

SH/FT

the first of a new kind



Speeding the transition to renewable energy

In response to today's wind market revolution, with efforts to reduce subsidy costs and spur efficient innovation into the future, ZF has developed a new kind of wind gearbox – a highly scalable platform, supporting new turbine designs that will innovate our future energy supply.



Shift, a modular gearbox platform offering high flexibility

Traditionally, wind gearboxes have been bespoke gearbox designs optimized for a specific turbine development. But rapidly changing markets are reducing turbine lifetime and lowering volumes for unique developments.

As wind turbine manufacturers search for high flexibility for their new generation turbine developments, ZF has developed a new concept, helping customers reduce the cost of wind energy, and accelerating the shift towards the future.

The concept is called 'SHIFT' – A paradigm shift to a modular platform that facilitates faster steps towards future wind turbine designs:

- at lower cost
- reduced time-to-market
- and with more potential for the future than initially required

This modular platform offers high flexibility in adapting wind turbine designs to changing market requirements. ZF believes that innovations in both technology and policy will accelerate the reduction of LCOE to fully realize the shift to renewable energy.

Reducing time-to-market and life-cycle costs

We've bundled our experience in high-torque applications and reliable wind gearbox technology to create a new wind gearbox platform to cover the dynamics of the wind market, safeguard specific customer requirements, and reduce time-to-market significantly.

The modular platform designs help turbine manufacturers reduce business uncertainties and life-cycle costs by:

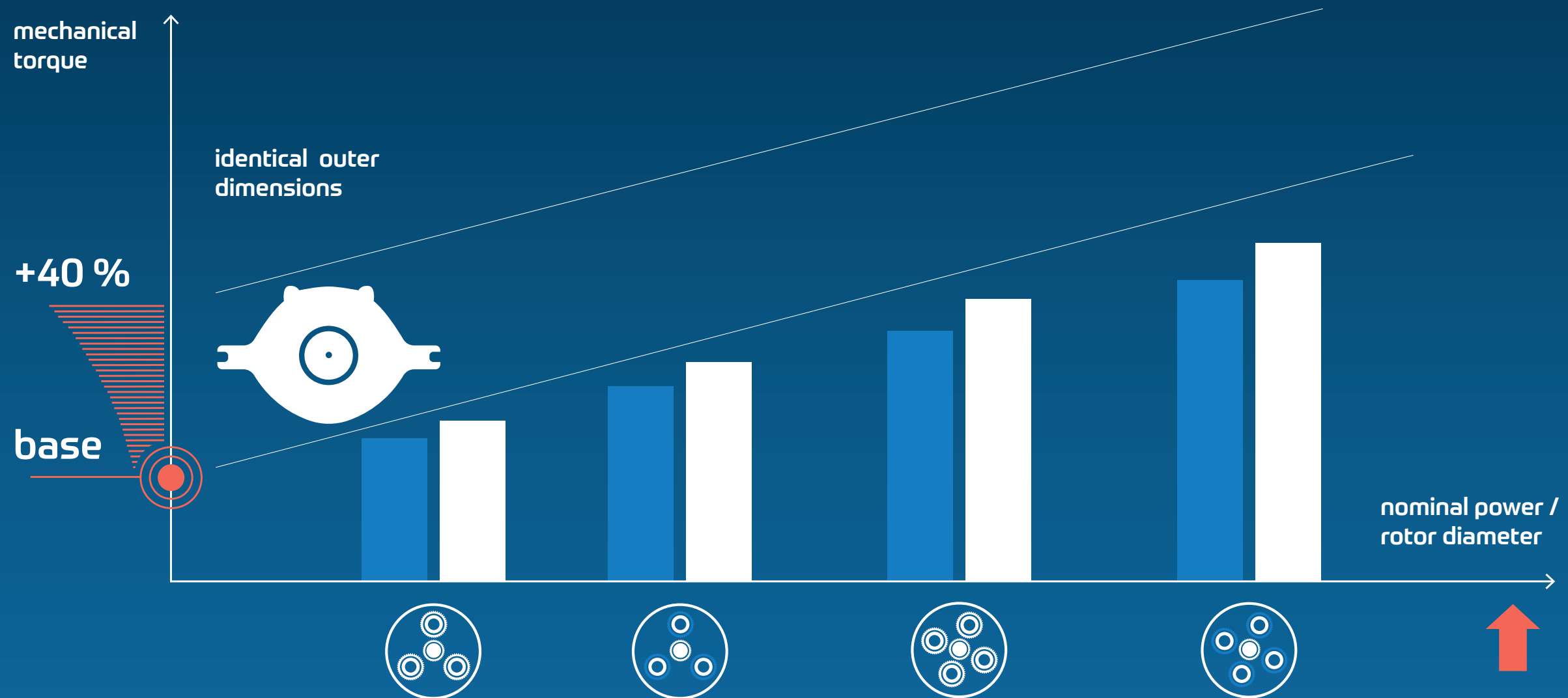
- Allowing maximum use of the latest technological developments and optimized designs, processes and supply chain to scale power density, while reducing Cost of Energy.
- Enabling platform upgrades of the mechanical torque up to 40%, while covering a broad range of gearbox-generator combinations in terms of gearbox ratios. With a first series of the new platform released, ZF is developing an even more powerful model beyond current market requirements.
- Keeping the gear unit outer dimensions identical across the full torque range – eliminating the need for major drive-train/nacelle re-designs during the turbine platform lifetime.

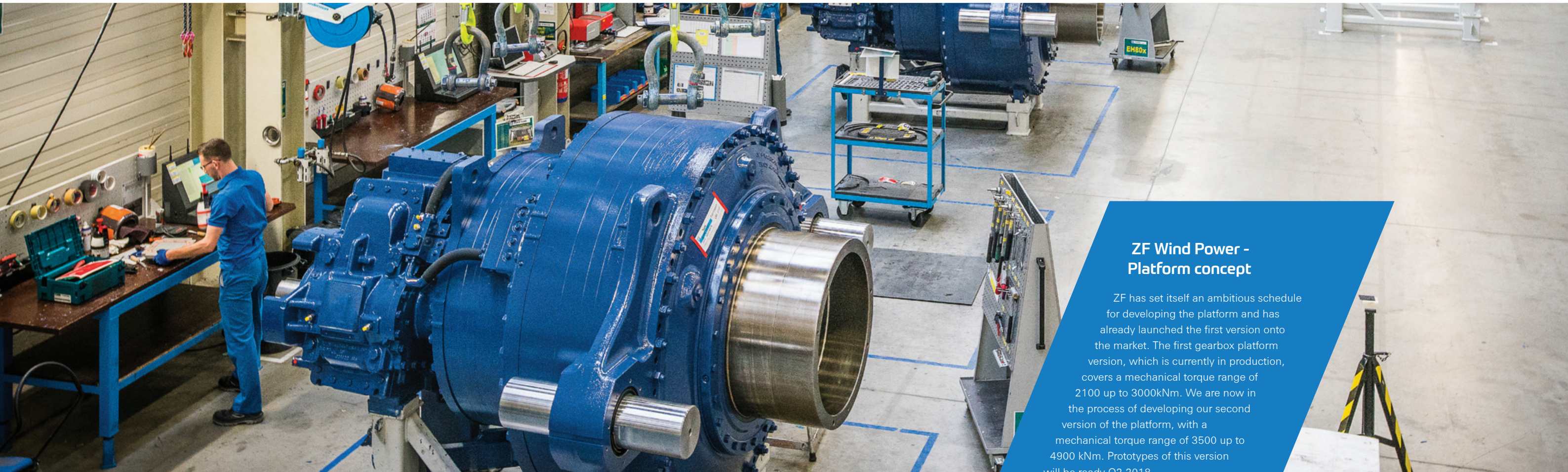
In brief, using standardized building blocks inside the gearbox leverages the platform supply chain and operational synergies. And re-using building blocks simplifies servicing and reduces maintenance costs, while offering potential for future turbine power upgrades of the installed base.



Modular Platform

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ZF Wind Power - Platform concept

ZF has set itself an ambitious schedule for developing the platform and has already launched the first version onto the market. The first gearbox platform version, which is currently in production, covers a mechanical torque range of 2100 up to 3000kNm. We are now in the process of developing our second version of the platform, with a mechanical torque range of 3500 up to 4900 kNm. Prototypes of this version will be ready Q2 2018.

Building a greener tomorrow

At ZF Wind Power, we innovate continuously to deliver on our commitment to make wind energy the most cost-effective renewable energy source.

With state-of-the-art manufacturing plants and world-wide service locations, we're dedicated to delivering a new kind of gearbox platform to meet the needs of a more competitive wind energy market.

Sustainability is at the heart of our endeavours. Our advanced technology solutions contribute to the transformation of the global energy system – in which reliable, robust and efficient products and systems conserve precious resources.



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