



See the difference!

MUTAX SIMPLEX

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DURUMAX

DURUTRAIL®



Gearboxes and Gear Sets for Locomotives,
DURUTrains and Light Rail Vehicles



DURUSPEED

HENSCHEL Antriebstechnik



Excellence in Railway Technology from long Tradition!

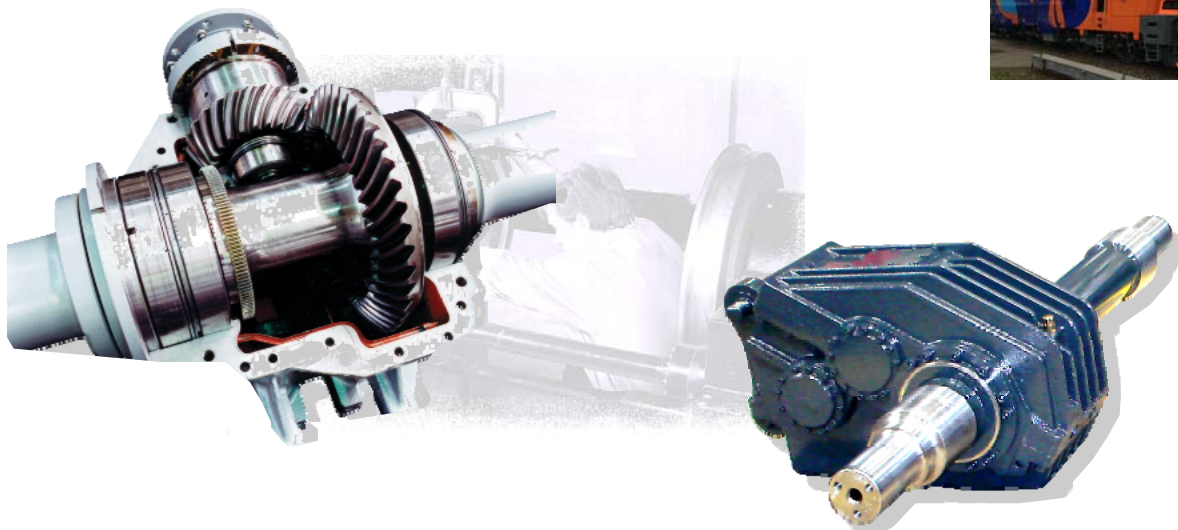
1810	Founding of the company "Gießerei und Maschinenfabrik Kassel" by G. Chr. Carl Henschel (1759-1835)
1837	Commissioning of the plant at Holländischer Platz with the name "Henschel & Sohn, Cassel"
1848	First Henschel-Locomotive named "Drache" (Dragon) Carl Anton Henschel (1780-1861) starts with built up of locomotives Expansions of operation by Oscar Henschel (1837-1894)
1899	5.000. locomotive had been produced
1910	Centenary of the company Henschel, 10.000. locomotive had been produced
1923	20.000. locomotive had been produced
1931	Taking over the locomotive-manufacturing of Hannoversche Maschinenfabrik AG, Hanomag, Hannover (seit 1846); Henschel rises up to the biggest manufacturer of locomotives
1960	150-birthday; 30.000. Henschel-Locomotive had been produced for Ghana
1976	Renamed in: "Thyssen Industrie AG Henschel" (shortform: Thyssen Henschel); 32.000. locomotive had been produced for Egypt
1990	Founding a new company with Asea Brown Boverié under contribution of the locomotive part of Henschel and Wagon Union Renamed in: "ABB HENSCHEL AG" (3.600 employees and 500 million Euro sales volume)
1991	Delivery of the 33.000 Henschel-Locomotive ICE-traction unit to the German National Railways (Deutsche Bundesbahn) The standard gearbox program had been sold to Flender. The manufacture of gearboxes, which is specialised into worm gearboxes, extruder gearboxes, locomotive axle gearboxes and custom gearboxes, remains to Henschel in Kassel.
2002	Renamed in "Henschel Industrietechnik GmbH" with product divisions Power Transmissison, Mixing Technology and Handling Systems.
2003	KERO Holding AG takes over Henschel Industrietechnik GmbH from ThyssenKrupp Technologies AG
2004	Spin-off Henschel Antriebstechnik GmbH
2006	Management buy-out of Henschel Antriebstechnik GmbH
2009	Foundation of Henschel Fertigungstechnik Heiligenstadt, Germany
2010	Foundation of Henschel Power Transmission Technology Co.,Ltd.,Shanghai
2011	Matthias Henke owns 100% of the parts of HENSCHEL Antriebstechnik GmbH
2013	Creation of HENSCHEL Holding and foundation of HENSCHEL ExtruTec GmbH Market launch of the Xtreamor® melt pump



HENSCHEL Antriebstechnik GmbH has its headquarter in Kassel, located in the centre of Germany.

HENSCHEL, a company with a longstanding tradition, was founded in Kassel in 1810, their activities in building gearboxes started 1918. HENSCHEL gearboxes are used worldwide for a variety of applications and are a synonym for quality, reliability and performance. In many areas we are viewed as the trendsetter of the industry.

Precedence has been set for efficiency and reliability, yet keeping economy of scale as the highest priority. Our quality standards and the close relationships with our customers made us a dependable partner, acknowledged worldwide. HENSCHEL stands for power of innovation and top-notch quality project engineering. Our products are constantly improved or newly developed to set the assessment objectives for the future.



DURUTRAIL[®]-locomotive gearboxes and spare parts for axle gearboxes for locomotives

A long-standing and successful tradition in the locomotive industry

The name HENSCHTEL stands for a long-standing successful tradition in the locomotive industry. With our competence, know-how and high quality we manufacture and supply a wide range of gearbox models for diesel-hydraulic, diesel-electric and electric locomotives as well as for trams and light rail vehicles.

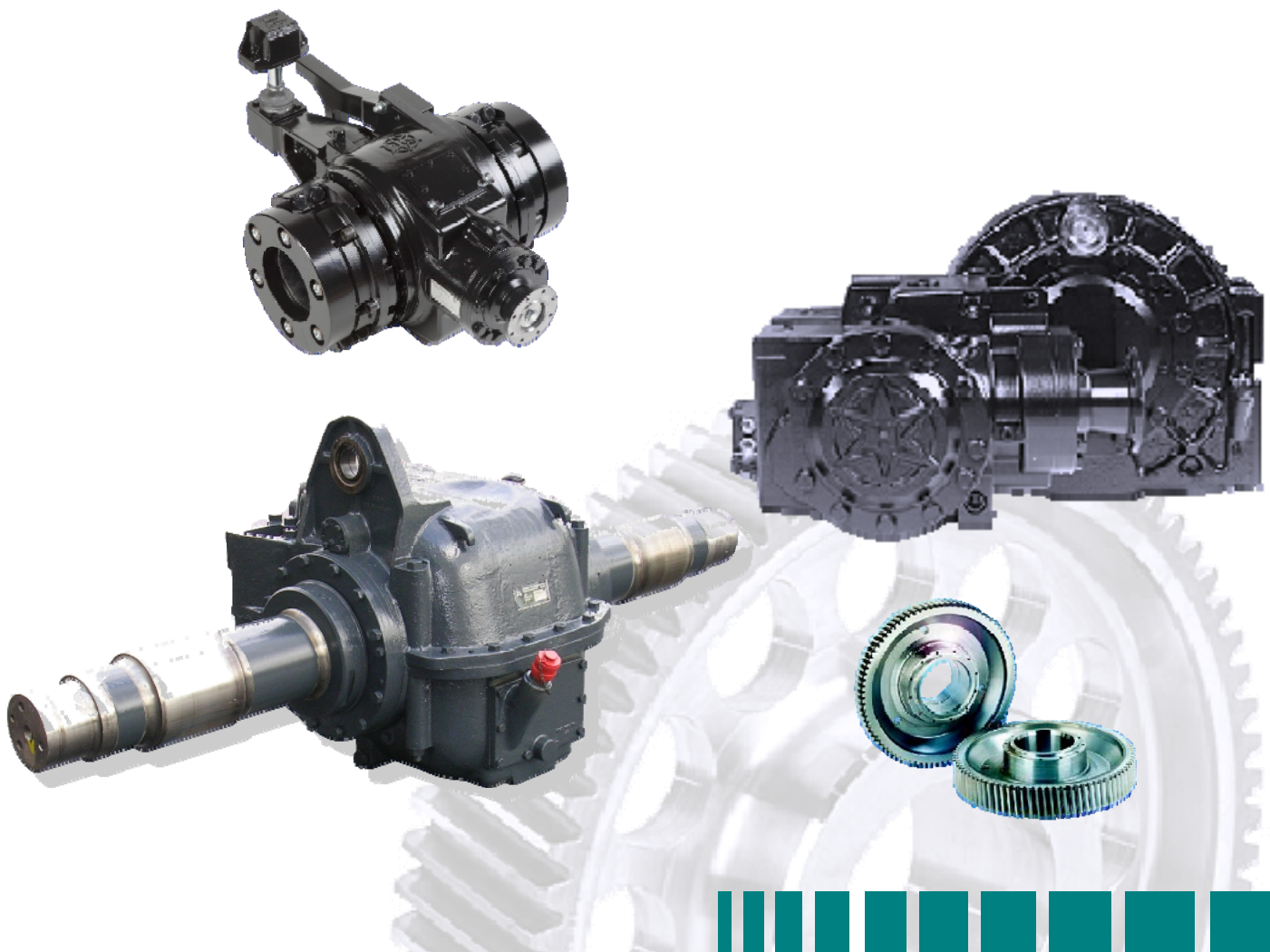
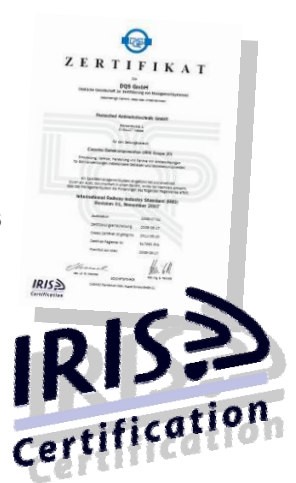
By applying modern design and manufacturing methods the wheel set gearboxes are designed in a modular system. We can offer you a wide spectrum. The locomotive axle gearbox series types AK, AKV, ATV and RKS as well as special spur wheel back gears for E-drives bring "movement onto the rails". In various research projects we have successfully developed and tested locomotive gearboxes at maximum drive speeds of 280 km/h or 1600 kW per wheel set.

HENSCHTEL Antriebstechnik guarantees you a maximum in service life and running capacity for a minimum in maintenance and repair costs.

The global quality standard IRIS means International Railway Industry Standard and has been

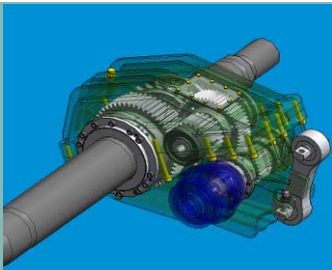
developed especially for the railway industry on the principles of the ISO 9001. Increasing requirements on the quality level and growing opening and globalisation tendencies within the railway markets have made the leading rail operators, system developer and contractors defining the IRIS standard which each supplier in the railway business has to meet in future.

HENSCHTEL Antriebstechnik is the first gearbox manufacturer in the world who has obtained the IRIS certificate.



Experience, accurate engineering work, state-of-the-art design and calculation software, intensive type tests. - *Reliability is our standard.*

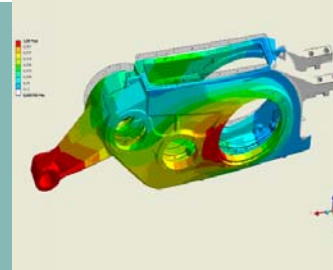
Demands on drive systems for railway application are tough. But besides the mechanical properties individual solutions and close co-operation with the customer become more and more important as well. As a partner with decades of experiences HENSCHEL offers complex engineering solutions, fast and effective. - Our customers benefit from it and this from the beginning of the planning period.



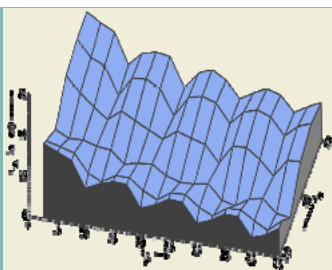
Designing with 3D-CAD-Software



Low temperature test at an AK G 45 gearbox



FEM-analysis at an axle gearbox RS2-16



Incitation level L_A is a gauge for sound emission



Type-Test bench for load runs



State-of-the-art gear calculation software

CAD software

Applying latest 3D CAD software ensure efficient design work with shortened development times. Interfaces can be created and optimized together with the customer easily.

Sound level optimisation

Topology optimised gear flanks, intelligent determination of the overlap ratio and best production capabilities ensure minor noise levels.

FEM finite element method

By FEM analysis loads within the gearbox will be identified and structures can be optimised. The result are material and weight optimised drive systems meeting all the load requirements.

Test bench

HENSCHEL Antriebstechnik has several gearbox test benches. Extensive load tests are carried out on prototypes to examine temperature, noise level and vibrations. Where it is required these tests effect at temperatures up to minus 50 °C.



Damage analysis and overhaul, spare parts service

Selective References



Diesel locomotive type DHG300 from HENSCHEL



DURUTRAIL® AK 20



Pesa, heavy electric Locomotive



DURUTRAIL® RS1-22-4,81



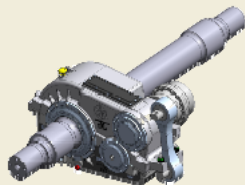
Generator Drive for Passenger coaches (160 km/h) Russia Railways



DURUTRAIL® AK G 45



Loram, Grinding Vehicle for German Railways



DURUTRAIL® RS2-22, 5-6,76



Windhoff, Multi Purpose Vehicle



DURUTRAIL® RSK 22,2-2,62

Selective References



Fully suspended locomotive drive



DURUTRAIL® ASH-21,5-5,17
DURUTRAIL® ASH-21,5-4,05



Diesel-hydraulic locomotive series
V100



DURUTRAIL® RKS and RSKS spur gear
bevel gearboxes



Locomotive DE 18 (120 km/h)
Vossloh, Germany



DURUTRAIL® RS-22,5-6,726



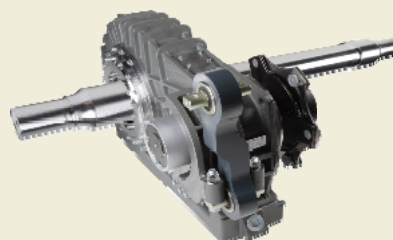
Railcar V for subway line U1-U4,
Vienna made by Traktionssysteme



Helical spur gear sets



WAP-5 locomotive (200km/h)
CLW, Indian Railways



DURUTRAIL® RS-20-3,94
Semi suspended traction drive



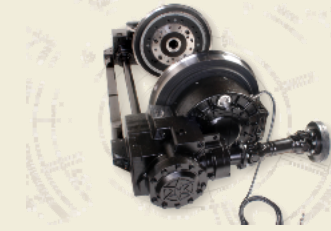
Regional train Protos build by Fahrzeugtechnik Dessau AG



DURUTRAIL® EMU 18,5-4,8



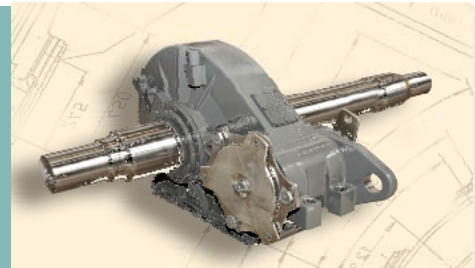
Tram traction system for a 100% low-floor tram made by Koncar



DURUTRAM® NF 70-7,5



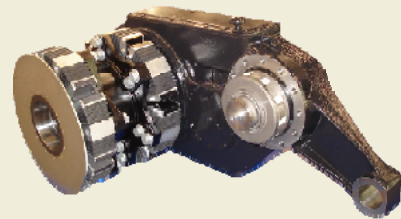
Diesel-electric locomotive for Saudi-Railway-Organisation made by CAF



DURUTRAIL® RS 22,5-5,09



Single deck regional EMU BETA2 for Roma/Viterbo railway made by Firema



DURUTRAIL® RS 2-16-7,11, fully suspended



ICE-T Pendolino BR 411/415 (280 km/h) for Alstom, Switzerland



DURUTRAIL® RK 18-2,53

www.Henschel.de

Excellence in Power Transmission Technology



DURUSPEED

-  DURUMAX®-Extruder Gearboxes
-  MUTAX®-Worm Gear Sets
-  DURUTRAIL®-Railway Gearboxes
DURUTRAM®-Gearboxes for Trams
-  DURUHIT®-Special Gearboxes
-  Job Order Production & Heat-Treatment
Calibration- & Measuring Services

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