

Mechanical Fasteners Guide



1. Inspect your walls for loose studs. You will be able to hear the difference. We have several options to secure the wall. There are three recessed attachment points on each stud face.



2. At times mechanical fastening may be required. Use 2-3/4" Tapcon® screws.



3. Gripcon® nails. The nail installation is easier than the screw installation.

Mechanical Fasteners Guide



4. Here we will demonstrate installing a Perma-grip® nail. Use a Standard Hammer drill or Rotary Hammer drill to pilot a hole into the concrete wall.



5. Make sure you drill $\frac{1}{4}$ " deeper than the nail is long..



6. Use a hammer to drive the nail into the wall. Don't overdrive the nail. Tap the Perma-grip® fastener until securely seated.



TAPCON[®] XL





Extra Large Tapcon for Extra Large Challenges!

High performance large diameter masonry anchor provides twice the strength of standard Tapcon and the premium corrosion protection of UltraShield™.



HEAVY DUTY MASONRY APPLICATIONS

Applications

-  Shutters - protective and decorative
-  Screened Porch and Pool Enclosures
-  Railings
-  Mounted Electrical Equipment
-  Wood Nailers
-  Sill Plates

Product Features

-  Large 5/16" diameter provides maximum spacing and decreased labor costs.
-  Internal TORX[®] T-40 drive assures easy installation.
-  High button head resists cam-out during installation.
-  Reversed Hi-Lo[®] thread design provides maximum pullout values.
-  Premium corrosion protection of new UltraShield™ and White UltraShield™ to combat aggressive environments.
-  Available in silver, all white or white with head paint to complement standard fixtures.
-  Delivers twice the holding power of standard Tapcon in concrete and hollow block.
-  Replaces costly sleeve anchors.
-  1/4" SDS Tapcon drill bit for added convenience.
-  Condrive[®] XL with MegaGrip™ bit holder for rapid one-tool installation.
-  100 count packaging for jobsite convenience.

Product Specifications

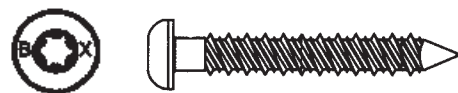
- Diameter**..... 5/16"
- Thread Form**..... Reversed Hi-Lo[®]
- Point Type**..... Nail
- Finish**..... UltraShield™, White UltraShield™

Corrosion Resistance

Salt Spray Results (ASTM B117)

- **UltraShield:**
1120 hours - 10% or less red rust
- **White UltraShield:**
1500 hours - 10% or less red rust

Head Styles



High Button with TORX T-40 Drive

Installation Bit Holder With Bit



MegaGrip Adjustable Magnetic Bit Holder with TORX T-40 Bit Tip
Part Number 3400910

PRODUCT REPORT No. 01081

Selector Guide



Anchor Description	Anchor Part Number	Carton Quantity	Drill Bit	Drill Bit Part Number	Anchor Finish
5/16 x 2-1/4"	3395902	800	1/4 x 6-3/4" SDS drill bit with hex	3394910	UltraShield™
5/16 x 2-1/4"	3397902	800	1/4 x 6-3/4" SDS drill bit with hex	3394910	*White UltraShield™
5/16 x 2-3/4"	3398902	800	1/4 x 6-3/4" SDS drill bit with hex	3394910	*White UltraShield™

*Head Paint Available

Part Number	Description	Carton Quantity
3401910	Condrive® XL Installation Tool with MegaGrip™ Bit Holder with TORX® T-40 Bit Tip	10 per master carton
3400910	MegaGrip™ Magnetized Bit Holder with TORX T-40 Bit Tip	10 per bag
3394910	1/4 x 6-3/4" SDS Tapcon Drill Bit with Hex	1 piece per tube

Tapcon XL Anchors must be installed using all Buildex system components (Tapcon XL Anchors, Condrive XL Installation Tool and Tapcon Drill Bits) in order to qualify for ITW Buildex system support.

Performance Data

EDGE DISTANCE	EMBEDMENT	CONCRETE		HOLLOW BLOCK W/ GROUTED CORE		HOLLOW BLOCK W/O GROUTED CORE		WOOD	
		PULLOUT	SHEAR	PULLOUT	SHEAR	PULLOUT	SHEAR	PULLOUT	SHEAR
1-9/16"	1.25"	1048	1332	-	-	-	-	-	-
2-3/16"	1.25"	1204	1724	-	-	-	-	-	-
3-1/8"	1.25"	1204	2172	-	-	-	-	-	-
4"	1.25"	-	-	-	-	1044	2280	-	-
1-9/16"	1.75"	2020	1528	-	-	-	-	-	-
1-3/4"	1.75"	-	-	-	-	-	-	1352	1248
2-3/16"	1.75"	2252	2504	-	-	-	-	-	-
3-1/8"	1.75"	2332	2508	-	-	-	-	-	-
4"	1.75"	-	-	1948	2824	-	-	-	-
1-9/16"	2.25"	2852	1956	-	-	-	-	-	-
2-3/16"	2.25"	3120	3248	-	-	-	-	-	-
3-1/8"	2.25"	3152	3408	-	-	-	-	-	-
4"	2.25"	-	-	3768	3140	-	-	-	-

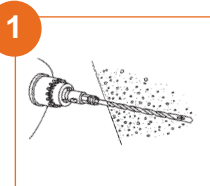
Note:

- Concrete = 3000 psi minimum
- CMU 1600 psi minimum, with grout. cores minimum 2000 psi grout.
- CMU 1600 psi minimum, without grouted cores.
- Spruce-Pine-Fir Wood Substrate (G=0.36).
- Allowable Tension and Shear Values expressed in pounds (lbs.).

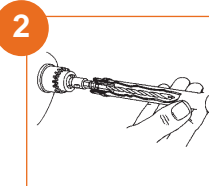
Note: Indicated pull-out and shear failure values were obtained in tests witnessed by Pittsburgh Testing Laboratory personnel. Designated holding power depends on the quality of the masonry material, depth of embedment and proper hole size. These figures are offered only as a guide and are not guaranteed in any way by Illinois Tool Works Inc. The figures indicate average ultimate pull-out and shear failure values. A safety factor of 4:1 or 25% of ultimate pull-out value is generally accepted as a safe working load. However, reference should always be made to applicable codes for the specific safe working ratio. All values are based on close tolerance holes drilled with Buildex SDS Tapcon® drill bits. Performance of the Tapcon anchor may vary in extremely hard concrete aggregates. Consult your Buildex representative for further information.

As in the case with all applications, Buildex can only suggest typical fasteners for typical applications and that the connection design is the sole responsibility of the Building Design Engineer, Architect or otherwise responsible person charged with the design of the connection. For further product information, please contact the nearest Authorized Buildex Distributor or the Buildex Technical Service Department at 1-800-323-0720.

Installation Guidelines Using Condrive® XL



STEP 1: Place 1/4 x 6-3/4" SDS Tapcon drill bit in chuck of hammer drill. Drill hole a minimum of 1/4" deeper than Tapcon XL anchor is to be embedded. Remove excess debris from predrilled holes.



STEP 2: Insert the adjustable MegaGrip bit tip holder in the small opening of sleeve. Slide the open end of the Condrive XL Installation Tool sleeve over the drill bit and snap in place.



STEP 3: Drive anchor to secure.



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TAPCON[®]

The Original Masonry Fastening System



The original masonry anchor that cuts threads into concrete, brick or hollow block.

Applications

- Electrical junction boxes and conduit clips to masonry.
- Wood headers and furring strips to masonry.
- HVAC strapping to masonry.
- Plywood backer boards to masonry.
- Exterior insulation systems to masonry.

Product Features

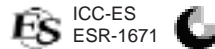
- Fast installation ... drill a hole ... drive an anchor.
- Packaged with one Tapcon "close tolerance" masonry drill bit per 100 anchors. Also available in bulk packaging.
- Available in 3/16" diameter up to 4" in length and 1/4" diameter up to 6" in length.
- Compatible for use in ACQ treated wood.
- Replaces small diameter expansion anchors, plugs and screws in light to medium duty applications.
- No need to pre-spot holes ... and no inserts are required.
- Reversible and removable ... can be installed close to an edge.

Installation Tools

- Condribe 500[®] - Compact high speed installation tool designed for installation of Tapcon hex head and Phillips flat head anchors up to 3-3/4" long.
- Condribe 1000[®] - A multi-purpose tool designed for installation of Tapcon hex head and Phillips flat head anchors up to 3-3/4" long.
- Buildex Condribe Tools are designed to specifically install Tapcon Anchors and to fit standard hammer drills.

Approvals and Listings

Miami Dade County
Product Control Approved



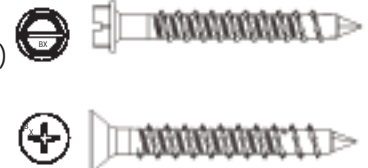
City of Los Angeles
RR25644

Product Specifications

Diameter 3/16" and 1/4"
 Thread Form..... Original notched Hi-Lo[®]
 Point Type..... Nail
 Finish Blue Climaseal[®]

Head Styles

3/16" Diameter: 1/4" slotted hex washer head (HWH)
 1/4" Diameter: 5/16" slotted hex washer head (HWH)
 3/16" Diameter: #2 phillips flat head (PFH)
 1/4" Diameter: #3 phillips flat head (PFH)



Selector Guide

Part Number		Description	Drill Bit	Part Number	Fixture Thickness	Common Applications
PFH	HWH					
3169407	3139407	3/16 x 1-1/4"	5/32 x 3-1/2"	3095910	0 - 1/4"	•Mounting brackets; control panels; cable clamps, conduit clips, junction switch and control boxes.
3183407	3153407	1/4 x 1-1/4"	3/16 x 3-1/2"	3098910	0 - 1/4"	
3171407	3141407	3/16 x 1-3/4"	5/32 x 3-1/2"	3095910	1/ - 3/4"	•1/2" or 3/4" plywood backer boards; mounting brackets; control panels; cable clamps; conduit clips, junction, switch and control box meters.
3185407	3155407	1/4 x 1-3/4"	3/16 x 3-1/2"	3098910	1/4 - 3/4"	
3173407	3143407	3/16 x 2-1/4"	5/32 x 4-1/2"	3096910	3/4" - 1-1/4"	•1 x 2 wood furring; 3/4" plywood backer boards; metal safety grating.
3187407	3157407	1/4 x 2-1/4"	3/16 x 4-1/2"	3099910	3/4" - 1-1/4"	
3175407	3145407	3/16 x 2-3/4"	5/32 x 4-1/2"	3096910	1-1/4" - 1-3/4"	•2 x 4 wood nailers
3189407	3159407	1/4 x 2-3/4"	3/16 x 4-1/2"	3099910	1-1/4" - 1-3/4"	
3177407	3147407	3/16 x 3-1/4"	5/32 x 5-1/2"	3097910	1-3/4" - 2-1/4"	•Sill plates; 2 pieces of 2 x 4 or 2 x 6 to masonry. Insulation to masonry.
3191407	3161407	1/4 x 3-1/4"	3/16 x 5-1/2"	3100910	1-3/4" - 2-1/4"	
3179407	3149407	3/16 x 3-3/4"	5/32 x 5-1/2"	3097910	2-1/4" - 2-3/4"	
3193407	3163407	1/4 x 3-3/4"	3/16 x 5-1/2"	3100910	2-1/4" - 2-3/4"	
3181407	3151407	3/16 x 4"	5/32 x 5-1/2"	3097910	2-1/2" - 3"	
3195407	3165407	1/4 x 4"	3/16 x 5-1/2"	3100910	2-1/2" - 3"	
3197407	3167407	1/4 x 5"	3/16 x 6-1/2"	3102910	3-1/4" - 4"	
3203407	3205407	1/4 x 6"	3/16 x 7-1/2"	3206910	4-1/4" - 5"	
3379910		Condrive 500®	For 3/16 and 1/4 diameter, Hex and Flat Heads, lengths up to 3-3/4"			
3103910		Condrive 1000®	For 3/16 and 1/4 diameter, Hex and Flat Heads, lengths up to 3-3/4"			

The minimum embedment requirement is 1" and the maximum embedment is 1-3/4".

One drill bit is provided with every box of 100 pieces.

*SDS with Hex Drill Bits: 5/32" x 7" SDS Rotary Hammer Drill Bit, Part Number 3311910;
(*Condrive 1000 Only) 3/16" x 7" SDS Rotary Hammer Drill Bit, Part Number 3101910.

Tapcon Anchors must be installed using all Buildex system components (Tapcon Anchors, Condrive Tools and Tapcon Drill Bits) in order to qualify for ITW Buildex system support.

Performance Data

Tension in Normal-weight Concrete (lbs.)				
Anchor Diameter	Embedment Depth	Concrete Strength		
		2000 psi	4000 psi	5000 psi
3/16"	1"	600	650	800
	1-1/2"	1090	1090	1220
	1-3/4"	1450	1460	1730
1/4"	1"	750	800	950
	1-1/2"	1380	1820	2170
	1-3/4"	2020	2380	2770
Shear in Normal-weight Concrete (lbs.)				
Anchor Diameter	Embedment Depth	Concrete Strength		
		2000 psi	4000 psi	5000 psi
3/16"	1"	720	720	860
	1-1/2"	860	860	860
	1-3/4"	870	990	990
1/4"	1"	900	1360	1440
	1-1/2"	1200	1380	1670
	1-3/4"	1670	1670	1670
Tension and Shear in CMU (1" Embedment)				
Anchor Diameter	Tension (lbs.)		Shear (lbs.)	
	Light Weight	Medium Weight	Light Weight	Medium Weight
3/16"	220	340	400	730
1/4"	250	500	620	1000

For minimum edge distance and spacing distance, please refer to the ICC-ES report or Miami-Dade report for this product. Lightweight and medium-weight Concrete Masonry Units (CMU) were defined by ASTM C 90.

Installation Guidelines:

CONDRIVE 500 GUIDELINES:

- STEP 1:** Place drill adapter into 3/8" or 1/2" chuck of standard hammer drill. Place drill bit in drill adapter and tighten set screw. Drill hole a minimum of 1/4" deeper than Tapcon anchor is to be embedded.
- STEP 2:** Phillips Heads may be installed using either side of sleeve. To install a 1/4 diameter Hex Washer Head Tapcon, use large opening side of sleeve (see sleeve label). To install a 3/16 diameter Hex Washer Head Tapcon, use small opening side of sleeve (see sleeve label). Slide opposite side of sleeve over drill bit and snap onto drill bit adapter. NOTE: If driving Hex Washer Head Tapcon, driver will automatically disengage. If driving Phillips Head Tapcon, care must be taken to ensure anchor is not overdriven.
- STEP 3:** Loosen set screw on side of drill adapter with 1/8" Hex Key. Do not remove completely. Replace old drill bit with new one. Align flat side with set screw and tighten screw. Do not overtighten.

CONDRIVE 1000 GUIDELINES:

- STEP 1:** Place correct drill bit into driver adapter and drill hole 1/4" deeper than depth of embedment.
- STEP 2:** Slide Condrive Installation Tool sleeve over drill bit. Snap hex head or Phillips Socket in place.
- STEP 3:** Insert anchor in socket, position fixture to be fastened, begin to drive Tapcon into pre-drilled hole.
- STEP 4:** The anchor is fully set when the nosepiece of the Condrive Tool automatically disengages from the socket and fixture is secured in place.

Note: Indicated tension and shear failure values were obtained in tests conducted at CEL Consulting. Designated holding power depends on the quality of the masonry material, depth of embedment and proper hole size. These figures are offered only as a guide and are not guaranteed in any way by Illinois Tool Works Inc. The figures indicate average ultimate tension and shear failure values. A safety factor of 4:1 or 25% of ultimate value is generally accepted as a safe working load. However, reference should always be made to applicable codes for the specific safe working ratio. All values are based on close tolerance holes drilled with Buildex Tapcon® carbide drill bits. Performance of the Tapcon anchor may vary in extremely hard concrete aggregates. Consult your Buildex representative for further information.

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