

Pre-harnessed energy chains for the woodworking industry

igus at the LIGNA+ 2005 industrial fair in Hanover - trend toward ready-to-connect system solutions - customers, like IMA for example, order directly to the machine

More and more users are relying on the use of pre-harnessed energy chains for the automation of their machines and facilities. Applications include such sectors as assembly and handling engineering, conveying and storing technology, as well as mechanical engineering. At the "LIGNA+ World's Fair for the Forestry and Wood Industries" (May 2nd - May 6th, Hanover) igus has now presented new products all about its ready-to-install flexible energy supply system "ReadyChain" to experts in this industrial sector (Hall 24, Booth C03). Companies, like the woodworking machine manufacturer, IMA Klessmann GmbH - based in the city of Lübbecke in Westphalia, Germany - have ceased to pre-harness such machines on their own. Today, these companies are supplied with complete packages, delivered on time to save storage costs and eliminate the expenditure and effort assembly would usually entail. Readymade flexible energy supply systems are supplied - in the case of "ReadyChain", with a worldwide warranty - in time, direct to the plant to be installed. Completely pre-harnessed flexible energy supply systems have been manufactured at the igus plant in Cologne since 1994.

Flexible energy supply for CNC axes

The BIMA portal series CNC machining centres, which are produced in the production division of IMA Klessmann, are high-performance machines with impressive performance rates and dimensions. There are ninety CNC axes alone in the machine table, tool-changing systems with feed speeds of 100 m/min and milling spindles with 24,000 rpm. The flexible energy supply systems for the series machines' CNC axes are no longer pre-harnessed



Picture PM0505-01: igus GmbH, Cologne

In the field of automation, the trend is toward completely pre-harnessed flexible energy supply systems - as igus reported in May at the LIGNA+ industrial fair in Hanover.

in-house where the machines are produced. Nowadays, such tasks are being handed over increasingly to other suppliers, because of cost issues and innovative system solutions available.

Product range for woodworking technology

When the three, parallel set-up milling and drilling units traverse along the portal, they must not only drag the energy supply system and signal cables for the machine control system link with them. Each unit also requires cooling agents and compressed air for the pneumatic drive units and final control elements; beyond that, the chips are sucked off efficiently during the milling, drilling and

sawing operations. IMA has been collaborating with igus for more than 15 years and uses an impressive number of energy chains. The igus product range of energy chains includes about 40,000 variants. In both closed design (e.g. fold-open energy tubes) and in open versions. The product range has an important advantage for the user, who no longer needs to specify the correct energy chain every time they order - with the exception of basic parameters, such as the available bending radii. The user can make plans on a flexible basis and be sure that the appropriate series chain is always available for the individual application.

Several energy chains installed

At IMA, the entire machine tool is traversable. Each individual vacuum suction unit within the machine is supplied via an energy chain with vacuum pressure, energy, and positioning signals. Since the machining supports can be traversed in several axes, several energy chains were also installed here in each case. The central supply of the traversing parallel machining unit is taken over by a large-sized energy chain, which is placed down in the portal of the machine.

Keeping away fine wood dust

Various igus energy chains are also used for smaller machining centres, such as the BIMA 310, for example. Though not as numerous as on the big portal machines, here, too, there are several axes to be supplied with energy and signals on a flexible basis. A critical issue - primarily encountered in the woodworking industry - is the fine dust that must not be allowed to penetrate the chain links even when the machines are operating in areas with flying chips. The energy chains used possess an enclosed, smooth external contour, which is very important to prevent accumulation of wood dust.

System solution "ReadyChain"

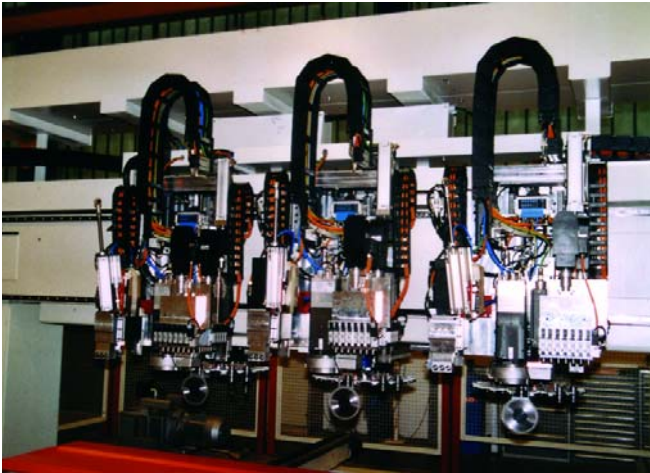
In time and completely pre-harnessed

For IMA, flexibility is also crucial in the production division due to the fact that each machine is individually configured on the basis

of a modular system. A central factor for the productivity is the throughput time: the shorter the time between placing an order and receiving the delivery, the better. Instead of maintaining an expensive depot for energy chains in its production division, IMA now orders ready-to-install, fully equipped flexible energy supply systems to arrive in time and with a predetermined installation period. Detlef Lindenschmidt, IMA Director of Stationary Engineering Design: "We have defined the energy chains needed for all standard series 310 machines. Whenever we build such a machine, we order the complete ready-to-connect system. Igus has agreed to a delivery period of ten working days." The energy chains then arrive with all the connecting elements and can be installed immediately.

Test series for IMA suction beams

In its in-house test laboratory, igus conducts experiments in order to optimise the energy supply of the IMA machines. Wolfgang Bombeck, applications consultant at igus: "For example, we tested the bending radii of our cable extensively so that IMA can use the most compact solution possible for the energy chains selected. We also conducted a series of customer-specific tests in order to select the proper energy supply system for the handling units' suction beams."



Picture PM0505-02: igus GmbH, Cologne

The many different energy chains show exactly how flexible the CNC-controlled tool heads of the IMA machining centre are in the Westphalian city of Lübbecke.



Picture PM0505-05: igus GmbH, Cologne

Michael Blaß, Sales Director Energy Chain Systems Germany at igus: "With the ready-to-install flexible energy supply systems ("ReadyChain") from igus, the user determines the degree of pre-harnessing, the part numbers and the traversing distance. These systems can - according to the respective requirements in each case - include all cables, hoses (pneumatic, hydraulic), plug-in connections, interior divisions, connecting elements, and add-on parts."



Picture PM0505-03: igus GmbH, Cologne

"ReadyChain": completely pre-harnessed flexible energy chain on the BIMA 310



Picture PM0505-04: igus GmbH, Cologne

From right to left: Detlef Lindenschmidt, Director of Stationary Engineering Design at IMA Klessmann GmbH with Mathias Langewisch, Director of Electrical Final Assembly of the CNC Machining Centre, Michael Blaß, igus Sales Director Energy Chain Systems Germany and Wolfgang Bombeck, igus Applications Consultant.

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