

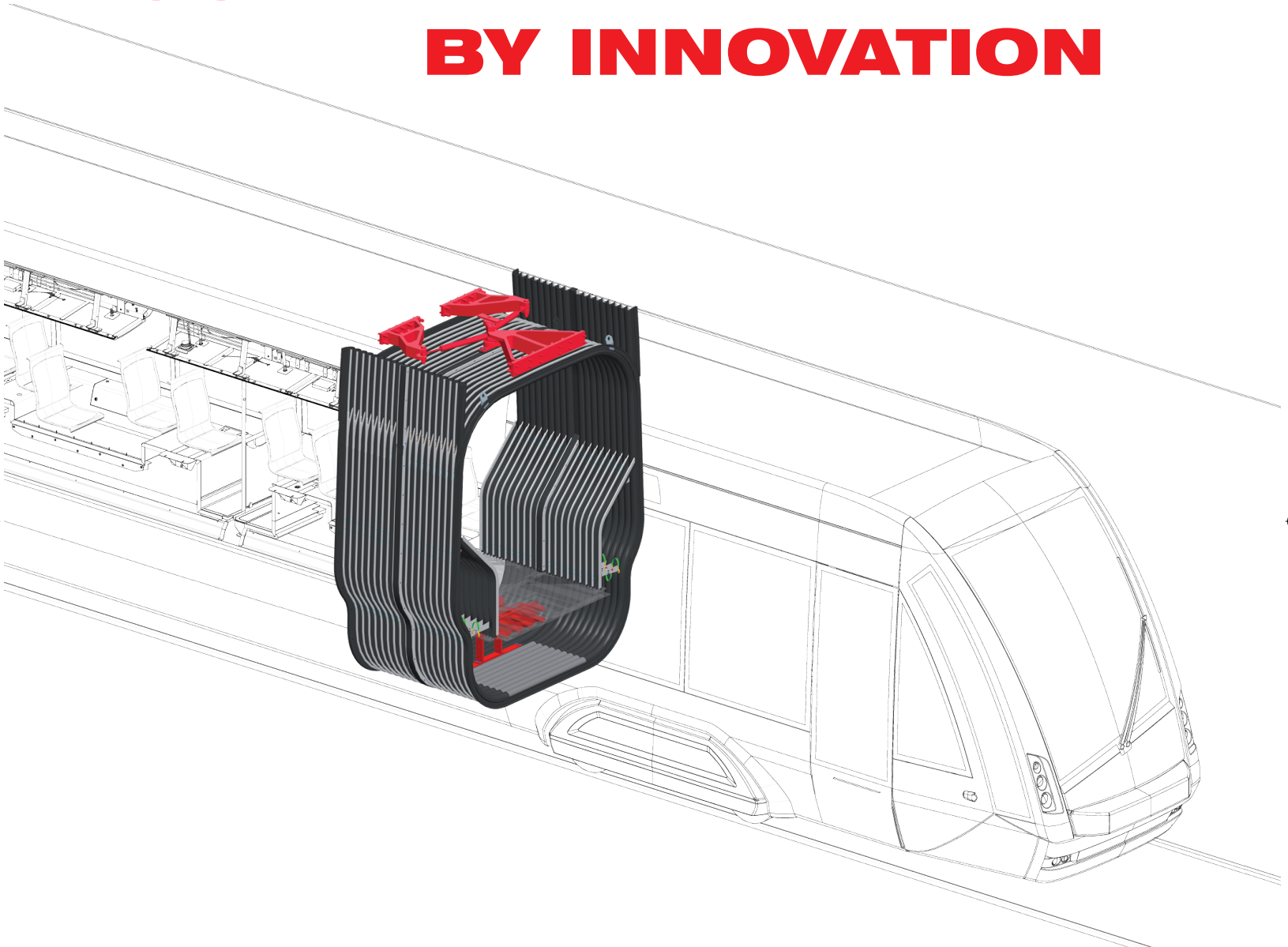


ULTIMATE
Transportation Equipment

ATG AUTOTECHNIK GMBH



COMPETITIVE BY INNOVATION



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Acoplamientos Gangways अंतर्कोच गलियारे Passaggi Acoplamientos Gangways अंतर्कोच गलियारे Passaggi

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車铰接装置 जोड़ंत articulación 車両連結部 шарнир 연결부 articulations Articolazione





COMPANY HISTORY ULTIMATE

- 1979 Establishment of T&T International - USA for Rail and Bus Equipment
- 1992 Establishment of T&T International Transportation Equipment B.J. - P.R.C. to meet requirements of local content in chinese rail and bus market
- 1999 QINGDAO ULTIMATE Transportation Equipment Co., Ltd. was established in Hi-Tech Zone Qindao - P.R.C
- 2001 Establishment of ULTIMATE Australia
- 2003 Establishment of ULTIMATE Europe
- 2004 Extension of QINGDAO ULTIMATE Production facility
- 2008 Establishment of ULTIMATE North America

Production plant (P.R.C.) Qingdao



COMPANY HISTORY ATG

- 1989 ATG established to design and manufacture articulations for articulated buses, The ARTIC-O-MAT range of articulations has expanded considerably since 1989.
- 1991 ATG opens the new factory in SIEK (near Hamburg).
- 1993 Start of serial production of the ARTIC-O-MAT Lyon pusher articulation for the RVI Agora.
- 2000 ATG already delivered 3000 articulations for buses.
- 2008 ATG starts the design and development of articulations for LRV's.
- 2010 Bus Articulation number 5 000 is delivered.

Production plant (Germany) Siek



Europe



North America



Australia





The Complete System - Synergy in Perfection



The Cooperation

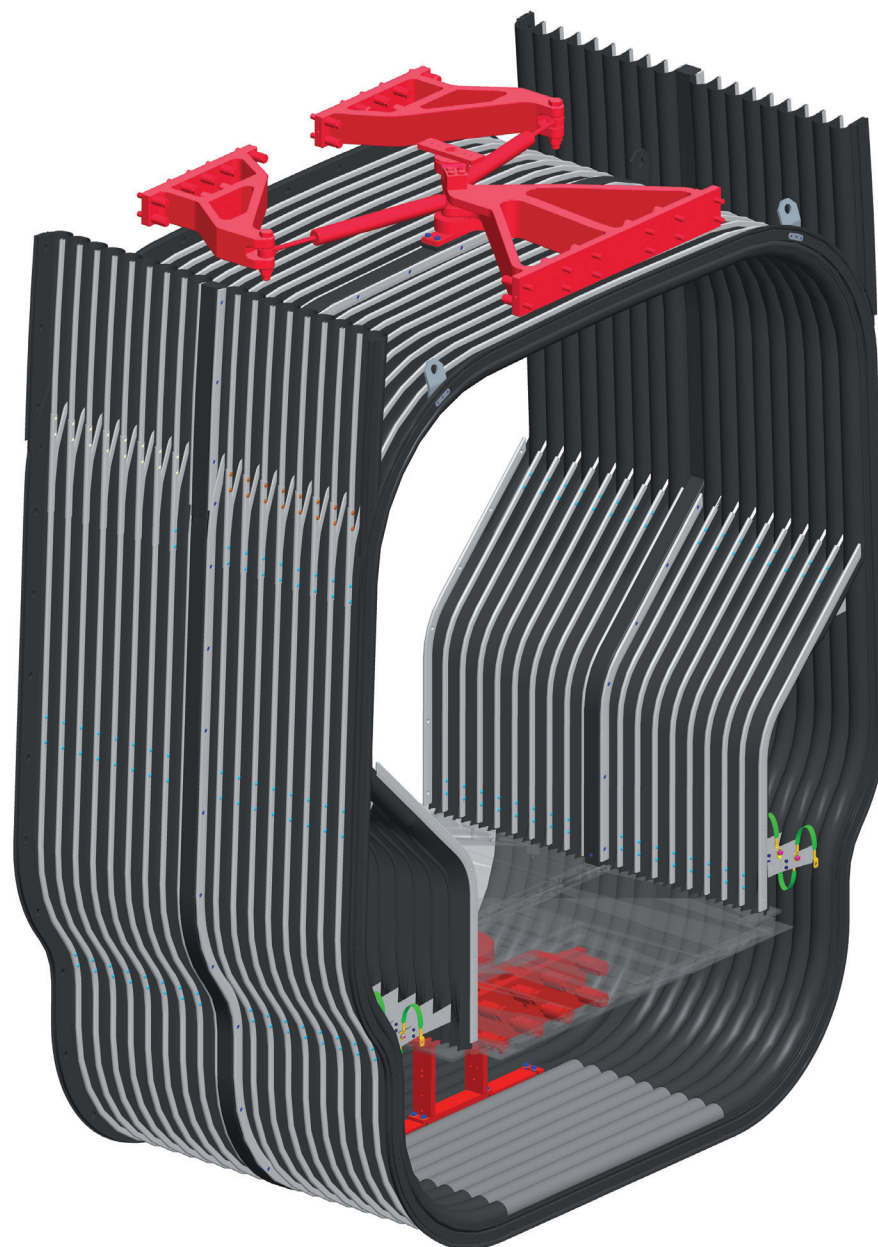
of ULTIMATE and ATG gives our customers the opportunity to buy a complete system manufactured by two partners who are specialists in their fields.

- ULTIMATE in developing and producing folding and corrugated bellows, turntables and complete floor systems.
- ATG in developing and producing of complete articulations and turntables.

The Scope of Supply

of the complete system comprises the following components:

- Compact lower and upper articulation systems
- Floor system
- External/internal folding or corrugated bellows
- Optional climatic canal
- Optional cable support system

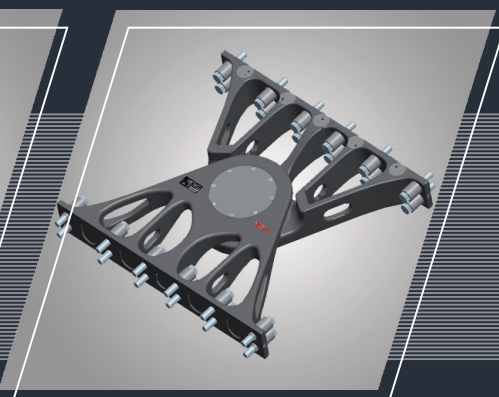
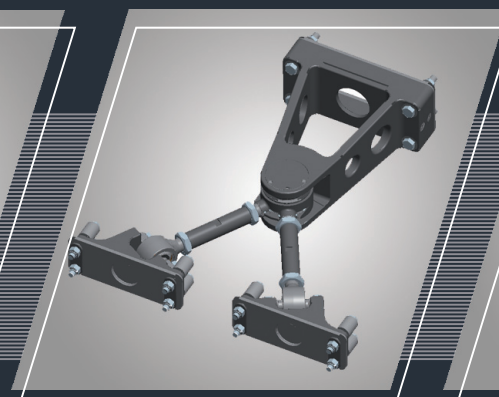
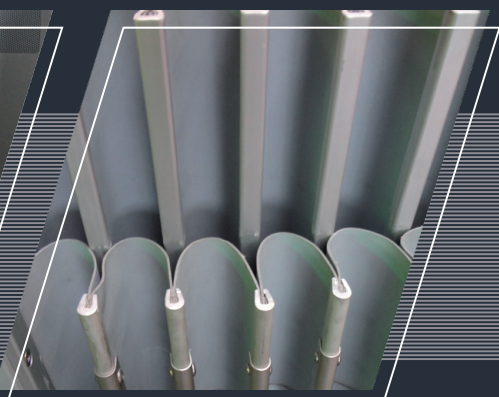


The Complete Gangwaysystem

- is easy to install
- can withstand excessive operational demands due to its optimized cast construction
- ideally suited for high- and low floor applications

Design

The complete gangway can be adapted to each customer vehicle structure. The bellows materials meet the latest valid fire protection standard and can be delivered in many modern colours.



COMPETITIVE BY INNOVATION

Product Range

ULTIMATE offers a wide range of gangway systems, suitable for all types of articulated and non-articulated vehicles which can be equipped with:

- Folding bellow
- Single corrugated bellow
- Double corrugated bellow
- Interior panelling
- Design, noise insulation, fire safety and thermal insulation are adjusted to the client's particular specification with focus to best price to our clients.

Material science

ULTIMATE offers a considerable expertise in manufacture of bellow materials according to all main fire resistance standards:

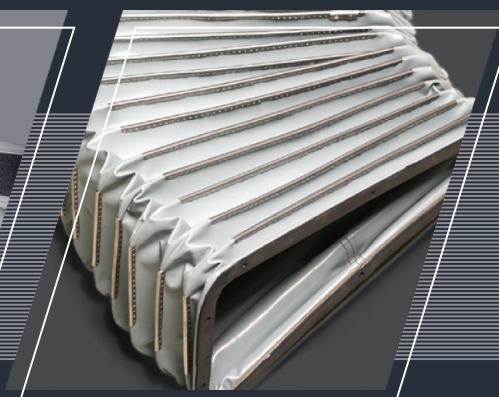
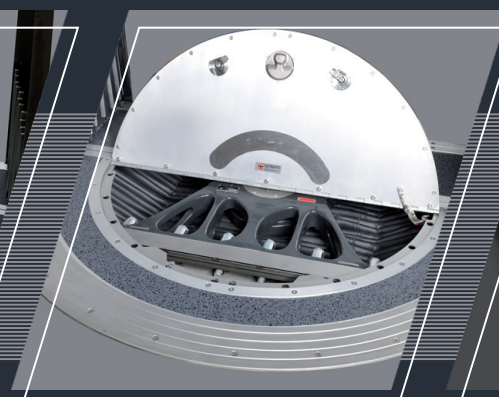
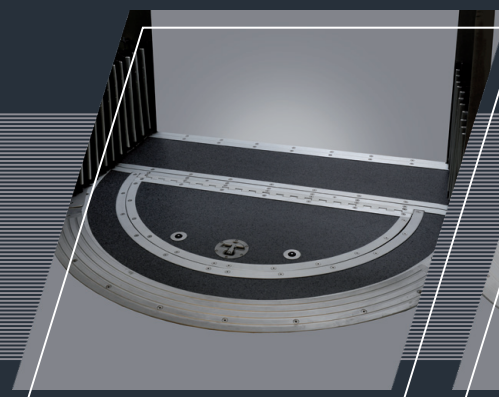
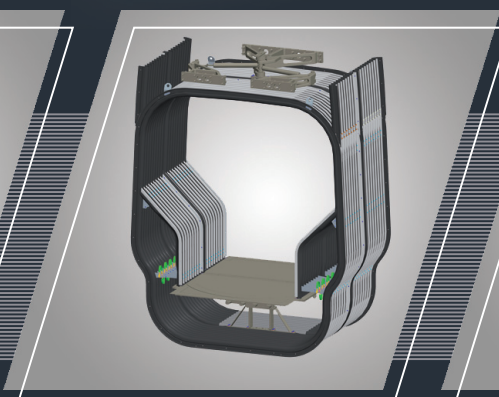
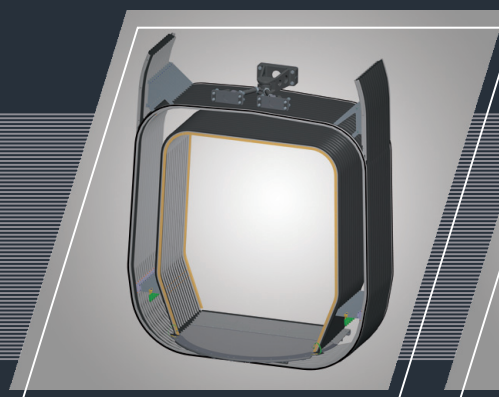
- BS 6853
- NFF 16-101
- DIN 5510
- NFPA 130
- UNI 11170-3
- ASTM
- EN 45545-2

Track Investigation

- ULTIMATE has developed a special movement analysis software, that can evaluate and simulate all envisaged vehicle movements, already in the design phase.
- This software can also be used later on our special six axis test bench to confirm all results of initial evaluations by movement and endurance testing and finally proves the product safety and product reliability.

Testing Capabilities

- Fire, Noise, Water and Environmental tests are carried out in several specialised test labs in Europe, Australia and Asia to give the customers continued high confidence in all our products.
- Assessments of the gaps, steps respective general movement performance are carried out at our own test benches to prove the product conformity according customer specifications.



COMPETITIVE BY INNOVATION

ARTICULATIONS

Product Range

ATG has been building articulation systems for buses and rail vehicles for many years.

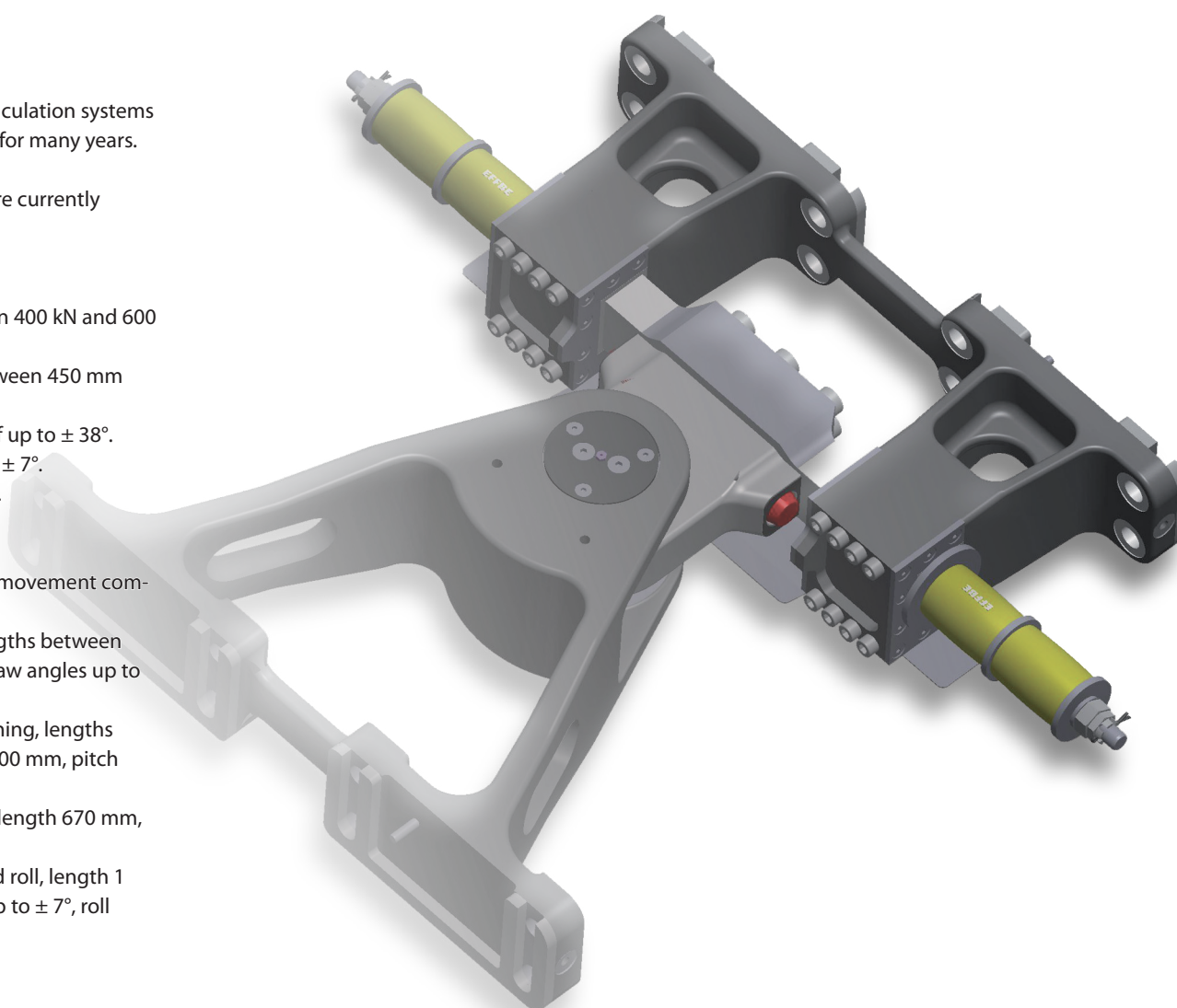
The following variations are currently available:

Lower articulations:

- For load ratings between 400 kN and 600 kN.
- Installation lengths between 450 mm and 800 mm.
- Rotating (Yaw) angles of up to $\pm 38^\circ$.
- Pitching angles of up to $\pm 7^\circ$.
- Roll angles of up to $\pm 3^\circ$.

Upper articulations:

- Versions for all types of movement combinations.
- Rotating (yaw) only, lengths between 520 mm and 900 mm, yaw angles up to $\pm 38^\circ$.
- Rotating (yaw) and pitching, lengths between 670 mm and 900 mm, pitch angles up to $\pm 7^\circ$.
- Rotating (yaw) and roll, length 670 mm, roll angle up to $\pm 1^\circ$.
- Rotating (yaw) pitch and roll, length 1 000 mm, pitch angles up to $\pm 7^\circ$, roll angles up to $\pm 3^\circ$.



Turntable platforms

- ATG patented solution for sloped floors.
- Floor slope of up to 5.5° possible.
- Checkered or smooth aluminum plate.
- Floor can follow all combinations of yaw, pitch and roll angle allowed by the upper articulations.

Material Science

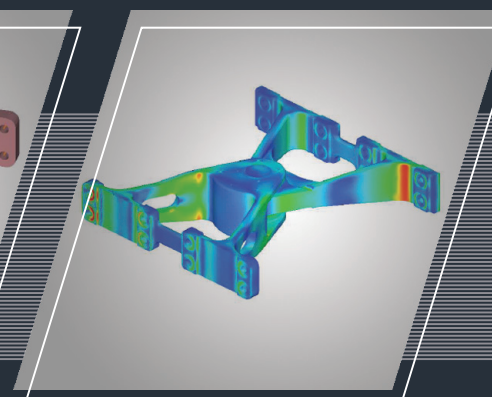
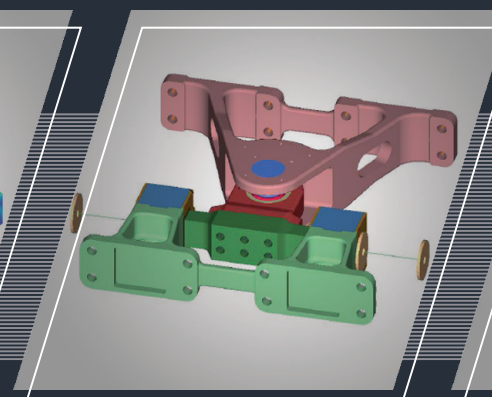
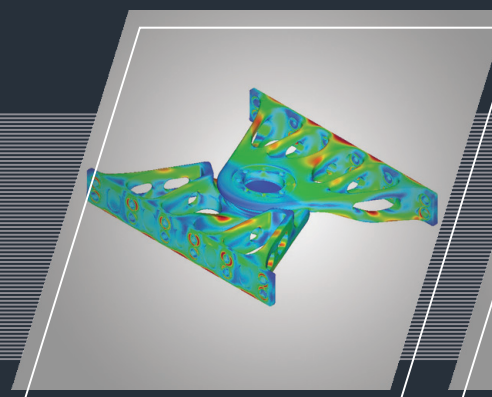
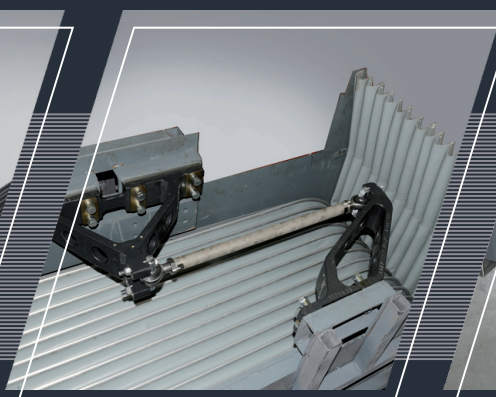
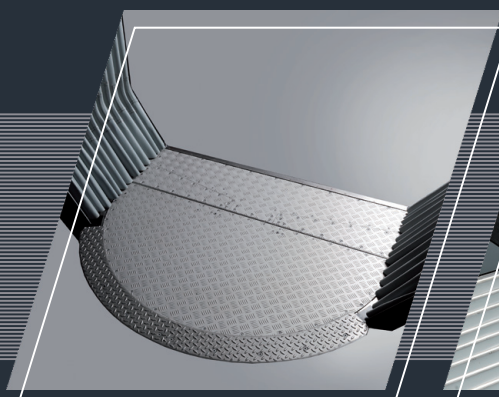
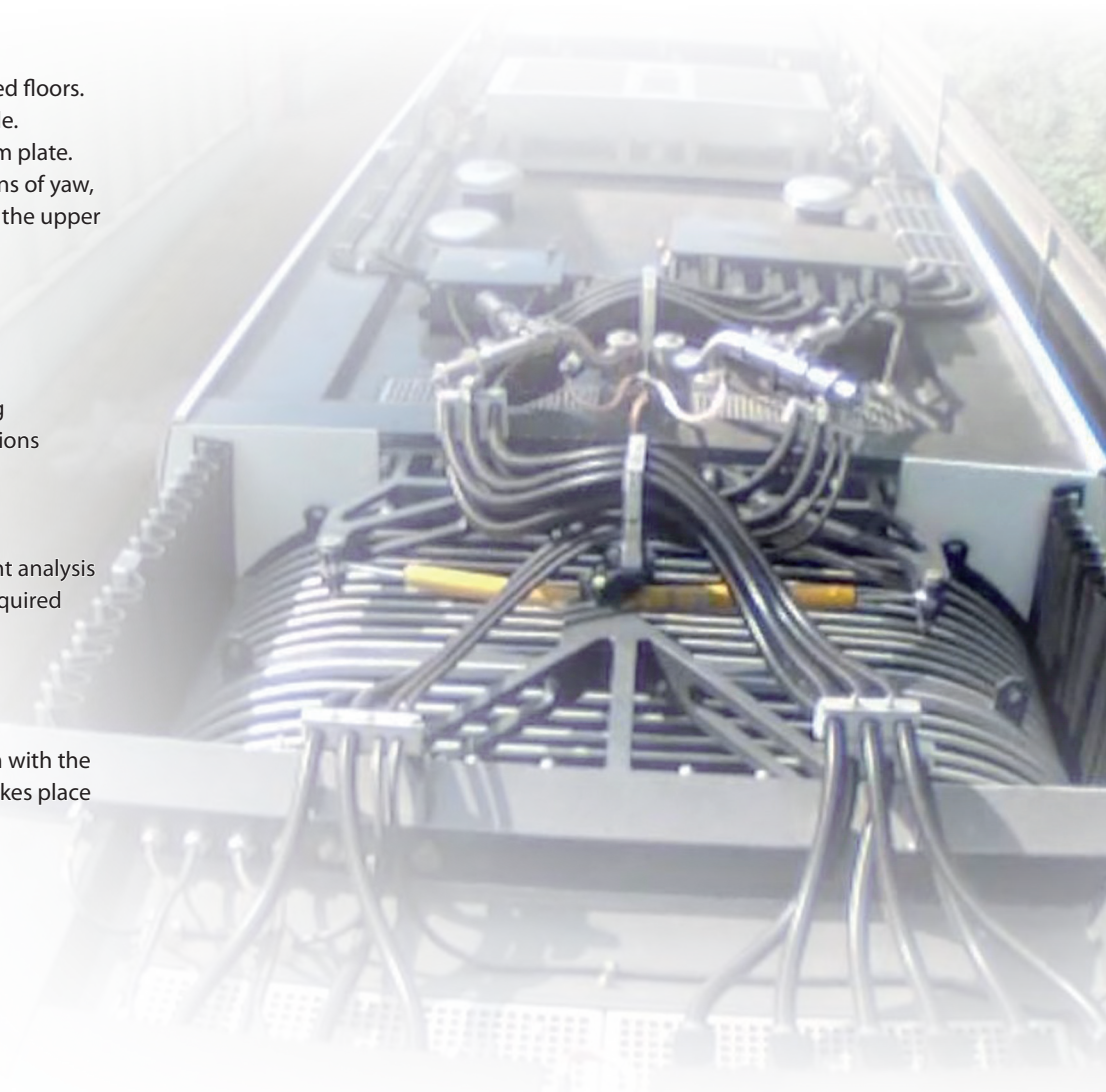
- High strength cast steel
- Quality assured by X-ray testing
- Strength verified by FE calculations

Track Investigation

ATG uses custom made movement analysis hardware, that can simulate all required angle combinations.

Testing Capabilities

The proof of the complete system with the defined maximum movements takes place on a test jig.





TESTING CAPABILITIES

In-house testing

- In order to meet customer requirements as well as national and international standards, Ultimate/ATG has set up several testing capabilities.
- In-house testing on 1:1 full size equipment is carried out like endurance tests, movement tests, water tests, a. s. o.
- Ultimate/ATG uses computer-aided design, stress calculation and movement investigation on 3D-CAD and full scale movement test jig to define the system design.

External testing

- In collaboration with independent test institutes we perform shock & vibration tests, noise, fire, climate and paint tests on full size products and materials.
- All of those test methods secure a continual development and high quality level of all our products.

AFTER SALES SERVICE

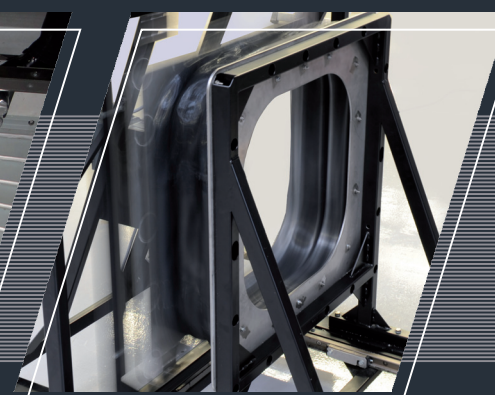
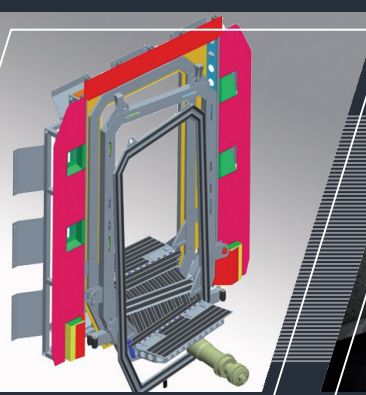
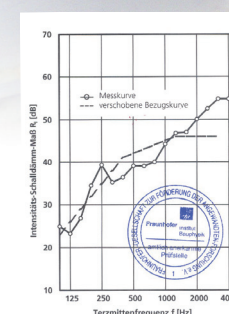


Service

- Ultimate/ATG supports its clients and products worldwide for all service purposes, which is handled by local subsidiaries or agents.

Spare parts / After-Sales

- The local subsidiaries or agents also take care on spare parts and after-sales activities.





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