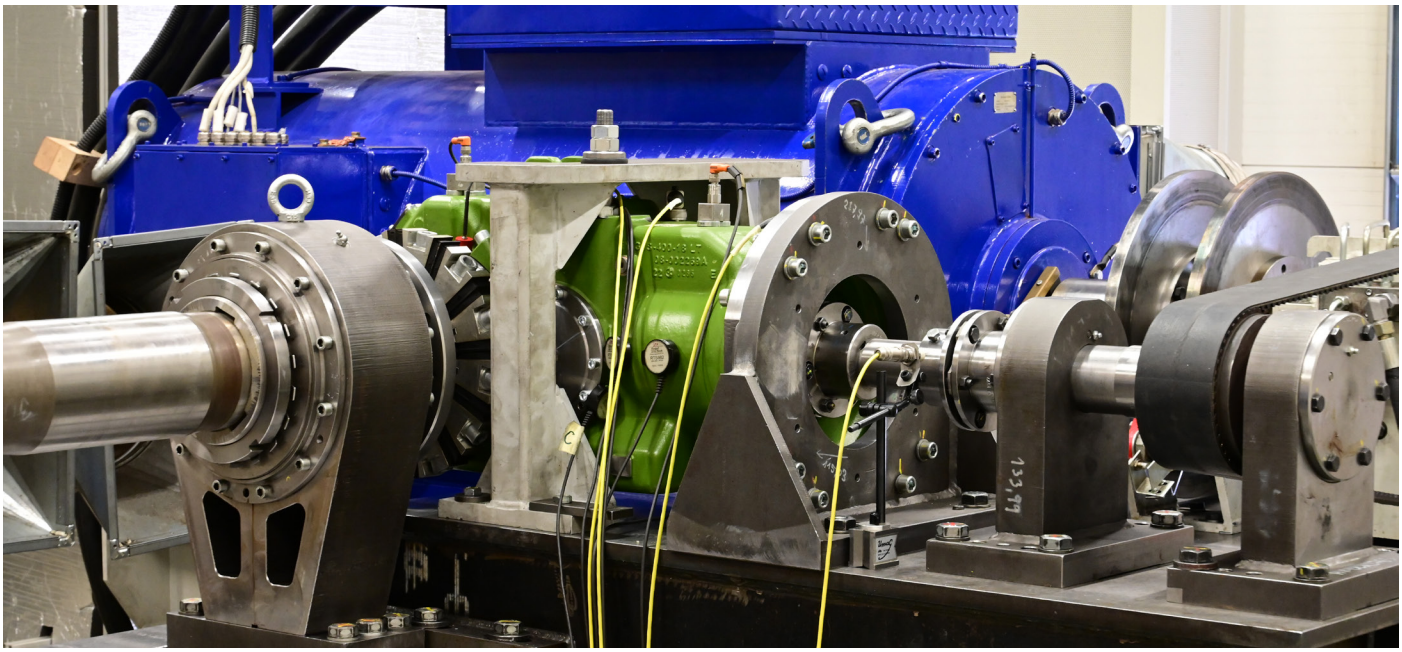
Wikov & Gmeinder

Wikov MGI and Gmeinder Getriebe – Shared Tram Gearbox Know-How



Strong Partnership

For four years, Gmeinder Getriebe has been under the wing of Wikov Industry, which has included another manufacturer of gearboxes for rail vehicles – Wikov MGI – for more than 20 years. This strategic partnership offers many synergistic effects, but in one way it really stands out. Close co-operation under a common owner makes Wikov MGI and Gmeinder Getriebe a top-quality supplier with the widest portfolio of tram gearboxes and drives in the world.

Low-Floor Tram Market – Different Concepts and Different Solutions

The low-floor tram market is specific in that it is still relatively new, although the first low-floor tram entered service in the early 1990s. It may seem that 30 years is a long time, but fully low-floor trams did not see a more massive deployment until after 2000. The fact that it is still a new market is also evident in the fact that there are still a large number of tram manufacturers in the world compared to, for example, metro unit manufacturers. However, consolidation is gradually taking place, introducing temporary uncertainty into the component supply chain. From a gearbox and drive supplier's point of view, this is clearly visible. Being well prepared and having a place to go for its proven solution is half the battle for a supplier. The Wikov MGI + Gmeinder Getriebe duo is one such supplier nowadays.

Today, Wikov MGI and Gmeinder Getriebe have a market-proven comprehensive line of gearboxes and drives for low-floor trams, both for bogies with an axle

and with independent-running wheels, with gearbox power from 50 to 180kW.

There are currently, let's say, four groups of bogie types used in the world in terms of drive designs. The first is the use of a conventional axle, which ensures a transverse mechanical connection between the wheels. The second group is a bogie without an axle, but still with a transverse mechanical connection of the wheels, thanks to a special connecting shaft. The third group is a bogie with independent-running wheels without an axle, where wheel connection is ensured by electronic control – solutions with gearboxes or direct drive are offered here. The fourth group is a single-axle bogie with a portal frame.

The first group – i.e. with a conventional axle – is the most commonly used concept today, and a number of tram manufacturers are returning to it due to the relative simplicity of the drive. We can offer designs both for the longitudinal assembly of the drive outside the bogie frame, and for variants where the drive is located inside the bogie with the engine mounted laterally.

The second group that does not use a conventional axle, where the mechanical connection is provided by a special connecting shaft, is used today, for example, by the Croatian manufacturer Končar and the world's first low-floor trams GT6 (AEG/Adtranz). We have market-tested solutions for this group as well.

For bogies with independent-running wheels, if the customer chooses a variant with a gearbox, and not a direct drive, we provide supplies of complete drives. It does not matter whether the customer uses one motor for two gearboxes or each gearbox has its own motor. For single-axle bogies with a portal frame, we offer special bevel gearboxes.

If partially low-floor trams are added, where two-stage

helical gearboxes with a solid or hollow shaft are mostly used, it can be said that the Wikov MGI + Gmeinder Getriebe duo covers, with exceptions, all bogie concepts used in modern trams.

We cannot do without thorough testing of gearboxes and drives.

We have extensive testing capacities for various uses. We use a development workplace with experimental test stands, including those with dynamic loads. We also use a cooling chamber for cold climate tests, and for efficient serial no-load tests we recently opened a new test room dedicated only to gearboxes for rail vehicles and that uses the most modern elements of today's testing including the involvement of artificial intelligence.

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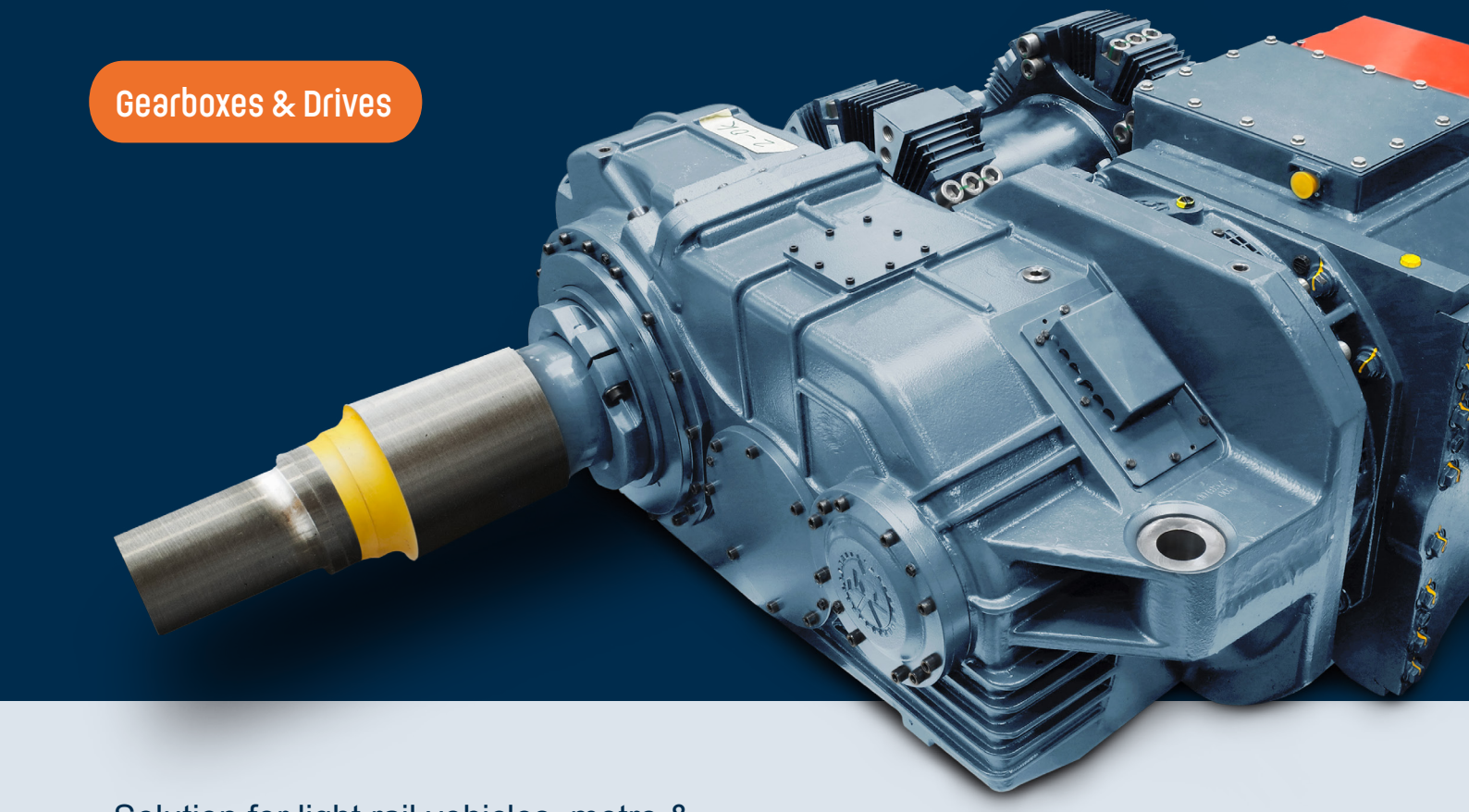
Drive for Future Public Mobility

Gearboxes & Drives



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- Complete drive train solution (gear units, couplings, traction motor, brakes)
- Extensive test facility up to 1,4 MW and simulated dynamic load 300 $m.s^{-2}$

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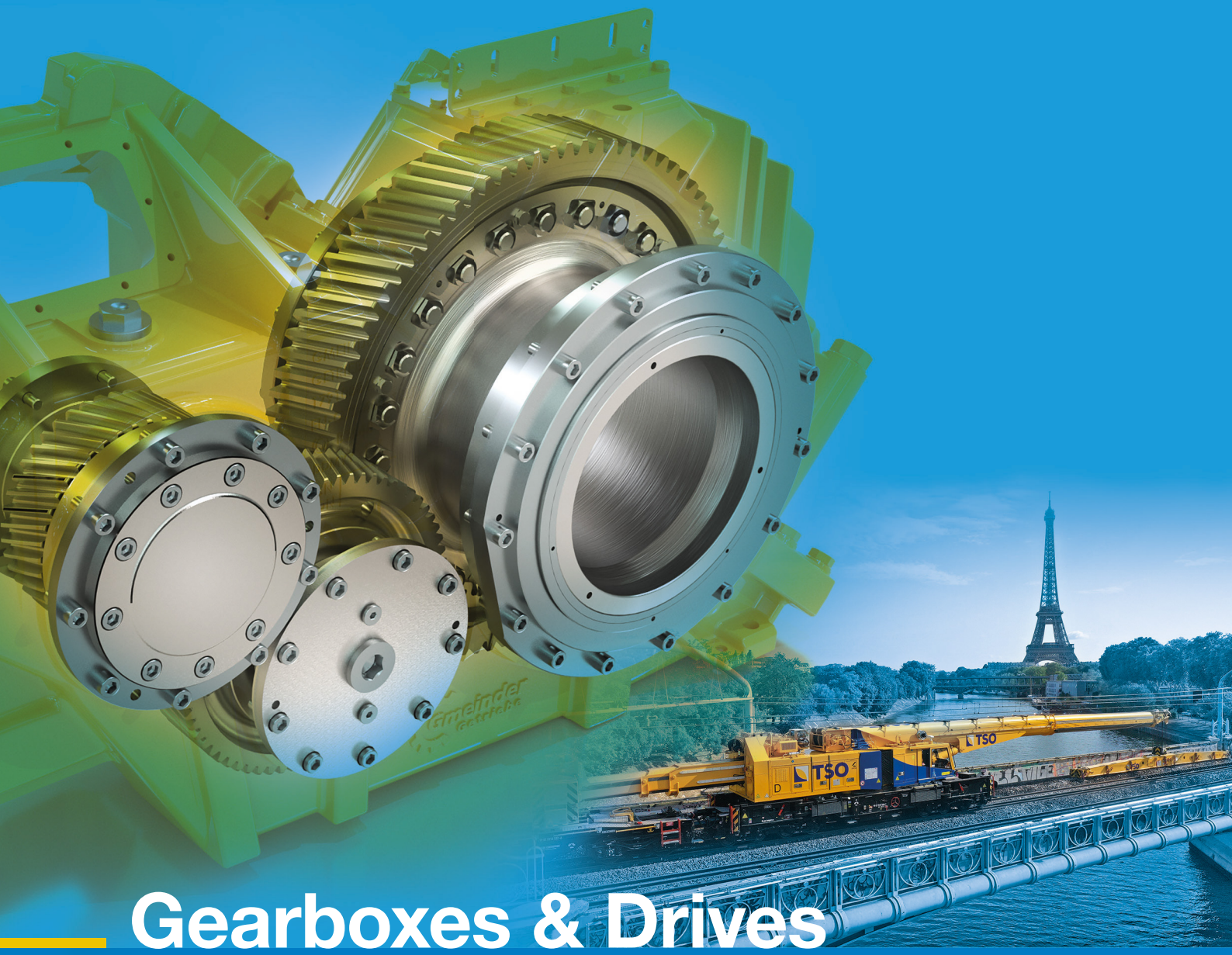

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