



Accumulator chains deliver low-friction transport

A German-developed conveyor system uses two continuously running synchronised conveyor chains, which had to be developed especially for the system

Altratec Montagesysteme, based in Schwieberdingen in Germany, manufactures transfer systems for production and assembly lines, based on a modular system of aluminium profiles. Its products include accumulation conveyors used to convey and buffer workpieces between manual and automated workstations. Altratec also manufactures special multi-tier accumulation conveyors, known as over-under conveyors.

Accumulation conveyors have two continuous, synchronously running conveyor chains. They allow workpiece carriers to be accumulated, separated, buffered and positioned at any point in the workflow, and therefore conveyed independently of the process cycle. The workpiece carriers or jigs can also be bolted to the conveyor chain for synchronised transport without accumulation.

In the carry and return sections, workpiece carriers form a level surface. At the end of the section, they are scanned for the presence of workpieces. Only then are empty carriers released for the return journey, running upside-down along the return section.

The flexibly joined carrier segments open when deflected to pass around a radius and, at this point, engage positively with the conveyor chain. When they reach a workstation, they are stopped, separated if necessary, and

positioned. The continuous conveyor arrangement allows workpieces to be conveyed suspended underneath the chain as empty workpiece carriers return on the conveyor's top section.

The over-under conveyors save space by returning the workpiece on the same conveyor. This also reduces the size and complexity of the control system software and hardware. There are fewer sensors and pneumatic components, no additional motors for lateral movement, and no angular transfer units and lifting stations, thus reducing costs.

The workpiece carriers are joined like a shutter system and can be varied in length and width to suit the transported workpieces with aluminium profile segments of 25–100mm. The continuous conveyors are suitable for heavy workpieces, and are unaffected by contamination by oils and cooling lubricants.

This demanding conveying task requires special accumulation chains. Altratec co-operated closely with the Munich-based roller chain-maker iwis, which developed a special-purpose accumulator chain with chain bolts that are extended on one side and fitted with additional running rollers. These "bolt extensions" allow the workpiece carriers to be returned along the chain's return section, removing the need for additional conveying sections to return the carriers.



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20

UPDATE

3 NEWS

A round-up of the latest business and industry developments from around the world.

12 TECHNOLOGY

Cutting-edge innovations in motion, power transmission, controls and related technologies.

IN DEPTH

20 Stage Automation

A look at how industrial-derived automation technology is helping to make stage shows increasingly spectacular, while ensuring that performers and audiences stay safe.

23 Machine Safety

In a special 21-page supplement, we report on the vital topic of machine safety, including advice on the latest directives and standards, and examples of how safety technologies are being used in practice.

45 Bearings, Belts and Chains

A look at the world of mechanical power transmission components, including expert advice on how to choose and install chain, and a report on how bearings can help to boost motor efficiencies.

59 Water Industry

Reports on how water utilities are using automation technologies to cut their operating costs, boost their operating efficiencies, and tackle the irritating problem of pump blockages.

REGULARS

- 11 Comment
- 66 Gambica column
- 68 ABB Energy Saving Award
- 69 Design Data
- 71 Multimedia
- 73 Software
- 74 Products
- 76 Dave's Drives Diary
- 83 Workspace
- 84 Products & Services
- 88 Appointments



30



49



57



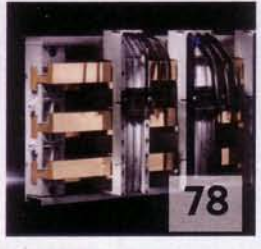
64



66



75



78



81