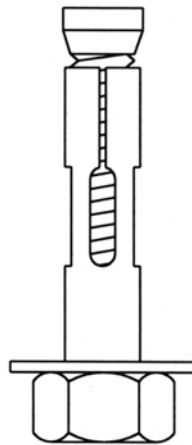


BOTTOM INSERTS - Hilti

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.



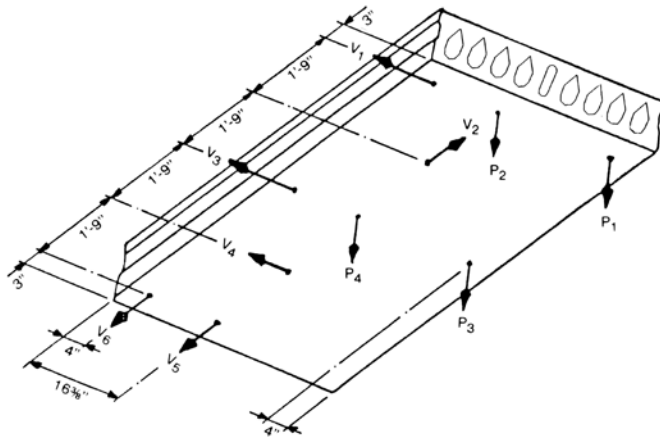
½" \varnothing x 3" HILTI
 CAT. NO. 336256

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" Ø 3" HILTI ANCHOR

Load	Test #1	Mode*	Test #2	Mode*	Avg.	Low
P1	4.23 ^k	Conc.	4.04 ^k	Conc.	4.14 ^k	4.04 ^k
P2	4.19	Conc.	4.73	Conc.	4.46	4.19
P3	4.73	Conc.	5.53	Conc.	5.13	4.73
P4	-	-	4.63	Conc.	4.63	4.63
V1	2.92	Conc.	2.69	Conc.	2.81	2.69
V2	4.43	Steel	4.40	Steel	4.42	4.40
V3	4.39	Steel	4.47	Steel	4.43	4.39
V4	3.08	Conc.	4.51	Steel	3.80	3.08
V5	5.65	Conc.	3.96	Conc.	4.81	3.96
V6	2.25	Conc.	2.17	Conc.	2.21	2.17

*Failure mode

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

EAST

Oldcastle Precast, Inc.
South Bethlehem, NY

Oldcastle Precast, Inc.
Manchester, NY

Conewago Precast Building Systems
Hanover, PA

MIDWEST
Spancrete, Inc.
Green Bay, WI

Spancrete Industries, Inc.
Waukesha, WI

Hanson Structural Precast Midwest, Inc.
Maple Grove, MN

Spancrete of Illinois, Inc.
Arlington Heights, IL

WEST
Hanson Structural Precast Pacific, Inc.
Inwindsale, CA

KIE-CON
Div. of Kiewitt Pacific Co.
Antioch, CA

Owell Precast
Sandy, UT

SOUTHWEST
Manco Structures, Ltd.
Schertz, TX

SOUTH

Cement Industries, Inc.
Fort Myers, FL

Florida Precast Industries, Inc.
Sebring, FL

MC Precast, Inc.
Atlanta, GA

CANADA
Burnco Concrete Products Ltd.
Calgary, Canada

EGYPT
Samcrete Egypt
Ahram, Giza

MEXICO
ITISA
Mexico City, Mexico

Spancrete Noreste
Monterrey, Mexico

TURKEY
Yapi-Merkezi
Camlica-Istanbul, Turkey

CARIBBEAN
Preconco Limited
Barbados, West Indies

Spancrete Caribbean, Ltd.
Trinidad, West Indies

UAE
Hi-Tech Concrete Products, LLC
Abu Dhabi, UAE

MACHINE MANUFACTURER
Spancrete Machinery Corporation
Waukesha, WI

Spancrete is also manufactured in

Armenia	Denmark	Russia
Australia	Guatemala	South Korea
Belgium	Hungary	Spain
Brazil	Ireland	Switzerland
China	Israel	
Croatia	Japan	