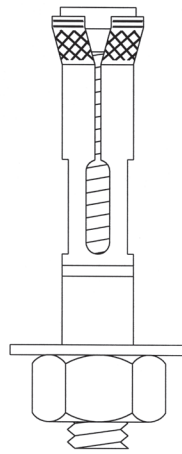


BOTTOM INSERTS - REDHEAD

As part of a program for evaluating various inserts used in Spancrete® hollowcore plank, a common brand of ½" diameter sleeve anchors were installed in the test plank bottom, directly under cores where the bottom thickness is 1-½ inches.



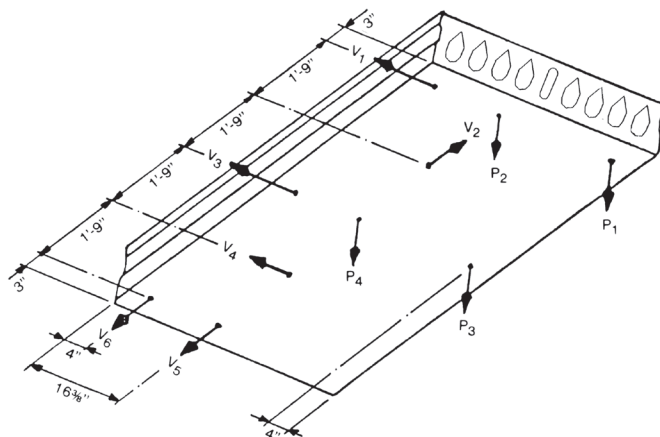
½" \varnothing x 3" REDHEAD
 CAT. NO. HN 1230

SLEEVE ANCHORS TESTED

CONCLUSIONS:

1. Drilled sleeve type inserts are an economical and acceptable way of fastening to a Spancrete plank.
2. It is critical that this type of anchor does not extend into the core, that the embedment be at least 1-½", and that the manufacturer's specified torques be used.
3. Holding power is reduced when insert is located near any plank edge and in thin concrete sections.
4. Test values must be reduced by appropriate strength reduction factors and safety factors to obtain working load values.

Research Notes are produced periodically by the SMA Technical Committee. SMA Research Notes are based on testing done for the Spancrete Manufacturers Association. The information contained in these Research Notes should be used by those experienced in structural design and should not replace sound engineering judgment.



**BOTTOM EXPANSION BOLT
TEST SETUP**

1/2" \varnothing x 3" REDHEAD ANCHOR

Load	Test #1	Mode*	Test #2	Mode*	Test #3	Mode	Avg.	Low
P1	5.053 ^k	Conc.	4.012 ^k	Conc.	5.480 ^k	Conc.	4.848 ^k	4.012 ^k
P2	5.505	Steel	5.061	Conc.	5.133	Conc.	5.233	5.061
P3	1.536	Conc.	6.337	Conc.	4.888	Conc.	4.254	1.536
P4	5.285	Steel	6.092	Steel	5.251	Conc.	5.543	5.251
V1	3.157	Conc.	-	-	2.776	Conc.	2.967	2.776
V2	7.141	Steel	6.502	Steel	3.667	Steel	5.770	3.667
V3	6.125	Steel	5.963	Steel	3.730	Conc.	5.273	3.730
V4	6.850	Steel	6.750	Steel	5.881	Steel	6.494	5.881
V5	5.819	Conc.	5.332	Conc.	4.302	Steel	5.151	4.302
V6	2.336	Conc.	4.046	Conc.	2.700	Conc.	3.027	2.336

*Failure mode

NOTE: Test values must be reduced by appropriate strength reduction factors and safety factors to obtain working load values.

MIDWEST

Hanson Structural
Precast Midwest, Inc.
Maple Grove, Minnesota

Spancrete, Inc.
Green Bay, Wisconsin

Spancrete Industries, Inc.
Waukesha, Wisconsin

Spancrete of Illinois, Inc.
Arlington Heights, Illinois

Wells Concrete
Wells, Minnesota

WEST

Hanson Structural
Precast Pacific, Inc.
Irwindale, California

KIE-CON

Division of Kiewit Pacific Co.
Anitoch, California

Owell Precast
Sandy, Utah

SOUTHWEST

Manco Structures, Ltd.
Schertz, Texas

SOUTH

Cement Industries, Inc.
Fort Myers, Florida

Florida Precast Industries, Inc.
Sebring, Florida

EAST

Mid-Atlantic Precast, LLC.
King George, Virginia

EGYPT

Samcrete Egypt
Ahram, Giza

MEXICO

ITISA
Mexico City, Mexico

Spancrete Noreste
Monterrey, Mexico

CROATIA

Mucic & Co
Dugopolje, Croatia

CARIBBEAN

Preconco Limited
Barbados, West Indies

TURKEY

Yapi-Merkezi
Camlica-Istanbul, Turkey

UAE

Hi-Tech Concrete
Products LLC
Abu Dhabi, UAE

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