

Blind Sert®

- quickly installed
- easily installed
- high tensile strength
- high shear strength

● The Blind-Sert®, a potted-type blind insert developed by Hi-Shear Corporation, provides the user with a high strength fastening system in sandwich, honeycomb, or core-type panels and structures. Blind-Sert employs the same basic fastener design as the widely used two-piece Blind Nut™ which has proved itself as a nutplate in commercial and military aircraft as well as U. S. Navy submarines and surface ships.

● It can be used to secure one sandwich panel to another with appropriate panel joints and hardware. Blind-Sert creates threaded attachment points for brackets, handles, cabinets, and various types of equipment and hardware. It can be installed anywhere on the panel surface wherever a high strength threaded insert is needed.

● Insert positioning is not dependent upon any internal sandwich structure. Blind-Sert can be installed either parallel to or vertical to honeycomb-type cores. To accomplish this, the fastener is bonded in the heart of the sandwich panel with potting material. This material bonds the insert in the panel.

● Uniquely, the Blind-Sert installation technique allows the panel to be moved and assembled after fastener installation while the potting material is still setting up and curing. Unlike other types of sandwich panel inserts, the Blind-Sert holds itself firmly in place without tape, studs, blocks, and locating devices to insure its position. Expansion of the sleeve holds the fastener in position during curing, panel handling, and assembly.



2600 SKYPARK DRIVE
TORRANCE, CALIFORNIA 90509
AREA CODE 213 • 326-8110

FEDERAL SUPPLY CODE NO. 73197

BROCHURE 2-1094, REV. FEBRUARY 1977
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U.S. PATENTS 2,789,619; 2,946,208;
2,959,999. OTHER U.S. AND FOREIGN PATENTS
GRANTED AND PENDING.
"BLIND-SERT" IS A REGISTERED TRADEMARK
OF HI-SHEAR CORPORATION.

Blind-Sert®

a self-positioning, time-saving threaded insert

TIMESAVER

Blind-Sert is a timesaver. It is a permanent fastener, automatically installed to a flush fit with tooling from Hi-Shear Corporation. Installation is easy. The same driving tools used to install standard Blind Nuts are used to install the Blind-Sert. (Refer to Hi-Shear Brochure 2-1033, Blind Bolts and Blind Nuts.) Hole preparation is simple; standard drill techniques are used because the sleeve of the insert assembly has hole filling capabilities. The expander, acting as a threaded insert, is pulled up into the ductile sleeve. This expansion swells the sleeve and locks the Blind-Sert assembly tightly in the hole.

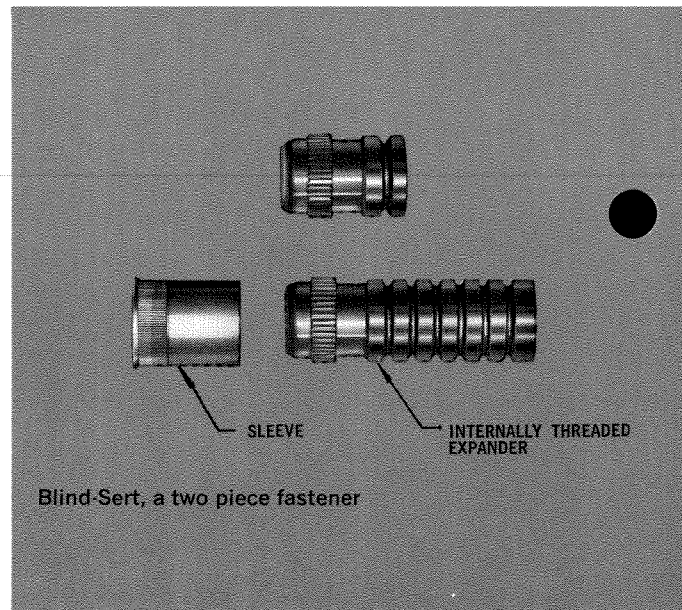
ENVIRONMENTAL SEALING

The hole filling qualities of the Blind-Sert in conjunction with the closed end of the expander form a seal that prevents moisture from entering the core. This is very important in maintaining core bond strength and integrity.

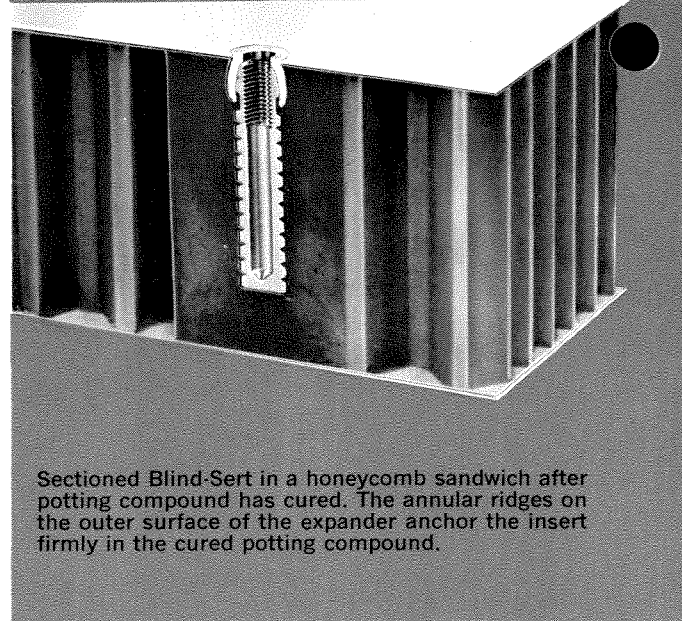
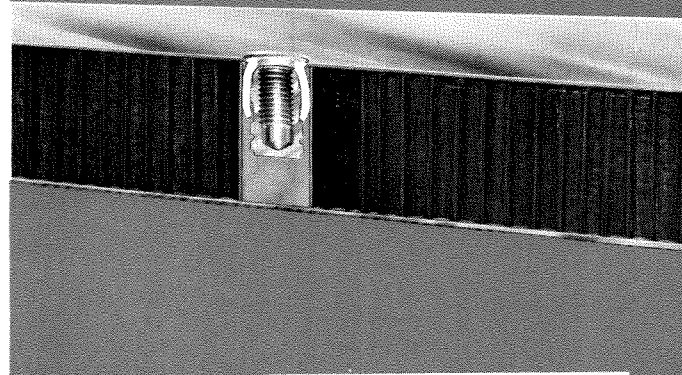
MEDIUM AND HIGH STRENGTH INSTALLATION

The strength of the potted Blind-Sert in shear, tension, and torque-out is proportional to the thickness of the face sheet of the honeycomb sandwich panel and the area of the cavity created in the sandwich. The thicker the face, the higher the rated strength of the potted fastener. Even so, in thin facings, and using a Blind-Sert with a sleeve grip of only a 16th of an inch, medium or high strength attach points can be obtained by the method of installation. Moreover, a Blind-Sert of the same diameter can be installed in a sandwich panel for either medium or high strength.

Strength capability is dependent upon the size of the enlarged cavity drilled into the core. The larger the cavity beyond the circumference of the hole in the face sheet, the more potting material is required when installing the fastener. And since the potting material acts as a foundation anchor to all internal surfaces of the cavity, by increasing the mass, both the shear and tensile qualities of the installed fastener are increased. For example, the BN532-428 with a 1/4-inch thread diameter can be installed in a 2 1/2-inch-thick honeycomb sandwich (with a .050 face sheet) for a strength of 3,000 pounds tensile and 1,500 pounds shear, or, by an enlarged cavity, a 5,000-pound tensile with a 2,000-pound shear capability. Consult hole data on Standards Pages for installation dimensions.



Blind-Sert, a two piece fastener



Sectioned Blind-Sert in a honeycomb sandwich after potting compound has cured. The annular ridges on the outer surface of the expander anchor the insert firmly in the cured potting compound.

GENERAL AND COMMERCIAL SANDWICH PANEL APPLICATIONS

Trailers	Ground Support Equipment
Vans	Movable Partitions
Shelters	Commercial and Office Buildings
Interior Walls	Loading Platforms
Doors	Pallets
Furniture	Reusable Containers

AEROSPACE SANDWICH PANEL APPLICATIONS

Baggage Racks	Portable Landing Platforms
Cabin Doors	Stowage Cabinets
Ceiling Panels	Bulkhead and Cabin Structures
Floor Panels	Cargo Containers
Galleys	Missile Fins
Partitions	Tow Target Wings
Tables	Portable Floating Platforms or Docks

installation procedures

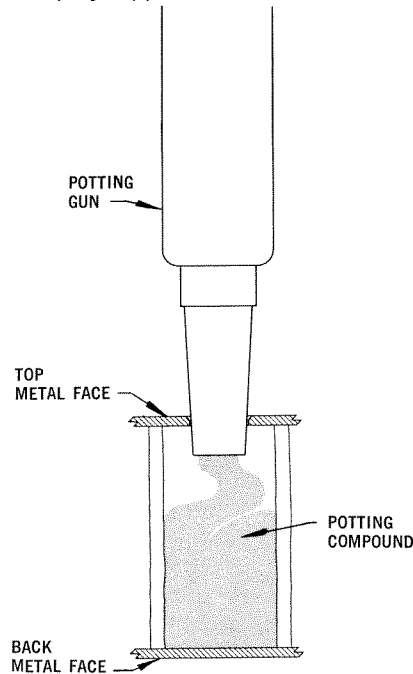
1 HOLE PREPARATION

FOR MEDIUM STRENGTH FASTENER CAPABILITIES . . . drill through the top metal face of the sandwich core to the back face with standard drills in hand drill motors. Do not penetrate the back metal face. Countersink the hole in the top metal face. Remove loose chips. For proper hole and countersink diameters, refer to Hi-Shear Corporation Standards Pages BN528 and BN532.

FOR HIGH STRENGTH FASTENER CAPABILITIES . . . counterbore the core between the sandwich plates with a hook tool. The counterbore diameter is approximately $\frac{1}{2}$ inch beyond the circumference of the hole.

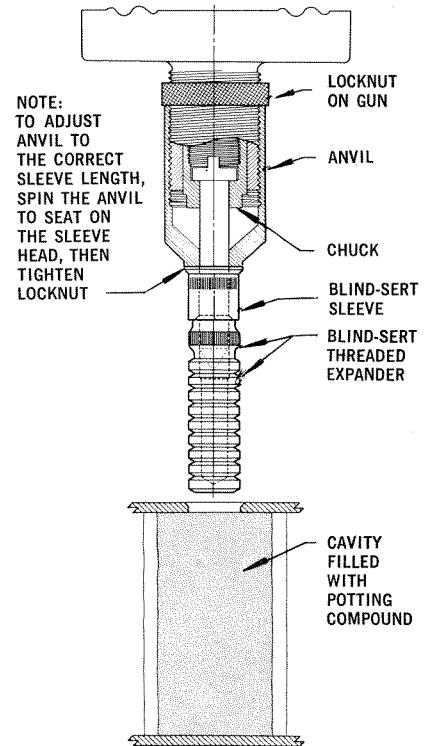
2 POTTING COMPOUND

Fill the cavity completely with potting compound. Follow the manufacturer's instructions in preparing the compound. Caution: Because most epoxy compound mixtures have a relatively short setting-up time, high speed installation production techniques should be utilized. Reliable potting compounds are available from various epoxy suppliers.



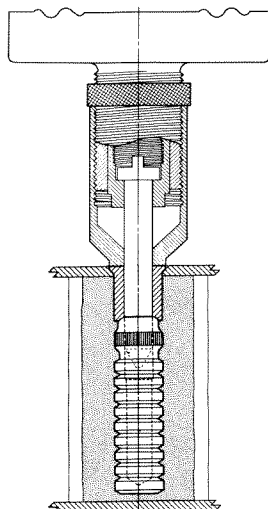
3 BLIND-SERT ASSEMBLY

Using standard Hi-Shear Blind Nut driving tools and power unit, insert the proper size mandrel through the sleeve, press the gun RED control button, press the gun BLUE control button, and screw the threaded expander onto the mandrel.



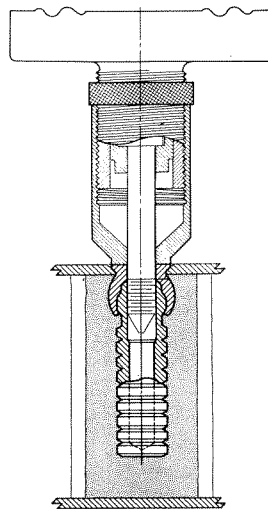
4 INSERTION INTO STRUCTURE

Insert the mandrel-assembled Blind-Sert into the hole filled with potting compound.



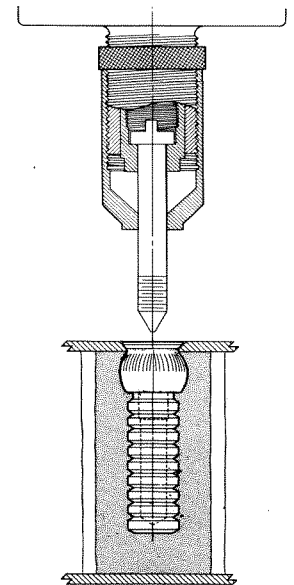
5 FASTENER PULL-UP

When the sleeve is flush, seated tightly against the countersink, press the gun WHITE button. This pulls the expander into the sleeve, swelling it to lock the expander in place and filling the hole to create a tight fit.



6 TOOL REMOVAL

Press the BLUE gun control button to spin the mandrel out of the installed fastener. This completes the Blind-Sert assembly. Wipe up excess overflow compound.



how to order

The two-piece Blind-Sert is available in standard UNJC and UNJF thread sizes from No. 6 through 1/2 inch. The threaded expander is manufactured from Type 303 stainless steel, the ductile sleeve from 2017 aluminum. Other materials are available—consult our sales engineers.

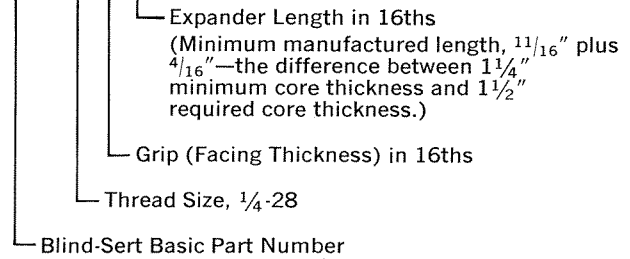
The first dash number indicates the thread size of the bolt to be used.

The second dash number indicates assembly grip length (thickness of face) in 16ths.

The third dash number indicates the length of the threaded expander in 1/16" increments (the minimum *manufactured length plus the difference in 16ths* between the minimum core thickness and the required core thickness). Consult Standards Pages BN528 and BN532.

EXAMPLE: For a 1.625-inch Sandwich Panel with a .0625 face and a 1.5-inch core requiring a 1/4-inch bolt, the Blind-Sert should be ordered as follows:

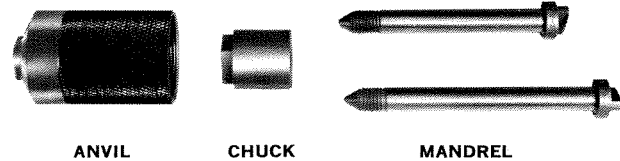
BN528-428-1-15



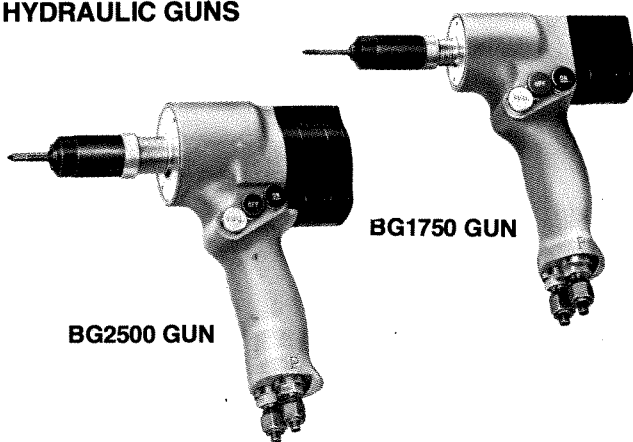
installation tooling

Blind-Serts are installed by one person working from one side of the work, utilizing the same tooling as used to install Hi-Shear Blind-Nuts. The Blind-Sert fastener is quickly installed with a hand-held hydraulic gun, either a BG1750 or a BG2500 Gun that has been fitted with the correct set of Driving Tools (anvil, chuck, & mandrel) that matches the specific size of the Blind-Sert being installed. The hydraulic gun is actuated by one of Hi-Shear's portable Power Units. The complete system (Blind-Sert fasteners, Power Units, Hydraulic Guns, Driving Tools) is available from Hi-Shear Corporation.

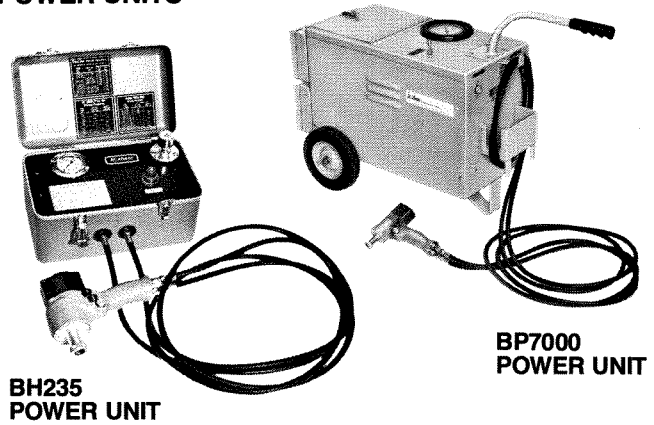
DRIVING TOOLS



HYDRAULIC GUNS



POWER UNITS



THREAD SIZE	BLIND-SERT FIRST DASH NO.	ANVIL ("B" TYPE)	CHUCK	MANDREL		RECOMMENDED INSTALLATION PRESSURE PSI	
				0-1/2 GRIP	1/2-1 GRIP	BG1750 GUN	BG2500 GUN
6-32	-632	A17-632	C1-632	M01-632	M1-632	500	
8-32	-832	A17-832	C1-8	M01-8	M1-8	750	
10-24	-1024	A17-1032 A27-1032	C1-1032 C2-1032	M01-1024	M1-1024	1000	500
10-32	-1032	A17-1032 A27-1032	C1-1032 C2-1032	M01-1032	M1-1032	1000	500
1/4-20 1/4-28	-420 -428	A27-428	C2-12	M01-420 M01-12	M1-420 M1-12		1000
5/16-18 5/16-24	-518 -524	A27-524	C2-14	M01-518 M01-14	M1-518 M1-14		1100
3/8-16 3/8-24	-616 -624	A27-624	C2-16	M01-616 M01-16	M1-616 M1-16		1250
1/2-20	-820	A27-820	C3	M01-820	M1-820		1500

NOTE: A17 ANVILS AND C1 CHUCKS FIT BG1750 GUN, A27 ANVILS AND C2 CHUCKS FIT BG2500 GUN