

interpack provides fertile ground for changes to palletiser standard

Inevitably almost as soon a standard is published it starts to become outdated. Consequently all CEN standards are reviewed after they have been published for five years or so to see if they need revision.

So it was good news for the working group charged with the revision of the palletiser and depalletiser safety standard (EN 415-4: 1998) that it fell in an interpack year.

In the case of this safety standard not only have a substantial number of references changed, technology has also altered quite significantly. For example back in the mid-nineties very few palletisers and depalletisers incorporated industrial robots and these were excluded from the standard and users were directed to the general standard on industrial robots ISO 773.

Today the decision to exclude machines incorporating industrial robots seems rather

odd, as a substantial number of machines are either based on one industrial robot or incorporate one or more industrial robots to carry out palletising or depalletising functions.

On the up

The results of the visit to interpack were very interesting, because while the increased use of industrial robots was very obvious, it was still possible to see the classic types of palletiser:

- low-level palletisers with a moveable transfer plate to take layers of products to the pallet;
- high-level palletisers with fixed position layer forming mechanisms positioned above the pallet;
- simple pick and place palletisers with a pack holding head supported from a gantry;
- column pick and place palletisers with the pack holding head supported on a rotatable column. The classic types of depalletiser were also evident - pick and place depalletisers with the layer of products picked up from the pallet and transferred to an accumulation table;
- low-level sweep-off depalletisers where the layer is transferred from the pallet onto a transfer plate and then lowered to an accumulation table;
- high level sweep-off depalletisers where the pallet is lifted up for each layer to be swept off a fixed high-level.

Innovation

The committee also saw several innovative uses of classic palletiser and depalletiser mechanisms to produce radically new palletising and depalletising systems. For



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example several manufacturers have taken the roller curtain mechanism, typically found on high-level palletisers, and attached it to both industrial robots and column pick and place palletisers. In addition several manufacturers are now using industrial robots and pick and place mechanisms to form products into layer patterns.

So the challenge for the working group will be to redraft the standard so that not only will it be useful for manufacturers and users of classic machine types, but also for manufacturers and users of the new generation of innovative machine designs.

When EN 415-4 was first written, it was assumed that specific issues for industrial robots would be answered by ISO 773. For example:

- What happens when the power fails and the robot drops its load?
- Do you allow someone to enter the danger zone to 'teach' the robot?
- Does the guarding have to be set 500mm outside the furthest reach of the robot?
- Does the robot head need to incorporate a collision detection device?

However industrial robots are used to perform so many tasks that the general standard cannot be that specific so the committee



Newtec launched its new high speed Case Palletiser the PAL-PACK 4900 at interpack full story page 48

decided that it would deal with all these issues in detail in the new version of EN 415-4.

Another issue that will be looked at in detail is the use and positioning of light curtains and in particular the muting of light curtains. These issues have been brought into sharp focus by two deaths caused by palletisers in the UK in recent years.

In one case the customer had asked the palletiser manufacturer to provide a switch to disable the light curtain and guards and needless to say the death occurred when someone entered the machine while the light curtain was disabled. The second case was similar but in this instance the light curtain had been linked out by maintenance staff because it was faulty.

Safety

The current version of EN 415-4 only deals with stand alone palletisers and depalletisers and does not look at the additional safety issues that can arise when palletisers are linked to extensive product or pallet conveying systems or when several palletisers are combined in a palletising system.

Where the products are conveyed to the palletisers from a high level there are frequent safety issues if no fixed means of access is provided to enable faulty products to be removed from the conveyors. People can fall off temporary ladders and steps, and when standing on steps they may be able to reach danger zones which would have been well out of reach if they were standing on the floor.

Bringing this into sharp perspective, a recent analysis by the HSE found that ladders accounted for 40 per cent of accidents and that fatalities can occur falling from heights of less than 2 metres.

The revised standard will make it clear that the palletising system integrator is responsible for identifying hazards and

providing suitable means of access and safe guarding to reduce these risks.

When palletising systems combine more than one palletiser or transfer car system hazards may arise if people move from one isolated danger zone to another active danger zone. The new standard will give advice on methods to overcome this problem.

Clarity

The standards committee will also try to provide clarity on situations when palletisers and depalletisers should be isolated and locked off before someone enters and when it is acceptable to rely on the machine's interlinking system to provide safety.

This issue creates much debate among machine users and manufacturers.

The committee's current thinking is that for "unplanned" operator interventions to remove damaged products or pallets, the operator should be able to rely on the interlocking system and if there is a risk that the operator may not be seen when he is in the machine that a captive key or presence sensing interlocking system should be used.

Lock off

However the committee plans to emphasise that during a "planned" intervention, for example, isolation and lock off procedures should be used.

So CEN/TC 146 Working Group 3 has got quite a lot to do in a relatively short time - current CEN rules require the revision to be completed within 24 months.

● If you would like to contribute to this process you can do so through the UK shadow committee for CEN/TC146, BSI/MCE 3/3 by contacting Anita Attra at BSI Standards. T: +44 (0) 208 996 7603



End-of-line flexible conveying supplied to a major bakery by Conveyor Systems

Flexibility for bread rolls

Conveyor Systems has supplied a major bakery with an end-of-line conveying system for packaging various sized bags of flavoured bread rolls into cases or supermarket trays.

The customer required maximum flexibility with products being delivered from four bagging lines and in pack sizes of 4, 5 and 6 units, at speeds up to 50 bags/minute, to two independently operated manual packing lines located on the first floor.

Two continuous vertical spiral elevators are fed with erect cases or plastic trays from ground level towards the packing lines on the mezzanine floor. For maximum flexibility the trays can be split symmetrically if only one line requires trays or asymmetrically if both do. The system is configured so that trays and cases can be packed at the same time.

They are fed from the elevators along powered roller conveyors positioned on either side of a central conveyor carrying the bags.

Bags are fed via elevated belt conveyors which all have manually operated stainless steel dividing chutes to allow products to be split to either packing line.

The bags are then transported along a 13m long x 900mm wide stainless steel framed plastic slat conveyor where manual packers can pick and pack into either cases or trays positioned on the lower powered roller conveyors, which are run in parallel.

The system is interfaced with four high speed checkweighers and metal detectors.

Due to the continuous oven process the controls are configured so that the upper mezzanine floor conveyor system runs independently to the ground floor system so packing can continue in the event of an emergency stop.

After packing the trays or cases are carried to the ground floor for palletisation or to be packed into dollies.

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INTERPACK SNIPPETS

■ **Endoline's** aggressive campaign to grow the company's exports to 50 per cent by 2010 started in earnest at interpack.

The company has created a dedicated Export Sales Division and launched a number of models to expand its Standard Range of case erecting and sealing machinery.

On show at interpack were case formers, pre-set and random semi-automatic case sealers, plus a pre-set full auto case sealer.

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■ interpack saw the **Habasit Group** launch a modular belt with what is claimed to be the smallest pitch on the market.

Its Micro pitch M0870 Flat Top plastic belt is designed for tight and smooth transfers to ensure stability of tall and small footprint products. It is particularly suited for delivery to labelling machines and checkweighers.

The pitch of the belt has been reduced to 8mm from a typical 12.7mm, and provides improved tracking and product stability.

www.habasit.com

■ Hygienic edge sealing solutions for conveyor belts were introduced by **Forbo Siegling**. Its Smartseal and Hoteal processes for food packaging prevent oil, grease, moisture and bacteria from penetrating the conveyor belt, or pieces of 'fluff' from the tension tool protruding and entering the food. Forbo Siegling also introduced two intelligent fabric structures to prevent the need for edge sealing.

www.forbo-siegling.co.uk

new at interpack

Speeding up palletising

Taking centre stage on the Newtec Case Palletizing stand at interpack was the PAL-PACK 4900 high-speed palletiser for high throughput requirements. To optimise layer deposits a second elevator has been added. The new patented concept includes CLIPs software to ensure a wide variety of configurations.

It has an intermediate module so that layers are at the required level and a complete palletiser with elevator, sheet dispenser, sheet pallet elevator and an empty pallet dispenser with control system.

High speed robotic layering is conducted by accumulation which optimises layering and adaptability depending on infeed speed.

It can reach speeds of 400 layers/hour and accommodate a variety of pallet dimensions - 800 x 1200mm; 1000 x 1200mm; 600 x 800mm and 600 x 1000mm.

Features include brushless motors and belt transmission. Line tracking, as opposed to turning devices and orienting systems, is used for product positioning, one by one or by group.

Also on show was its new



Newtec's new stretch hooding machine

G300 robotic bag palletiser for low throughputs of about 300bags/hour for bags from 5 – 50kg. Bags enter at the bottom of the palletiser, are grabbed and turned through 90° or 180° depending on the palletisation scheme and a separator sheet is placed on the pallet. Each machine features a control terminal with touch screen and a modem for remote maintenance.

New to the Newtec stable is a stretch hooding machine launched by the company in response to customer demands. Doing away with the need for an

oven or shrink frame, stretch hood has ecological advantages compared with stretch and shrink as no heat source is needed.

Newtec's hood is manufactured from a PE tubular film, mechanically stretched over the load, at speeds of from 60 - 120 pallets/hour.

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...Turnkey system takes the biscuit

A fully automatic 'Turnkey' robotic palletising system has been supplied by Adpal to a major UK biscuit manufacturer. The system consists of two Newtec Palletisation Pal Vite 410i robots each handling three lines of different products.

The six pallet build positions are served by an automated pallet transfer car which delivers up to three different wooden pallets to the robots.

Cases of biscuits are fed on to a case conveyor to the robot infeeds which features bar code scanning. Cases are picked row by row and are deposited onto the wooden pallet.

Full pallet loads are collected by the twin position transfer system, and transported to an automatic pallet stretchwrapper.

Adpal has also sold a Tosa 115 series power pre stretch machine with fully automatic

rotating arm system to one of Europe's largest confectionery manufacturers.

It can wrap up to 60 pallets/hour, with the load remaining stationary during the wrap process. The machine comes complete with power pre-stretching of up to 250 per cent, plus an automatic film tail cut and heat seal system.

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