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## News

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## The Challenges of the Research & Development Division

**Mr. Seizo Itaya - Executive Director**

After ratification of the Kyoto Protocol in some countries, every enterprise is now expected to take action against global warming in advance. Since the emission of carbon dioxide is known as the main reason for environmental



change, **KANEFUSA** has been trying to develop environment-friendly products, which have less effect on the environment in their production, usage and final disposal.



“**αMT-coating**”, released in 1987, adopted ceramic-coating technology on HSS and TC substrate material and extends cutting life by several times.

Although coating technology is widely spread in metalworking tools, **KANEFUSA** is the pioneer of this technology for woodworking tools. One-side coating on the rake or clearance side of the tool makes a long lasting and sharp edge. In addition, it reduces the consumption of power to cut. The one-side coating technology also makes re-sharpening possible, which is impossible for full-coated tools. As a result, this technology reduces product disposal to a great extent. It is good for both economical and environmental aspects.

**KANEFUSA** is also the innovator of the TA (single use) cold sawblade, which was unveiled in 1985 and is now acknowledged by worldwide users for its performance. Re-sharpening on cold sawblades causes technical difficulties because of the delicately finished surface and three-dimensional design of the rake side. Therefore, the concept of product development was focused on running costs and constant cutting life.

Since this concept was acknowledged by the Japanese automotive industry's strict criteria for cost and quality, the demand for the **KANEFUSA**



TA cold sawblade has been increasing not only in Japan, but also in Europe, America and South East Asia.

“**Ferro Max Speed**”, unveiled in EMO Hanover 2007, enables high speed sawing by new coating technology and has gained reputation in the market. We



are very proud of the achievements we made with this new product. R&D of **KANEFUSA** makes improvements daily on the coating technology for enhancing cutting performance and cutting life.

**KANEFUSA** celebrates its 60<sup>th</sup> jubilee this year. All members of R&D Division would like to join with other staff and members of **KANEFUSA** to express our gratitude to our customers. The R&D Division will keep trying to exceed all expectations for innovations.

## ↓ ↓ New Tungsten Carbide Knife for the ENSHIN Planer Head

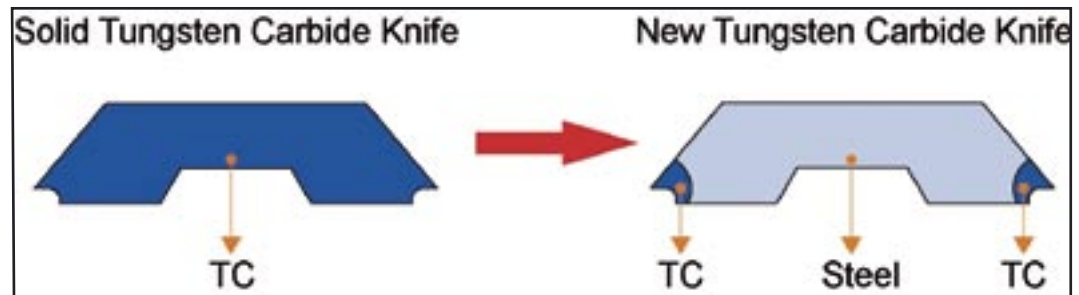
We have extended our planer knife line-up with a new reversible Tungsten Carbide knife for the **ENSHIN** planer head. It was our specific goal to develop a knife with a high value for the user while at the same time to use as little material and energy resources in the manufacturing process as possible. Conventional reversible knives made from **Tungsten Carbide** have a solid structure and are therefore expensive. In addition to the higher price, there are also some technological disadvantages to conventional knives.



1 ENSHIN planer head

Solid **Tungsten Carbide** knives are less shock absorbent and impact resistant and break into pieces more easily. The **Tungsten Carbide** grade is tougher which leads to a reduction of

and development, **Kanefusa** has found a way to do this and manufactures equipment that allows us to manufacture knives within the tightest tolerances.



2 Concept of new Tungsten Carbide Knife

the abrasion resistance and shorter life. The new knives from **Kanefusa** have a **Tungsten Carbide cutting edge**, which is not brazed, but fused with a very high joint strength to a substrate material. The substrate material is shock-absorbing steel.

Field tests in Japan have proved the superior performance of the new knives. When planing laminated softwood, they outlasted conventional Solid **Tungsten Carbide** knives by 1.5 times on average. The knives are suitable for cutting hard woods and tropical timber. By the middle of the year they will be available in lengths of up to 160 mm and by the end of the year lengths of up to 310 mm.

The **Tungsten Carbide** grade is optimized towards higher abrasion resistance and therefore outlasts conventional solid **Tungsten Carbide** knives. Furthermore, the knives feature chip breakers and a polished cutting edge for a fine finish even when planing against the fiber. However, the true art in making such a knife is to keep it straight and even. After extensive research



3 New ENSHIN Tungsten Carbide Knife

User	Material	Feed Speed [m/min.]	Stock Removal [mm]	Result
A	Laminated japanese cedar (sugi)	13	1	1.5 times longer life (1 month before, now 1.5 month)
B	Laminated radiata pine	12	3.5	1.5 times longer life (1 day before, now 1.5 days)
C	Plastic injected birch for handrails	7.5	0.7	1.5 times longer life (1000 m before, now 1500 m)
D	Laminated yellow cedar	15	2	1.5 times longer life (2 weeks before, now 3 weeks)
E	Laminated larch for structural purpose	10	1	2.0 times longer life (8.500 m before, now 17.000 m)
Tool: ENSHIN planer head, D = 125 mm, Z = 4				
Machine: Moulder, n = 6000 1/min.				

4 Test results in Japan

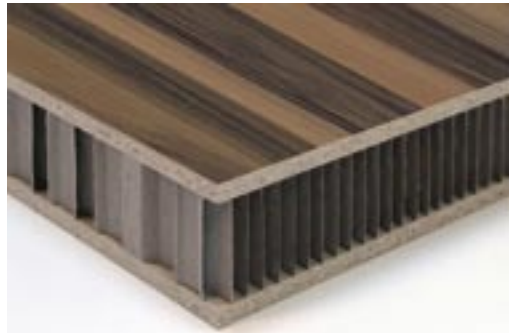
## ↓ ↓ Eurolight Lightweight Boards

Guest Article

Company Fritz Egger GmbH & Co



**EGGER**, the wood-based panels manufacturer, has commenced the production of the first Eurolight lightweight building boards earlier than scheduled at the end of August 2007. The plant's daily capacity for the production of large-scale **lightweight building boards** (5610 x 2070 mm) is more than 1000 m<sup>3</sup>. **Frameless boards** for further processing can be produced in thicknesses of between 15 and 100 mm. Michael Egger talks about a new era in the market for wood-based products: "We have clearly established ourselves as a top innovator. **Eurolight** is a major boost for the market, and it will have a profound impact on the world of furniture construction in the years to come." Not only because of the rising prices of energy and raw materials, this lightweight board will meet the needs of furniture manufacturers, logistics partners and consumers alike.



**Eurolight** is a sandwich construction with outer layers of very rigid thin chipboard, or MDF board, and a middle layer of cardboard honeycomb. Eurolight can be used for shop and exhibition fittings, internal doors, tables, shelves, variable office furnishings, contemporary living concepts and, last but not least, kitchens and worktops. Eurolight will be available as a raw board to which the furniture industry can then add the necessary finish – laminate, film surface, lacquer or veneer. But **EGGER** will also offer **Eurolight** as a completely new product in decor combinations with melamine faced boards with an outer layer thickness of just 4 mm. This gives the furniture industry maximum design flexibility. **Eurolight** is perfect for use in decor and texture combinations with the whole

of the melamine faced Eurodekor range; there are laminates as well as melamine and security edgings available to match.

The new production plant in St. Johann allows frames to be inserted into the boards, thereby making traditional furniture designs, fitting attachments and joining solutions possible. In the first production step, a full-size board of dimensions 5610 x 2070 mm and a thickness of between 15 and 100 mm will be produced. The guaranteed plant capacity of 30,000 m<sup>2</sup> per day means that every day approx. 1000 m<sup>3</sup> of 30 mm board can be produced. In the second production step, frame materials are inserted using a postframe process: depending on how the board is to be later processed and used, **EGGER** will use standard frame thicknesses of either 10, 38 or 65 mm.

All conventional types of decor edge can be easily fitted to the 10 mm stabilising edge. If a 38 mm frame is inserted then the boards can also be postformed – up to a board thickness of 80 mm, depending on the profile. The process also allows security edging of the same decor, or contrasting edges, to be applied to the long sides using PU bonding, up to a board thickness of 80 mm. Solutions of this kind involving straight edging are increasingly popular in modern kitchens. **EGGER** sees itself as a partner to the furniture industry in terms of adding value to its products, and thus will also carry out further processing of its lightweight products to produce prefabricated furniture components in milled, drilled or free-formed designs in thicknesses up to 60 mm. The fact that the development of lightweight building boards



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is still in its initial stages is reflected in the efforts that manufacturers of fittings, edge banding, adhesives and machinery are investing in finding the appropriate system solutions. **EGGER** is working closely in this area with the market leaders and top innovators in the industry, striving to

develop complete solutions for the furniture industry in cooperation with its network of partners. Lively debate and knowledge transfer are currently underway. The aim is to be able to introduce frameless lightweight boards as a "standard product" in the furniture industry.

## How Do You Cut Eurolight Panels?

**EUROLIGHT** panels from the company Egger and similar products will surely make their way into the global furniture industry. Its structure with a light core and a thin sheet of particleboard or MDF on the top and bottom may require new cutting solutions.

To find out more about the cutting properties of these panels, as a first step, **Kanefusa** has investigated the saw-ability of **EUROLIGHT** panels on an Altendorf F45 table saw with various Tungsten Carbide tipped saw blades. It is important to use an aggressive tooth shape to smoothly cut the cardboard core.

For our test we selected three different standard saw blades.

1. 300x3.2x2.2x30 BC 96 teeth,
2. 305x3.0x2.2x25.4 A15 100 teeth
3. 303x3.2x2.2x30 DH 60 teeth.

The material cut was a **EUROLIGHT** panel 38 mm in thickness and both sides backed with Melamine.

The results showed that all these tooth shapes performed well. The melamine-lamination was cut clean without any tear outs. The honeycomb was not deformed or ripped out, but cut clean. A scoring saw blade can be used without problems and it is advisable to do so. The test was mainly targeted on cut quality and less on cutting life. In a second step, when material is available to run tests on large-scale beam saws, we will further investigate the cutting life of the different tooth shapes since



Sawing on a table saw, v, = handfeed, RPM = 4700 1/min.

saw blades must cut permanently through the glue drops on the inside surface of the particleboard.



Different tooth shapes

View inside the panel

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