

From the sea into the tunnel: KraussMaffei customer Oldroyd uses 100% sea plastics for its products

- Three CX 160-750 with oversized LRX robots
- In brief: Additional CX 160 with 2-component equipment
- Competitive thanks to unmanned weekend shifts

(Munich, January 30, 2023). What do a tunnel and hiking boot have in common? Both have a membrane that prevents the ingress of rain. In the case of the tunnel, the Norwegian company Oldroyd is an expert for the membrane and its injection-molded fixing product. It uses CX machines from KraussMaffei and 100% sea plastics.

Tunnels are an everyday phenomenon in Scandinavia because they are used to get around the many fjords. Norway alone has over 900 tunnels, and the world's longest road tunnel is also located there. The enclosures for the traffic are more complex than one might think because a sophisticated membrane system lies behind the pipes visible to the driver. This system prevents water penetrating the soil causing damage to the concrete.

Oldroyd is the top dog in the area of waterproofing against rain and holds over 90% of the market share in the Nordic countries. The key to success lies in the innovative strength of the family business in Stathelle (around 160 kilometers south-west of Oslo). Originally concentrating on film extrusion, founder John Oldroyd Cheetham also accessed the injection molding technology with the help of KraussMaffei and now successfully operates three hydraulic CX 160-750 with a clamping force of 1600 kN. .

So-called spacers, curved products with grid structure, which create a distance between rock and membrane, are produced on these machines in a cycle time of roughly 15 seconds. They weigh approximately 150 grams, whereby there are around 20 different models, varying in diameter and height.

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100% sea plastics

300,000 to 400,000 of the spacers are required for one tunnel alone. For these quantities it pays off ecologically to use recycled materials. Oldroyd uses 100% sea plastics, consisting of roughly half PP and half PE. The remnants of broken fishing nets and plastic ropes are collected on the coast of Norway by specialist companies and crushed, washed, and regranulated. The subtle fish scent does not need to be removed for the tunnel construction.

The APCplus machine feature is very helpful for the changing material compositions and resulting viscosity fluctuations. It ensures a very constant shot weight by adapting the switchover point and the pressure level from shot to shot.

Safe "ghost shifts" at the weekend

Efficient automation is required in order to be able to produce plastic products competitively in Europe. All Oldroyd machines are therefore equipped with oversized LRX robots from KraussMaffei. With their very long vertical axle, these large quantities of manufactured products can be stacked up – starting with a ground-level pallet up to a height of two meters. In the case of the tunnel spacers, this volume covers the production of one (unmanned) weekend exactly.

2-component project with TPE

A new CX with two-component equipment will soon go into operation at Oldroyd because John Cheetham has once again made a development that will change tunnel construction: a 2-component platen, called RoadStar, which is secured on the steel rods that connect the concrete wall and the rock layer. Up to now these platens were made of metal and corroded accordingly, which is why maintenance is required and a replacement after roughly 50 years. Whereas the RoadStars were estimated to have a service life of 120 years in special aging tests. This alone saves a lot of resources. The RoadStar was already tested by Oldroyd customers and was also widely accepted because the integrated TPE layer has a sealing effect, while

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the other side (made of PE) is impact-resistant. Success on the market and the correspondingly high numbers of units will mean more 2-component machines will make their way north from Munich.

1_KM_IMM_2023_01_Oldroyd team.jpg

Working together to promote sustainable tunnel construction (from left): John Oldroyd Cheetham (founder of Oldroyd), Linda A Celin (CEO Oldroyd), Rolf Kjønerud (KraussMaffei Agent SAXE) and Carl Kremer (Product Development/Operator Oldroyd) in front of one of the CX 160-750
Source: Oldroyd

2_KM_IMM_2023_01_Oldroyd Stockholm Bypass.jpg

The construction of the Stockholm Bypass (a series of underground motorway tunnels) is currently the world's largest tunnel project. Thousands of spacers from Oldroyd are also used here.
Source: Oldroyd

3_KM_IMM_2023_01_Oldroyd Faroe tunnel.jpg

The so-called spacers, curved products with grid structure, create a distance between rock and membrane, like here, e.g., in the Sandoy tunnel in the Faroe Islands
Source: Oldroyd

4_KM_IMM_2023_01_Oldroyd Seaplastics.jpg

From the sea into the tunnel:
Seaplastics such as fisher nets and ropes are collected and then recycled to 100 per Cent in order to be used in the tunnel construction
Source: Jirakorn - stock.adobe.com

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(Number Words: 418 / Number Characters: 2,268)

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KraussMaffei – Pioneering Plastics

KraussMaffei is among the world's leading manufacturers of machinery and systems for the production and processing of plastics and rubber. Our brand stands for cutting-edge technologies – for more than 180 years. Our range of services covers all areas of injection molding machinery, extrusion technology and reaction process machinery. This gives KraussMaffei a unique selling point in the industry. With the high innovative power of our standardized and individual product, process, digital and service solutions, we can guarantee customers sustained additional value over the entire value-adding chain. Our range of products and services allow us to serve customers in many sectors including the automotive, packaging, medical and construction industries, as well as manufacturers of electrical and electronic products and household appliances. KraussMaffei employs around 4.700 people all over the world. With more than 30 subsidiaries and over 10 production plants, as well as about 570 commercial and service partners, we are represented internationally close to our customers. Since its foundation in 1838, the company's headquarters have been in Munich.

In April 2016, the Chinese state-owned company China National Chemical Corp. Ltd. ("ChemChina"), one of the leading chemical companies in China, became the majority shareholder of KraussMaffei Group. At the end of 2018, ChemChina listed the KraussMaffei Group as KraussMaffei Company Ltd. in Shanghai. The listing opened up access to the Chinese capital market and local investors.

For more information: www.kraussmaffei.com

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