RED HEAD®
CONCRETE ANCHORING SPECIALISTS

Tapcon®+ Concrete Screw Anchors

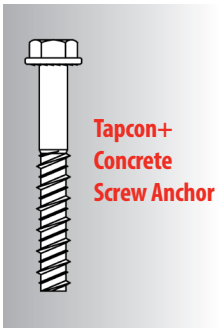
Heavy-Duty Performance, Removable Anchor

MADE IN USA WITH U.S. AND GLOBAL MATERIALS

DESCRIPTION/SUGGESTED SPECIFICATIONS

Concrete Anchors—

SPECIFIED FOR FAST, HEAVY DUTY ANCHORING INTO CONCRETE, BLOCK, AND MASONRY



Tapcon+ heavy duty concrete screw anchors are a one-piece, self-threading alternative to traditional wedge and sleeve anchors, delivering 2–3x faster installs with up to 20% more holding power in concrete and masonry. Their advanced threadform design cuts its own threads into the base material, reducing installation torque and user fatigue while simplifying the install sequence.

Anchors are manufactured from heat-treated carbon steel for high strength and ductility, and are finished with a corrosion-resistant blue Climaseal coating for longterm performance in harsh environments.

Unlike expansion anchors, Tapcon+ anchors create no expansion stress on the hole walls, allowing them to be installed closer together and closer to edges for greater design flexibility. They are also easily removable, making them ideal for maintenance, retrofit work, and applications where equipment or layouts may change.

ADVANTAGES

SAVE TIME

- Installs 2–3x faster than wedge and sleeve anchors
- One piece design – just drill, clean and drive; no sleeves, nuts, washer, or torquing sequence

EASILY REMOVED

- Unscrews for quick equipment moves, retrofits and rework
- No torching, grinding or breaking out expansion anchors

SAVE LABOR & IMPROVE PERFORMANCE

- Up to 20% more holding power than comparable expansion anchors in concrete

GREATER DESIGN FLEXIBILITY

- No expansion stress on hole walls – can be installed closer to edges and in tighter spacing

SIMPLIFY INVENTORY

- Reduce the need to stock multiple anchor types, such as wedge & sleeve anchors, by using a versatile heavy-duty concrete screw anchor solution

ACCESSORIES

PART NUMBER	DESCRIPTION	BOX QTY
11494C	3/8 x 8 SDS Plus ANSI Drill Bit	10
11495C	1/2 x 10 SDS Plus ANSI Drill Bit	10

IDEAL APPLICATIONS

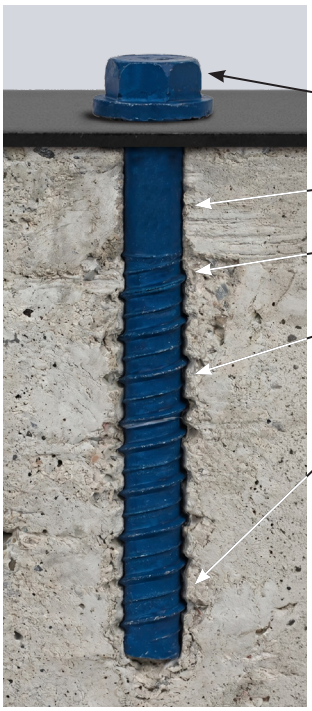
DATA CENTERS
Racking, cable tray, equipment, supports

MEP SYSTEMS
Electrical, HVAC, plumbing

WAREHOUSE AND INDUSTRIAL
Conveyor belts, machinery

MAINTENANCE AND RETROFIT WORK

Tapcon+ Screw Anchors



FEATURES

- **Up to 20% higher holding power vs. wedge and sleeve anchors**
- **Heat-treated carbon steel** – for strength and ductility
- **Blue Climaseal coating** – for better corrosion resistance
- **Advanced Threadform Technology™** – easily cuts into concrete, block, and masonry
- **ICC-ES compliant** – evaluated for cracked, uncracked concrete and seismic applications

** Code can be found on anchor head*

APPROVALS

ICC ESR-3699
Cracked & Uncracked and Seismic approved
City of Los Angeles Supplement
California Supplement
Florida Supplement

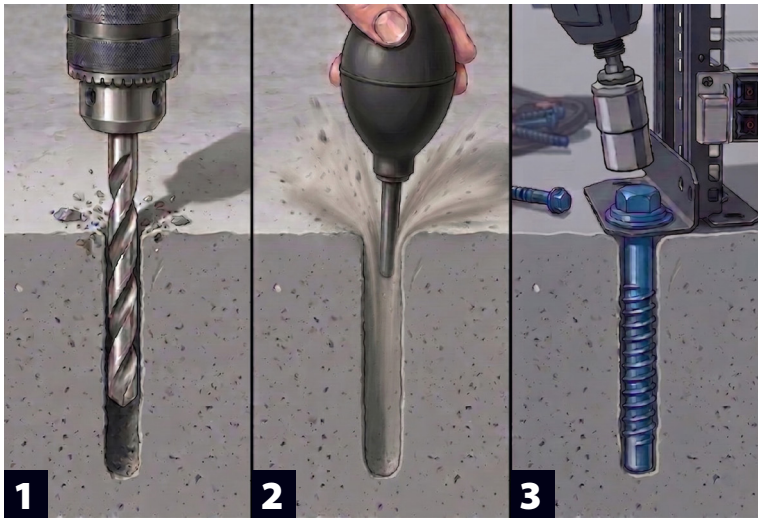
LENGTH IDENTIFICATION

CODE *	LENGTH OF ANCHOR in.	LENGTH OF ANCHOR mm
B	2 < 2-1/2	51 < 63
C	2-1/2 < 3	63 < 76
D	3 < 3-1/2	78 < 89
F	4 < 4-1/2	102 < 114
H	5 < 5-1/2	127 < 140
J	6 < 6-1/2	152 < 165
L	7 < 7-1/2	178 < 191
N	8 < 8-1/2	203 < 216

INSTALLATION STEPS

For concrete, lightweight concrete, and metal deck

1. Using a carbide drill bit, drill a hole at least 1/4" deeper than the anchor embedment.
2. Clean the hole with pressurized air or vacuum to remove any excess dust and debris.
3. Using an impact or manual wrench, insert the anchor into the hole and tighten anchor until fully seated.



ANCHOR INSTALL SPECIFICATIONS

ANCHOR DIAMETER (IN.)	ANSI DRILL BIT DIAMETER (IN.)	ANCHOR HEAD A.F (SOCKET SIZE) (IN.)	ANCHOR HEAD HEIGHT (IN.)	ANCHOR WASHER DIAMETER (IN.)	MANUAL TORQUE WRENCH MAX. TORQUE (FT-LBS)	IMPACT TORQUE MAX. TORQUE RATING (FT-LBS)
3/8	3/8	9/16	0.35	13/16	50	200
1/2	1/2	3/4	0.45	1	70	345

SELECTION CHART

PART NUMBER	DESCRIPTION	ANCHOR DIAMETER	ANCHOR LENGTH	DRILL BIT	INNER CARTON QTY	MASTER CARTON QTY
TCPC-3830	3/8" X 3" HWH TAPCON+ BLUE CL	3/8"	3"	3/8"	30	300
TCPC-3840	3/8" X 4" HWH TAPCON+ BLUE CL	3/8"	4"	3/8"	30	300
TCPC-3850	3/8" X 5" HWH TAPCON+ BLUE CL	3/8"	5"	3/8"	20	200
TCPC-3860	3/8" X 6" HWH TAPCON+ BLUE CL	3/8"	6"	3/8"	20	200
TCPC-1230	1/2" X 3" HWH TAPCON+ BLUE CL	1/2"	3"	1/2"	20	120
TCPC-1240	1/2" X 4" HWH TAPCON+ BLUE CL	1/2"	4"	1/2"	20	120
TCPC-1250	1/2" X 5" HWH TAPCON+ BLUE CL	1/2"	5"	1/2"	15	90
TCPC-1260	1/2" X 6" HWH TAPCON+ BLUE CL	1/2"	6"	1/2"	15	90

PERFORMANCE TABLE

Tapcon+ Screw Anchors ***Installation Information***

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH)			
			3/8	1/2		
Head style	-	-	Hex head	Hex head		
Nominal outside diameter (shank)	d_a	in.	0.38	0.50		
Nominal outside diameter (thread)	-	in.	0.46	0.59		
Drill bit diameter	d_{bit}	in.	3/8	1/2		
Minimum base plate clearance hole diameter	d_h	in.	1/2	5/8		
Maximum installation torque	$T_{inst,max}$	ft-lbf	50	70		
Maximum impact wrench torque rating	$T_{impact,max}$	ft-lbf	200	345		
Effective embedment depth	h_{ef}	in.	1.78	1.32	2.17	3.02
Minimum nominal embedment depth	h_{nom}	in.	2 1/2	2	3	4
Minimum hole depth	h_{hole}	in.	2 3/4	2 1/4	3 1/4	4 1/4
Minimum concrete member thickness	h_{min}	in.	4	4	6	6
Critical edge distance	C_{ac}	in.	4 1/2	3	4	5
Minimum edge distance	C_{min}	in.	1 1/2	2 1/2	1 3/4	2 1/2
Minimum spacing	S_{min}	in.	3	3	3 1/2	3

Tapcon+ Screw Anchors

Tension Strength Design Information[1]

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH)			
			3/8	1/2		
Head style	-	-	Hex head	Hex head		
ANSI drill bit diameter	d_{bit}	in.	3/8 ANSI bit	1/2 ANSI bit		
Anchor category	*1, 2 or 3*	-	1	1		
Minimum effective embedment depth	h_{ef}	in.	1.78	1.32	2.17	3.02
Minimum concrete member thickness	h_{min}	in.	4	4	6	6
Critical edge distance	C_{ac}	in.	4 1/2	3	4	5
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	0.098	0.185		
Steel strength in tension	N_{sa}	lbf	12,250	23,125		
Strength reduction factor Φ for tension, steel failure modes	ϕ_{sa}	-	0.65	0.65		
DATA FOR CONCRETE BREAKOUT STRENGTH IN TENSION						
Effectiveness factor - uncracked concrete	k_{uncr}	-	27	30		
Effectiveness factor - cracked concrete	k_{cr}	-	17	17		
Modification factor for cracked and uncracked concrete	$\Psi_{c,N}$	-	1.0	1.0		
Strength reduction factor Φ for tension, concrete failure modes	ϕ_{cb}	-	0.65	0.65		
DATA FOR PULLOUT STRENGTH IN TENSION						
Pullout strength, uncracked concrete	$N_{p,uncr}$	lbf	See note 2	See note 2		
Pullout strength, cracked concrete	$N_{p,cr}$	lbf	1,837	See note 2		
Pullout strength for seismic loads	$N_{p,eq}$	lbf	1,677	See note 2		
Strength reduction factor Φ for tension, pullout failure modes [3]	ϕ_p	-	0.65	See note 2		
ADDITIONAL ANCHOR DATA						
Axial stiffness in service load range in uncracked concrete	β_{uncr}	lbf/in	800,000	800,000		
Axial stiffness in service load range in cracked concrete	β_{cr}	lbf/in	365,000	365,000		

Notes:
[1] The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17.
[2] Pullout resistance does not govern design and does not need to be considered.
[3] The strength reduction factor for tension applies when the load combinations from ACI 318 are used and the requirements of ACI 318-19, 17.5.3 are met.

PERFORMANCE TABLE

Tapcon+ Screw Anchors

Shear Strength Design Information[1]

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH)			
			3/8	1/2		
Head style	-	-	Hex head	Hex head		
Drill bit diameter	d_{bit}	in.	3/8 ANSI bit	1/2 ANSI bit		
Anchor category	*1, 2 or 3*	-	1	1		
Minimum effective embedment depth	h_{ef}	in.	1.78	1.32	2.17	3.02
Minimum concrete member thickness	h_{min}	in.	4	4	6	6
Critical edge distance	C_{ac}	ft-lbf	4 1/2	3	4	5
DATA FOR STEEL STRENGTH 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 tensile stress area	A_{se}	in^2	0.098	0.185		
Steel strength in shear - static	V_{sa}	lbf	3,621	12,610		
Steel strength in shear - seismic	$V_{sa,eq}$	lbf	2,920	9,300		
Strength reduction factor Φ for tension, steel failure modes[2]	ϕ_{sa}	-	0.60	0.60		
DATA FOR CONCRETE BREAKOUT AND CONCRETE PRYOUT IN SHEAR						
Nominal Outside diameter (shank)	d_a	in.	0.38	0.50		
Load bearing length of anchor	l_e	in.	1.78	1.32	2.17	3.02
Coefficient for Pryout Strength	K_{cp}	-	1.0	1.0	1.0	2.0
Strength reduction factor for shear, concrete breakout[2]	ϕ_{cb}	-	0.70	0.70		
Strength reduction factor for shear, pryout[2]	ϕ_{cp}	-	0.70	0.70		

Notes:
[1] The data presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17.
[2] The strength reduction factor for shear applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19, 17.5.3 are met.

PERFORMANCE TABLE

Tapcon+ Screw Anchors

Allowable Stress Design Tension Values[1,2,3]

NOMINAL ANCHOR DIAMETER (IN.)	NOMINAL EMBEDMENT DEPTH (IN.)	EFFECTIVE EMBEDMENT DEPTH (IN.)	ALLOWABLE TENSION LOAD (LBF)
3/8	2.50	1.78	1,335
1/2	2.00	1.32	800
	3.00	2.17	1,685
	4.00	3.02	2,765

Notes:
[1] Single anchor with static tension load only and anchor is installed with edge distance equal to or larger than the critical edge distance.
[2] Normal weight, uncracked concrete, fc = 2,500 psi
[3] Load combination from ACI 318-19 Section 5.3, 30% dead load and 70% live load, controlling load combination 1.2D + 1.6L. Calculation of weighted average for α = 0.3*1.2 + 0.7*1.6 = 1.48.

PERFORMANCE TABLE

Tapcon+ Screw Anchors

Design Information for Tapcon+ Concrete Screw Anchors Located in the Soffit of Concrete over Steel Deck Floor and Roof Assemblies[1,2,3,4]

CHARACTERISTIC	SYMBOL	UNITS	NOMINAL ANCHOR DIAMETER (INCH) 1/2		
Location of installation	-	-	Lower Flute		Upper Flute
Minimum hole depth	h_{hole}	in.	2 1/2	4 1/2	2 1/2
Minimum nominal embedment depth	h_{nom}	in.	2	4	2
Minimum effective embedment depth	h_{ef}	in.	1.32	3.02	1.32
Characteristic pullout strength, uncracked concrete over metal deck	$N_{p,deck,uncr}$	lbf	1,720	4,950	2,405
Characteristic pullout strength, cracked concrete over metal deck	$N_{p,deck,cr}$	lbf	975	2,805	1,360
Characteristic shear strength, concrete over metal deck	$V_{sa,deck}$	lbf	3,825	6,130	3,825
Characteristic shear strength - seismic, concrete over metal deck	$V_{sa,deck,eq}$	lbf	2,820	4,520	2,820
Reduction factor for pullout strength in tension	ϕ	-	0.65		
Reduction factor for steel strength in shear	ϕ	-	0.60		

Notes:
[1] Values for characteristic pullout strengths and characteristic shear strengths apply to sand-lightweight concrete having a minimum concrete compressive strength of 3,000 psi.
[2] The characteristic pull-out strength for greater concrete compressive strengths shall be increased by multiplying the tabular value by $(fc'/3000)^{0.5}$.
[3] The strength reduction factor applies when the load combinations from ACI 318 are used and the requirements of ACI 318-19, 17.5.3 are met.
[4] The minimum anchor spacing along the flute must be the greater of $3h_{ef}$, or 1.5 times the flute width.