

Titus+Lama+Huwil
Product brochure

Titus+ sonic[®]

WoodWelding[®] Technology

Ultrasound Fastening



Important information

Intellectual property

Titus International reserves all intellectual property rights worldwide for all information contained in this brochure.

Responsibility

It is the responsibility of the user to ensure the fitness of hardware for the intended purpose. We recommend assessment by appropriate testing in the application and by technical enquiry to our representatives.

Technical information

While every effort has been made in the production of this brochure to ensure the accuracy of information, our products are continually being revised and users should confirm the up to date specification before ordering.

*Non preferred articles

All 'Item numbers' in the brochure marked with * are for non preferred non stock items available 'upon special request'. For such products, extended delivery times may apply.

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The fastening revolution

Technology

Titusonic®

is a part of the Titus Group which has been involved in design and manufacture of connectors for the furniture market for over 30 years. Titusonic® products are based on the revolutionary WoodWelding® fastening process for ultrasonically bonding wood materials without the use of adhesives, providing

**exceptional strength
speed of fastening**

The advanced process can be adapted into many product categories with the first two industrial applications in wood technology being Titusonic® cabinet assembly (Sonic Rivet) and Titusonic® Hollow Core Board (HCB) fastening, jointly developed with and licensed from WoodWelding SA, Switzerland.

Ultrasonic process

When using the WoodWelding® process ultrasonic energy of approximately 20,000 cycles per second is applied. Adding pressure to the process, the liquified plastic connector element is forced into the wood utilising the natural porosity of most wood based materials such as chipboard, MDF, HDF and plywood. Most solid woods can also be used with this process, which takes only seconds to complete.

Traditionally wood products are joined together using mechanical fasteners such as wooden dowels and glue, screws or other connecting fittings. However these methods produce their own problems, which are largely resolved by the use of WoodWelding® technology. It takes fastening of wood products into the 21st century with a process which can be likened to welding of steel in car manufacture and shipbuilding.

Titusonic® cabinet assembly

Ultrasonic fastening

Titusonic® Sonic Rivet

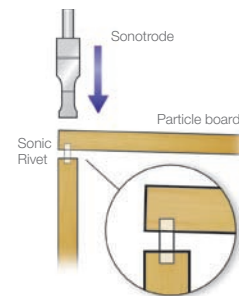


The Titusonic® Sonic Rivet replaces the commonly used wooden dowel and glue in the construction of cabinets and other furniture products.

Assembly

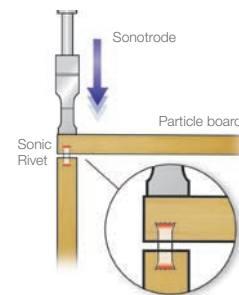
The WoodWelding® process uses a plastic dowel – Titusonic® Sonic Rivet, which is simply inserted in one side (no glue) and the panels pre-assembled and then placed in the press.

Pre-assemble the cabinet and place it into the press



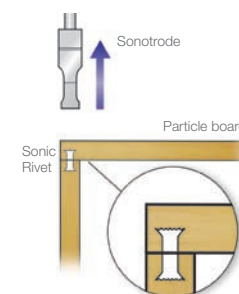
Pressure is applied to the joint whilst the ultrasonic energy is activated. The process time is about 1-2 seconds during which time the plastic dowel melts only at the ends and the plastic integrates with the chips in the particle board so that it bonds the boards together.

Ultrasonic energy bonds the boards together

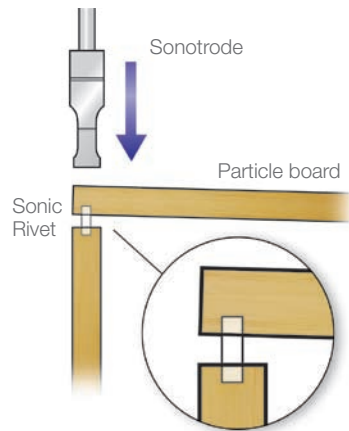
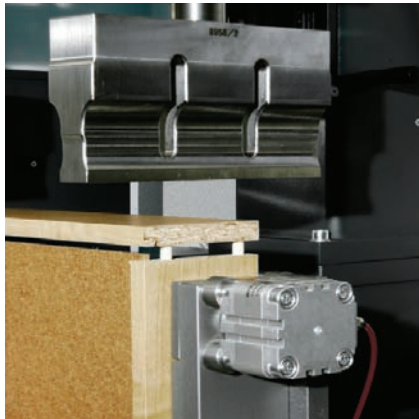
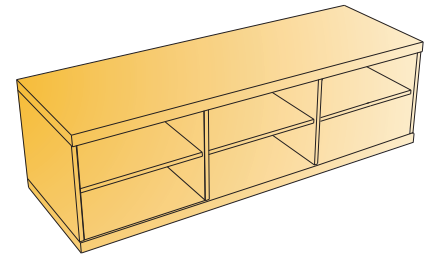


There is then a very short dwell time of about 2 seconds when the dowel shrinks in length so as to provide an additional clamping force (pulling together of the joint). The cabinet can then exit the press and is at full strength so it can be handled in a normal way and indeed instantly packed and despatched to the customer.

After 2 seconds of dwell time the cabinet can exit the press



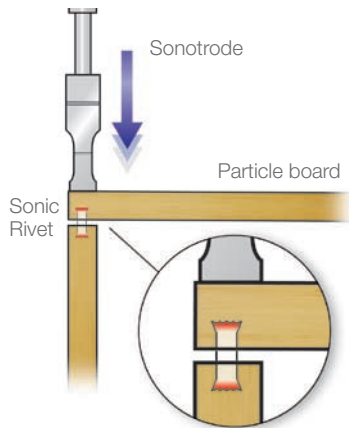
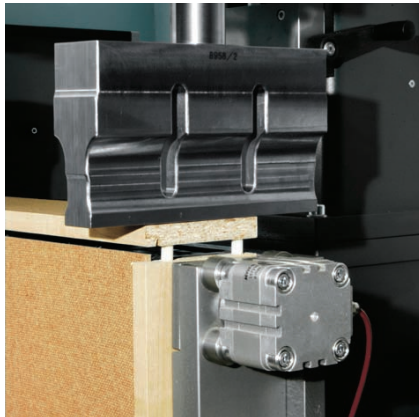
Advantage over traditional assembly



The Titusonic® Sonic Rivet or “Hidden Dowel” has four key advantages over traditional methods of cabinet assembly. It is

Quicker

The complete cycle time through a production press can be improved by between 3 and 6 times. The dwell time in a traditional press can be between 20 and 60 seconds waiting for the glue to go off sufficiently. The dwell time for the new Titusonic® dowel is about 2 seconds. The difference is made up of delivery and exit times from the press which are not altered by this process.

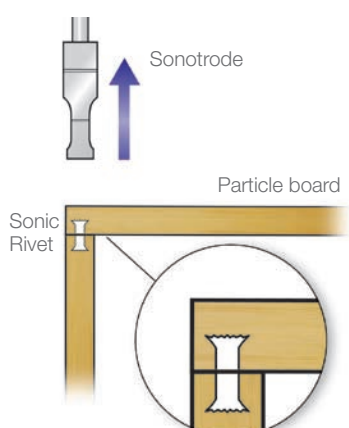
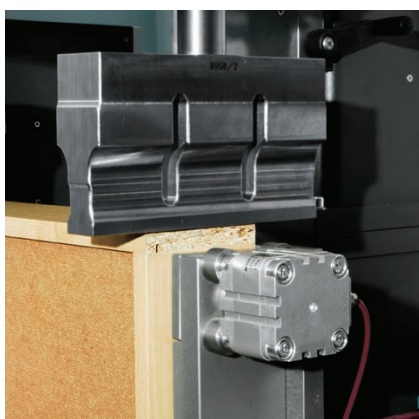


Stronger

The product is approximately 30% stronger than its traditional wooden dowel rival.

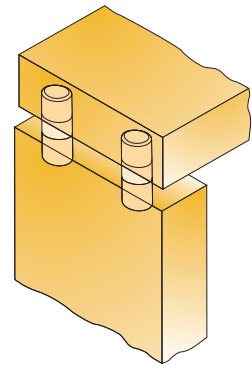
Cleaner

No more glue! This simplifies machinery and eliminates clean down at end of shift. Much furniture needs cleaning of glue which has spread.



Repeatable / Measurable

The new product is an engineered process. The old product is wood and glue which varies according to a number of factors. The new product is more reliable, repeatable, with performance that is more recordable, measurable and traceable for quality purposes.



Titusonic®
Sonic Rivet



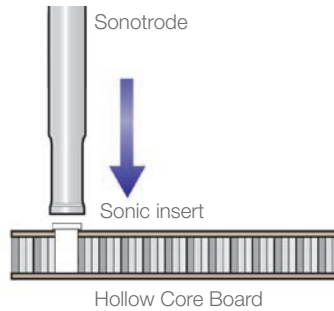
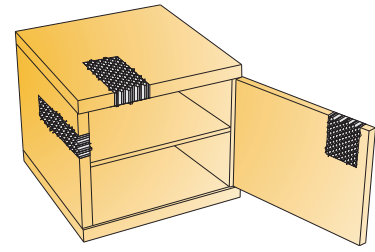
Made of plastic

Dimensions (mm)	Item number
Ø6 x 30	SR 0716
Ø6 x 40	SR 0726
Ø8 x 30	SR 0712
Ø8 x 40	SR 0725

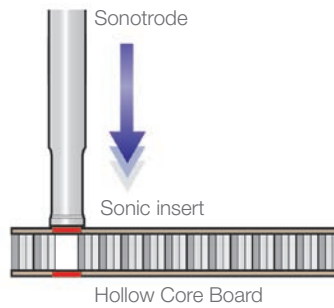
Ligmatech MDE120 cabinet press
with ultrasonics



Titusonic® Hollow Core Board (HCB) fastening



Hollow core boards (HCB) have slowly been introduced into furniture over the last 15 years and a few leading manufacturers have invested heavily in the production and use of this new type of light weight panel. These first HCB production lines demand the use of a frame to support and separate the thin panel surfaces and to enable edge-banding to be applied with conventional machines. These frames also enable the use of conventional hardware such as assembly fittings, hinges and drawer runners which can be attached to them. However the frames are expensive to fabricate and heavy, so defeat the prime benefit of HCB which is to provide a panel which is as light as possible.

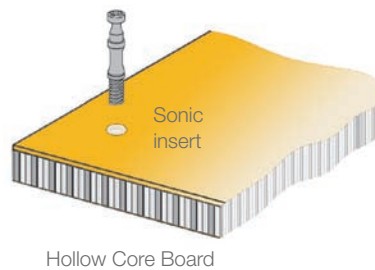
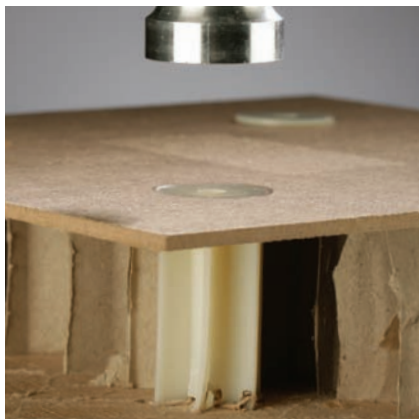


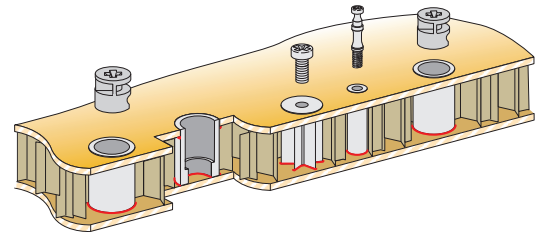
Frameless HCB

The two main problems in the use of frameless HCB are

how to apply an edge how to assemble the boards and fasten fittings into them

Titusonic® is offering a revolutionary fastening solution – WoodWelding® Technology. The process focuses the ultrasonic energy onto specific locations on a plastic insert or fitting so that with applied pressure it melts into the porous surfaces of the HCB, at both the top and bottom of a blind hole (see illustration) in about 1 second and then solidifies in 1-2 seconds more. The process is fast, consistently gives strong results and eliminates the need for glue. This provides the ultimate solution as Titusonic® inserts can be placed in random positions on a HCB panel providing the flexibility that furniture designers require.



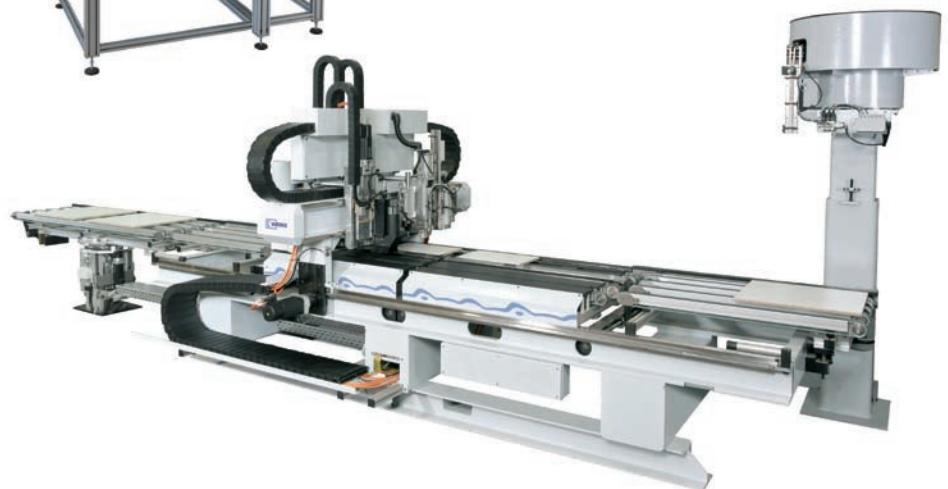


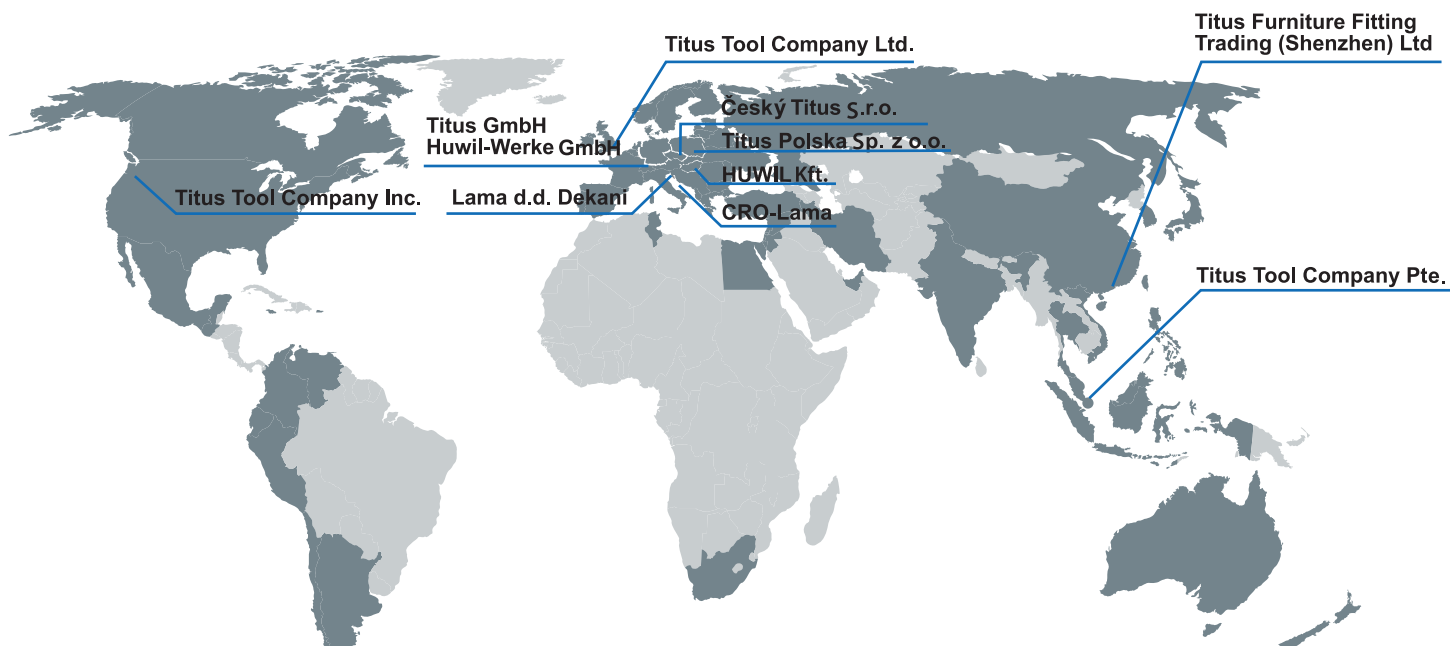
		Dimensions (mm)	Item number
Sonic Insert Dowel mount		Ø10 x 38	SI 0607
Sonic Insert Cam house		Ø18 x 38	SI 0608
Sonic Insert Round		Ø25 x 19 x M5	SI 0616
		Ø25 x 22 x M5	SI 0611
		Ø25 x 30 x M5	SI 0610
		Ø25 x 50 x M6	SI 0602
		Ø40 x 50 x M6	SI 0618
		Ø40 x 50 x M8	SI 0621
Sonic Insert Spoked		Ø25 x 30 x M5	SI 0609
		Ø25 x 50 x M6	SI 0603
		Ø40 x 50 x M6	SI 0619
		Ø40 x 50 x M8	SI 0622

Gateway 1000/2000
Titusonic® table press
for small volume application



Weeke ABL210 stop-go line
for drilling and insertion of
Titusonic® HCB inserts





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