are used to reduce drilling time. The long style version is used in soft or weak masonry to better develop strength. The Lag Shield is not recommended for overhead or life safety applications.

GENERAL APPLICATIONS AND USES

- Hard and Soft Base Materials
- Shallow Attachments
- Mortar Joints
- Masonry Anchorage

FEATURE AND BENEFITS

- + Ideal for use in masonry materials
- + Internally threaded anchor for easy removability and service work

APPROVALS AND LISTINGS

- Federal GSA Specification – Meets the descriptive and proof load requirements of CID A-A 1923A, Type 1
- Tested in accordance with ASTM E 488

GUIDE SPECIFICATIONS

CSI Divisions: 03 16 00 - Concrete Anchors, 04 05 19.16 - Masonry Anchors and 05 05 19 - Post-Installed Concrete Anchors. Shell Expansion Anchors shall be Lag Shield as supplied by DEWALT, Towson, MD. Anchors shall be installed in accordance with published instructions and the Authority Having Jurisdiction.

INSTALLATION AND MATERIAL SPECIFICATIONS

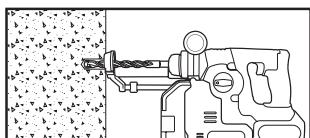
Dimension	Installation Specifications					
	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
ANSI Drill Bit Size (in.)	1/2	1/2	5/8	3/4	7/8	1
Max. Tightening Torque, T_{max} (ft.-lbs.)	5	7	10	20	30	60
Lag Bolt Size	1/4-10	5/16-9	3/8-7	1/2-6	5/8-5	3/4-4-1/2

Material Specifications

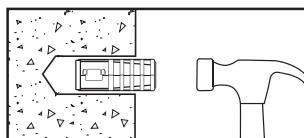
Anchor Component	Component Material
Anchor Sleeve	Zamac Alloy

Installation Guidelines

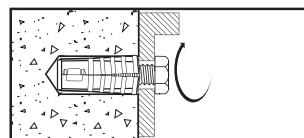
Drill a hole into the base material to the depth of at least 1/2" or one anchor diameter deeper than the embedment required. The tolerances of the drill bit used must meet the requirements of ANSI Standard B212.15.



Remove dust and debris from the hole during drilling (e.g. dust extractor, hollow bit) or following drilling (e.g. suction, forced air) to extract loose particles created by drilling. Insert the anchor into the hole until it is flush with the surface. If installing in a mortar joint, position the anchor to expand against the block or brick.



Position fixture, insert the lag bolt, and tighten. The lag bolt length selected should fully engage the entire anchor body.



PERFORMANCE DATA

Ultimate Load Capacities for Lag Shield in Normal-Weight Concrete^{1,2}

Rod/Anchor Diameter d in. (mm)	Minimum Embedment Depth h in. (mm)	Minimum Concrete Compressive Strength (f'c)					
		2,000 psi (13.8 MPa)		4,000 psi (27.6 MPa)		6,000 psi (41.4 MPa)	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4 Short (6.4)	1 (25.4)	200 (0.9)	790 (3.5)	280 (1.2)	1,005 (4.1)	370 (1.6)	1,005 (4.5)
1/4 Long (6.4)	1-1/2 (38.1)	300 (1.3)	790 (3.5)	345 (1.5)	1,005 (4.1)	425 (1.9)	1,005 (4.5)
5/16 Short (7.9)	1-1/4 (31.8)	315 (1.4)	995 (4.4)	515 (2.3)	1,115 (4.9)	660 (2.9)	1,115 (4.9)
5/16 Long (7.9)	1-3/4 (44.5)	375 (1.7)	995 (4.4)	550 (2.4)	1,115 (4.9)	570 (2.5)	1,115 (4.9)
3/8 Short (9.5)	1-3/4 (44.5)	590 (2.6)	1,175 (5.2)	855 (3.8)	1,450 (6.4)	910 (4.0)	1,450 (6.4)
3/8 Long (9.5)	2-1/2 (63.5)	740 (3.3)	1,175 (5.2)	1,080 (4.8)	1,450 (6.4)	1,290 (5.7)	1,450 (6.4)
1/2 Short (12.7)	2 (50.8)	800 (3.6)	1,335 (5.9)	1,190 (5.3)	1,600 (7.1)	1,265 (5.6)	1,600 (7.1)
1/2 Long (12.7)	3 (76.2)	1,460 (6.5)	1,335 (5.9)	2,110 (9.4)	1,600 (7.1)	2,370 (10.5)	1,600 (7.1)
5/8 Short (15.9)	2 (50.8)	855 (3.8)	2,000 (8.9)	1,230 (5.5)	2,250 (10.0)	1,355 (6.0)	2,250 (10.0)
5/8 Long (15.9)	3-1/2 (88.9)	1,730 (7.7)	2,000 (8.9)	2,660 (10.8)	2,250 (10.0)	2,935 (13.0)	2,250 (10.0)
3/4 Short (19.1)	2 (50.8)	930 (4.1)	2,000 (8.9)	1,540 (6.8)	2,400 (10.6)	1,640 (17.3)	2,400 (10.6)
3/4 Long (19.1)	3-1/2 (88.9)	2,045 (9.1)	2,000 (8.9)	2,800 (12.5)	2,400 (10.6)	2,935 (13.0)	2,400 (10.6)

1. Tabulated load values are for anchors installed in concrete. Concrete compressive strength must be at the specified minimum at the time of installation.

2. Ultimate load capacities must be reduced by a minimum safety factor of 4.0 or greater to determine allowable working load. Anchors are not recommended for use overhead or for life safety. Consideration of safety factors of 20 or higher may be necessary depending upon the application such as in sustained tensile loading applications.

Allowable Load Capacities for Lag Shield in Normal-Weight Concrete^{1,2}

Rod/Anchor Diameter d in. (mm)	Minimum Embedment Depth h in. (mm)	Minimum Concrete Compressive Strength (f'c)					
		2,000 psi (13.8 MPa)		4,000 psi (27.6 MPa)		6,000 psi (41.4 MPa)	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4 Short (6.4)	1 (25.4)	50 (0.2)	200 (0.9)	70 (0.3)	250 (1.1)	90 (0.4)	250 (1.1)
1/4 Long (6.4)	1-1/2 (38.1)	75 (0.3)	200 (0.9)	85 (0.4)	250 (1.1)	105 (0.5)	250 (1.1)
5/16 Short (7.9)	1-1/4 (31.8)	80 (0.3)	245 (1.1)	130 (0.6)	275 (1.2)	165 (0.7)	275 (1.2)
5/16 Long (7.9)	1-3/4 (44.5)	90 (0.4)	245 (1.1)	135 (0.6)	275 (1.2)	140 (0.6)	275 (1.2)
3/8 Short (9.5)	1-3/4 (44.5)	145 (0.6)	290 (1.3)	210 (0.9)	360 (1.6)	225 (1.0)	360 (1.6)
3/8 Long (9.5)	2-1/2 (63.5)	185 (0.8)	290 (1.3)	270 (1.2)	360 (1.6)	320 (1.4)	360 (1.6)
1/2 Short (12.7)	2 (50.8)	200 (1.9)	330 (1.5)	300 (1.3)	400 (1.8)	315 (1.4)	400 (1.8)
1/2 Long (12.7)	3 (76.2)	365 (1.6)	330 (1.5)	525 (2.3)	400 (1.8)	590 (2.6)	400 (1.8)
5/8 Short (15.9)	2 (50.8)	215 (1.9)	500 (2.2)	305 (1.1)	560 (2.5)	335 (1.5)	560 (2.5)
5/8 Long (15.9)	3-1/2 (88.9)	430 (1.9)	500 (2.2)	665 (3.0)	560 (2.5)	730 (3.2)	560 (2.5)
3/4 Short (19.1)	2 (50.8)	230 (1.0)	500 (2.2)	385 (1.7)	600 (2.7)	410 (1.8)	600 (2.7)
3/4 Long (19.1)	3-1/2 (88.9)	510 (2.3)	500 (2.2)	700 (3.1)	600 (2.7)	730 (3.2)	600 (2.7)

1. Allowable load capacities listed are calculated using and applied safety factor of 4.0. Anchors are not recommended for use overhead or for life safety. Consideration of safety factors of 20 or higher may be necessary depending upon the application such as in sustained tensile loading applications.

2. Linear interpolation may be used to determine allowable loads for intermediate compressive strengths.

Ultimate and Allowable Load Capacities for Lag Shield in Hollow Concrete Masonry^{1,2,3,4}

Rod/Anchor Diameter <i>d</i> in. (mm)	Minimum Embedment Depth <i>h_v</i> in. (mm)	<i>f'm</i> ≥ 1,500 psi (10.4 MPa)			
		Ultimate Load		Allowable Load	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4 Short (6.4)	1 (25.4)	230 (1.0)	720 (3.2)	45 (0.2)	145 (0.7)
5/16 Short (7.9)	1-1/4 (31.8)	360 (1.6)	1,025 (4.6)	70 (0.3)	205 (0.9)
3/8 Short (9.5)	1-1/2 (38.1)	795 (3.6)	1,125 (5.1)	160 (0.7)	225 (1.0)
1/2 Short (12.7)	1-1/2 (38.1)	1,025 (4.6)	1,600 (7.2)	205 (0.9)	320 (1.4)

1. Tabulated load values are for anchors installed in minimum 6-inch wide, minimum Grade N, Type II, lightweight, medium-weight or normal-weight concrete masonry units conforming to ASTM C 90. Mortar must be minimum Type N. Masonry cells may be grouted. Masonry compressive strength must be at the specified minimum at the time of installation (*f'm* ≥ 1,500 psi).
 2. Allowable load capacities listed are calculated using and applied safety factor of 5.0. Anchors are not recommended for use overhead or for life safety. Consideration of safety factors of 20 or higher may be necessary depending upon the application such as in sustained tensile loading applications.
 3. Anchors with diameters of 3/8" and greater installed in hollow concrete masonry units are limited to one anchor per unit cell.
 4. Anchors installed flush with face shell surface. The wall thickness of the masonry unit must be equal to or greater than the embedment depth.

Ultimate and Allowable Load Capacities for Lag Shield in Clay Brick Masonry^{1,2}

Rod/Anchor Diameter <i>d</i> in. (mm)	Minimum Embedment Depth <i>h_v</i> in. (mm)	<i>f'm</i> ≥ 1,500 psi (10.4 MPa)			
		Ultimate Load		Allowable Load	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
1/4 Short (6.4)	1 (25.4)	240 (1.1)	1,025 (4.6)	50 (0.2)	205 (0.9)
5/16 Short (7.9)	1 1/4 (31.8)	425 (1.9)	1,485 (6.7)	85 (0.4)	295 (1.3)
3/8 Short (9.5)	1 3/4 (44.5)	1,190 (5.4)	1,620 (7.3)	240 (1.1)	325 (1.5)
1/2 Short (12.7)	2 (50.8)	1,230 (5.5)	2,140 (9.6)	245 (1.1)	430 (1.9)

1. Tabulated load values are for anchors installed in multiple wythe, minimum Grade SW, solid clay brick masonry walls conforming to ASTM C 62. Mortar must be minimum Type N. Masonry compressive strength must be at the specified minimum at the time of installation (*f'm* ≥ 1,500 psi).
 2. Allowable load capacities listed are calculated using and applied safety factor of 5.0. Anchors are not recommended for use overhead or for life safety. Consideration of safety factors of 20 or higher may be necessary depending upon the application such as in sustained tensile loading applications.

ORDERING INFORMATION

Lag Shield Anchor

Catalog Number	Size	Drill Diameter	Length	Thread Length	Standard Box	Standard Carton	Wt./100
1051	1/4" Short	1/2"	1"	1/2"	50	500	3
1055	1/4" Long	1/2"	1-1/2"	1"	50	500	4
1101	5/16" Short	1/2"	1-1/4"	3/4"	50	500	3
1105	5/16" Long	1/2"	1-3/4"	1"	50	500	4-1/4
1151	3/8" Short	5/8"	1-3/4"	1"	50	500	6-3/4
1155	3/8" Long	5/8"	2-1/2"	1-1/2"	50	250	9-1/2
1201	1/2" Short	3/4"	2"	1-1/8"	50	500	9-1/4
1205	1/2" Long	3/4"	3"	1-7/8"	50	200	14-1/4
1251	5/8" Short	7/8"	2"	1"	25	125	13
1255	5/8" Long	7/8"	3-1/2"	2 1/4"	25	125	22
1301	3/4" Short	1"	2"	1 1/8"	25	125	16
1305	3/4" Long	1"	3-1/2"	2 1/4"	25	100	24-1/2

