

New “smart” heavy-duty roller energy chain for maximum lifetime on cranes

igus develops P4HD roller e-chain with wear-resistant materials, and smart monitoring.

Next generation cranes need higher power supplies. Energy chains – the protective chains that transport power and control cables in linear motion – must meet these requirements for longer travels, higher accelerations and operational uncertainties, as well as high reliability. The new igus heavy-duty roller energy chain P4HD is made of highly abrasion-resistant materials. Special side links, newly designed connecting elements, rollers and a triple stop-dog system minimize wear and reduce drive energy. All the component parts can be replaced for easy maintenance. To monitor the service life, smart plastics sensors can be integrated into the pin and bore connection.

Ship-to-shore cranes are getting faster, longer and are being asked to carry greater loads for longer periods. The energy chains for these new generation cranes need to match them. "For these emerging trends in the crane world, we have developed a new roller e-chain with the highest service life," says Justin Leonard, e-chain director at igus UK.

Thus, igus launched a heavy-duty version based on its P4 roller energy chain family. Depending on the application, the chain should have a service life of up to 15-years. To this end, igus relies on tribologically optimized high-performance plastics. To further reduce abrasion at all points of the chain, igus has come up with a few clever features, including a triple stop-dog system and a symmetrical design.

The integrated rollers reduce the required drive energy by 57% compared to a gliding chain. The rollers are arranged offset to each other for an efficient drive. The autoglide combs keep the chain aligned, increasing the safety of the plant and reducing expensive unplanned failures. In the new pin and bore connection, igus has applied its expertise in plastic plain bearing technology, specifying a proven iglidur material that significantly increases the service life of the chain. "Tests in our in-house 3,800 square metre laboratory suggest

that the P4HD has a service life of up to 50% longer than its predecessor series P41.56," says Justin Leonard

Fast and smart maintenance, with recycling

Where maintenance is needed, all parts of the chain are 1:1 replaceable. Also, existing energy chain systems of the P4 series can be quickly converted using the new chain thanks to identical dimensions, so maintenance time, cost and material is reduced.

The P4HD e-chain can also be equipped with smart monitoring. The sensor sends a signal from a defined wear limit to the igus i.Cee:plus module, allowing the maintenance of the roller energy chain to be planned ahead. The sensor is integrated into the side of the chain, leaving restrictions on the usable inner width. Once the crane has reached the end of its service life, igus can recycle the chain in its ["change" program](#). In return, the customer receives a voucher by weight to claim off the cost of future e-chains.

Learn more about the P4HD roller chain at:

<https://www.igus.co.uk/info/roller-echain-p4hd>

For further information, please contact:

Erin Kemal

Tel: 01604 677240

Email: ekemal@igus.co.uk

Hannah Durrant

Tel: 01604 677240

Email: hdurrant@igus.co.uk



Picture PM3521-1

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The P4HD heavy-duty roller energy chain has wear-resistant materials and a special bolt-bore connection to ensure a fail-safe energy supply on modern STS cranes. (Source: igus GmbH)

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