

Tapcon®

Concrete Screw Anchors

THREADMAX™ TECHNOLOGY

NOW

10% **STRONGER**
LESS BREAKAGE.
MORE PRODUCTIVITY.



UNDERHEAD RIBS

Resist head snaps
and spinouts.



STAR RECESS

Eliminate bit slip
with star recess.



THE ORIGINAL,
TRUE BLUE
SCREW.

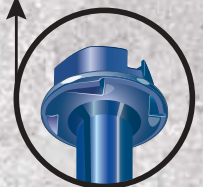
NOW A 10% STRONGER SCREW WITH THREADMAX TECHNOLOGY

Tapcon minimizes rework and gets the job done faster. No matter the substrate, tool, or your experience level, it installs right the first time. ThreadMax Technology adds strength, and the Tapcon Star Drive and slotted hex washer head with underhead ribs deliver superior performance, installation success, and increased confidence.



Star Recess

*Reduced cam outs for
increased productivity*



Underhead Ribs

*3/16" – Resist spinouts
1/4" – Resist head snaps*



Tapcon Head Marking

Identify a genuine Tapcon (star only)



NO. 1 CHOICE OF PROFESSIONALS

Tapcon is the No. 1 recognized screw anchor brand in the industry. The blue, corrosion-resistant coating enables the screw anchors to withstand the harshest conditions. And their unmatched performance in concrete, block, and brick applications make them an excellent alternative to expansion anchors, plugs, and lag shields. When professionals look for quality, strength, and ease of installation, their No. 1 choice is Tapcon.



COMMON APPLICATIONS

- Electrical equipment
- Furring strips
- 2x4 lumber
- Drywall track
- Wood frames/sill plates
- HVAC/ductwork
- Concrete forms



Features	Benefits
Star recess	<ul style="list-style-type: none"> • Increase productivity with fewer cam outs
Underhead ribs	<ul style="list-style-type: none"> • Resist spinouts • Resist head snaps
ThreadMax Technology	<ul style="list-style-type: none"> • 10% stronger screw with reduced breakage • Lower installation torque • Less fatigue
Long-life Climaseal™ coating	<ul style="list-style-type: none"> • 720 hours corrosion resistance • Long-lasting quality

Installation Tool & Accessories

Part Number	Description	Diameter	Length
3103910	CONDRIVE INSTALLATION TOOL KIT Kit includes: Drill Adapter, Sleeve, 3/16" Socket, 1/4" Socket, Phillips Bits, Star Bits	-	-
3096910	TAPCON DRILL BIT 10/TUBE	5/32"	4-1/2"
3097910	TAPCON DRILL BIT 10/TUBE	5/32"	5-1/2"
3098910	TAPCON DRILL BIT 10/TUBE	3/16"	3-1/2"
3099910	TAPCON DRILL BIT 10/TUBE	3/16"	4-1/2"
3100910	TAPCON DRILL BIT 10/TUBE	3/16"	5-1/2"
3311910	SDS TAPCON DRILL BIT 1/TUBE	5/32"	7"
7901060	SDS TAPCON BIT 1/TUBE	3/16"	5"
3517910	T-25 STAR DRIVE FOR 3/16" DIAMETER TAPCON 2/PACK	-	-
3518910	T-30 STAR DRIVE FOR 1/4" DIAMETER TAPCON 2/PACK	-	-

The Condrive Kit makes for fast and easy change over from drill bit to driver and controls the driving torque to prevent thread stripping and head snapping in hard base materials.



SMALL DIAMETER TAPCON OFFERING

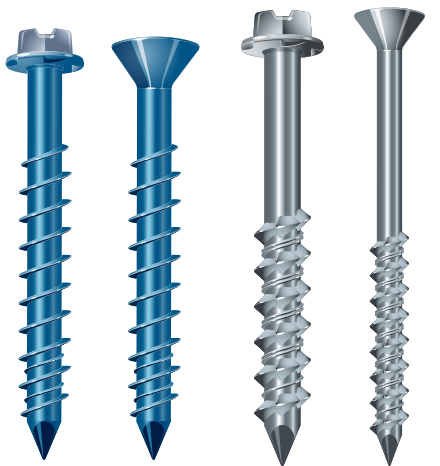
Part Number	Diameter	Length	Description	Drill Bit Dia.	Head Style	Inner Box Qty	Outer Box Qty
Tapcon Threadmax - Carbon							
3153407	1/4"	1-1/4"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3155407	1/4"	1-3/4"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3157407	1/4"	2-1/4"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3159407	1/4"	2-3/4"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3161407	1/4"	3-1/4"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3163407	1/4"	3-3/4"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3139407	3/16"	1-1/4"	HWH TAPCON BLUE CL W/BIT	5/32"	HWH w/ underhead ribs	100	500
3141407	3/16"	1-3/4"	HWH TAPCON BLUE CL W/BIT	5/32"	HWH w/ underhead ribs	100	500
3143407	3/16"	2-1/4"	HWH TAPCON BLUE CL W/BIT	5/32"	HWH w/ underhead ribs	100	500
3145407	3/16"	2-3/4"	HWH TAPCON BLUE CL W/BIT	5/32"	HWH w/ underhead ribs	100	500
3147407	3/16"	3-1/4"	HWH TAPCON BLUE CL W/BIT	5/32"	HWH w/ underhead ribs	100	500
3165407	1/4"	4"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3167407	1/4"	5"	HWH TAPCON BLUE CL W/BIT	3/16"	HWH w/ underhead ribs	100	500
3183407V2	1/4"	1-1/4"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3185407V2	1/4"	1-3/4"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3187407V2	1/4"	2-1/4"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3189407V2	1/4"	2-3/4"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3191407V2	1/4"	3-1/4"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3193407V2	1/4"	3-3/4"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3195407V2	1/4"	4"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3197407V2	1/4"	5"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	500
3203407V2	1/4"	6"	SFH TAPCON BLUE CL W/BIT	3/16"	SFH	100	100
3169407V2	3/16"	1-1/4"	SFH TAPCON BLUE CL W/BIT	5/32"	SFH	100	500
3171407V2	3/16"	1-3/4"	SFH TAPCON BLUE CL W/BIT	5/32"	SFH	100	500
3173407V2	3/16"	2-1/4"	SFH TAPCON BLUE CL W/BIT	5/32"	SFH	100	500
3175407V2	3/16"	2-3/4"	SFH TAPCON BLUE CL W/BIT	5/32"	SFH	100	500
3177407V2	3/16"	3-1/4"	SFH TAPCON BLUE CL W/BIT	5/32"	SFH	100	500
410 Stainless Steel Tapcon							
3367907	1/4"	1-1/4"	HWH 410SS TAPCON CL W/BIT	3/16"	HWH	100	500
3373907	1/4"	1-1/4"	PFH 410SS TAPCON CL W/BIT	3/16"	PFH	100	500
3368907	1/4"	1-3/4"	HWH 410SS TAPCON CL W/BIT	3/16"	HWH	100	500
3374907	1/4"	1-3/4"	PFH 410SS TAPCON CL W/BIT	3/16"	PFH	100	500
3369907	1/4"	2-1/4"	HWH 410SS TAPCON CL W/BIT	3/16"	HWH	100	500
3375907	1/4"	2-1/4"	PFH 410SS TAPCON CL W/BIT	3/16"	PFH	100	500
3370907	1/4"	2-3/4"	HWH 410SS TAPCON CL W/BIT	3/16"	HWH	100	500
3376907	1/4"	2-3/4"	PFH 410SS TAPCON CL W/BIT	3/16"	PFH	100	500
3371907	1/4"	3-1/4"	HWH 410SS TAPCON CL W/BIT	3/16"	HWH	100	500
3377907	1/4"	3-1/4"	PFH 410SS TAPCON CL W/BIT	3/16"	PFH	100	500
3372907	1/4"	3-3/4"	HWH 410SS TAPCON CL W/BIT	3/16"	HWH	100	500
3378907	1/4"	3-3/4"	PFH 410SS TAPCON CL W/BIT	3/16"	PFH	100	500
3460907	1/4"	5"	HWH 410SS TAPCON CL W/BIT	3/16"	HWH	100	500
3418907	3/16"	1-3/4"	PFH 410SS TAPCON CL W/BIT	5/32"	PFH	100	500
3419907	3/16"	2-1/4"	PFH 410SS TAPCON CL W/BIT	5/32"	PFH	100	500
3420907	3/16"	2-3/4"	PFH 410SS TAPCON CL W/BIT	5/32"	PFH	100	500

Also available in bulk, Ultrashield, SCOTS, and XL!



Tapcon® Concrete and Masonry Anchors

**THREADMAX™
TECHNOLOGY**



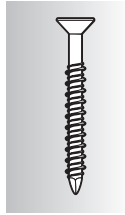
ThreadMax™

410 Stainless Steel

DESCRIPTION/SUGGESTED SPECIFICATIONS

Tapcon Anchors —

SPECIFIED FOR ANCHORAGE INTO CONCRETE, BRICK OR BLOCK

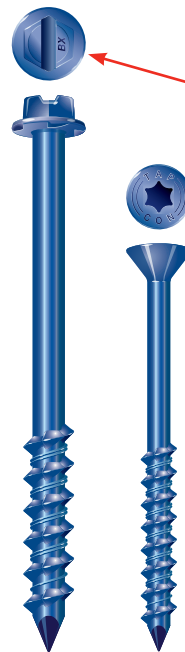


The “original masonry” anchor that cuts its own threads into concrete, brick, or block. Maximum performance is achieved because the Tapcon Anchor, the Condrive Installation Tool, and the carbide-tipped Tapcon Drill Bits are designed to work as a system. It is essential to use the Condrive tool and the correct drill bit to assure consistent anchor performance.

ADVANTAGES

- Works in all masonry base materials.
- Fast and easy—3 anchors per minute.
- No hole spotting or inserts required.
- Removable.
- Slotted hex and star drive head styles
- Extended corrosion protection—Blue Climaseal™.
- Available in 410 Stainless Steel.
- Pressure treated wood compatible

Tapcon Anchors



Blue Climaseal™ provides extended corrosion protection

Available in 410 Stainless Steel
(see photo on left)

Hex Head style on Tapcon Anchors is available for majority of fixture anchoring needs
Patented underhead ribs prevent head snap

Star Drive Flat Head style is available when flush seating is necessary in countersink applications

ThreadMax™ Technology* cuts into concrete and masonry for reduced installation torque and while maintaining pullout performance

Lengths of Tapcon Anchors range from 1-1/4" to 3-1/4" in 3/16" and up to 6" in 1/4" diameters

Nail-Type Point guides the anchor into the pre-drilled hole. Excellent for wood to concrete applications

Tapcon® is a registered trademark of Buildex, a division of Illinois Tool Works, Inc.

* ThreadMax Technology applied to Blue Climaseal™ Tapcon

CORROSION RESISTANCE

Carbon Steel with Blue Climaseal™ Salt Spray Results (ASTM B117)

720 Hours - 10% or less rust

410 Stainless Steel with Silver Climashield™ Salt Spray Results (ASTM B117)

1,600 Hours - 5% or less rust

APPLICATIONS



The Tapcon Anchor is especially well suited for window and door frames because it performs well in block, is available in a flat head style, and is fast to install.

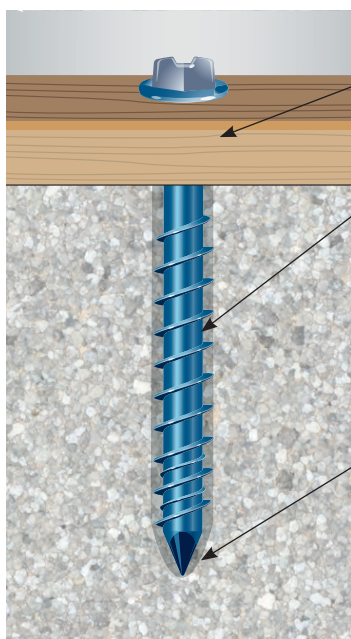


Many horizontal or "wall" applications are attached with Tapcon Anchor because it is removable and works well in block and brick.



The picture shows the Condrive Installation Kit in action. The kit makes for fast and easy change over from drill bit to driver and controls the driving torque to prevent thread stripping and head snapping in hard base materials.

FEATURES



Fixture Thickness—determine the fixture thickness to be anchored

Anchor Embedment—with a minimum recommended embedment of 1", the correct Tapcon anchor choice can be made. Hole depth must be a minimum 1/4" deeper than the anchor embedment to allow for displaced material

Hole Diameter—proper hole diameter is very important to insure consistent performance and maximum pullout strength. 3/16" anchors require 5/32" diameter Tapcon bits, and 1/4" anchors require 3/16" diameter Tapcon bits

APPROVAL/LISTINGS

Blue Climaseal™

ICC Evaluation Service, Inc. — ESR-2202 (Concrete)

IAPMO UES ER-994 (CMU)

Florida Building Code

410 Stainless Steel

Miami-Dade County NOA 26-0403.01

Florida Building Code

For the most current approvals/listings visit: www.itwredhead.com

INSTALLATION STEPS

Read installation instructions before using!



WARNING:

If there are any questions concerning proper installation, applications or appropriate use of this product, please call our Technical Services Department at 1-800-848-5611. Failure to follow these instructions can result in serious personal injury.

1. **Select proper fastener – diameter / head style / length.**
 - a) Use selection chart to choose proper length.
2. **Drill Hole – use selection chart to determine drill bit length and depth of hole.**
 - a) Use 5/32" diameter Tapcon bit for 3/16" dia. Tapcon Anchor.
Use 3/16" diameter Tapcon bit for 1/4" dia. Tapcon Anchor.
 - b) Drill hole minimum 1/4" deeper than Tapcon Anchor to be embedded.
Minimum anchor embedment: 1"
Maximum anchor embedment: 1 3/4"
3. **Drive Anchor using rotary (spin mode) drill.**



WARNING:

Failure to wear safety glasses with side shields can result in serious personal injury. Always wear ANSI compliant eye protection (ANSI Z87.1-2003).



WARNING:

Using the wrong size drill bit will affect performance values and may cause failure.

Drive Styles

3/16" Hex uses 1/4" diameter drive socket

1/4" Hex uses 5/16" drive socket



3/16" Star uses T25 drive bit

1/4" Star uses T30 drive bit



SELECTION CHART

Tapcon® Anchors with ThreadMax

Diameter 3/16" and 1/4" Thread Form ThreadMax™ Technology
Point Type Nail Finish Blue Climaseal™
All boxes of Tapcon anchors come packaged with matching carbide-tipped bit. Tapcon is packaged 100 pieces per box and 500 pieces per master carton except 3205407 and 3203407V2 (400 in master carton).

FIXTURE THICKNESS INCHES	RECOMMENDED TAPCON LENGTH		PART NO. 3/16" HEX HEAD	PART NO. 1/4" HEX HEAD	PART NO. 3/16" FLAT HEAD	PART NO. 1/4" FLAT HEAD	BIT LENGTH		STRAIGHT SHANK BITS FOR 3/16" TAPCON PART NO.	STRAIGHT SHANK BITS FOR 1/4" TAPCON PART NO.
	in.	(mm)					in.	(mm)		
0" – 1/4"	1-1/4	(31.8)	3139407	3153407	3169407V2	3183407V2	3-1/2	(88.9)	–	3098910
1/4" – 3/4"	1-3/4	(44.5)	3141407	3155407	3171407V2	3185407V2	3-1/2	(88.9)	–	3098910
3/4" – 1-1/4"	2-1/4	(57.2)	3143407	3157407	3173407V2	3187407V2	4-1/2	(114.3)	3096910	3099910
1-1/4" – 1-3/4"	2-3/4	(69.9)	3145407	3159407	3175407V2	3189407V2	4-1/2	(114.3)	3096910	3099910
1-3/4" – 2-1/4"	3-1/4	(82.6)	3147407	3161407	3177407V2	3191407V2	5-1/2	(139.7)	3097910	3100910
2-1/4" – 2-3/4"	3-3/4	(95.3)	–	3163407	–	3193407V2	5-1/2	(139.7)	3097910	3100910
2-1/2" – 3"	4	(101.6)	–	3165407	–	3195407V2	5-1/2	(139.7)	3097910	3100910
3-1/2" – 4"	5	(127.0)	–	3167407	–	3197407V2	6-1/2	(165.1)	–	–
4-1/2" – 5"	6	(152.4)	–	3205407	–	3203407V2	7-1/2	(190.5)	–	–

Additional Tapcon bits are available 10 per tube.

SELECTION CHART

Tapcon® 410 SS Anchor

Diameter 3/16" and 1/4" Thread Form Original Notched Hi-Lo™
Point Type Nail Finish 410 Stainless Steel with Silver Climashield™
All boxes of Tapcon anchors come packaged with matching carbide-tipped bit. Tapcon is packaged 100 pieces per box and 500 pieces per master carton.

FIXTURE THICKNESS INCHES	RECOMMENDED TAPCON LENGTH		PART NO. 1/4" HEX HEAD	PART NO. 3/16" FLAT HEAD	PART NO. 1/4" FLAT HEAD	BIT LENGTH		STRAIGHT SHANK BITS FOR 3/16" TAPCON PART NO.	STRAIGHT SHANK BITS FOR 1/4" TAPCON PART NO.
	in.	(mm)				in.	(mm)		
0" – 1/4"	1-1/4	(31.8)	3367907	–	3373907	3-1/2	(88.9)	–	3098910
1/4" – 3/4"	1-3/4	(44.5)	3368907	3418907	3374907	3-1/2	(88.9)	–	3098910
3/4" – 1-1/4"	2-1/4	(57.2)	3369907	3419907	3375907	4-1/2	(114.3)	3096910	3099910
1-1/4" – 1-3/4"	2-3/4	(69.9)	3370907	3420907	3376907	4-1/2	(114.3)	3096910	3099910
1-3/4" – 2-1/4"	3-1/4	(82.6)	3371907	–	3377907	5-1/2	(139.7)	3097910	3100910
2-1/4" – 2-3/4"	3-3/4	(95.3)	3372907	–	3378907	5-1/2	(139.7)	3097910	3100910
2-1/2" – 3"	4	(101.6)	–	–	–	5-1/2	(139.7)	–	3100910
3-1/2" – 4"	5	(127.0)	3460907	–	–	6-1/2	(165.1)	–	–
4-1/2" – 5"	6	(152.4)	–	–	–	7-1/2	(190.5)	–	–

Tapcon® SDS Bits

PART NUMBER	DESCRIPTION
3311910	7" (SDS Rotohammer Bits for use with 3/16" Tapcon)
7901060	5" (SDS Rotohammer Bits for use with 1/4" Tapcon)

All SDS bits are sold individually.

PERFORMANCE TABLE

Tapcon® Anchors

Ultimate Tension and Shear Values (lbs/kN) in Solid Concrete

ANCHOR DIA.		MIN. DEPTH OF EMBEDMENT		f'c = 2000 PSI (13.8 MPa)				f'c = 3000 PSI (20.7 MPa)				f'c = 4000 PSI (27.6 MPa)				f'c = 5000 PSI (34.5 MPa)			
				TENSION		SHEAR		TENSION		SHEAR		TENSION		SHEAR		TENSION		SHEAR	
in.	(mm)	in.	(mm)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)
3/16	(4.8)	1	(25.4)	600	(2.7)	720	(3.2)	625	(2.8)	720	(3.2)	650	(2.9)	720	(3.2)	800	(3.6)	860	(3.8)
		1-1/4	(31.8)	845	(3.7)	720	(3.2)	858	(3.8)	720	(3.2)	870	(3.9)	720	(3.2)	1,010	(4.5)	860	(3.8)
		1-1/2	(38.1)	1,090	(4.8)	860	(3.8)	1,090	(4.8)	860	(3.8)	1,090	(4.8)	860	(3.8)	1,220	(5.4)	860	(3.8)
		1-3/4	(44.5)	1,450	(6.5)	870	(3.9)	1,455	(6.5)	870	(3.9)	1,460	(6.5)	990	(4.4)	1,730	(7.7)	990	(4.4)
1/4	(6.4)	1	(25.4)	750	(3.3)	900	(4.0)	775	(3.4)	900	(4.0)	800	(3.6)	1,360	(6.1)	950	(4.2)	1,440	(6.4)
		1-1/4	(31.8)	1,050	(4.7)	900	(4.0)	1,160	(5.2)	900	(4.0)	1,270	(5.6)	1,360	(6.1)	1,515	(6.7)	1,440	(6.4)
		1-1/2	(38.1)	1,380	(6.1)	1,200	(5.3)	1,600	(7.2)	1,200	(5.3)	1,820	(8.1)	1,380	(6.1)	2,170	(9.7)	1,670	(7.4)
		1-3/4	(44.5)	2,020	(9.0)	1,670	(7.4)	2,200	(9.8)	1,670	(7.4)	2,380	(10.6)	1,670	(7.4)	2,770	(12.3)	1,670	(7.4)

Safe working loads for single installation under static loading should not exceed 25% of the ultimate load capacity.



Call our toll free number 800-848-5611 or visit our web site for the most current product and technical information at www.itwredhead.com



PERFORMANCE TABLE

Tapcon Anchors

Allowable Tension and Shear Values (lbs/kN) in Hollow Block

ANCHOR DIAMETER		ANCHOR EMBEDMENT		LIGHTWEIGHT BLOCK				MEDIUM WEIGHT BLOCK			
				TENSION		SHEAR		TENSION		SHEAR	
in.	(mm)	in.	(mm)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)	lbs.	(kN)
3/16	(4.8)	1	(25.4)	40	(0.18)	95	(0.42)	65	(0.29)	135	(0.60)
1/4	(6.4)	1	(25.4)	45	(0.20)	100	(0.44)	105	(0.47)	160	(0.71)

The allowable load values are for screw anchors installed in the face shell in CMU that conform with ASTM C90 as lightweight, medium weight, or normal weight. Safety factor 5 was used to calculate Allowable Loads.

NOTE: 3/16" Tapcon requires 5/32" bit, 1/4" Tapcon requires 3/16" bit.

PERFORMANCE TABLE

Tapcon® Anchors

Allowable Edge and Spacing Distances

PARAMETER	ANCHOR DIAMETER		NORMAL WEIGHT CONCRETE			CONCRETE MASONRY UNITS (CMU)		
			FULL CAPACITY (Critical Distance Inches)	REDUCED CAPACITY (Minimal Distance Inches)	LOAD REDUCTION FACTOR	FULL CAPACITY (Critical Distance Inches)	REDUCED CAPACITY (Minimal Distance Inches)	LOAD REDUCTION FACTOR
Spacing Between Anchors - Tension	3/16	(4.8)	3	1-1/2	0.73	3	1-1/2	1.00
	1/4	(6.4)	4	2	0.66	4	2	0.84
Spacing Between Anchors - Shear	3/16	(4.8)	3	1-1/2	0.83	3	1-1/2	1.00
	1/4	(6.4)	4	2	0.82	4	2	0.81
Edge Distance - Tension	3/16	(4.8)	1-7/8	1	0.83	4	2	0.91
	1/4	(6.4)	2-1/2	1-1/4	0.82	4	2	0.88
Edge Distance - Shear	3/16	(4.8)	2-1/4	1-1/8	0.70	4	2	0.93
	1/4	(6.4)	3	1-1/2	0.59	4	2	0.80

For SI: 1 inch = 25.4 mm

Tapcon® Condrive Tool Kit

DESCRIPTION/SUGGESTED SPECIFICATIONS

Condrive Installation Tool— SPECIFIED FOR ANCHORAGE INTO CONCRETE, BRICK OR BLOCK

The key to Tapcon's fast and easy installation is the multi-purpose Condrive Installation Tool. The drive sleeve, along with the hex head and phillips sockets provide the installer with the flexibility necessary for the complete variety of Tapcon applications (tool does not include drill bit).

Condrive® Tool - A multi-purpose tool designed for installation of Tapcon hex head and Phillips flat head anchors up to 3-3/4" long. If driving hex head Tapcon, driver will automatically disengage. The Condrive Tool has a reusable plastic case.

Condrive Tools are designed to specifically install Tapcon Anchors and to fit standard hammer drills.



Part No. 3103910
(Does not include drill bit)

APPLICATIONS



The picture shows the Condrive Installation Kit in action. The kit makes for fast and easy change over from drill bit to driver and controls the driving torque to prevent thread stripping and head snapping in hard base materials.

ADVANTAGES

- Fast change from drilling to driving
- Eliminates need to change out chucks and bits
- Eliminates need for two tools
- Special nut driver is recessed for torque control to reduce head breakage

Condrive Tool Kit Parts (sold only as a kit)

A	Drill Adapter
B	Sleeve
C	3/16" Socket
D	1/4" Socket
E	Phillips/Star Socket
F	Hex Key
G	T25 Star Drive Bit
H	T25 Star Drive Bit
I	#2 Phillips Drive Bit
J	#3 Phillips Drive Bit

ICC-ES Evaluation Report

ESR-2202

Reissued October 2026

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<p>DIVISION: 03 00 00— CONCRETE</p> <p>Section: 03 16 00— Concrete Anchors</p> <p>DIVISION: 05 00 00— METALS</p> <p>Section: 05 05 19—Post- Installed Concrete Anchors</p>	<p>REPORT HOLDER:</p> <p>ITW BRANDS, A DIVISION OF ILLINOIS TOOL WORKS, INC.</p> <p>ADDITIONAL LISTEE:</p> <p>ITW RED HEAD, A DIVISION OF ILLINOIS TOOL WORKS, INC.</p>	<p>EVALUATION SUBJECT:</p> <p>TAPCON® SCREW ANCHORS FOR USE IN UNCRACKED CONCRETE</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018, and 2015 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018, and 2015 [International Residential Code® \(IRC\)](#)

Main references of this report are for the 2024 IBC and IRC. See [Table 5](#) and [Table 6](#) for applicable sections of the code for previous IBC and IRC editions.

Property evaluated:

Structural

2.0 USES

The $\frac{3}{16}$ -inch- and $\frac{1}{4}$ -inch-diameter (4.8 mm and 6.4 mm) Tapcon® Screw Anchors with Advanced Threadform Technology are used as anchorage to resist static, wind, and seismic (Seismic Design Categories A and B only) tension and shear loads in uncracked normal-weight and lightweight concrete having a specified compressive strength $f'_c = 2,500$ psi to 8,500 psi (17.2 MPa to 58.6 MPa).

The anchoring system complies with the requirements for anchors described in Section 1901.3 of the 2024 IBC. The anchors may also be used where an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION

3.1 Tapcon® Screw Anchors with Advanced Threadform Technology:

The Tapcon® Screw Anchors with Advanced Threadform Technology are manufactured from carbon steel with supplementary heat treatment. The anchors have an alternating high-low thread form on the shank and are available in a variety of lengths with nominal diameters of $\frac{3}{16}$ inch and $\frac{1}{4}$ inch (4.8 mm and 6.4 mm). The Tapcon® Screw Anchors are available with a slotted hex washer head, slotted hex washer head with under head ribs, Phillips flat head, or Star flat head and are available with a blue or black Climaseal® or white Ultrashield™ coating. Illustrations of anchors are provided in [Figure 1](#).

3.2 Concrete:

Normal-weight and lightweight concrete must comply with Sections 1903 and 1905 of the IBC, as applicable.

4.0 DESIGN AND INSTALLATION

4.1 Strength Design:

4.1.1 General: Design Strength of anchors complying with the complying with 2024 IBC, as well as Section R301.1.3 of the 2024 IRC must be determined in accordance with ACI 318-19 Chapter 17 and this report.

Design parameters are based on the 2024 IBC (ACI 318-19), unless noted otherwise in Sections 4.1.1 through 4.1.11 of this report. The strength design of anchors must comply with ACI 318-19 Section 17.5.1.2.

Strength reduction factors, ϕ , as given in ACI 318-19 17.5.3 and noted in [Tables 2](#) and [3](#) must be used for load combinations calculated in accordance with Section 1605.1 of the 2024 IBC or Section 5.3 of ACI 318-19.

The value of f'_c used in the calculations must be limited to a maximum of 8,000 psi (55.2 MPa), in accordance with ACI 318-19 17.3.1. An example calculation in accordance with the 2024 IBC is provided in [Figure 4](#).

4.1.2 Requirements for Static Steel Strength in Tension, N_{sa} : The nominal static steel strength of a single anchor in tension is calculated in accordance with ACI 318-19 Section 17.6.1. The N_{sa} values of a single anchor are given in [Table 2](#) of this report. Strength reduction factors, ϕ , corresponding to brittle steel elements as defined in ACI 318-19 2.3 and provided in [Table 2](#), must be used.

4.1.3 Requirements for Static Concrete Breakout Strength in Tension, N_{cb} or N_{cbg} : The nominal static concrete breakout strength for a single anchor or group of anchors in tension, N_{cb} or N_{cbg} , respectively, must be calculated in accordance with ACI 318-19 Section 17.6.2 with modifications as described in this section. The nominal concrete breakout strength in tension in regions of concrete where analysis indicates no cracking at service loads in accordance with ACI 318-19 Section 17.6.2.5 must be calculated using the values of k_{uncr} as given in [Table 2](#) of this report with $\psi_{c,N} = 1.0$.

4.1.4 Requirements for Static Pullout Strength in Tension, N_p : The nominal pullout strength of a single anchor in tension in accordance with ACI 318-19 Sections 17.6.3.1 and 17.6.3.2.1 in uncracked concrete, $N_{p,uncr}$, is given in [Table 2](#) of this report. For all design cases $\psi_{c,P} = 1.0$.

The nominal pullout strength in tension may be adjusted for concrete strengths according to Eq-1:

$$N_{p,f'_c} = N_{p,uncr} \left(\frac{f'_c}{2,500} \right)^n \quad (\text{lb, psi}) \quad (\text{Eq-1})$$

$$N_{p,f'_c} = N_{p,uncr} \left(\frac{f'_c}{17.2} \right)^n \quad (\text{N, MPa})$$

where f'_c is the specified compressive strength and n is the factor defining the influence of concrete strength on the pullout strength. For all diameters, $n = 0.5$.

4.1.5 Requirements for Static Steel Strength in Shear, V_{sa} : The nominal steel strength in shear, V_{sa} , of a single anchor is given in [Table 3](#) of this report and must be used in lieu of the values derived by calculation from ACI 318-19 17.7.1.2b. The strength reduction factor, ϕ , corresponding to brittle steel elements as defined in ACI 318-19 2.3 and provided in [Table 3](#), must be used.

4.1.6 Requirements for Static Concrete Breakout Strength of Anchor in Shear, V_{cp} or V_{cpg} : The nominal static concrete breakout strength of a single anchor or group of anchors in shear, V_{cb} or V_{cbg} , must be calculated in accordance with ACI 318-19 17.7.2 with modifications as described in this section. The basic concrete breakout strength of a single anchor in shear, V_b , must be calculated in accordance with ACI 318-19 17.7.2.2 based on the values provided in [Table 3](#). The value of l_e used in ACI 318-19 Eq. 17.7.2.2.1a must be taken as no greater than the lesser of h_{ef} or $8d_a$.

4.1.7 Requirements for Static Concrete Pryout Strength in Shear, V_{cp} or V_{cpg} : The nominal static concrete pryout strength of a single anchor or group of anchors in shear, V_{cp} or V_{cpg} , must be calculated in accordance with ACI 318-19 17.7.3 using the value of k_{cp} described in [Table 3](#), and the values of N_{cb} or N_{cbg} as calculated in Section 4.1.3 of this report.

4.1.8 Requirements for Interaction of Tensile and Shear Forces: For designs that include combined tension and shear, the interaction of tension and shear loads must be calculated in accordance with ACI 318-19 17.8.

4.1.9 Requirements for Critical Edge Distance, c_{ac} : In applications where $c < c_{ac}$ and supplemental reinforcement to control splitting of the concrete is not present, the concrete breakout strength in tension for uncracked concrete, calculated in accordance with ACI 318-19 17.6.2 must be further multiplied by the factor $\psi_{cp,N}$ given by Eq-2:

$$\psi_{cp,N} = \frac{c}{c_{ac}} \quad (\text{Eq-2})$$

whereby the factor $\psi_{cp,N}$ need not be taken as less than $\frac{1.5h_{ef}}{c_{ac}}$. For all other cases, $\psi_{cp,N} = 1.0$. In lieu of ACI 318-19 17.9.5 the values for the critical edge distance, c_{ac} , must be taken from [Table 1](#).

4.1.10 Requirements for Minimum Member Thickness, Minimum Anchor Spacing and Minimum Edge Distance: In lieu of ACI 318-19 Section 17.9.2, values of s_{min} and c_{min} as given in [Table 1](#) of this report must be used. In lieu of ACI 318-19 Section 17.9.4 the minimum concrete thickness h_{min} as given in [Table 1](#) of this report must be used.

4.1.11 Lightweight Concrete: For the use of anchors in lightweight concrete, the modification factor λ_a equal to 0.8 λ is applied to all values of $\sqrt{f'_c}$ affecting N_n and V_n .

The value of λ shall be determined in accordance with ACI 318-19.

4.2 Allowable Stress Design:

4.2.1 General: Design values for use with allowable stress design (working stress design) load combinations calculated in accordance with Section 1605.1 of the 2024 IBC, must be established as follows:

$$T_{allowable, ASD} = \frac{\phi N_n}{\alpha} \quad (\text{Eq-3})$$

$$V_{allowable, ASD} = \frac{\phi V_n}{\alpha} \quad (\text{Eq-4})$$

where:

$T_{allowable, ASD}$ = Allowable tension load (lbf or kN).

$V_{allowable, ASD}$ = Allowable tension load (lbf or kN).

ϕN_n = Lowest design strength of an anchor or anchor group in tension as determined in accordance with ACI 318-19 Section 17.5.1.2, 2024 IBC Section 1905.7 and Section 4.1 of this report, as applicable (lbf or kN).

ϕV_n = Lowest design strength of an anchor or anchor group in shear as determined in accordance with ACI 318-19 Section 17.5.1.2, 2024 IBC Section 1905.7 and Section 4.1 of this report, as applicable (lbf or kN).

α = Conversion factor calculated as a weighted average of the load factors for the controlling load combination. In addition, α must include all applicable factors to account for nonductile failure modes and required over-strength.

Limits on edge distance, anchor spacing and member thickness as given in Section 4.1.10 of this report must apply. An illustrative example of allowable stress design values is shown in [Table 4](#).

4.2.2 Interaction of Tensile and Shear Forces: The interaction must be calculated and consistent with ACI 318-19 17.8 as follows:

If $T_{applied} \leq 0.2 T_{allowable, ASD}$, the full allowable load in shear $V_{allowable, ASD}$ shall be permitted.

If $V_{applied} \leq 0.2 V_{allowable, ASD}$, the full allowable load in tension $T_{allowable, ASD}$ shall be permitted.

For all other cases:

$$\frac{T_{applied}}{T_{allowable, ASD}} + \frac{V_{applied}}{V_{allowable, ASD}} \leq 1.2 \quad (\text{Eq-5})$$

4.3 Installation:

Installation parameters are provided in [Table 1](#) and [Figure 3](#) of this report. The Tapcon[®] Screw Anchors must be installed in accordance with the manufacturer's published instructions and this report. In case of conflict, this report governs. Anchor locations must comply with this report and the plans and specifications approved by the code official. Holes must be predrilled in concrete with a Tapcon[®] carbide-tipped drill bit supplied by

ITW. The hole must be drilled to the specified nominal embedment depth plus a minimum of $\frac{1}{4}$ inch (6.4 mm). Before anchor installation, dust and other debris must be removed using a vacuum or compressed air. The anchors must then be installed through the attachment into the hole, in accordance with ITW's instructions, to the specified nominal embedment depth using a hammer drill in a rotary-only mode with an ITW Buildex Condrive[®] Tool and drive socket.

4.4 Special Inspection:

Periodic special inspection is required in accordance with Section 1705.1.1 and Table 1705.3 of the 2024 IBC. The special inspector must make periodic inspections during anchor installation to verify anchor type, anchor dimensions, concrete type, concrete compressive strength, hole dimensions, anchor spacing, edge distances, concrete thickness, anchor embedment, drill bit type and size, hole cleaning procedures, installation torque, and adherence to the manufacturer's published installation instructions and the conditions of this report (in case of conflict, this report governs). The special inspector must be present as often as required in accordance with the "statement of special inspection." Under the IBC, additional requirements as set forth in Sections 1705, 1706 and 1707 must be observed, where applicable.

5.0 CONDITIONS OF USE:

The Tapcon[®] Screw Anchors described in this report are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Anchor sizes, dimensions, embedment, and installation are as set forth in this report.
- 5.2 The anchors must be installed in accordance with the manufacturer's published installation instructions and this report. In case of conflict, this report governs.
- 5.3 The Tapcon[®] Screw Anchors must be limited to use in uncracked normal-weight concrete and lightweight concrete having a specified compressive strength, f'_c , of 2,500 psi to 8,500 psi (17.2 MPa to 58.6 MPa).
- 5.4 The values of f'_c used for calculation purposes must not exceed 8,000 psi (55.1 MPa).
- 5.5 Strength design values must be established in accordance with Section 4.1 of this report.
- 5.6 Allowable stress design values must be established in accordance with Section 4.2 of this report.
- 5.7 Anchor spacing, edge distance, and minimum concrete thickness must comply with Section 4.1.10 and [Table 1](#) of this report.
- 5.8 Prior to installation, calculations and details demonstrating compliance with this report must be submitted to the code official for approval. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.9 Since an ICC-ES acceptance criteria for evaluating data to determine the performance of anchors subjected to fatigue or shock loading is unavailable at this time, the use of these anchors under these conditions is beyond the scope of this report.
- 5.10 The Tapcon[®] Screw Anchors may be used to resist short-term loading due to wind forces and for seismic load combinations in locations designated as Seismic Design Categories A and B under the IBC, subject to the conditions of this report.
- 5.11 Anchors are not permitted to support fire-resistance-rated construction. Where not otherwise prohibited by the code, anchors are permitted for installation in fire-resistance-rated construction provided that at least one of the following conditions is fulfilled:
 - Anchors are used to resist wind or seismic forces only.
 - Anchors that support a fire-resistance-rated envelope or a fire-resistance-rated membrane, are protected by approved fire-resistance-rated materials, or have been evaluated for resistance to fire exposure in accordance with recognized standards.
 - Anchors are used to support nonstructural elements.
- 5.12 The anchors have been evaluated for reliability against brittle failure and found to be not significantly sensitive to stress-induced hydrogen-embrittlement.
- 5.13 The design of anchor groups in accordance with ACI 318-19 Chapter 17 is valid for screw anchors with a thread length of at least 80 percent of the nominal embedment depth. Anchors with a thread length less than 80 percent of the nominal embedment depth shall be designed as single anchors.

5.14 Use of anchors must be limited to dry, interior locations.

5.15 Special inspection must be provided in accordance with Section 4.4 of the report.

5.16 Anchors are manufactured in the U.S.A. under an approved quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Mechanical Anchors in Concrete Elements AC193 \(24\)](#), dated April 2025; and quality-control documentation.

7.0 IDENTIFICATION

7.1 The Tapcon[®] Screw Anchors are identified by packaging labeled with the manufacturer's name (ITW brands or ITW Red Head), contact information, anchor name, anchor size, and evaluation report number (ESR-2202). The letters "BX" or "TAPCON" and a length identification code letter are stamped on the head of each anchor. See the length identification system illustrated in [Figure 2](#) of this report.

7.2 The report holder's contact information is the following:

ITW BRANDS, A DIVISION OF ILLINOIS TOOL WORKS, INC.
155 HARLEM AVE, N4E
GLENVIEW, IL 60025
(877) 489-2726
www.tapcon.com

7.3 The additional listee's contact information is the following:

ITW RED HEAD, A DIVISION OF ILLINOIS TOOL WORKS, INC.
155 HARLEM AVE, N4E
GLENVIEW, IL 60025
(800) 848-5611
www.itwredhead.com
techsupport@itwccna.com

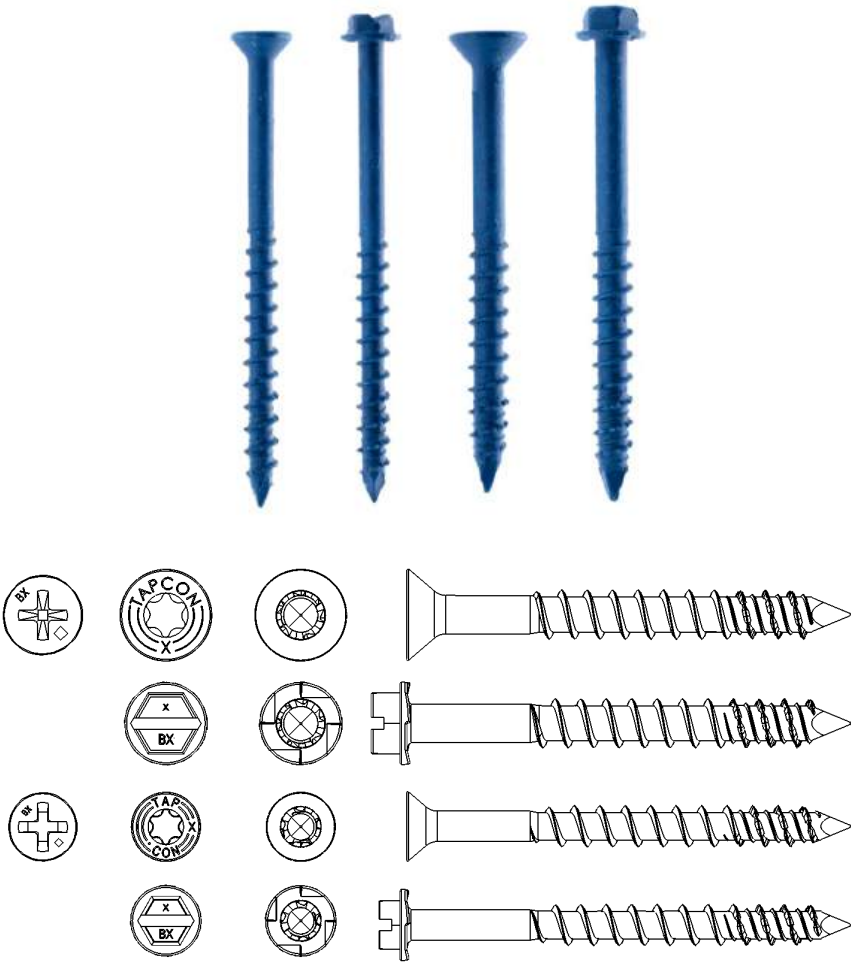


FIGURE 1—TAPCON® SCREW ANCHOR WITH ADVANCED THREADFORM TECHNOLOGY (BLUE CLIMASEAL® COATING SHOWN)

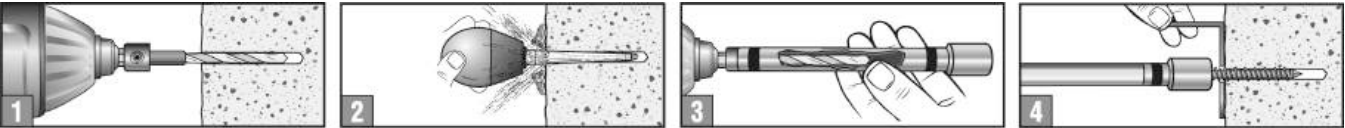
LENGTH MARKING ON ANCHOR HEAD			A	B	C	D	E	F	G	H	I	J
Length of anchor (inches)	From	1	1½	2	2½	3	3½	4	4½	5	5½	6
	Up to, but not including	1½	2	2½	3	3½	4	4½	5	5½	6	6½

For SI: 1 inch = 25.4 mm.

FIGURE 2—LENGTH IDENTIFICATION SYSTEM



Installation Instructions for 3/16" and 1/4" diameter Tapcon® Screw Anchors



- 1) Using a Tapcon® drill bit, drill the hole 1/4" deeper than anchor embedment.
- 2) Clean hole with compressed air or vacuum to remove any excess dust/debris.
- 3) Place Condribe® tool with drive socket over drill bit.
- 4) Using drill, hammer mode disabled, drive anchor thru fixture and into hole until nut driver spins free from head of anchor.

FIGURE 3—INSTALLATION INSTRUCTIONS FOR TAPCON® SCREW ANCHOR

TABLE 1—INSTALLATION INFORMATION FOR TAPCON[®] SCREW ANCHOR¹

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (inch)	
			³ / ₁₆	¹ / ₄
Head Style	—	—	Hex Head/Flat Head	Hex Head/Flat Head
Nominal Outside diameter (shank)	d_a	in.	0.15	0.19
Nominal Outside diameter (threads)	—	in.	0.20	0.25
Drill bit specification	d_{bit}	in.	⁵ / ₃₂ Tapcon [®] Bit	³ / ₁₆ Tapcon [®] Bit
Minimum base plate clearance hole diameter	d_h	in.	⁷ / ₃₂	¹ / ₄
Maximum installation torque	$T_{inst, max}$	ft-lbf	Not applicable ²	Not applicable ²
Maximum Impact Wrench Torque Rating	$T_{impact, max}$	ft-lbf	Not applicable ²	Not applicable ²
Minimum Effective embedment depth	h_{ef}	in.	1.50	1.50
Minimum nominal embedment depth ⁶	h_{nom}	in.	2.00	2.10
Minimum hole depth	h_{hole}	in.	2.25	2.35
Minimum concrete member thickness	h_{min}	in.	4	4
Critical edge distance	c_{ac}	in.	4	4
Minimum edge distance	c_{min}	in.	2	2 ¹ / ₂
Minimum spacing	s_{min}	in.	3	4

For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

¹The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17.

²Installation must be performed with an ITW Buildex Condrive[®] Tool and drive socket. See Section 4.3 for additional information.

TABLE 2—TENSION STRENGTH DESIGN INFORMATION FOR TAPCON[®] SCREW ANCHOR¹

CHARACTERISTIC	SYMBOL ⁵	UNITS	NOMINAL ANCHOR DIAMETER (inch)	
			³ / ₁₆	¹ / ₄
Head Style	—	—	Hex Head/Flat Head	Hex Head/Flat Head
Drill bit specification		in.	⁵ / ₃₂ Tapcon [®] Bit	³ / ₁₆ Tapcon [®] Bit
Anchor category	1, 2 or 3	—	1	1
Effective embedment depth	h_{ef}	in.	1.50	1.50
Minimum concrete member thickness	h_{min}	in.	4	4
Critical edge distance	c_{ac}	in.	4	4
Data for Steel Strength in Tension				
Minimum specified yield strength	f_y	psi	100,000	100,000
Minimum specified ultimate strength	f_{uta}	psi	125,000	125,000
Effective tensile stress area	A_{se}	in ²	0.0147	0.0241
Steel strength in tension	N_{sa}	lbf	2,025	3,800
Strength reduction factor ϕ for tension, steel failure modes ²	ϕ_{sa}	—	0.65	0.65
Data for Concrete Breakout Strength in Tension				
Effectiveness factor -uncracked concrete	k_{uncr}	—	24	24
Modification factor for cracked and uncracked concrete ³	$\Psi_{c,N}$	—	1.0	1.0
Strength reduction factor ϕ for tension, concrete failure modes ³	ϕ_{cb}	—	0.65	0.65
Data for Pullout Strength in Tension				
Pullout strength, uncracked concrete	$N_{p,uncr}$	lbf	590	795
Strength reduction factor ϕ for tension, pullout failure modes ³	ϕ_p	—	0.65	0.65
Additional Anchor Data				
Axial stiffness in service load range in uncracked concrete	β_{uncr}	lbf/in	317,000	467,000

For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

¹The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17.

²The tabulated value of ϕ_{sa} applies when the load combinations of Section 1605.1 of the 2024 IBC or ACI 318-19 Section 5.3 are used.

³The tabulated value of ϕ_{cb} and ϕ_{cp} applies when the load combinations of Section 1605.1 of the 2024 IBC or ACI 318-19 Section 5.3 are used and the requirements of ACI 318-19 17.5.3 supplementary reinforcement not present are met.

TABLE 3—SHEAR STRENGTH DESIGN INFORMATION FOR TAPCON[®] SCREW ANCHOR¹

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (inch)	
			³ / ₁₆	¹ / ₄
Head Style	—	—	Hex Head/Flat Head	Hex Head/Flat Head
Drill bit specification		in.	⁵ / ₃₂ Tapcon [®] Bit	³ / ₁₆ Tapcon [®] Bit
Anchor category	1, 2 or 3	—	1	1
Effective embedment depth	h_{ef}	in.	1.50	1.50
Minimum concrete member thickness	h_{min}	in.	4	4
Critical edge distance	c_{ac}	in.	4	4
Data for Steel Strengths in Shear				
Minimum specified yield strength	f_y	psi	100,000	100,000
Minimum specified ultimate strength	f_{uta}	psi	125,000	125,000
Effective shear stress area	A_{se}	in ²	0.0147	0.0241
Steel strength in shear - static	V_{sa}	lbf	715	1,300
Strength reduction factor ϕ for shear, steel failure modes ²	ϕ_{sa}	—	0.60	0.60
Data for Concrete Breakout and Concrete Pryout Strengths in Shear				
Nominal Outside diameter (shank)	d_a	in.	0.15	0.19
Load bearing length of anchor	ℓ_e	—	1.50	1.50
Coefficient for Pryout Strength	k_{cp}	—	1.0	1.0
Strength reduction factor for shear, concrete breakout ³	ϕ_{cb}	—	0.70	0.70
Strength reduction factor for shear, pryout ³	ϕ_{cp}	—	0.70	0.70

For **SI**: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

¹The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17.

²The tabulated value of ϕ_{sa} applies when the load combinations of Section 1605.1 of the 2024 IBC or ACI 318-19 Section 5.3 are used.

³The tabulated value of ϕ_{cb} and ϕ_{cp} applies when the load combinations of Section 1605.1 of the 2024 IBC or ACI 318-19 Section 5.3 are used and the requirements of ACI 318-19 17.5.3 supplementary reinforcement not present are met.

TABLE 4—EXAMPLE ALLOWABLE STRESS DESIGN TENSION VALUES FOR ILLUSTRATIVE PURPOSES
FOR TAPCON[®] SCREW ANCHOR^{1,2,3,4,5,6,7,8,9}

NOMINAL ANCHOR DIAMETER (inch)	NOMINAL EMBEDMENT DEPTH (inches)	EFFECTIVE EMBEDMENT DEPTH (inches)	ALLOWABLE TENSION LOAD (pounds)
³ / ₁₆	2.00	1.50	260
¹ / ₄	2.10	1.50	350

For **SI**: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa.

¹Single anchor with static tension load only.

²Concrete determined to remain uncracked for the life of the anchorage.

³Load combinations are taken from ACI 318-19 Section 5.3 (no seismic loading).

⁴Thirty percent dead load and 70 percent live load, controlling load combination 1.2D + 1.6L.

⁵Calculation of weighted average for $\alpha = 0.3 \cdot 1.2 + 0.7 \cdot 1.6 = 1.48$.

⁶Normal weight concrete, $f'_c = 2,500$ psi

⁷ $C_{a1} = C_{a2} > C_{ac}$.

⁸ $h \geq h_{min}$.

⁹Supplementary reinforcement in accordance with ACI 318-19 17.5.3 is not provided.

Illustrative Procedure to Calculate Allowable Stress Design Tension Value:

Tapcon® Screw Anchor 1/4-inch diameter, using an effective embedment (h_{ef}) of 1 1/2-inches, assuming the conditions given in [Table 4](#).

PROCEDURE		CALCULATION
Step 1	Calculate steel strength of a single anchor in tension per ACI 318-19 17.6.1.2, Table 2 of this report:	$\phi N_{sa} = \phi N_{sa}$ $= 0.65 * 3,800$ = 2,470 lbs steel strength
Step 2	Calculate concrete breakout strength of a single anchor in tension per ACI 318-19 17.6.2, Table 2 of this report:	$N_b = k_{uncr} \sqrt{f'_c} h_{ef}^{1.5}$ $= 24 * \sqrt{2,500} * 1.5^{1.5}$ $= 2,205 \text{ lbs}$ $\phi N_{cb} = \phi A_{NC} / A_{NC0} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$ $= 0.65 * 1.0 * 1.0 * 1.0 * 2,205$ $= 0.65 * 2,205$ = 1,433 lbs concrete breakout strength
Step 3	Calculate pullout strength per Table 2 of this report:	$\phi N_{p,unc} = \phi N_{p,uncr} \psi_{c,P}$ $= 0.65 * 795 * 1.0$ = 517 lbs pullout strength
Step 4	Determine controlling resistance strength in tension per ACI 318-19 17.5.2:	= 517 lbs controlling resistance (pullout)
Step 5	Calculate allowable stress design conversion factor for loading condition per ACI 318-19 Section 5.3:	$\alpha = 1.2D + 1.6L$ $= 1.2(0.3) + 1.6(0.7)$ = 1.48
Step 6	Calculate allowable stress design value per Section 4.2 of this report:	$T_{allowable, ASD} = \phi N_n / \alpha$ $= 517 / 1.48$ = 350 lbs allowable stress design

FIGURE 4—EXAMPLE DESIGN CALCULATION**TABLE 5— APPLICABLE SECTIONS OF THE IBC UNDER EACH EDITION OF THE IBC**

AFFORDABLE HOUSING ELEMENTS OF THE IBC UNDER EACH EDITION			
2024 IBC	2021 IBC	2018 IBC	2015 IBC
Section 1605.1		Section 1605.2 or 1605.3	
Section 1705.1.1 and Table 1705.3			
Section 1901.3			
Sections 1903 and 1905			
Section 1905.7	Section 1905.1.8		

TABLE 6— APPLICABLE SECTIONS OF ACI 318 UNDER EACH EDITION OF THE IBC

2024 IBC	2021 IBC	2018 IBC	2015 IBC
ACI 318-19		ACI 318-14	
2.3		2.3	
5.3		5.3	
Chapter 17		Chapter 17	
17.3.1		17.2.7	
17.5.1.2		17.3.1	
17.5.3		17.3.3	
17.6.1		17.4.1	
17.6.1.2		17.4.1.2	
17.6.2		17.4.2	
17.6.2.5		17.4.2.6	
17.6.3.1		17.4.3.1	
17.6.3.2.1		17.4.3.2	
17.7.1		17.5.1	
Eq. 17.7.1.2b		Eq. 17.5.1.2b	
17.7.2		17.5.2	
17.7.2.2.1		17.5.2.2	
Eq. 17.7.2.2.1a		Eq. 17.5.2.2a	
17.8		17.6	
17.9.2		17.7.1 and 17.7.3	
17.9.4		17.7.5	
17.9.5		17.7.6	

This report remains under an active [continuous compliance program](#) through the end of October 2027.

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A Subsidiary of the International Code Council®

DIVISION: 03 00 00—CONCRETE
Section: 03 16 00—Concrete Anchors

DIVISION: 05 00 00—METALS
Section: 05 05 19—Post-Installed Concrete Anchors

REPORT HOLDER:

ITW BRANDS A DIVISION OF ILLINOIS TOOL WORKS, INC.

EVALUATION SUBJECT:

TAPCON® SCREW ANCHORS FOR USE IN UNCRACKED CONCRETE

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Tapcon® Screw Anchors, described in ICC-ES evaluation report [ESR-2202](#), have also been evaluated for compliance with the code(s) noted below.

Applicable code edition(s):

- 2025 California Building Code (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2025 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Tapcon® Screw Anchors, described in Sections 2.0 through 7.0 of the evaluation report [ESR-2202](#), comply with CBC Chapter 19, provided the design and installation are in accordance with the 2024 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of 16, 17 and 19, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Tapcon® Screw Anchors, described in Sections 2.0 through 7.0 of the evaluation report [ESR-2202](#), comply with CRC Section R301.1.3, provided the design and installation are in accordance with the 2024 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of CRC Chapter 3, as applicable.

This supplement expires concurrently with the evaluation report, reissued October 2026.

ICC-ES Evaluation Report

ESR-2202 FL Supplement

Reissued October 2026

This report remains under an active [continuous compliance program](#) through the end of October 2027.

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REPORT HOLDER:

ITW BRANDS, A DIVISION OF ILLINOIS TOOL WORKS, INC.

EVALUATION SUBJECT:

TAPCON® SCREW ANCHORS FOR USE IN UNCRACKED CONCRETE

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that ITW Tapcon® Screw Anchors for use in uncracked concrete, described in ICC-ES evaluation report [ESR-2202](#), have also been evaluated for compliance with the codes noted below.

Compliance with the following codes:

- 2026 and 2023 *Florida Building Code—Building*
- 2026 and 2023 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The ITW Tapcon® Screw Anchors for use in uncracked concrete, described in Sections 2.0 through 7.0 of ICC-ES evaluation report [ESR-2202](#), comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*. The design requirements must be determined in accordance with the *Florida Building Code—Building* or *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report [ESR-2202](#) for the 2024 and 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or *Florida Building Code—Residential*, as applicable, with the following condition:

For use within 3,000 feet of a saltwater coastline under the 2026 *Florida Building Code—Building* or the 2026 *Florida Building Code—Residential*, fasteners and connectors must comply with Section 1711 and Table 1711.1 of the 2026 *Florida Building Code—Building* or Section R332 and Table R332.1 of the 2026 *Florida Building Code—Residential*, as applicable.

Use of the ITW Tapcon® Screw Anchors for use in uncracked concrete, for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and *Florida Building Code—Residential*, has not been evaluated, and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission). Florida Rule 61G20-3 is applicable to products and/or systems which comprise the building envelope and structural frame for compliance with the structural requirements of the Florida Building Code.

This supplement expires concurrently with the evaluation report, reissued October 2026.