Integrated packaging unit

Areas of applications
"Octopus" fully-automatic packaging machine

Festo's task
Supply of a complete system for each Octopus for everything from air preparation and drives through to a high-performance controller such as the CPX-MPA, compact design, flexible handling

Benefits
No need for costly ordering and supply of individual components, modular flexible control technology for easy installation and modification, reliable safe components for higher process reliability, end users benefit from quality components

It's a wrap!

Anaesthetize and grip – fast! The way that an octopus catches its prey has inspired the Finnish packaging machinery manufacturer Haloila. Instead of tentacles, this packaging machine which is known as the "Octopus" surrounds its "prey" with plastic sheeting – but only for its own protection. This process of seamlessly wrapping goods is carried out using Festo pneumatic drives and a modular CPX/MPA terminal.

The “Octopus”, a fully-automatic packaging machine and probably the only bearer of this name to be shy of water, has its home unusually far north. This “Octopus” operates entirely without ink and “has the flexibility to be able to pack almost anything,” says Jari Paavola, the manager of the Haloila factory. No matter whether the goods to hand are pallets with crates of drinks or stacks of cement sacks: Flexible wraps provide protection and security for transportation.

Transparent wraps

In contrast to the case with other packaging machines, with Octopus the pallet itself does not rotate. Rather, a sheeting magazine mounted on a guide ring circles the palleted goods and wraps them seamlessly. Transparent and resilient, the PE sheeting used is between 12 and 30 µm, depending on requirements. The sheeting is stored on rolls in a magazine, which is carefully levelled to allow the sheeting to be unrolled easily. A telescopic frame construction travels down to the pallet from above, thus ensuring that even tall or irregularly-shaped palleted goods are wrapped evenly. Various winding programs can be selected. The Octopus can wrap 50 to 110 pallets an hour in this way.

On a roll

Grippers take up the cut edge of the sheeting, tension this and bring it to the goods to be packed. A special system is used to pre-stretch the resilient sheeting between 0 and 300 % to ensure that this grips the goods better. After the first encirclement of the goods, the sheeting sticks to these and can be released by the grippers. Standard Festo cylinders Type DSN are used to open, turn and close the grippers. Installed in various sizes and in the version without position detection, these reliable drives fully meet the stringent demands of the application with regard to running properties and service life. Air preparation is provided safely and reliably by service units from Festo’s D series – which form part of the complete package, including a controller, for each Octopus.

A little on the top ...

... is what each pallet gets at the start of the packaging process. To ensure full protection, a piece of special wide sheeting is laid on the goods by means of a fully-automatic cover placer. This sheeting is available in two widths as required. The projecting ends of the sheeting are pressed around the goods by compressed air until the first layer of the enveloping stretch sheeting fixes the cover in place and seals it air-tight. The function of the transparent cocoons of sheeting is not only to hold the goods in question together securely on the pallets but also to provide especially sensitive goods such as paper against moisture and the penetration of dirt and dust. In these cases, intermediate layers of sheeting are inserted.

A never-ending flow

To ensure that the supply of resilient protective sheeting never comes to an end, arrangements have been made for automatic replenishment. A roll changing system integrated into the Octo-

Quick change: Controlled by a CPX/MPA, Festo drives provide fully-automatic replacement of an empty sheeting magazine by a full one.

is 0609
DGC rodless drive

is 0610
DNCB standard cylinder

is 0611
CPX electrical terminal

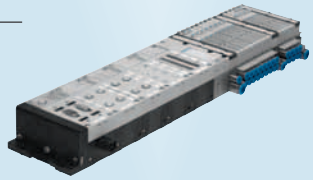
is 0612
MPA valve terminal

on Haloila machine

DGC
rodless drive

DNCB
standard cylinder

CPX/MPA
electrical terminal



pus replaces empty magazines with full ones. This is controlled by a modular CPX electrical terminal, installed directly on the roll changer. This in conjunction with an MPA valve terminal combines electrical and pneumatic components in a single unit. The CPX/MPA is a fieldbus terminal and has a very high level of modularity which allows the easy and rapid replacement of electronic modules. The complete pneumatic control chain is controlled by I/O modules and valves connected to a fieldbus interface. The roll changer has two magazine holders opposite each other and can be turned through 180°.

Once equipped with a full magazine, the changer system advances to the guide ring. Two rodless cylinders Type DGC press the magazine out of its holder with a vertical motion. A pair of DNCB drives simultaneously position the full sheet magazine on the guide ring and transfer out the empty magazine at the rear. The Octopus is now ready to continue with its packaging work.

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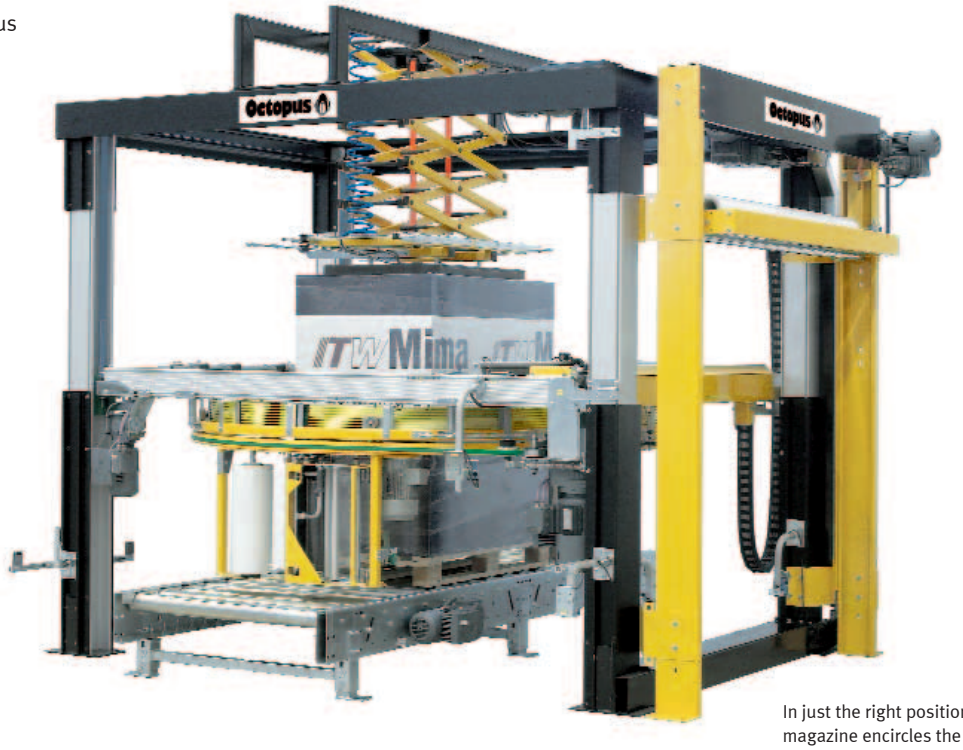

In just the right position: The sheeting magazine encircles the pallet at lightning speed to provide a protective sheath.