Gas Tool / Fastener Suitability

Gas Tool
GCN-MEP

Fuel Cell
GFCXX

0.106"-Diameter Shank Pins
GDP
US Patent 605,016

Model No.	Length (in.)
GDP-50KT	½
GDP-62KT	⅝
GDP-75KT	¾
GDP-100KT	1
GDP-125KT	1¼
GDP-150KT	1½

0.118"- / 0.102"-Diameter Stepped-Shank Pins
GDPS

Model No.	Length (in.)
GDPS-50KT	½
GDPS-62KT	⅝
GDPS-75KT	¾

Spiral Knurl Pins
GDPSK

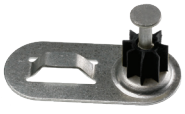
Model No.	Length (in.)
GDPSK-138KT	1⅜

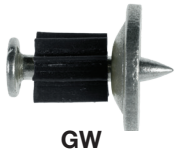
Mechanical Electrical Plumbing Pins

Model No.	Description
GCC50-R100	½" conduit clip with pin
GCC75-R100	¾" conduit clip with pin
GCC100-R100	1" conduit clip with pin
GCC125-R50	1" conduit clip (13-gauge steel) with pin
GAC-R100	Angle clip with pin
GCT-R50	Tie-strap holder with pin
GW50-R200	½" dome washer x ½" step-shank (0.110"/0.128") pin
GW75-R200	½" dome washer with 0.125" x ¾" pin
GW100-R100	½" dome washer with pin
GTS4-5075-R200	¼" threaded stud, ½" length ¼-20 thread, ¾" length shank (0.127" diameter)
GTH-R200	Tophat pin


GCC


GAC


GCT


GW


GTS


GTH

See product guide (S-A-PG) and **strongtie.com** for additional information.

Powder-Actuated and Gas-Actuated Fasteners — Allowable Tension Loads in Normal-Weight Concrete

IBC *

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Minimum Edge Distance in. (mm)	Minimum Spacing in. (mm)	Allowable Tension Load — lb. (kN)				
						f'_c = 2,500 psi (17.2 MPa)	f'_c = 3,000 psi (20.7 MPa)	f'_c = 4,000 psi (27.6 MPa)	f'_c = 5,000 psi (34.5 MPa)	f'_c = 6,000 psi (41.3 MPa)
Powder Actuated	PDPA PDPAT PDPAWL	**0.157** (4.0)	¾ (19)	**3.5** (89)	**5** (127)	**110** (0.49)	**110** (0.49)	**110** (0.49)	—	**110** (0.49)
			1 (25)	**3.5** (89)	**5** (127)	**210** (0.93)	**240** (1.07)	**310** (1.38)	—	**160** (0.71)
			1¼ (32)	**3.5** (89)	**5** (127)	**320** (1.42)	**340** (1.51)	**380** (1.69)	—	**365** (1.62)
			1½ (38)	**3.5** (89)	**5** (127)	**375** (1.67)	**400** (1.78)	**450** (2.00)	—	**465** (2.07)
	PINW PINWP	**0.145** (3.7)	**1** (25)	**3** (76)	**4** (102)	**70** (0.31)	**100** (0.44)	**150** (0.67)	—	**150** (0.67)
			1¼ (32)	**3** (76)	**4** (102)	**195** (0.87)	**255** (1.13)	**370** (1.65)	—	**370** (1.65)
	PSLV3	**0.205** (5.2)	**1¼** (32)	**4** (102)	**6** (152)	**260** (1.16)	—	—	—	—
Gas Actuated	GDP	**0.106** (2.7)	⅝ (16)	**3** (76)	**4** (102)	**25** (0.11)	**30** (0.13)	**45** (0.20)	**45** (0.20)	—
			¾ (19)	**3** (76)	**4** (102)	**30** (0.13)	**30** (0.13)	**30** (0.13)	**30** (0.13)	—
	GW-75 GW-100 GTH	**0.125** (3.2)	⅝ (16)	**3** (76)	**4** (102)	**65** (0.29)	**70** (0.31)	**95** (0.42)	—	—
			¾ (19)	**3** (76)	**4** (102)	**95** (0.42)	**105** (0.47)	**190** (0.85)	—	—

1. The fasteners must not be driven until the concrete has reached the designated minimum compressive strength.
2. Minimum concrete thickness must be three times the fastener embedment into the concrete.
3. The allowable tension values are only for the fastener in the concrete. Members connected to the concrete must be investigated in accordance with accepted design criteria.
4. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.
5. For fastener installation in concrete with compressive strength outside of the listed range, published allowable loads shall not be extrapolated.

Powder-Actuated and Gas-Actuated Fasteners — Allowable Shear Loads in Normal-Weight Concrete

IBC *

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Minimum Edge Distance in. (mm)	Minimum Spacing in. (mm)	Allowable Shear Load — lb. (kN)				
						f'_c = 2,500 psi (17.2 MPa)	f'_c = 3,000 psi (20.7 MPa)	f'_c = 4,000 psi (27.6 MPa)	f'_c = 5,000 psi (34.5 MPa)	f'_c = 6,000 psi (41.3 MPa)
Powder Actuated	PDPA PDPAT PDPAWL	**0.157** (4.0)	¾ (19)	**3.5** (89)	**5** (127)	**120** (0.53)	**125** (0.56)	**135** (0.60)	—	**130** (0.58)
			1 (25)	**3.5** (89)	**5** (127)	**285** (1.27)	**290** (1.29)	**310** (1.38)	—	**350** (1.56)
			1¼ (32)	**3.5** (89)	**5** (127)	**360** (1.60)	**380** (1.69)	**420** (1.87)	—	**390** (1.73)
			1½ (38)	**3.5** (89)	**5** (127)	**405** (1.80)	**430** (1.91)	**485** (2.16)	—	**495** (2.20)
	PINW PINWP	**0.145** (3.7)	**1** (25)	**3** (76)	**4** (102)	**140** (0.62)	**165** (0.73)	**205** (0.91)	—	**205** (0.91)
			1¼ (32)	**3** (76)	**4** (102)	**265** (1.18)	**265** (1.18)	**265** (1.18)	—	**265** (1.18)
Gas Actuated	GDP	**0.106** (2.7)	⅝ (16)	**3** (76)	**4** (102)	**25** (0.11)	**25** (0.11)	**25** (0.11)	**25** (0.11)	—
			¾ (19)	**3** (76)	**4** (102)	**50** (0.22)	**55** (0.24)	**75** (0.33)	**75** (0.33)	—
	GW-75 GW-100 GTH	**0.125** (3.2)	⅝ (16)	**3** (76)	**4** (102)	**60** (0.27)	**65** (0.29)	**95** (0.42)	—	—
			¾ (19)	**3** (76)	**4** (102)	**135** (0.60)	**145** (0.64)	**215** (0.96)	—	—

1. The fasteners must not be driven until the concrete has reached the designated minimum compressive strength.
2. Minimum concrete thickness must be three times the fastener embedment into the concrete.
3. The allowable shear values are only for the fastener in the concrete. Members connected to the concrete must be investigated in accordance with accepted design criteria.
4. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.
5. For fastener installation in concrete with compressive strength outside of the listed range, published allowable loads shall not be extrapolated.

** See p. 12 for an explanation of the load table icons.*

Powder-Actuated and Gas-Actuated Assemblies — Allowable Tension Loads in Normal-Weight Concrete

IBC *

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Minimum Edge Distance in. (mm)	Minimum Spacing in. (mm)	Allowable Tension Load — lb. (kN)				
						f'_c = 2,500 psi (17.2 MPa)	f'_c = 3,000 psi (20.7 MPa)	f'_c = 4,000 psi (27.6 MPa)	f'_c = 5,000 psi (34.5 MPa)	f'_c = 6,000 psi (41.3 MPa)
Powder Actuated	PCLDPA	0.157 (4.0)	¾ (19)	3.5 (89)	5 (102)	70 (0.31)	—	120 (0.53)	—	130 (0.58)
			1 (25)	3.5 (89)	5 (102)	175 (0.78)	—	180 (0.80)	—	190 (0.85)
			1¼ (32)	3.5 (89)	5 (102)	210 (0.93)	—	210 (0.93)	—	190 (0.85)
	PECLDPA	0.157 (4.0)	⅞ (22)	3.5 (89)	5 (102)	90 (0.40)	—	110 (0.49)	—	85 (0.38)
			1 (25)	3.5 (89)	5 (102)	180 (0.80)	—	155 (0.69)	—	180 (0.80)
	PTRHA3 PTRHA4	0.157 (4.0)	1¼ (32)	3.5 (89)	5 (102)	185 (0.82)	—	220 (0.98)	—	190 (0.85)
Gas Actuated	GAC	0.125 (3.2)	¾ (19)	3 (76)	4 (102)	105 (0.47)	120 (0.53)	150 (0.67)	170 (0.76)	195 (0.87)

1. The fasteners must not be driven until the concrete has reached the designated minimum compressive strength.
2. Minimum concrete thickness must be three times the fastener embedment into the concrete.
3. The allowable tension values are only for the fastener in the concrete. Members connected to the concrete must be investigated in accordance with accepted design criteria.
4. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.
5. For fastener installation in concrete with compressive strength outside of the listed range, published allowable loads shall not be extrapolated.

Powder-Actuated and Gas-Actuated Assemblies — Allowable Oblique Loads in Normal-Weight Concrete

IBC *

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Minimum Edge Distance in. (mm)	Minimum Spacing in. (mm)	Allowable Oblique Load — lb. (kN)				
						f'_c = 2,500 psi (17.2 MPa)	f'_c = 3,000 psi (20.7 MPa)	f'_c = 4,000 psi (27.6 MPa)	f'_c = 5,000 psi (34.5 MPa)	f'_c = 6,000 psi (41.3 MPa)
Powder Actuated	PCLDPA	0.157 (4.0)	¾ (19)	3.5 (89)	5 (102)	115 (0.51)	—	105 (0.47)	—	140 (0.62)
			1 (25)	3.5 (89)	5 (102)	255 (1.13)	—	240 (1.07)	—	245 (1.09)
			1¼ (32)	3.5 (89)	5 (102)	250 (1.11)	—	265 (1.18)	—	265 (1.18)
	PECLDPA	0.157 (4.0)	⅞ (22)	3.5 (89)	5 (102)	135 (0.60)	—	130 (0.58)	—	115 (0.51)
			1 (25)	3.5 (89)	5 (102)	225 (1.00)	—	230 (1.02)	—	255 (1.13)
Gas Actuated	GAC	0.125 (3.2)	¾ (19)	3 (76)	4 (102)	130 (0.58)	135 (0.60)	145 (0.64)	155 (0.69)	175 (0.78)

1. The fasteners must not be driven until the concrete has reached the designated minimum compressive strength.
2. Minimum concrete thickness must be three times the fastener embedment into the concrete.
3. The allowable oblique values are only for the fastener in the concrete. Members connected to the concrete must be investigated in accordance with accepted design criteria.
4. Oblique load direction is 45° from the concrete member surface.
5. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.
6. For fastener installation in concrete with compressive strength outside of the listed range, published allowable loads shall not be extrapolated.

** See p. 12 for an explanation of the load table icons.*

Powder-Actuated Fasteners — Allowable Tension and Shear Loads for Attachment of Wood Sill Plates to Normal-Weight Concrete

Direct Fastening Type	Model No.	Overall Length in. (mm)	Nominal Head Diameter in. (mm)	Shank Diameter in. (mm)	Washer Thickness in. (mm)	Washer Bearing Area in.^{2} (mm^2)	f'_c = 2,500 psi (17.2 MPa)	
							Allowable Tension Load lb. (kN)	Allowable Shear Load lb. (kN)
Powder Actuated	PDPAWL-287 PDPAWL-287MG	2⅞ (73)	0.300 (7.6)	0.157 (4.0)	0.070 (1.8)	0.767 (495)	200 (0.89)	205 (0.91)

1. The fasteners must not be driven until the concrete has reached the designated minimum compressive strength.
2. Minimum concrete thickness must be three times the fastener embedment into the concrete.
3. The allowable tension and shear values are only for the fastener in the concrete. Members connected to the concrete must be investigated in accordance with accepted design criteria.
4. Minimum concrete edge distance is 1¾".
5. Only mechanically galvanized fasteners may be used to attach preservative-treated wood to concrete.
6. Minimum spacing shall be 4" on center.
7. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 code report for seismic load conditions.

Spacing of Powder-Actuated Fasteners for Attachment of Wood Sill Plates to Normal-Weight Concrete

Direct Fastening Type	Model No.	Overall Length in. (mm)	Nominal Head Diameter in. (mm)	Shank Diameter in. (mm)	Maximum Spacing in. (mm)
					Interior Nonstructural Walls[2]
Powder Actuated	PDPAWL-287[3] PDPAWL-287MG[3]	2⅞ (73)	0.300 (7.6)	0.157 (4.0)	48 (1,219)

1. Spacings are based upon the attachment of 2" (nominal thickness) wood sill plates, with specific gravity of 0.50 or greater, to concrete floor slabs or footings.
2. All walls shall have fasteners placed at 6" from ends of sill plates, with maximum spacing as shown in the table.
3. Fasteners shall not be driven until the concrete has reached a compressive strength of 2,500 psi. Minimum edge distance is 1¾".
4. The maximum horizontal transverse load on the wall shall be 5 psf.
5. The maximum wall height shall be 14 feet.
6. For exterior walls and interior structural walls, this table is not applicable and allowable loads must be used .
7. Walls shall be laterally supported at the top and the bottom.
8. Minimum spacing shall be 4" on center.
9. Only mechanically galvanized fasteners may be used to attach preservative-treated wood to concrete.

** See p. 12 for an explanation of the load table icons.*

Gas- and Powder-Actuated Fasteners Design Information – Concrete

Powder-Actuated and Gas-Actuated Fasteners — Allowable Tension Loads in Sand-Lightweight Concrete over Steel Deck

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Allowable Tension Load — lb. (kN)				
				Installed in Concrete[4]	Installed Thru. 3" "W" Deck with 3¼" Concrete Fill[5]	Installed Thru. 3" "W" Deck with 2¼" Concrete Fill[6]	Installed Thru. 1.5" "B" Deck with 2¼" Concrete Fill[7]	Installed Thru. 1.5" "B" Deck with 2" Concrete Fill[8]
				f'_c = 3,000 psi (20.7 MPa) Concrete				
Powder Actuated	PDPA PDPAT PDPAWL	**0.157** (4.0)	¾ (19)	**85** (0.38)	**105** (0.47)	—	—	**160** (0.71)
			1 (25)	**150** (0.67)	**145** (0.64)	—	—	**210** (0.93)
			1¼ (32)	**320** (1.42)	**170** (0.76)	—	—	**265** (1.18)
			1½ (38)	**385** (1.71)	**325** (1.45)	—	—	—
	PINW PINWP	**0.145** (3.7)	⅞ (22)	**85** (0.38)	**40** (0.18)	—	—	—
	PSLV3	**0.205** (5.2)	**1¼** (32)	—	**225** (1.00)	—	—	—
Gas Actuated	GDP	**0.106** (2.7)	⅝ (16)	**75** (0.33)	—	**60** (0.27)	**65** (0.29)	—
			¾ (19)	**105** (0.47)	—	**60** (0.27)	**130** (0.58)	—
	GW-75 GW-100 GTH	**0.125** (3.2)	⅝ (16)	**60** (0.27)	—	**35** (0.16)	—	—
			¾ (19)	**115** (0.51)	—	**55** (0.24)	—	—

1. The fastener shall not be driven until the concrete has reached the designated compressive strength.
2. The allowable tension values are for the fastener only. Members connected to the concrete must be invesigated separately in accordance with accepted design criteria.
3. Steel deck must be minimum 20 gauge and have a minimum yield strength of 38,000 psi.
4. The minimum fastener spacing is 4". The minimum edge distances are 3½" and 3" for powder-actuated fasteners and gas-actuated fasteners, respectively.
5. The fastener shall be installed minimum 1½" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
6. The fastener shall be installed minimum 1" from the edge of flute and 3" from the end of the deck. The minimum fastener spacing is 4". For GW and GTH fasteners, the fastener must be a minimum of 1⅛" from the edge of flute.
7. The fastener shall be installed minimum ⅞" from the edge of flute. For inverted 1.5" "B" deck configuration, the fastener must be a minimum of 1" from the edge of flute. Fastener must be installed miminim 3" from the end of the deck. The minimum fastener spacing is 4".
8. The fastener shall be installed minimum ⅞" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
9. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.

** See p. 12 for an explanation of the load table icons.*

Powder-Actuated and Gas-Actuated Fasteners — Allowable Shear Loads in Sand-Lightweight Concrete over Steel Deck

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Allowable Shear Load — lb. (kN)				
				Installed in Concrete[9]	Installed Thru. 3" "W" Deck with 3¼" Concrete Fill[5]	Installed Thru. 3" "W" Deck with 2¼" Concrete Fill[6]	Installed Thru. 1.5" "B" Deck with 2¼" Concrete Fill[7]	Installed Thru. 1.5" "B" Deck with 2" Concrete Fill[8]
				f'_c = 3,000 psi (20.7 MPa) Concrete				
Powder Actuated	PDPA PDPAT PDPAWL	**0.157** (4.0)	**¾** (19)	**105** (0.47)	**280** (1.25)	—	—	**275** (1.22)
			1 (25)	**225** (1.00)	**280** (1.25)	—	—	**370** (1.65)
			1¼ (32)	**420** (1.87)	**320** (1.42)	—	—	**460** (2.05)
			1½ (38)	**455** (2.02)	**520** (2.31)	—	—	—
	PINW PINWP	**0.145** (3.7)	**⅞** (22)	**250** (1.11)	**275** (1.22)	—	—	—
Gas Actuated	GDP	**0.106** (2.7)	**⅝** (16)	**35** (0.16)	—	**180** (0.80)	**195** (0.87)	—
			¾ (19)	**140** (0.62)	—	**180** (0.80)	**270** (1.20)	—
	GW-75 GW-100 GTH	**0.125** (3.2)	**⅝** (16)	**110** (0.49)	—	**215** (0.96)	—	—
			¾ (19)	**130** (0.58)	—	**235** (1.05)	—	—

1. The fastener shall not be driven until the concrete has reached the designated compressive strength.
2. The allowable shear values are for the fastener only. Members connected to the concrete must be invesigated separately in accordance with accepted design criteria.
3. Steel deck must be minimum 20 gauge and have a minimum yield strength of 38,000 psi.
4. Shear values are for loads applied toward edge of flute.
5. The fastener shall be installed minimum 1½" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
6. The fastener shall be installed minimum 1" from the edge of flute and 3" from the end of the deck. The minimum fastener spacing is 4". For GW and GTH fasteners, the fastener must be a minimum of 1⅛" from the edge of flute.
7. The fastener shall be installed minimum ⅞" from the edge of flute. For inverted 1.5" "B" deck configuration, the fastener must be a minimum of 1" from the edge of flute. Fastener must be installed miminim 3" from the end of the deck. The minimum fastener spacing is 4".
8. The fastener shall be installed minimum ⅞" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
9. The minimum fastener spacing is 4". The minimum edge distances are 3½" and 3" for powder-actuated fasteners and gas-actuated fasteners, respectively.
10. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.

** See p. 12 for an explanation of the load table icons.*

Powder-Actuated and Gas-Actuated Assemblies – Allowable Tension Loads in Sand-Lightweight Concrete over Steel Deck

IBC *

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Allowable Tension Load — lb. (kN)			
				Installed Thru. 3" "W" Deck with 2½" Concrete Fill[4]	Installed Thru. 3" "W" Deck with 2¼" Concrete Fill[5]	Installed Thru. 1.5" "B" Deck with 2¼" Concrete Fill[6]	Installed Thru. 1.5" "B" Deck with 2" Concrete Fill[7]
				f'_c = 3,000 psi (20.7 MPa) Concrete			
Powder Actuated	PTRHA3 PTRHA4	**0.157** (4.0)	**1¼** (32)	**160** (0.71)	—	—	**175** (0.78)
	PCLDPA	**0.157** (4.0)	**¾** (19)	**115** (0.51)	—	—	**60** (0.27)
			1 (25)	**140** (0.62)	—	—	**160** (0.71)
			1¼ (32)	**160** (0.71)	—	—	**180** (0.80)
	PECDLPA	**0.157** (4.0)	**⅞** (22)	**80** (0.36)	—	—	**95** (0.40)
			1 (25)	**120** (0.53)	—	—	**135** (0.60)
Gas Actuated	GAC	**0.125** (3.2)	**¾** (19)	—	**105** (0.47)	**90** (0.40)	—

1. The fastener shall not be driven until the concrete has reached the designated compressive strength.
2. The allowable tension values are for the fastener only. Members connected to the concrete must be invesigated separately in accordance with accepted design criteria.
3. Steel deck must be minimum 20 gauge and have a minimum yield strength of 38,000 psi.
4. The fastener shall be installed minimum 1½" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
5. The fastener shall be installed minimum 1" from the edge of flute and 3" from the end of the deck. The minimum fastener spacing is 4".
6. The fastener shall be installed minimum ⅞" from the edge of flute and 3" from the end of the deck. The minimum fastener spacing is 4".
7. The fastener shall be installed minimum ⅞" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
8. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.

Powder-Actuated and Gas-Actuated Assemblies – Allowable Oblique Loads in Sand-Lightweight Concrete over Steel Deck

IBC *

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Allowable Oblique Load — lb. (kN)			
				Installed Thru. 3" "W" Deck with 2½" Concrete Fill[4]	Installed Thru. 3" "W" Deck with 2¼" Concrete Fill[5]	Installed Thru. 1.5" "B" Deck with 2¼" Concrete Fill[6]	Installed Thru. 1.5" "B" Deck with 2" Concrete Fill[7]
				f'_c = 3,000 psi (20.7 MPa) Concrete			
Powder Actuated	PCLDPA	**0.157** (4.0)	**¾** (19)	**155** (0.69)	—	—	**175** (0.78)
			1 (25)	**175** (0.78)	—	—	**240** (1.07)
			1¼ (32)	**185** (0.82)	—	—	**280** (1.25)
	PECDLPA	**0.157** (4.0)	**⅞** (22)	**110** (0.49)	—	—	**110** (0.49)
			1 (25)	**145** (0.64)	—	—	**175** (0.78)
Gas Actuated	GAC	**0.125** (3.2)	**¾** (19)	—	**120** (0.53)	**90** (0.40)	—

1. The fastener shall not be driven until the concrete has reached the designated compressive strength.
2. The allowable oblique values are for the fastener only. Members connected to the concrete must be invesigated separately in accordance with accepted design criteria.
3. Steel deck must be minimum 20 gauge and have a minimum yield strength of 38,000 psi.
4. The fastener shall be installed minimum 1½" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
5. The fastener shall be installed minimum 1" from the edge of flute and 3" from the end of the deck. The minimum fastener spacing is 4".
6. The fastener shall be installed minimum ⅞" from the edge of flute and 3" from the end of the deck. The minimum fastener spacing is 4".
7. The fastener shall be installed minimum ⅞" from the edge of flute and 4" from the end of the deck. The minimum fastener spacing is 4".
8. Oblique load direction is 45° from the concrete member surface.
9. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.

** See p. 12 for an explanation of the load table icons.*

Powder-Actuated and Gas-Actuated Fasteners — Allowable Tension and Shear Loads in Hollow and Grout-Filled CMU[4,5,8]

Direct Fastening Type	Model No.	Shank Diameter in. (mm)	Minimum Penetration in. (mm)	Minimum Edge Distance in. (mm)	8-inch Hollow CMU		8-inch Grout-Filled CMU	
					Tension Load	Shear Load	Tension Load	Shear Load
					Allowable lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)
Powder Actuated	PDPA PDPAT PDPAWL	**0.157** (4.0)	**1¾** (44)	**3½** (89)	**125**[1] (0.56)	**210**[1] (0.93)	**190**[3] (0.85)	**245**[3] (1.09)
	PINW PINWP	**0.145** (3.7)	**1¾** (44)	**3½** (89)	**110**[1] (0.49)	**200**[1] (0.89)	—	—
Gas Actuated	GDP	**0.106** (2.7)	**⅝** (16)	**3** (76)	**35**[1] (0.16)	**60**[1] (0.27)	—	—
	GW-75 GW-100 GTH	**0.125** 3.2)	**⅝** (16)	**3** (76)	**75**[2] (0.33)	**90**[2] (0.40)	—	—

1. Allowable values for fasteners in hollow lightweight concrete masonry units conforming to ASTM C90.
2. Allowable values for fasteners in hollow medium-weight concrete masonry units conforming to ASTM C90.
3. Allowable values for fasteners in grout-filled lightweight concrete masonry units conforming to ASTM C90 with coarse grout confroming to ASTM C746.
4. The minimum allowable nominal size of the CMU must be 8" high by 8" wider by 16" long, with a minimum 1¼"-thick face shell thickness.
5. Allowable values are for fasteners installed in the center of a CMU face shell. See Figure 1 for the applicable placement zone. Only one fastener may be installed at each cell.
6. Minimum penetration is measured from the outside face of the CMU.
7. Allowable values are for the fastener only. Members connected to the CMU must be investigated separately in accordance with accepted design criteria.
8. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.

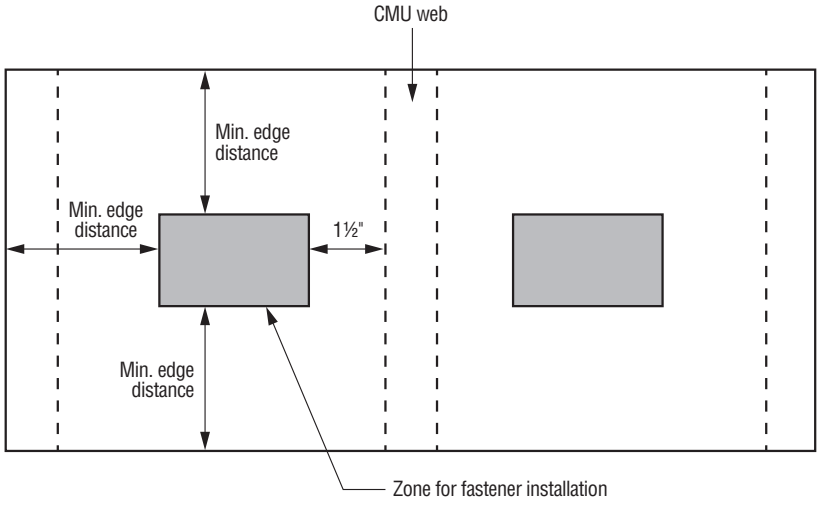


Figure 1. Zone for Fastener Installation in Face Shell of CMU

** See p. 12 for an explanation of the load table icons.*

Gas- and Powder-Actuated Fasteners Design Information – Steel

Powder-Actuated and Gas-Actuated Fasteners — Allowable Tension Loads in Steel[1]

IBC *

Direct Fastening Type	Model No.	Shank Diameter[10] in. (mm)	Minimum Edge Distance in. (mm)	Minimum Spacing in. (mm)	Minimum Steel Strength[3] ASTM	Allowable Tension Load — lb. (kN)					
						⅛"-Thick Steel	3⁄16"-Thick Steel	¼"-Thick Steel	⅜"-Thick Steel	½"-Thick Steel	¾"-Thick Steel
Powder Actuated	PDPA PDPAT PDPAWL	**0.157** (4.0)	**0.5** (13)	**1** (25)	A36	—	**260** (1.16)	**370** (1.65)	**380**[7] (1.69)	**530**[7] (2.36)	**195**[4] (0.87)
			0.5 (13)	**1** (25)	A572 Gr. 50 or A992	—	**305** (1.36)	**335** (1.49)	**355**[7] (1.58)	**485**[5] (2.16)	**170**[6] (0.76)
	PINW PINWP	**0.145** (3.7)	**0.5** (13)	**1** (25)	A36	—	**155** (0.69)	—	—	—	—
	PSLV3 Smooth shank	**0.205** (5.2)	**1** (25)	**1½** (38)	A36	—	**270** (1.20)	**680** (3.02)	—	—	—
	PSLV3-12575K Knurled shank	**0.205** (5.2)	**1** (25)	**1½** (38)	A36	—	**270** (1.20)	**870** (3.87)	—	—	—
Gas Actuated	GDP	**0.106** (2.7)	**0.5** (13)	**1** (25)	A36	**125** (0.56)	**210** (0.93)	**220** (0.98)	—	—	—
			0.5 (13)	**1** (25)	A572 Gr. 50 or A992	—	**225** (1.00)	**185** (0.82)	—	—	—
	GDPS	**0.118/0.102** (3.0/2.6)	**0.5** (13)	**1** (25)	A36	—	**95** (0.42)	**170** (0.76)	**165**[8] (0.73)	**145**[8] (0.64)	—
			0.5 (13)	**1** (25)	A572 Gr. 50 or A992	—	**110** (0.49)	**170** (0.76)	**155**[8] (0.69)	—	—
	GW-50	**0.128/0.110** (3.3/2.8)	**0.5** (13)	**1** (25)	A36	—	**225** (1.00)	**275** (1.22)	**245**[9] (1.09)	—	—
			0.5 (13)	**1** (25)	A572 Gr. 50 or A992	—	**240** (1.07)	**215**[9] (0.96)	**280**[9] (1.25)	—	—

1. The entire pointed portion of the fastener must penetrate through the steel to obtain the tabulated values, unless otherwise indicated.
2. The allowable tension values are for the fastener only. Members connected to the steel must be investigated separately in accordance with accepted design criteria.
3. Steel strength must comply with the minimum requirements of ASTM A 36 (F_y = 36 ksi, F_u = 58 ksi), ASTM A 572, Grade 50 (F_y = 50 ksi, F_u = 65 ksi), or ASTM A992 (F_y = 50 ksi, F_u = 65 ksi).
4. Based upon minimum penetration depth of 0.46" (11.7 mm).
5. Based upon minimum penetration depth of 0.58" (14.7 mm).
6. Based upon minimum penetration depth of 0.36" (9.1 mm).
7. The fastener must be driven to where the point of the fastener penetrates through the steel.
8. Based upon minimum penetration depth of 0.35" (8.9 mm).
9. Based upon minimum penetration depth of 0.25" (6.4 mm).
10. For stepped shank fasteners: (Diameter of shank above the step)/(Diameter of shank below the step.)
11. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.

** See p. 12 for an explanation of the load table icons.*

Gas- and Powder-Actuated Fasteners Design Information – Steel

Powder-Actuated and Gas-Actuated Fasteners — Allowable Shear Loads in Steel[1]

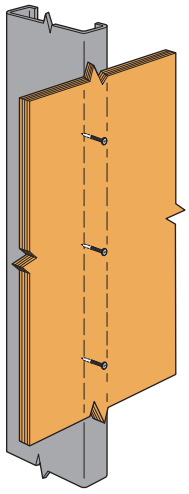
Direct Fastening Type	Model No.	Shank Diameter[10] in. (mm)	Minimum Edge Distance in. (mm)	Minimum Spacing in. (mm)	Minimum Steel Strength[3] ASTM	Allowable Shear Load — lb. (kN)					
						⅛"-Thick Steel	3⁄16"-Thick Steel	¼"-Thick Steel	⅜"-Thick Steel	½"-Thick Steel	¾"-Thick Steel
Powder Actuated	PDPA, PDPAT, PDPAWL	**0.157** (4.0)	**0.5** (13)	**1** (25)	A36	—	**410** (1.82)	**365** (1.62)	**385**[7] (1.71)	**385**[7] (1.71)	**325**[4] (1.45)
					A572 Gr. 50 or A992	—	**420** (1.87)	**365** (1.62)	**290**[7] (1.29)	**275**[7] (1.22)	**275**[7] (1.22)
	PINW PINWP	**0.145** (3.7)	**0.5** (13)	**1** (25)	A36	—	**395** (1.76)	—	—	—	—
	PSLV3 Smooth shank	**0.205** (5.2)	**1** (25)	**1½** (38)	A36	—	**770** (3.43)	**1,120** (4.98)	—	—	—
	PSLV3-12575K Knurled shank	**0.205** (5.2)	**1** (25)	**1½** (38)	A36	—	**930** (4.14)	**1,130** (5.03)	—	—	—
Gas Actuated	GDP	**0.106** (2.7)	**0.5** (13)	**1** (25)	A36	**285** (1.27)	**225** (1.00)	**205** (0.91)	—	—	—
			0.5 (13)	**1** (25)	A572 Gr. 50 or A992	—	**250** (1.11)	**145** (0.64)	—	—	—
	GDPS	**0.118/0.102** (3.0/2.6)	**0.5** (13)	**1** (25)	A36	—	**180** (0.80)	**265** (1.18)	**225**[8] (1.00)	**225**[8] (1.00)	—
			0.5 (13)	**1** (25)	A572 Gr. 50 or A992	—	**205** (0.91)	**305** (1.36)	**205**[8] (0.91)	—	—
	GW-50	**0.128/0.110** (3.3/2.8)	**0.5** (13)	**1** (25)	A36	—	**400** (1.78)	**345** (1.53)	**310**[9] (1.38)	—	—
			0.5 (13)	**1** (25)	A572 Gr. 50 or A992	—	**380** (1.69)	**325**[9] (1.45)	**350**[9] (1.56)	—	—

1. The entire pointed portion of the fastener must penetrate through the steel to obtain the tabulated values, unless otherwise indicated.
2. The allowable shear values are for the fastener only. Members connected to the steel must be investigated separately in accordance with accepted design criteria.
3. Steel strength must comply with the minimum requirements of ASTM A 36 (F_y = 36 ksi, F_u = 58 ksi), ASTM A 572, Grade 50 (F_y = 50 ksi, F_u = 65 ksi), or ASTM A992 (F_y = 50 ksi, F_u = 65 ksi).
4. Based upon minimum penetration depth of 0.46" (11.7 mm).
5. Based upon minimum penetration depth of 0.58" (14.7 mm).
6. Based upon minimum penetration depth of 0.36" (9.1 mm).
7. The fastener must be driven to where the point of the fastener penetrates through the steel.
8. Based upon minimum penetration depth of 0.35" (8.9 mm).
9. Based upon minimum penetration depth of 0.25" (6.4 mm).
10. For stepped shank fasteners: (Diameter of shank above the step)/(Diameter of shank below the step).
11. The allowable load values listed are for static load conditions. Refer to ICC-ES ESR-2138 and ESR-2811 code reports for seismic load conditions.

Spiral Knurl Pin Allowable Tension and Shear Loads in Cold-Formed Steel Studs

Model No.	Shank Diameter in. (mm)	Minimum Edge Dist. in. (mm)	Minimum Spacing in. (mm)	Designation Thickness mil (gauge)	Allowable Loads	
					Tension lb. (kN)	Shear lb. (kN)
GDPSK-138	**0.109** (2.8)	**13⁄16** (2.1)	**4** (102)	**33** (20)	**30** (0.13)	**70** (0.31)
				43 (18)	**48** (0.21)	**89** (0.40)
				54 (16)	**92** (0.41)	**150** (0.67)
				68 (14)	**73** (0.32)	**218** (0.97)

1. Entire pointed portion of the fastener must penetrate through the cold-formed steel to obtain tabulated values.
2. The allowable tension and shear values are for the fastener only. Members connected to the cold-formed steel must be investigated separately in accordance with accepted design criteria.
3. Fastener is to be installed in the center of the stud flange.
4. Loads are based on cold-formed steel members with a minimum yield strength, F_y = 33 ksi and tensile strength, F_u = 45 ksi for 33 mil (20 ga.) and 43 mil (18 ga.), and minimum yield strength, F_y = 50 ksi and tensile strength, F_u = 65 ksi for 54 mil (16 ga.) and 68 mil (14 ga.)



Typical GDPSK Installation

** See p. 12 for an explanation of the load table icons.*