



Picking the right accumulation chain for conveying

For logistics and material-handling applications,

chain engineered for accumulating discrete pieces

of product is efficient and durable.

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Accumulation chains convey, collect and separate discrete components. The chains work off electric motors that engage and drive parallel conveyor trains (sometimes called chain strands) on the conveyor edges. The chains run continuously to take conveyed components to set points. At the same time, track rollers support the chain. This is different from traditional drag-chain conveyors that have no rollers.

When pieces of product reach set points, either lift pads, pneumatic pushers, bumpers, conveyor end modules, or other actuators go into action to disengage the products from the running accumulation conveyor below—and hold, redirect, or reorient the items for the next production task.



Shown here are some different versions of iwis accumulation chains. These convey goods on lines that stop and start intermittently while the chain continuously runs off a motor. External rollers on one side of the chain mesh with sprocket teeth to transmit drive power; on the other side they support the chain in a track.



Linear Motion



This is a Schnaithmann BS 11 dual-track accumulation roller conveyor. It transports workpiece carriers and uses accumulation chains from iwis. BS 11s mainly work in plants for automotive vehicle assembly and machine building—for manufacturing transmissions, engines or chassis components, for example. However, they also work for consumer goods ... transporting power tools, pressure cleaners, coffee machines and other products for assembly.

Accumulation-chain features

Some accumulation chains have transport or accumulation rollers fitted between the chain links. It's upon these rollers that conveyed products ride.

Accumulation chains can also have low-friction rollers that make chain operation more efficient (for better overall conveying efficiency). Low-friction rollers allow easy positioning of transported material at any point along the transport path—and remove the need to start and stop the chain, which can jostle products into incorrect orientations (or agitate their

contents).

Accumulation chain can come with offset accumulation rollers to spread the load distribution. Maintenance-free accumulation chains can also have:

- nickel-plated plates and pins for lubricant-free operation
- covers with protection for fingers and small parts (to boost machine and personal safety)
- side-bow accumulation setups with offset accumulation rollers for conveying systems having extremely small-bend radii.

Higher efficiency through low-friction rollers

Accumulation chains having idler rollers on both sides serve two purposes. Idler rollers engage with the sprocket teeth to transmit power. The idler rollers also support the chain in the profile.

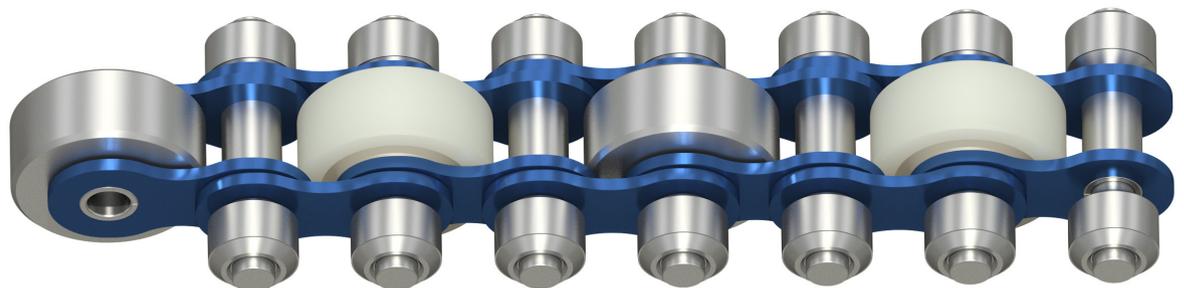
In some cases, slightly protruding bushes in the inner link prevent contact corrosion between the inner link and outer plate. Some accumulation chains also have low-friction sintered metal rollers that provide consistent smooth running conditions not slowed by lubricant adhesion. These low-friction rollers increase the chain efficiency by 30% to decrease motor capacity thanks to lower coefficients of friction—or increased potential conveyor length due to reduced forces.

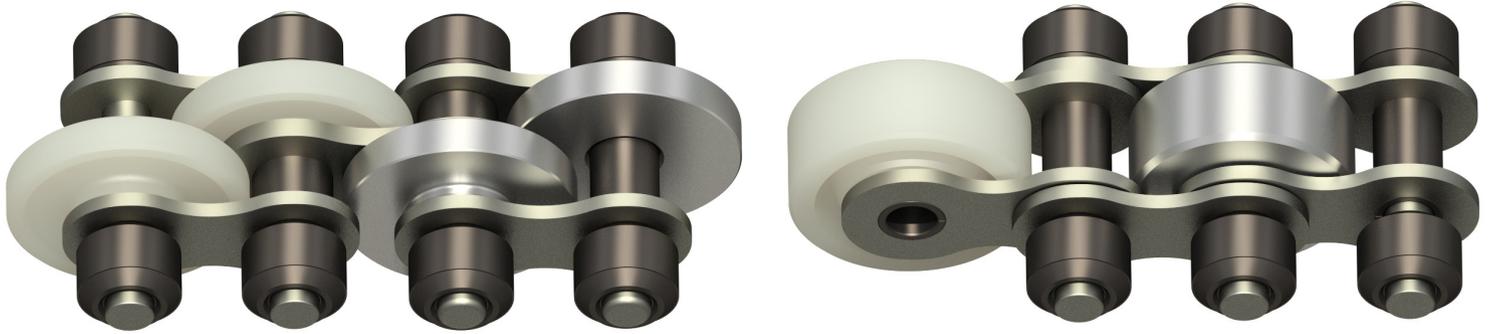


Side-bow accumulation chain is a modular conveyor component that lets engineers design direction changes into conveyors with tight bend radii of less than 14 in. or so. Transported items lie flat.



This is a b.smart accumulation chain from iwis. The power-transmission and conveying component works in feeding and automation, warehousing, general conveying, and electronics manufacture. It's relatively low-cost chain for jobs requiring long life and high precision.





→ **Maintenance-free MEGAlife accumulation chains** from iwis have nickel-plated plates and pins for lubricant-free operation. Plus these accumulation chains feature low-friction rollers that boost chain efficiency.

Offset accumulation rollers for load distribution

Note that many standard accumulation chains have a wide roller on every other pin. In contrast, versions with offset accumulation rollers have transport rollers on every pin, so each works as a load-bearing subcomponent. That means twice as many rollers carry load. Ultimately, this setup reduces wear and strain on the chain guide. The rollers' offset arrangement also maximizes load distribution and supports the load better (for smoother product advancement). More specifically, it reduces localized load on the chain guides by up to 50% so even plastic guides can convey up to twice the normal load.

Maintenance-free and covered accumulation chain

Chain with nickel-plated plates and pins and low-friction sintered metal rollers are the main features of maintenance-free accumulation chain. These components negate the need for lubrication and further reduce maintenance costs while helping chain resist wear under extreme running conditions. These chains are common in applications where lubrication is impossible or unacceptable due to risk of contamination—for example, when chain conveys food or medical products, electronics, glass or ceramics.

For improved safety, accumulation chains with **safety covers** shield the space between one transport roller and the next. This prevents the ingress of small parts

that jam the rollers or chain links. Plus the covers prevent deliberate or accidental insertion of fingers while the conveyor is operating; that boosts operator safety. Matched to the chain type and required bending radius, protector shields (either jointed or unjointed) totally cover the space between the transport rollers. Plastic clips permanently fit to chain inner links. There is no interference with conveyed goods, workpiece carriers or transport rollers.

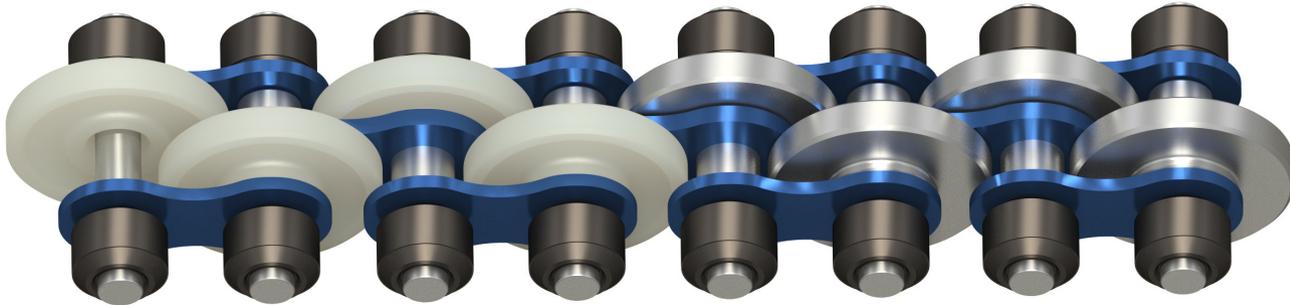
Chain versions also exist for side-flexing conveyor applications. Here, side-bow accumulation chains with offset accumulation rollers work in side-flexing conveying systems with tight bend radii down to 350 mm. The roller arrangement provides multiple contact points, which reduces pressure on product through the bend. This can help to prevent marking or damage and also reduces wear on the

Accumulation chains with safety covers

close the spaces between rollers. The covers also prevent insertion of fingers while the conveyor runs—an easy way to prevent accidents and satisfy increasingly strict industrial-safety requirements. Notice how there's total coverage of the space between the transport rollers, even over tight bend radii. →



Linear Motion



This is a section of accumulation chain with offset accumulation rollers. The roller arrangement more evenly supports loads and allows for smoother running of conveyed material. The offset roller arrangement also reduces local load on the chain guide by 50%—so for example, guides (even plastic ones) can support twice the load.

system.

Case in point:

German integrator Schnaithmann makes Modular Transfer Systems (MTS) that use accumulator chains. By combining MTSs with other systems and integrating commercially available parts (such as linear drives, grippers, robotics, processing components, stoppers, positioning devices and turning stations) the company customizes the MTSs. The modules excel in:

- assembly systems for transmissions
- conveying to connect machine tools in sequence
- transportation lines for domestic appliances, hardware and industrial

items

- production cells with integrated robots and processing centers

MTSs handle discrete products to 150 kg, and one version, the BS 11, works for loads to 1,500 N/m. The MTSs use 0.5-in. accumulation chain from iwis to transport workpiece carriers. Hardened-steel accumulation rollers on the chains extend service life and sintered rollers reduce friction (to keep the conveying surface clean and dry). 

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Some lines of accumulation chain come with hardened steel or plastic transport rollers. The latter are made of Vestamid (a tailored polyamide).

