



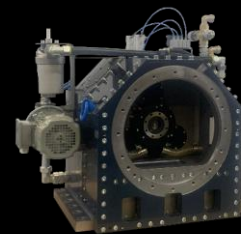
ISAR GETRIEBEOTECHNIK GMBH & CO. KG

- Established 2008
- Located in Munich Area
- ISO 9001:2015
- Experts in High-Speed and Testing Gearboxes
- Flexible Gearbox Manufacturer for Prototypes and Small Series
- Fast Production of Gearbox Components



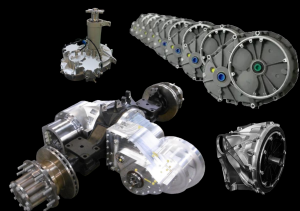
TEST RIG GEARBOXES - GENERAL

- High-Speed Testing
- Special E-Axles Drives
- Customer-Specific Design
- Extra Features
- Innovative Gearbox Concepts



ISAR UHS SERIES – FULLY INTEGRATED HIGH-SPEED UNIT

- Cost-Saving Gearbox Unit to Make Standard Drives Running at High-Speed
- Ideal for Retrofitting Existing Test Stands
- Extra Features



PROTOTYPES & SERIES

- Design and Calculation
- Rapid Production of Components
- Assembly
- Testing
- Series Adoption and Production



GEARBOX COMPONENTS

- Calculation and Design
- Process and Tool Planning
- In-house CAD/CAM Rapid Production
- Supplier Network for Special Manufacturing Processes
- Full Documentation

GET IN TOUCH!

ANY QUESTIONS? CONTACT US!

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ISAR GETRIEBETECHNIK GMBH & CO. KG

Our Customers:

- Start-Ups
- SMEs and Hidden Champions
- OEMs (from AIRBUS to ZF)
- Research Institutes
(DLR..RWTH..TUM)
- D-A-CH Region 80 %
- Other European 15 %
- USA, Korea 5 %

**Open to Distribution Partnerships
in America and Asia**

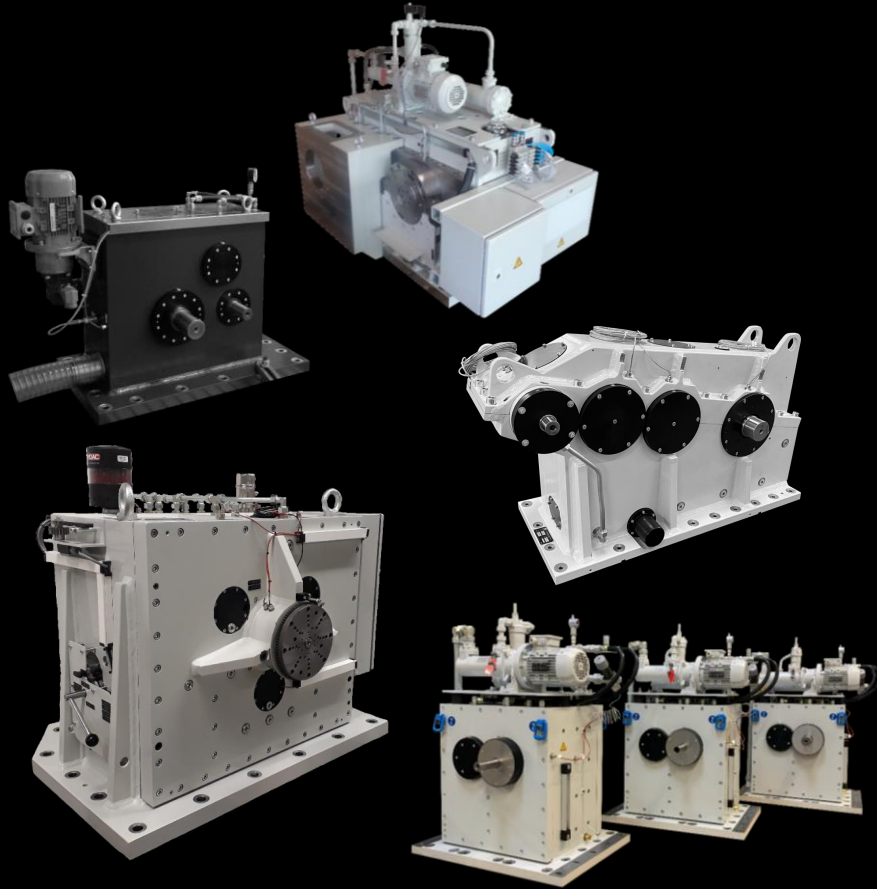
TEST RIG GEARBOXES

DEVELOPMENT OF REQUIREMENTS

DEDICATED E-AXLE DRIVES

SPECIAL FEATURES

FULLY INTEGRATED HIGH-SPEED UNIT

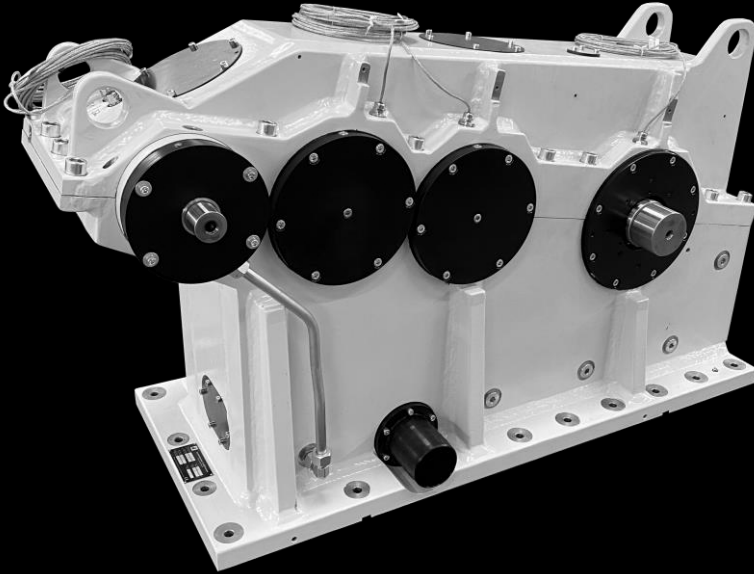


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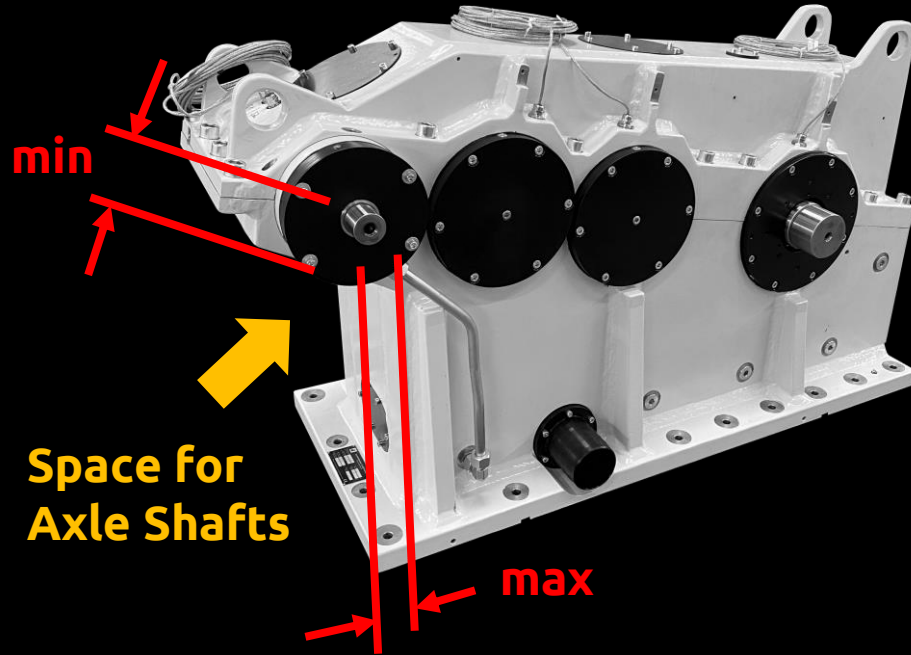
TEST RIG GEARBOXES

DEDICATED E-AXLES DRIVES



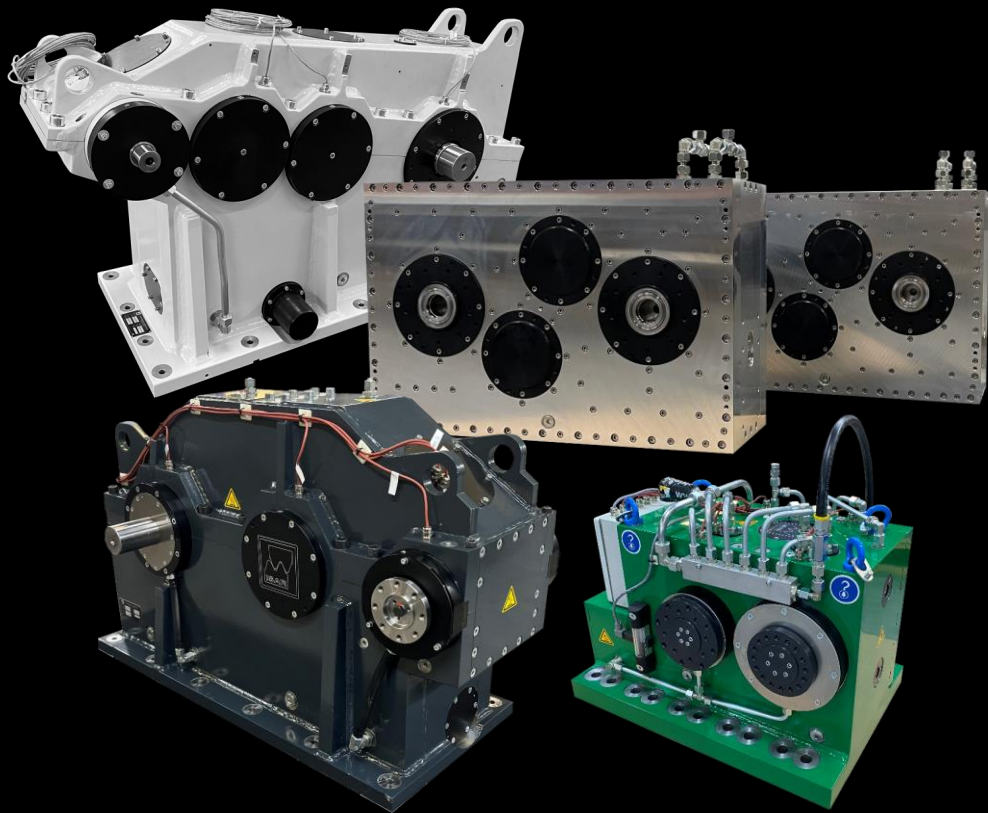
TEST RIG GEARBOXES

- Most Powerful E-Axles Drives
- Up to 1,500 Nm
45,000 rpm
3 MW



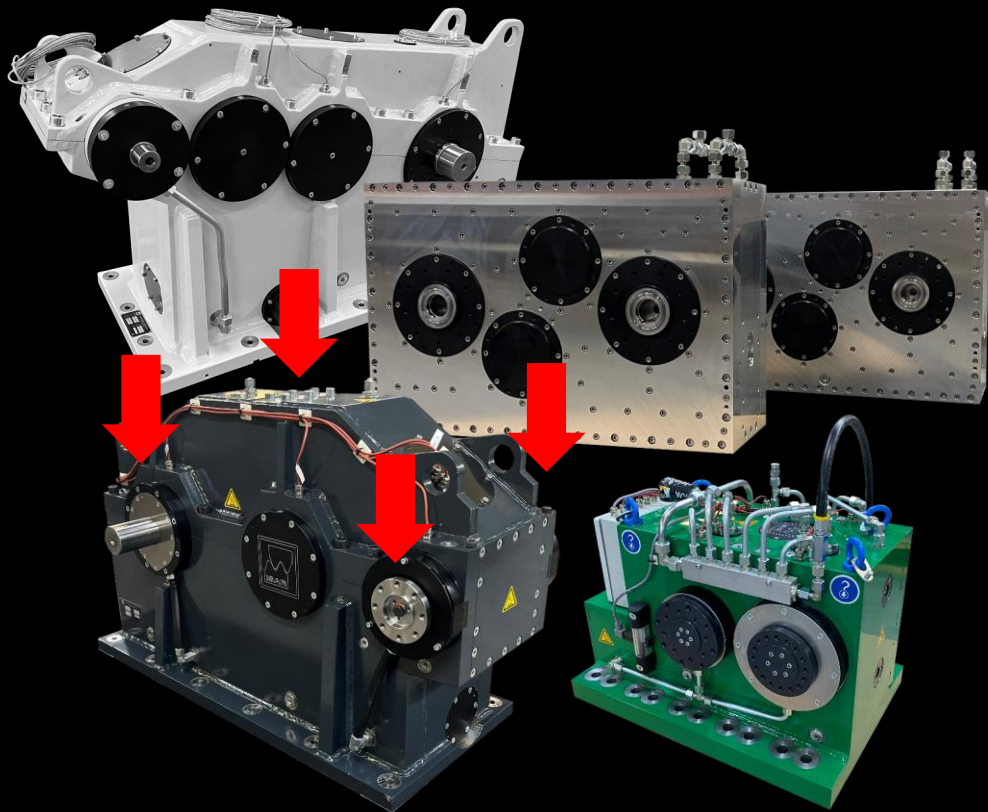
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TEST RIG GEARBOXES

- Various center distances and layouts for different applications
- Shaft ends acc. to customer's needs
 - 1 or 2 sides
 - cylindrical or flange design
 - ...



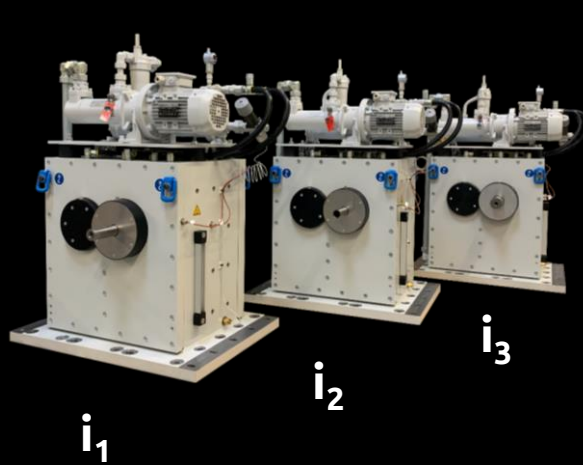
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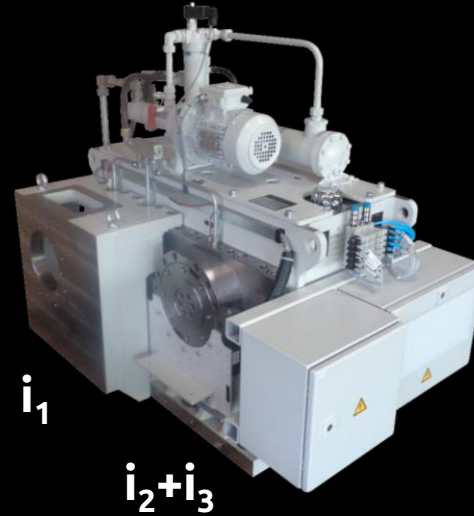
TEST RIG GEARBOXES

SPECIAL FEATURES

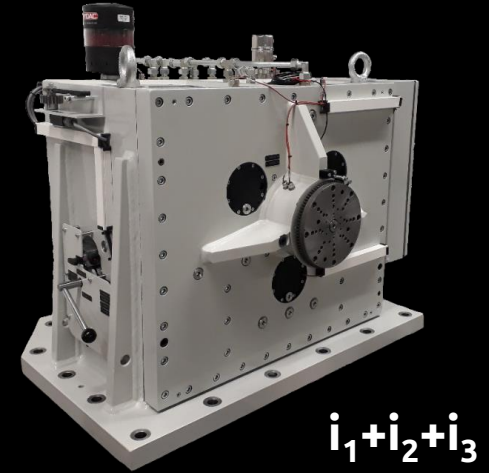
INTEGRATION OF VARIOUS GEAR RATIOS



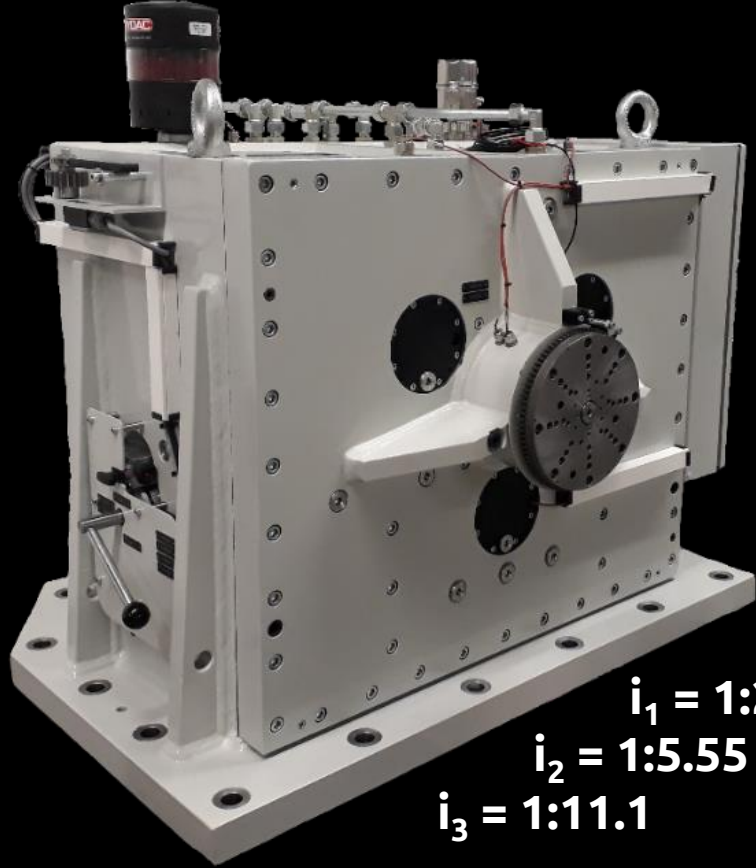
2016:
Different Gearboxes



2018:
Different Outputs



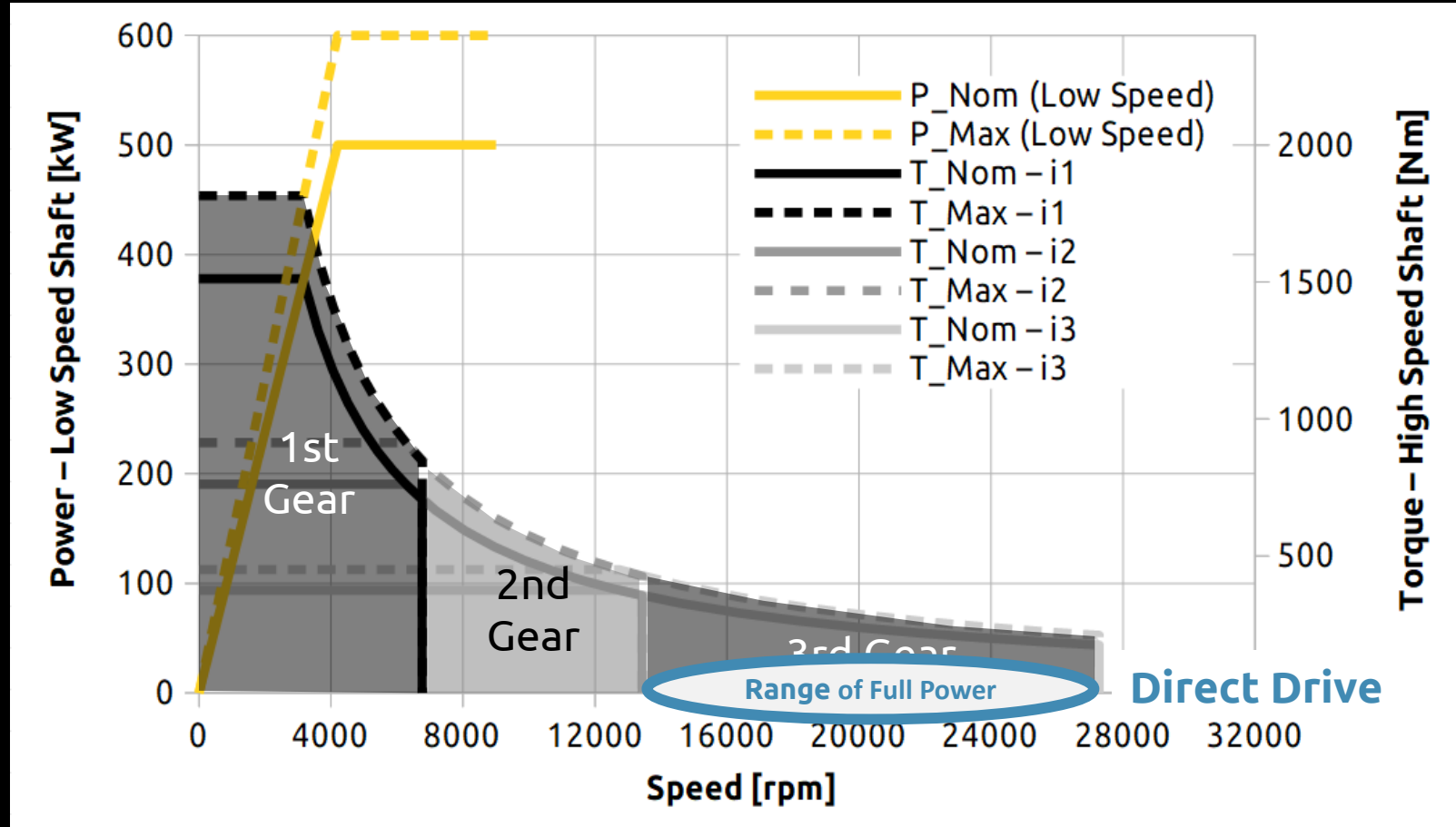
2019:
1 Output, 3 Gears



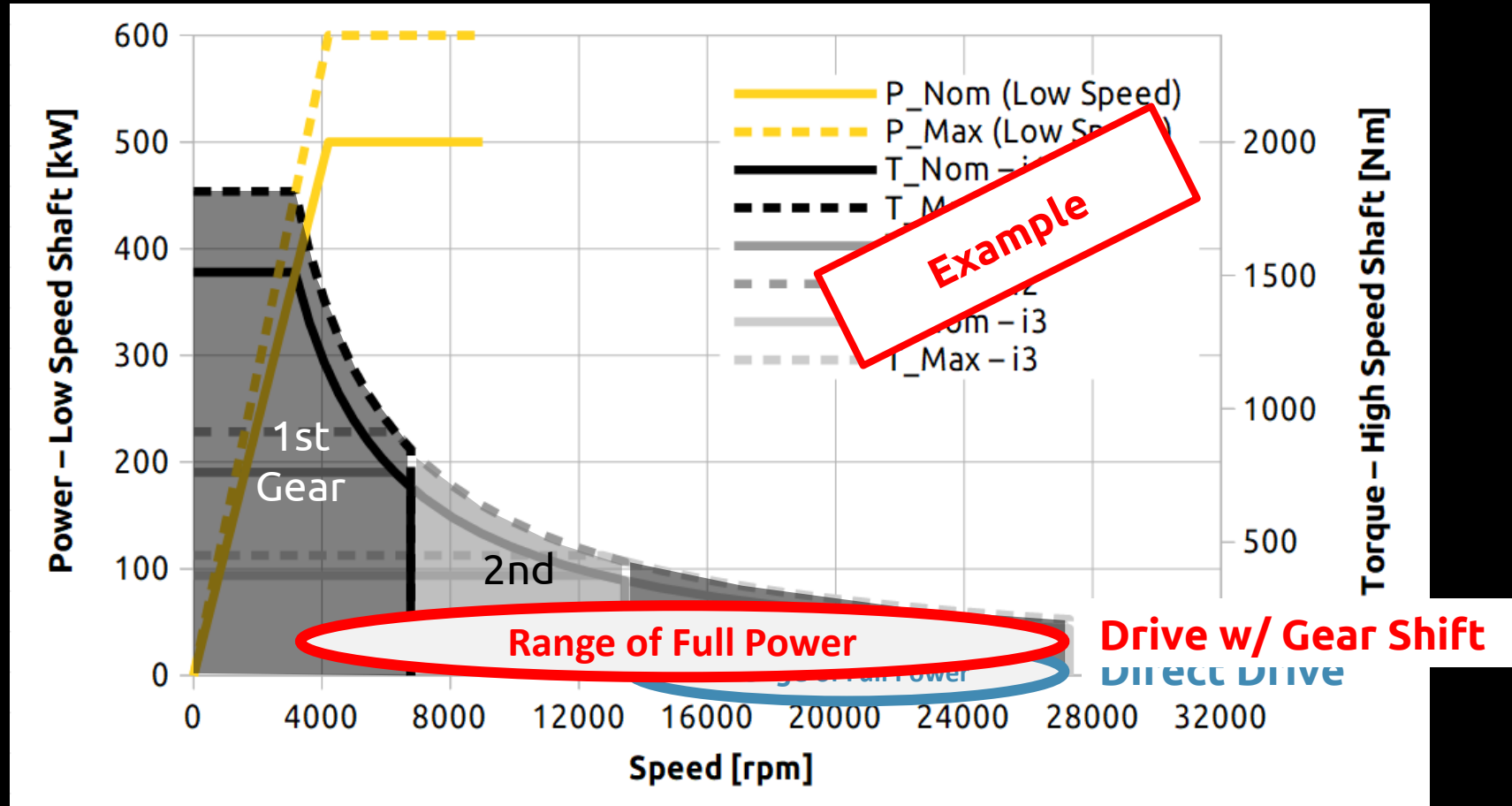
3-GEAR TEST RIG GEARBOX

- High Speed + High Torque Provided by One Gearbox
- E. g. $i_1 = 1:2$
7,160 Nm | 3,600 rpm
 $i_2 = 1:5.55$
2,580 Nm | 10,000 rpm
 $i_3 = 1:11.1$
1,300 Nm | 20,000 rpm

USING THE FULL RANGE OF POWER OVER SPEED BY SHIFTING GEARS



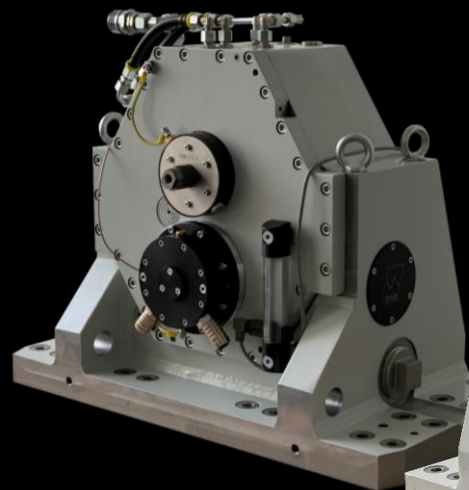
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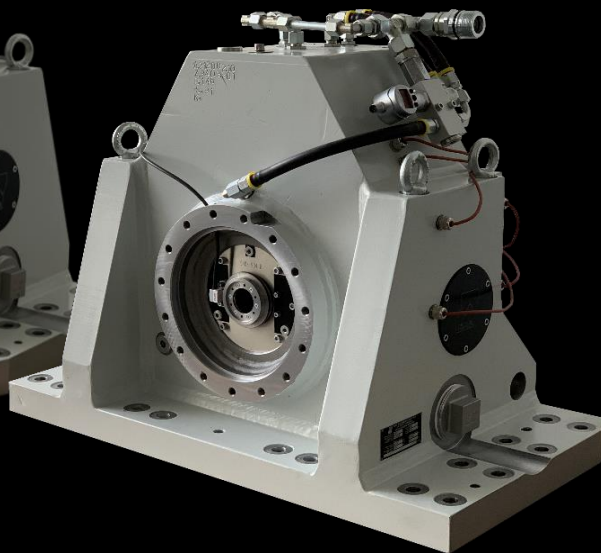
TEST RIG GEARBOXES

SPECIAL FEATURES

Back View



Front View

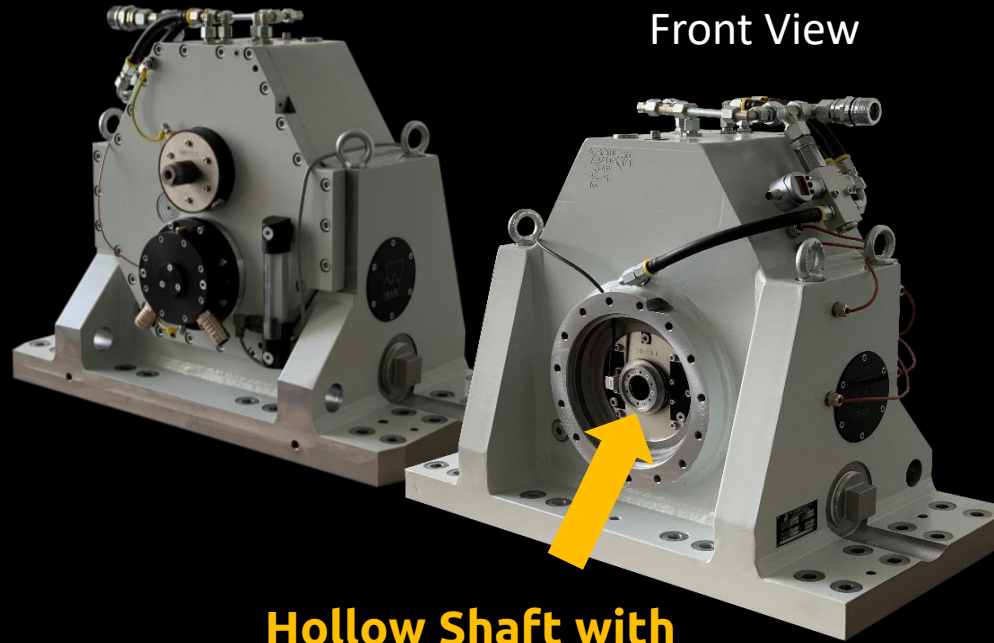


TEST RIG GEARBOX

- High-Speed Drive
- Output:
1,000 Nm | 30,000 rpm | 700 kW
- Central Cooling Liquid Feed

Back View

Front View



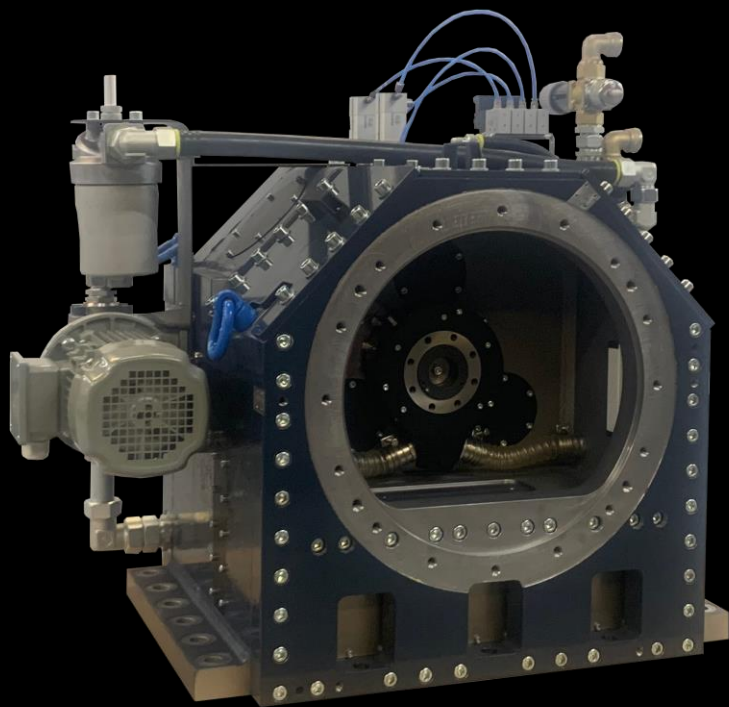
TEST RIG GEARBOX

- High-Speed Drive
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**Hollow Shaft with
Cooling Liquid Feed**

TEST RIG GEARBOXES

FULLY INTEGRATED HIGH-SPEED UNIT

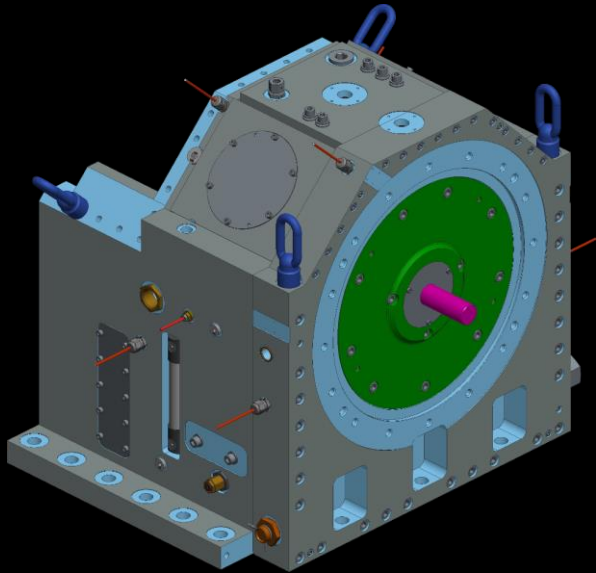


ISAR UHS SERIES – FULLY INTEGRATED HIGH-SPEED UNIT

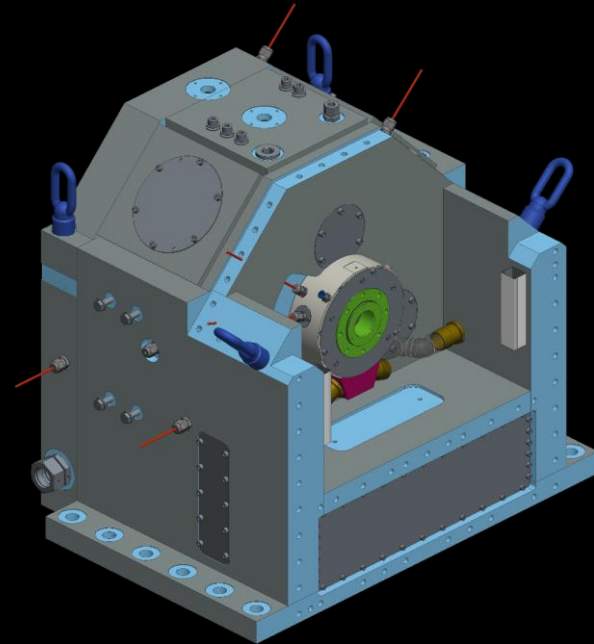
- Cost-Saving Gearbox Unit to Make Standard Drives Running at High-Speed
- Ideal for Retrofitting Existing Test Stands
- Extra Features

ISAR UHS SERIES – BASIC GEARBOX UNIT

$i = ..2...7..$ | $n_{HS} = 20,000...45,000 \text{ rpm}$ | $T_{HS} = 200...2000 \text{ Nm}$



Low Speed Shaft

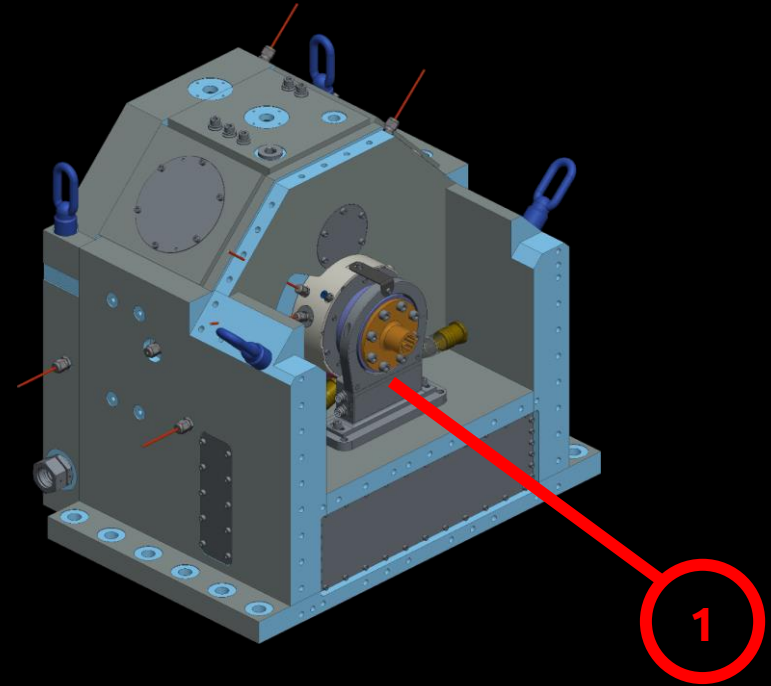


High Speed Shaft

ISAR UHS SERIES – SPECIAL FEATURES

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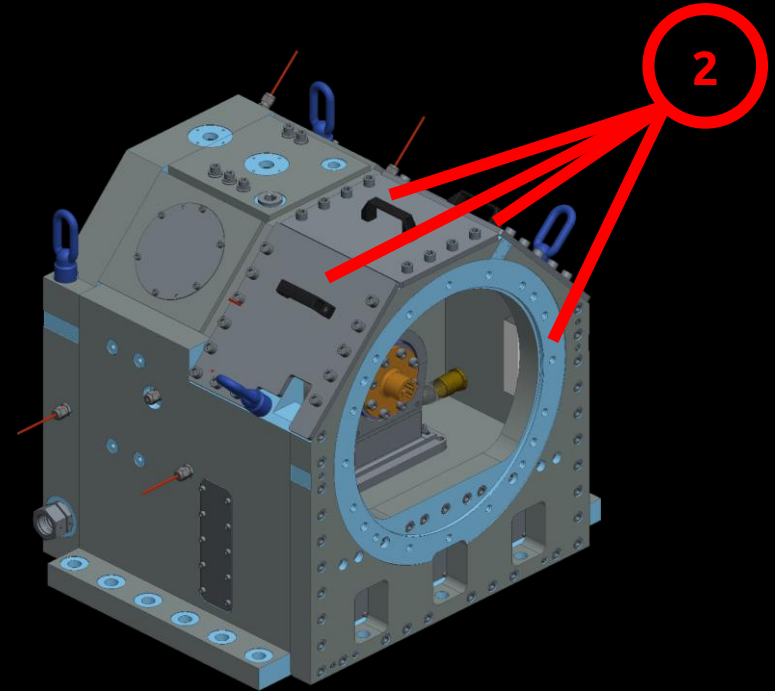
1. Use of standard torque flanges without add. bearing support



ISAR UHS SERIES – SPECIAL FEATURES

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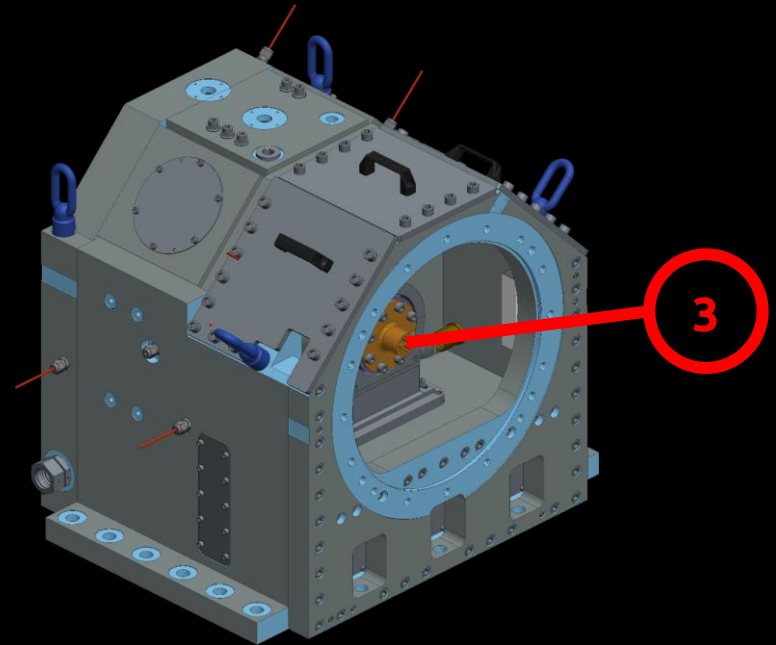
1. Use of standard torque flanges without add. bearing support
2. Integrated clamping plate (customer specific) and shaft cover



ISAR UHS SERIES – SPECIAL FEATURES

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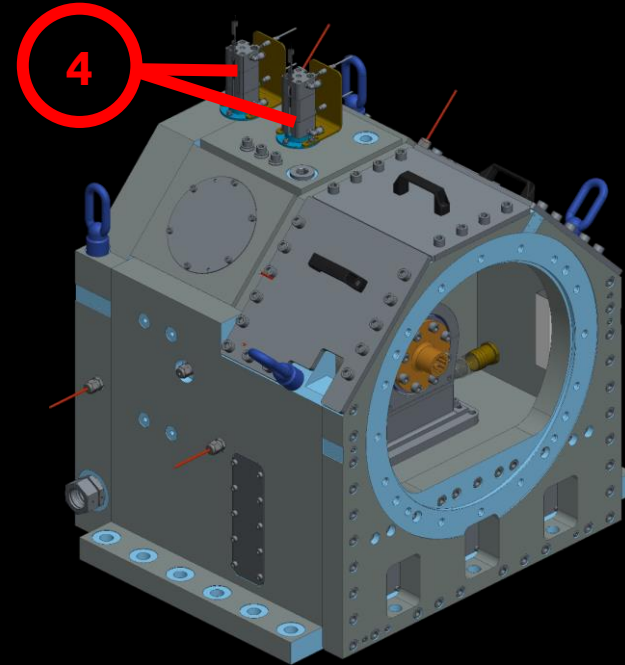
1. Use of standard torque flanges without add. bearing support
2. Integrated clamping plate (customer specific) and shaft cover
3. Central cooling liquid supply



ISAR UHS SERIES – SPECIAL FEATURES

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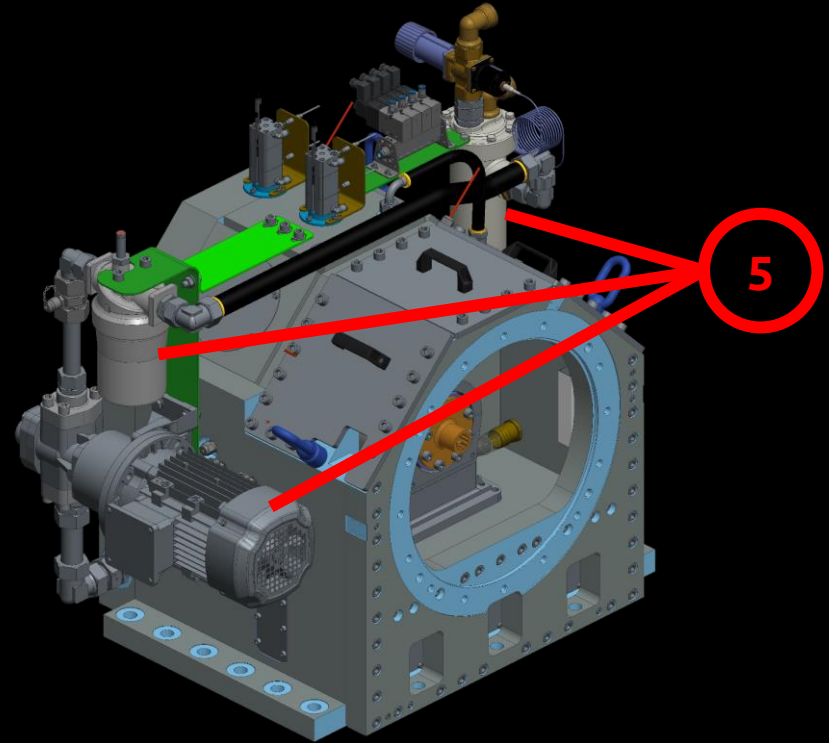
1. Use of standard torque flanges without add. bearing support
2. Integrated clamping plate (customer specific) and shaft cover
3. Central cooling liquid supply
4. Shifting mechanism (pneumatic or manual)



ISAR UHS SERIES – SPECIAL FEATURES

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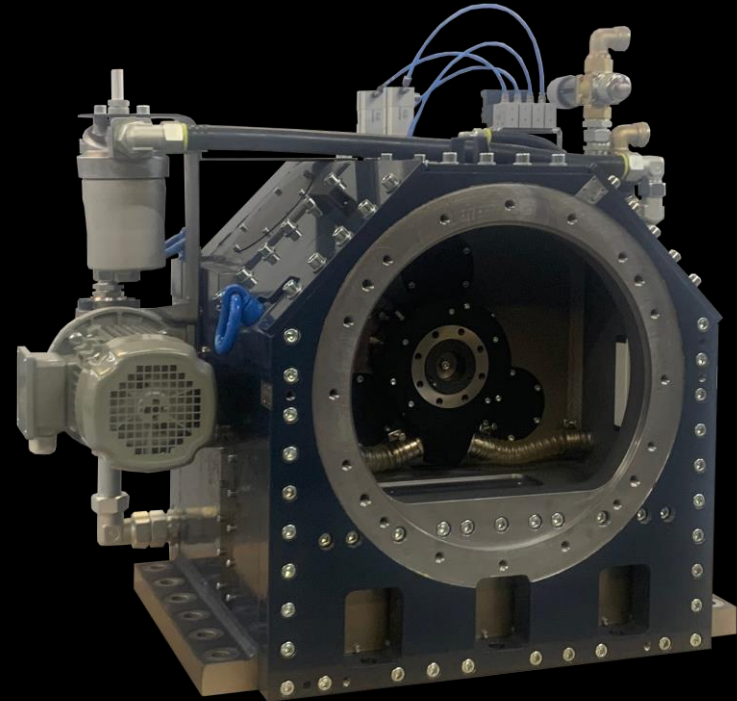
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5. Integrated oil supply



ISAR UHS SERIES – SPECIAL FEATURES

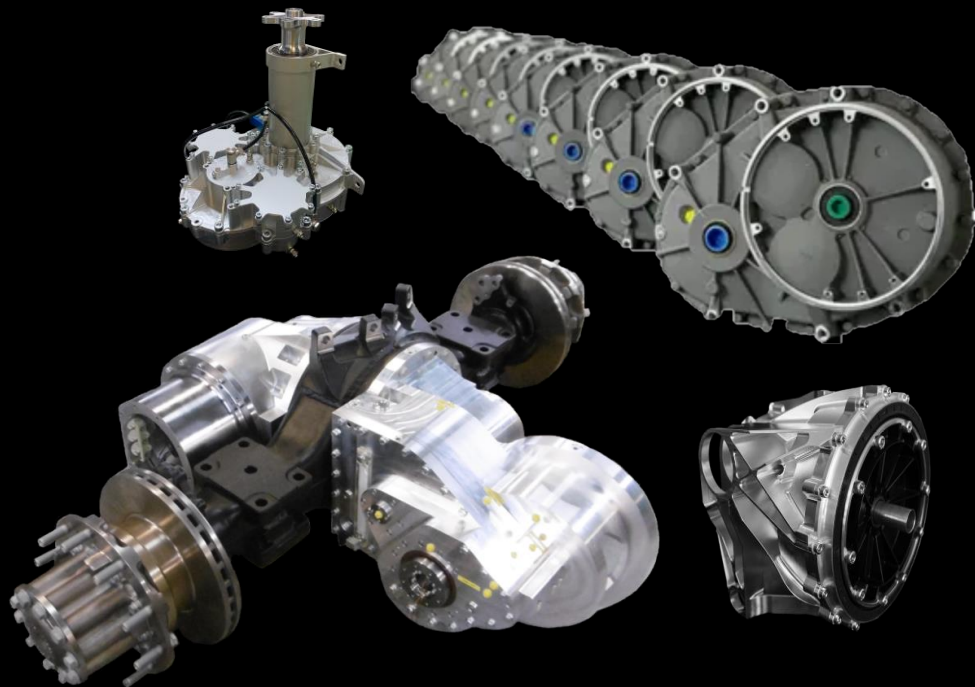
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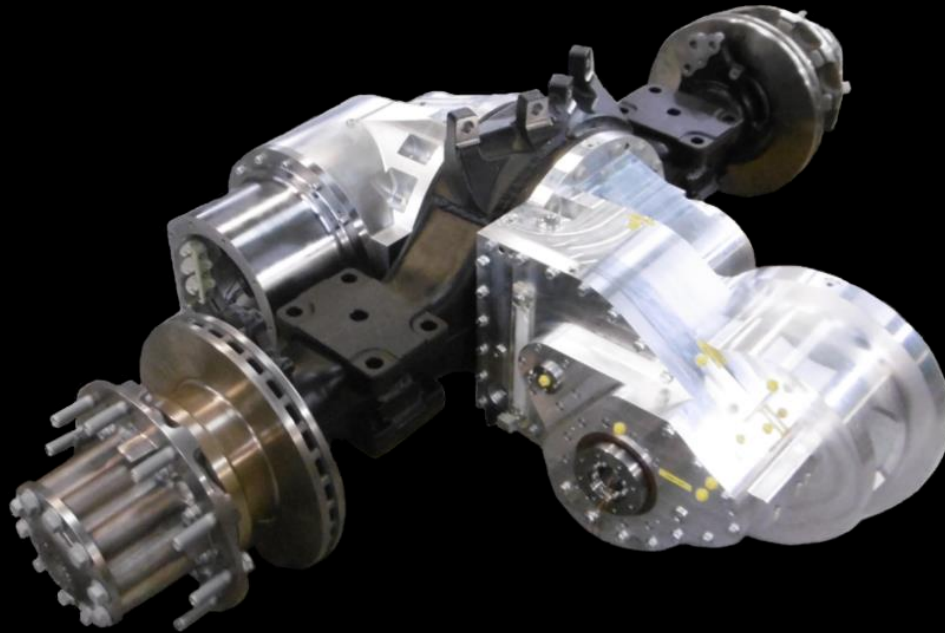
PROTOTYPES & SERIES

EXAMPLES



PROTOTYPES & SERIES

- Design and Calculation
- Rapid Production of Components
- Assembly
- Testing
- Series Adoption and Production



E-AXLE FOR COMMERCIAL VEHICLE

- Main E-Drive + Booster E-Drive
- 180 kW + 90 kW
- Main Drive with Gear Shift
- Adopted to Existing Axle Drive

For more information, see:

<https://www.ika.rwth-aachen.de/en/research/projects/energy-and-drivetrain-management/2816-concept-elv2-en.html>



E-DRIVE FOR COMMERCIAL VEHICLE

- Input 1x 180 kW or 2x 90 kW
- $n_{in} = 8,000$ rpm
- $n_{out} = 760$ rpm
- Options: Gear Shift
Parking Brake



AIRCRAFT PROPULSION GEARBOX

- $P_{\max} = 120 \text{ kW}$
- $n_{\text{in}} = 18,000 \text{ rpm}$
- $n_{\text{out}} = 1,760 \text{ rpm}$

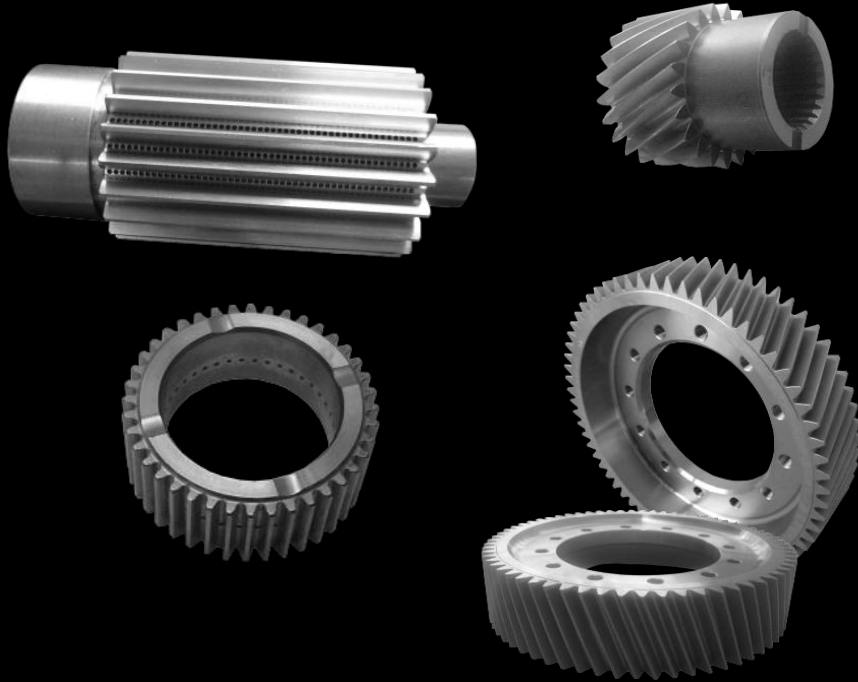
GEARBOX COMPONENTS

EXAMPLES



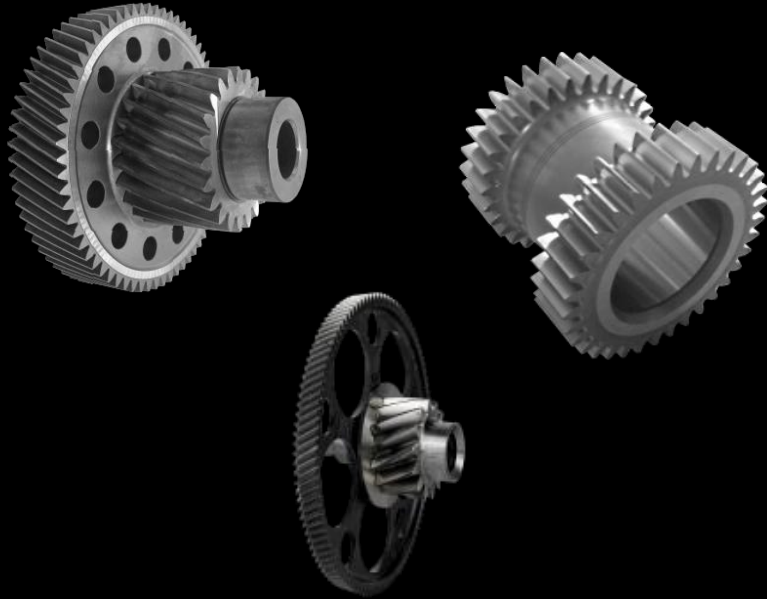
GEARBOX COMPONENTS

- Calculation and Design
- Process and Tool Planning
- In-house CAD/CAM
- Rapid Production
- Supplier Network for Special Manufacturing Processes
- Full Documentation



SPUR AND HELICAL GEARS

- Up to Ø250 mm
- Standard and Customized Profiles
- Heat Treatment and Surface Finishing
- Highest Quality Grades
- Tool Design upon Request



ASSEMBLED GEARS AND SHAFTS

- Several Gears on One Shaft
- Joints Welded
 Press-fitted
 Bolted



OTHER TOOTHED AND MILLED COMPONENTS

- Design Support
- CAD/CAM Manufacturing

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