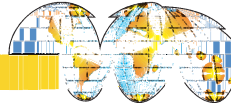


IDBI

100 - THE - PAN DOWEL BAR INSERT



GOMACO

The Worldwide Leader in Concrete Paving Technology

Step by Step: IDBI

In-The-Pan Dowel Bar Inserter

The IDBI is a fully automated system for two-track or four-track pavers. The computer controls the timing and operation of the IDBI functions. The process starts with every tray being loaded with a dowel bar by a trolley traveling across the paving width. The accuracy of this patented loading system accounts for the proper number of bars inserted into the slab. Several of the IDBI concepts, systems and components hold United States patents. The following photos offer a brief explanation of the insertion process...

HW-070204 #12A



The forks wait in the stand-by mode for the insertion point to be signaled by the IDBI computer. The New Generation IDBI has adjustable bar-loading trays and insertion forks that allow the adjustment of center-to-center bar spacing to meet specific project specifications. (see page 6)

HW-070204 #17A



The patented insertion forks have been designed to provide the industry standard in bar placement accuracy. The forks reduce the amount of scarring on insertion and vibration enhances consolidation of material around the bars.

HW-070204 #17A



Vibration is applied to the forks on insertion to consolidate and close the concrete around the inserted bars. The paver never stops during the insertion process. GOMACO's exclusive computer-controlled "smart" cylinder technology provides the state-of-the-art system to maintain the accountability of the depth of the bars upon insertion into the slab.

HW-070203 #19A



A tamper bar, unique oscillating straightedge, paving pan and stainless repair the scarring in the slab.

HW-050018 #9A



Many jobs require both dowel bars and tie bars be inserted into the slab. The IDBI computer manages all bar inserters (front, rear, and IDBI). The space in the tray, pictured above, is where a bar is skipped for a longitudinal joint.

New Generation IDBI

The IDBI is GOMACO's patented system of putting dowel bars into a concrete slab during the paving process. Our engineers have designed a complete system that is accurate and user-friendly, while assuring you, our customer, has a piece of equipment that can be adjusted to provide exacting tolerances for any job specification.

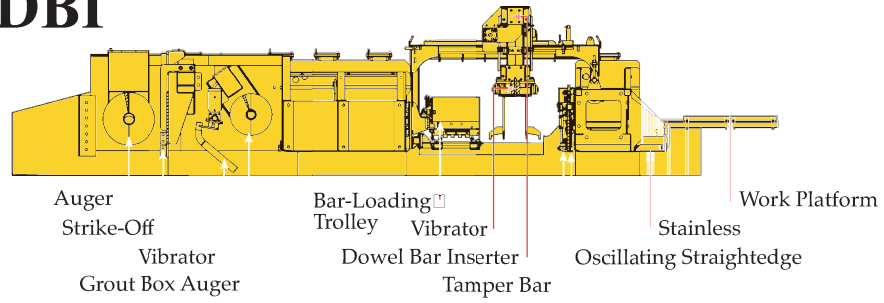
The New Generation In-The-Pan Dowel Bar Inserter (IDBI) is far superior to others on the market for accuracy in bar placement location, productivity and meeting rideability specifications.

For over two decades, we have sent out field representatives and engineering and research teams to the job sites to study our dowel bar insertion process and make improvements to assure our system continues to be the most advanced and operator-friendly dowel placement method in the industry. Inspectors and civil engineers expect accuracy in the bar location in the slab and contractors wanted the process incorporated in the paver without huge transport and setup demands.

The IDBI does this. The New Generation IDBI system fits within the length of a standard paver and does not require the massive rear extensions to the frame of the paver that other DBI systems demand. Longer IDBI framework is available for 24 in. (610 mm) long dowel bars while using a rear pan-mounted tie bar inserter.

The insertion forks on the new IDBI have been designed to provide the industry standard in bar placement accuracy. The fork design also reduces the amount of scarring on insertion and vibration consolidates and closes material around the inserted bars. A tamper bar, unique oscillating straightedge, paving pan and stainless repair the scarring in the slab.

The computer control system GOMACO has developed for the IDBI manages all the systems in an easy to understand display. The computer controls the



timing and operations of the IDBI functions, including sending the trolley, positioning the IDBI in standby, and activating the IDBI system for bar insertion.

Presetting and adjusting joint spacing for IDBI activation is easy to understand and simple to program. Bar inserters for longitudinal joints can be programmed and controlled through this same system. The operator has to know exactly where the IDBI is during the paving process and the touch screen for the IDBI menu was designed with that in mind. A handheld, remote touch-screen with a centrally mounted computer is available. Performing self-diagnostics and all programming is a simple task on the touch-screen system.

GOMACO has designed special software to allow smooth transitions from crown to flat slope and vice versa. The Power Transition Adjuster (PTA) in the front pan, the IDBI and the finishing pan are all synchronized to make the necessary adjustments as they reach specific stations in the transition.

Another feature with the IDBI system includes the telescoping aluminum rear work platform.

GOMACO Corporation holds domestic patents on the bar-loading trolley, computerization program, and the In-The-Pan DBI, with other patents pending.

GOMACO has proven its commitment to the automatic insertion of dowel bars through our years of testing and research. That is why GOMACO is the leader with the IDBI system and we will continue to bring our customers the best innovations in concrete construction equipment.



On this mainline paving project, the GOMACO GP-4000 four-track, equipped with the exclusive IDBI system, is slipforming 38.5 ft. (11.73 m) wide passes. An optional power transition adjuster on the outside mold mount can raise and lower the mold. This allows transitioning of the outside edge of the slab when paving an integral shoulder.

EXCLUSIVE IDBI SYSTEM



Proven and tested throughout the world, the exclusive IDBI system provides superior on-the-go dowel bar placement accuracy on this mainline paving project in Villa Mercedes, Argentina. This four-track GHP-2800, with the patented IDBI system, provides high-production and rideability results. The GOMACO T/C-400 follows the paver and provides texturing and curing to the slab.

GOMACO's patented In-The-Pan Dowel Bar Inserter (IDBI) system has a universal design, allowing it to be used on variable width paving operations.

Whether it's mid-range or mainline slipforming, the IDBI has provided proven results with on-the-go accuracy for the placement of dowel bars and maintaining rideability in the paving process. This unique IDBI system is available on the GOMACO GHP-2800 and GP-4000 pavers.

The paving operation, bar insertion and finishing operations are all combined into one compact unit.

Only slight modifications are required for the GOMACO IDBI system to work on other paver models. Features were designed to accommodate the IDBI attachment to the GHP-2800 two-track and four-track paver with a new mounting system and large pumps for the grout box augers and tamper bars.

When the GHP-2800 and the GP-4000 pavers are slipforming at a single-lane width, the IDBI is run off the prime mover. When paving dual lanes, the auxiliary engine is added to power the IDBI.



The auxiliary engine is not required for the patented IDBI system on this single-lane project in Michigan. The four-track GHP-2800 slipformed this 12 ft. (3.66 m) wide lane and slab depth of 7.5 in. (191 mm). Paving production with the IDBI averaged 16 ft. (4.88 m) a minute.



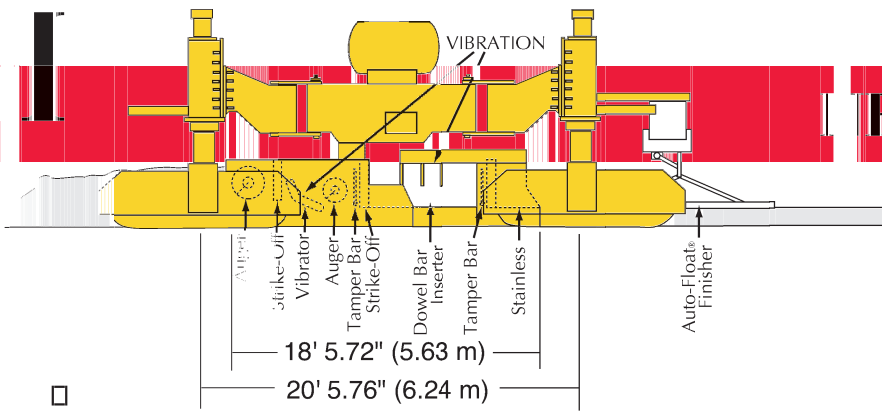
This two-track GP-4000 is equipped with the world's most accurate IDBI system, providing ease and accuracy of dowel bar placement on this highway project in Utah. The GOMACO IDBI system is the only one in the industry that is available for a two-track and four-track paver.

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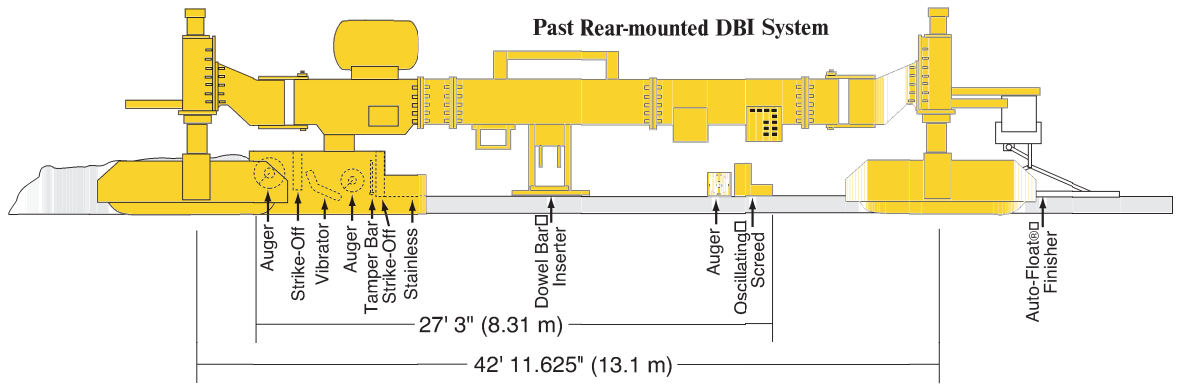
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THE NEW GENERATION IDBI



The New Generation IDBI system fits within the length of a standard paver and does not require the massive rear extensions to the frame of the paver that other DBI systems demand.



MANUAL				MONITOR				ENGLISH			
SPACE 1	SPACE 2	SPACE 3	SPACE 4	PAVER SPEED		DBI FIRE	STANDBY	COUNT DOWN			
15.00	12.00	15.00	12.00	FT/MIN	M/MIN	TBI FIRE		12.75			
5.2		1.6		DBI HOLD		PROXY SIGNAL		MENU			
TBI PLANTS	DBI PLANTS	TOTAL FEET									
64	16	73.45									
STATUS : NORMAL											

OPTIONS					
SPRAYBAR OFF	SPRAYBAR ON SECONDS	SPRAYBAR OFF			
	1	2 FEET			
DBI FIRE BY COUNTER	CART DELAY	CLEAR MONITOR TOTALS			
	1.5				
PRESS TO HOLD DBI	VIB. DELAY	PROXY OFFSET			
	2.0	12.0 INCHES			
PAINT MARK OFF	PAINT MARKER DURATION	MENU			
	1				

STATUS					
HORIZ POS	STANDBY				VERT POS
←	→				↑
↓	HORIZ FORWARD HOLD				↓
CYLINDERS	DRIVE BACK	DRIVE UP	DRIVE FWD	MENU	
		DRIVE DOWN			

IDBI "Touch-Screen" Controls

The New Generation IDBI has operator-friendly, "touch-screen" controls and programming that give the operator quick and easy control over the entire operation. These three screens are samples of some of the touch screens. The computer is responsible for controlling the timing and operation of the IDBI functions, including the sending of the trolley, positioning the IDBI in standby, and activating the IDBI system for bar insertion. At the touch of a fingertip, the operator can see exactly where the IDBI currently is in its cycle. The unique GOMACO IDBI "touch-screen" control also features the ability to change from English to another language.



This GP-4000 four-track slipform paver, equipped with the GOMACO patented In-The-Pan Dowel Bar Inserter (IDBI) system, meets all specification requirements on the Sky Harbor Airport in Phoenix, Arizona. High production on runways and aprons is achieved while slipforming paving depths up to 19 in. (483 mm) and 50 ft. (15.24 m) wide.

New Generation IDBI Provides Versatility



Versatility on the New Generation IDBI provides adjustable bar-loading trays and insertion forks that allow the adjustment of center-to-center bar spacing to meet specific project specifications. The bar-holding tray keeps the bar in a parallel position until the patented insertion forks are cycled to insert the bars into the slab.

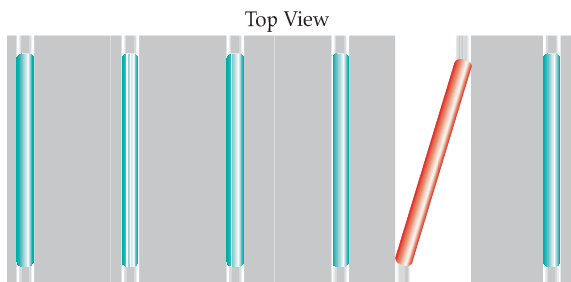
The new fork-holding beam is designed to allow the fork-holding boxes to be positioned anywhere along the beam. This feature provides the ability to accurately align the forks with the bar-holding trays for any changes in bar spacing.

Hydraulic cylinders on the fork-holding beam have the new, exclusive, heavy-duty “smart” cylinders. These unique cylinders have the structural integrity to support the fork beam of the IDBI, and incorporates the GOMACO “smart” cylinder technology. The cylinders lower the beam and forks to the position needed for accurate bar insertion depth.

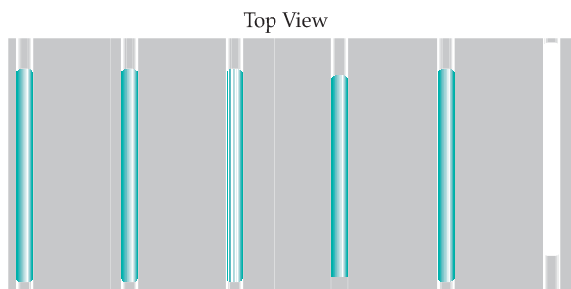
The new polyurethane bar retainer is durable, long-lasting and is bolted directly to the bar-holding tray.



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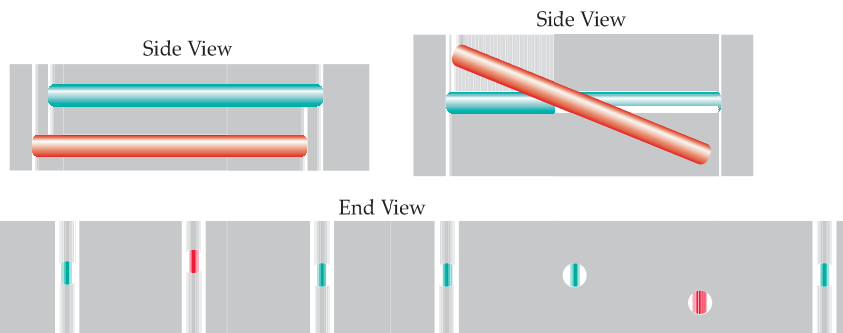


The GOMACO system does not drop the bars onto the concrete and then push the bars into the material. The IDBI bar-holding tray holds the parallel position of the bars and the fork design holds that position as the bars are inserted into the concrete slab.

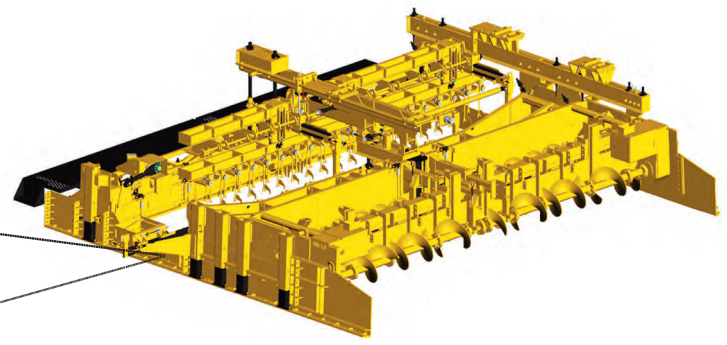
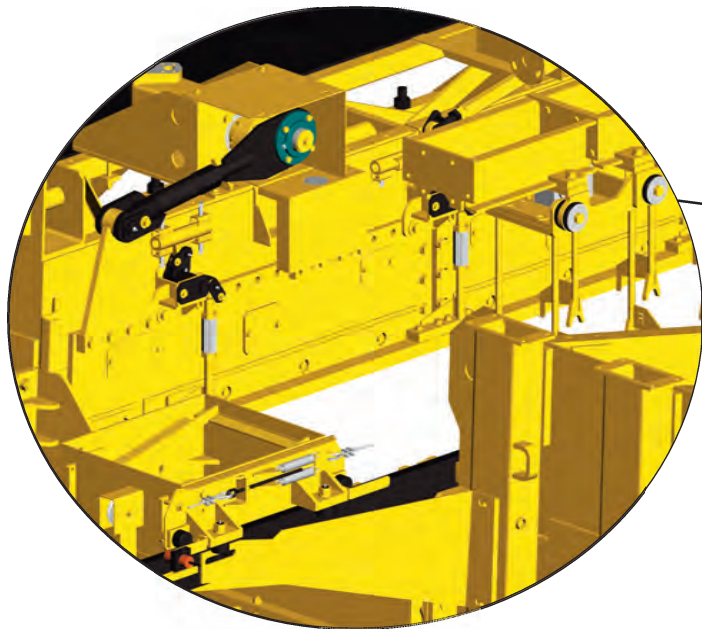


On-the-go bar placement is necessary to maintain rideability in the paving process. The IDBI system travels with the paver during the insertion process. One of the purposes of the unique heel and toe design of the forks is to hold the position as the bars are placed transversely across the width of the slab.

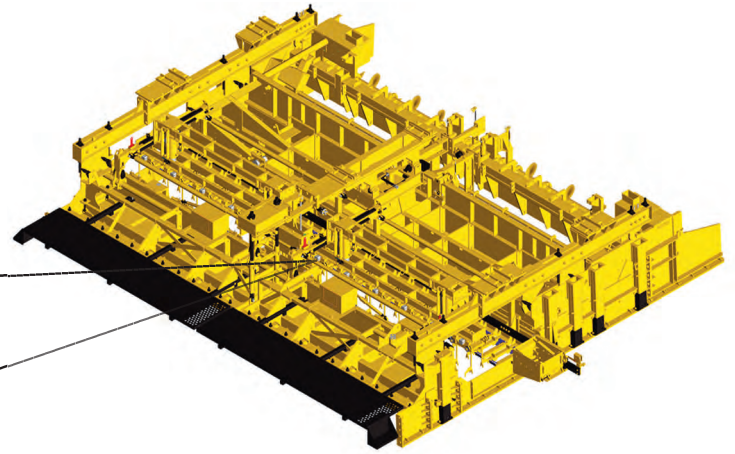
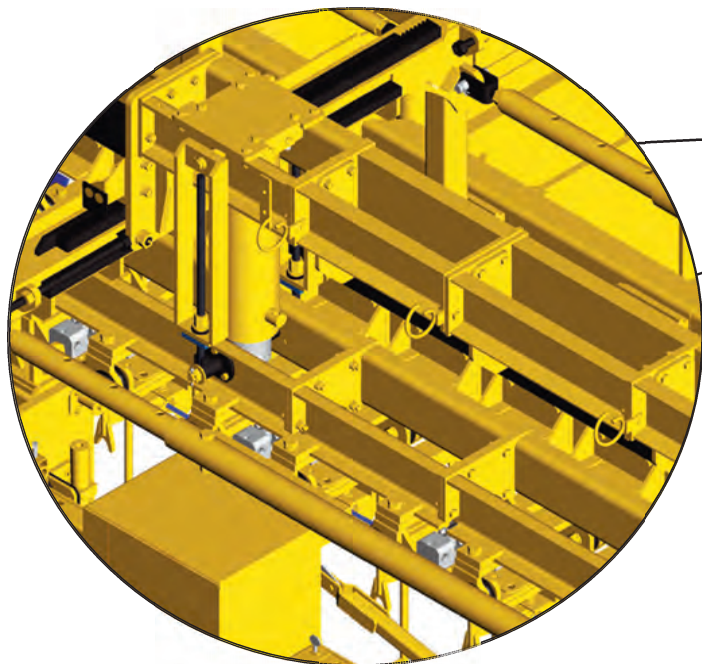
WARNING! What Can Lie Beneath The Surface With Unproven DBI Systems



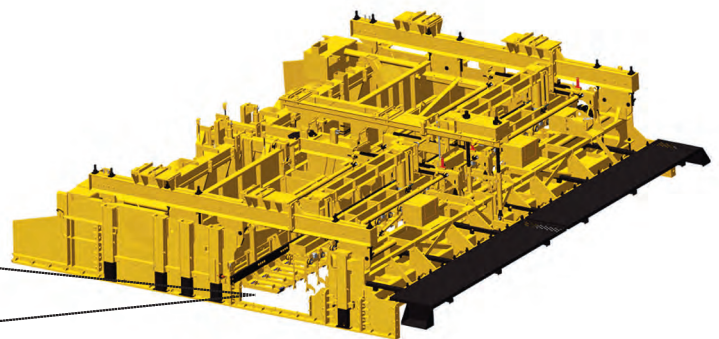
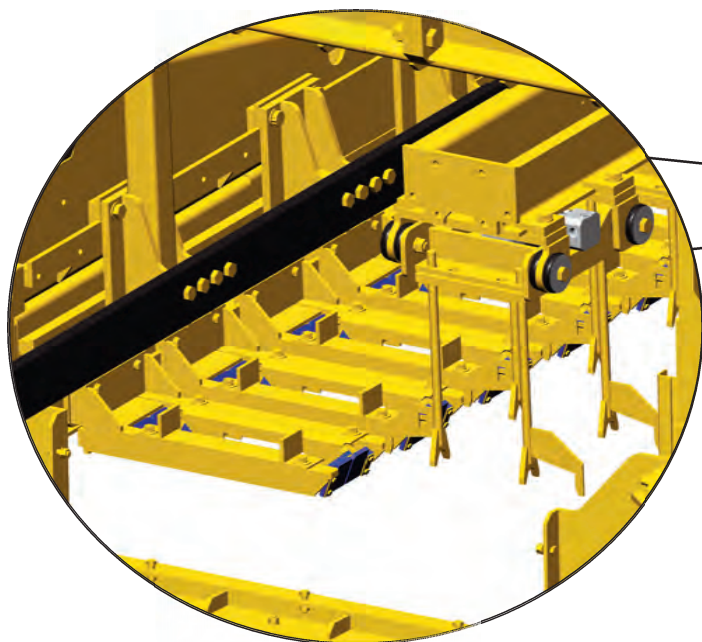
The GOMACO patented IDBI system provides consistent depth of each bar across the slab to form a straight line in the end view of the pavement profile. There are many considerations in the dowel bar insertion process to assure consistent depth placement of each bar including amounts of applied vibration across the system. If there is excessive or insufficient amounts of vibration at critical points on the insertion forks, radical positioning may occur. This can come from under-designed or over-designed systems. Our research and development teams continue to study mix designs and on-the-job results to fine tune the vibratory aspect of the system. GOMACO’s exclusive, computer-controlled, “smart” cylinder technology provides the state-of-the-art system to maintain the accountability of the depth of the bars in the slab.



The patented In-The-Pan Dowel Bar Inserter (IDBI) is far superior to others on the market in accuracy of bar placement location, productivity and meeting rideability specifications. The IDBI's finishing process includes a tamper bar, unique oscillating straightedge, paving pan and stainless that follow the bar insertion.



GOMACO's exclusive, computer-controlled, "smart" cylinder technology provides the state-of-the-art system to maintain the accountability of the depth of the bars upon insertion into the slab. The "smart" cylinder technology makes the GOMACO IDBI system the most accurate dowel bar placing system in the world. The new fork-holding beam is designed to allow the fork-holding boxes to be positioned anywhere along the beam. This feature provides the ability to accurately align the forks with the bar-holding trays for any changes in bar spacing.



The patented insertion forks are designed to provide the industry standard in bar placement accuracy. The forks reduce the amount of scarring on insertion and vibration enhances consolidation of material around the bars. The New Generation IDBI has adjustable bar-loading trays and insertion forks that allow the adjustment of center-to-center bar spacing to meet specific project specifications. The bar-loading trays will accommodate dowel bars ranging in size from 1 in. (25 mm) to 1.5 in. (38 mm) in diameter and from 18 in. (457 mm) to 20 in. (508 mm) in length. If job specifications require a 20 in. (508 mm) dowel bar length, extended framework will need to be added or you can remove the tie bar inserter.

THE WORLDWIDE AUTHORITY IN BAR PLACEMENT



GOMACO has taken its years of experience working with different methods, mixes and job-site conditions to design the ultimate tool for concrete paving with dowel bar insertion, a machine that will meet the strictest specifications. Several actual pours simulating job-site conditions were performed at the Ida Grove, Iowa, USA, test site. Bar positioning was continually checked and verified during the bar placement process. Our research and development teams have literally spent years perfecting the system. Core samples from a project in Nevada have proven the reliability, exacting bar placement and superior consolidation of concrete around the inserted bars. The IDBI has been used on several major projects, including mainline paving, railroad yards, and airport runways. Service is available through our distributors and our own manufacturing support for setup and training.



On a project in Phoenix, Arizona, someone accidentally drove through the new slab and the damaged section had to be saw cut and removed. The remaining, undamaged slab revealed that the bars were at the proper slab depth for bar placement accuracy. The cross section also showed excellent consolidation of the concrete around the inserted bars and through the slab depth.



Cover Photo: HW-070203#19A

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. OR FOREIGN PATENTS: 3,299,786; 3,450,011; 3,541,931; 3,779,661; 3,959,977; 4,073,592; 4,136,993; 4,226,917; 4,343,513; 4,360,293; D-266,850; 853,607; 861,819; 954,773; 406,787; 1,147,187; 133,220; D-512,249; 4,717,282; 4,457,645; C-1,110,893; C-1,191,044; 12,890-1-0010; 5,061,115; 7,509,187; 7,509,615; 5,102,267; 5,101,360; 4,954,019; 4,984,639; 5,190,397; 5,209,602; 0,518,535; 2,067,126; 494,257; 69,031,836.7-08; 2,069,516; 5,924,817; 2,833,084 AND PATENTS PENDING.

GOMACO Corporation reserves the right to make improvements in design, material, and/or changes in specifications at any time without notice and without incurring any obligation related to such changes. Performance data is based on averages and may vary from machine to machine.

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The Worldwide Leader in Concrete Paving Technology

Worldwide Headquarters
 GOMACO Corporation
 GOMACO International
 119 East Highway 175, PO Box 151
 Ida Grove, IA USA 51445
 Ph: 712-364-3347 Fax: 712.364.3986
 International Fax: 712.364.4717
 E-mail: info@gomaco.com

GOMACO International Ltd.
 769 Buckingham Avenue
 Trading Estate, Slough
 SL1 4NL Berkshire, England
 Ph: 44-1753-821926
 Fax: 44.1753.693093
 E-mail: pavinguk@gomaco.com

GOMACO International Singapore
 #1 Jalan Mat Jambol
 Singapore 119497
 Ph: 65-6376-0803
 Fax: 65.6376.0804
 E-mail: tnash@pacific.net.sg

GOMACO International Australia
 19 Eustace Street
 Aspley, 4034
 Brisbane, Queensland
 Australia
 Ph: 61-07-3630-5000
 Fax: 61.07.3630.5888
 E-mail: gomaco@bigpond.com

You can always find us at <http://www.gomaco.com>