

STRUCTURAL MATERIALS TESTING BRANCH  
OFFICE OF STRUCTURAL MATERIALS TESTING  
CALIFORNIA DEPARTMENT OF TRANSPORTATION

**AUTHORIZED SHELL-TYPE MECHANICAL EXPANSION ANCHORS**

Type	Manufacturer	Name	Stud Diameter	Installation Torque	Model	Hole Depth	Drill Bit Diameter	Drill Bit Tip Tolerance	Installation Tool
Internal Plug	ITW Ramset / Red Head	Multi Set II Anchor	1/4 inch	4 ft-lbs	RM-14 1/4" φ x 1"	1-1/2"	3/8"	0.390"/0.398" (min/max)	RT-14
Internal Plug	ITW Ramset / Red Head	Multi Set II Anchor	1/2 inch	22 ft-lbs	RM-12 1/2" φ x 2"	2-1/2"	5/8"	0.650"/0.660" (min/max)	RT-12
Internal Plug	ITW Ramset / Red Head	Multi Set II Anchor	3/4 inch	80 ft-lbs	RM-34 3/4" φ x 3"	3-1/2"	1"	1.030"/1.042" (min/max)	RT-34
External Plug	ITW Ramset / Red Head	Non-Drilling Anchor	1/4 inch	4 ft-lbs	J-14 1/4" φ x 1- 1/8" J- 12	1-5/8"	7/16"	0.458"/0.468" (min/max)	JD-14
External Plug	ITW Ramset / Red Head	Non-Drilling Anchor	1/2 inch	22 ft-lbs	J-12 1/2" φ x 2- 1/16"	2-9/16"	11/16"	0.713"/ 0.723" (min/max)	JD-12
External Plug	ITW Ramset / Red Head	Non-Drilling Anchor	3/4 inch	80 ft-lbs	J-34	Not Authorized	Not Authorized	Not Authorized	Not Authorized

Notes: ( No changes have been made to the content of this list since Nov. 20, 1997)

1. Authorized shell-type anchors shown in the above tables have been creep tested per CT 681.
2. The table lists basic installation details for authorized anchors.
3. The hole depths are the minimum required by Caltrans and include a 1/2-inch recess (See Caltrans Bridge Design Aids, Section 5).
4. Shell-type units shown above are electroplated with zinc, and these are not suitable in an corrosive environment.
5. These anchors are generally not tapped oversize to accept a hot-dip galvanized stud or cap screw, and are not furnished with a stud, nut, or washer.

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Type	Manufacturer	Name	Stud Diameter	Model	Hole Depth	Drill Bit Diameter	Drill Bit Tip Tolerance	Installation Tool
Internal Plug	POWERS FASTNERS (Rawplug)	Steel Drop-In	1/4 inch	6304	Not Authorized	Not Authorized	Not Authorized	Not Authorized
Internal Plug	POWERS FASTNERS (Rawplug)	Steel Drop-In	1/2 inch	6308 1/2" φ x 2-3/8"	2-7/8"	5/8"	0.650"/0.660" (min/max)	6309
Internal Plug	POWERS FASTNERS (Rawplug)	Steel Drop-In	3/4 inch	6312 3/4" φ x 3-1/2"	4"	1"	1.030"/1.042" (min/max)	6313
External Plug	POWERS FASTNERS (Rawplug)	Steel Drop-In Ext. Plug	1/4 inch	6460	Not Authorized	Not Authorized	Not Authorized	Not Authorized
External Plug	POWERS FASTNERS (Rawplug)	Steel Drop-In Ext. Plug	1/2 inch	6465 1/2" φ x 2"	2-1/2"	11/16"	0.713"/ 0.723" (min/max)	6808
External Plug	POWERS FASTNERS (Rawplug)	Steel Drop-In Ext. Plug	3/4 inch	6468 3/4" φ x 3"	3-1/2"	1"	1.030"/1.042" " (min/max)	6812

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10. These anchors are generally not tapped oversize to accept a hot-dip galvanized stud or cap screw, and are not furnished with a stud, nut, or washer.