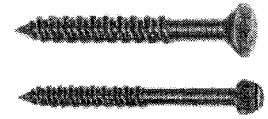




# CONCRETE SCREW TECHNICAL DATA SHEET

I.C.B.O. • DADE COUNTY APPROVED



## INSTALLATION SPECIFICATIONS

### PERMA-SEAL® CARBON STEEL HEX HEAD

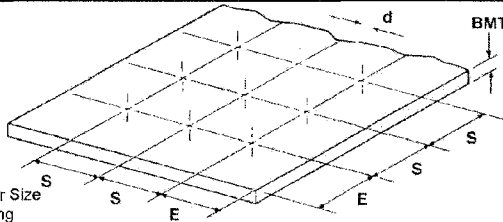
Anchor Size	3/16"	1/4"
Drill Bit Size	5/32"	3/16"
Fixture Clearance Hole	1/4"	5/16"
Thread Size	11-16	1/4-15
Head Height	7/64"	9/64"
Head Width	1/4"	5/16"
Washer O.D.	11/32"	13/32"
Washer Thickness	1/32"	1/32"
Coating	Perma-Seal® Fluoropolymer	

### PERMA-SEAL® CARBON STEEL FLAT HEAD

Anchor Size	3/16"	1/4"
Drill Bit Size	5/32"	3/16"
Fixture Clearance Hole	1/4"	5/16"
Thread Size	11-16	1/4-15
Phillips Head O.D.	3/8"	1/2"
Phillips Head Height	9/64"	3/16"
Phillips Bit Size	2	3
Coating	Perma-Seal® Fluoropolymer	

### 5/16 ZINC CARBON STEEL

Anchor Size	HEX	PFH
Drill Bit Size	1/4"	1/4"
Fixture Clearance Hole	5/16"	5/16"
Thread Size	5/16-18	5/16-18
Head Height	1/4"	19/64"
Head Width	3/8"	3/4" O.D.
Washer O.D.	39/64"	N/A
Zinc Plating	ASTM B 633, SC1, Type III (Fe / Zn)	



d = Anchor Size  
S = Spacing  
E = Edge Distance  
BMT = Base Material Thickness

### Base Material Thickness

The minimum recommended thickness of base materials, BMT, when using the screw is 125% of the embedment to be used. For example, when installing an anchor to a depth of 1-1/2", the base material thickness should be 1-7/8". This does not apply to the face shell of a block wall.

### Spacing Between Anchors

To obtain the maximum load in tension or shear, a spacing, S, of 10 anchor diameters (10d) should be used. The minimum recommended anchor spacing, S, is 5 anchor diameters (5d) at which point the load should be reduced by 50%. The following table lists the load reduction factor, Rs, for each anchor diameter, d, based on the center to center anchor spacing.

Anchor Size	Anchor Spacing, S (Inches)					
	10d	9d	8d	7d	6d	5d
3/16	1-7/8	1-3/4	1-1/2	1-3/8	1-1/8	1
1/4	2-1/2	2-1/4	2	1-3/4	1-1/2	1-1/4
5/16	3-3/4	3-3/8	3	2-5/8	2-1/4	1-7/8
Rs	1.00	0.90	0.80	0.70	0.60	0.50

### Edge Distance - Shear

For shear loads, an edge distance, E, of 12 anchor diameters (12d) should be used to obtain the maximum load. The minimum recommended edge distance, E, is 5 anchor diameters (5d) at which point the shear load should be reduced by 50%. The following table lists the load reduction factor, Re, for each anchor diameter, d, based on the anchor center to edge distance.

Anchor Size	Edge Distance, E (Inches) Shear Only							
	12d	11d	10d	9d	8d	7d	6d	5d
3/16	2-1/4	2-1/8	1-7/8	1-3/4	1-1/2	1-3/8	1-1/8	1
1/4	3	2-3/4	2-1/2	2-1/4	2	1-3/4	1-1/2	1-1/4
5/16	4-1/2	4-1/8	3-3/4	3-3/8	3	2-5/8	2-1/4	1-7/8
Re	1.00	0.93	0.86	0.79	0.71	0.64	0.57	0.50

## MATERIAL SPECIFICATIONS

### Perma-Seal® Concrete Screw

Anchor Component	Component Material
Anchor Body	Case Hardened AISI 1022
Coating	Perma-Seal® Fluoropolymer

### Threshold and 5/16" Zinc Plated Concrete Screw

Anchor Component	Component Material	
	Threshold	5/16"
Anchor Body	Case Hardened AISI 1022	
Zinc Plating	ASTM B 633, SC1, Type III (Fe / Zn)	

These hardened carbon steel fasteners meet or exceed industry standards. However, they are not recommended for use with aluminum when moisture may be present.

## PERFORMANCE DATA

The following load capacities are based on testing conducted according to ASTM Standard E 488.

### Ultimate Load Capacities - Perma-Seal® Concrete Screws

	Anchor Size	Emb. Depth	2000 psi	4000 psi	6000 psi	Concrete	Red
			Concrete	Concrete	Concrete	Block	Brick
Tension Load (lbs.)	3/16"	1"	660	730	1020	640	620
		1-1/4"	870	1060	1250	760	1070
		1-1/2"	1040	1210	1590	990	1220
	1/4"	1-3/4"	1320	1520	1960	1210	1330
		1"	760	930	1140	720	940
		1-1/4"	1090	1540	1690	880	1160
Shear Load (lbs.)	3/16"	1-1/2"	1520	1850	2210	1090	1320
		1-3/4"	1950	2330	2740	1290	1420
		1"	980	1090	1320	920	980
	1/4"	1-1/4"	1090	1250	1340	1020	1090
		1-1/2"	1180	1280	1380	1130	1230
		1-3/4"	1290	1340	1480	1250	1340
1/4"	1"	1320	1620	2140	1150	1720	
	1-1/4"	1630	2150	2390	1270	1840	
	1-1/2"	1980	2270	2580	1460	1930	
1/4"	1-3/4"	2260	2390	2840	1750	2130	

### Ultimate Load Capacities - 5/16 Concrete Screws

	Anchor Size	Emb. Depth	2000 psi	4000 psi	6000 psi	Concrete	Red
			Concrete	Concrete	Concrete	Block	Brick
Tension Load (lbs.)	5/16"	1"	880	1085	1320	840	1020
	5/16"	1-1/4"	1270	1820	1960	1020	1380
	5/16"	1-1/2"	1790	2310	2650	1250	1560
	5/16"	1-3/4"	2260	2830	3240	1480	1640
Shear Load (lbs.)	5/16"	1"	1520	1860	2420	1300	1820
	5/16"	1-1/4"	1880	2490	2750	1430	2360
	5/16"	1-1/2"	2230	2980	3270	1680	2620
5/16"	1-3/4"	2580	3230	3490	2010	2740	

**NOTE:** The values listed in the 3 tables above are ultimate load capacities in pounds, which should be reduced by a minimum safety factor of four or greater to determine the allowable working load. Refer to the section on Anchor Selection Guidelines for details. The consistence of hollow block and brick varies greatly. The load capacities listed should be used as guidelines only. Job site tests should be conducted to determine actual load capacities in block and brick.

## USE DIAMOND KOOL

- COOLS BLADES, CORE BITS IN 5 TO 10 SECONDS (WATER COOLING TAKES 10 TO 20 MINUTES)
  - BLADES RUN COOLER & LAST LONGER
  - FASTER CUTTING
- SEE PAGE 81 FOR TECHNICAL INFORMATION