



# **ENGINEERING SIMULATION SOLUTIONS - RAILWAY INDUSTRY**

## PRODUCT DEVELOPMENT WITH VIRTUAL PROTOTYPES

- LOWER DEVELOPMENT, TESTING, CERTIFICATION, WARRANTY & CALL-BACK COSTS
- ▶ DEVELOPMENT EFFICIENCY → FASTER GO-TO-MARKET TIME
- DESIGN OPTIMIZATION & MANAGING DESIGN COMPLEXITY
  - REDUCTION OF LABOUR, MATERIAL REQUIREMENTS & PHYSICAL VALIDATION COSTS
  - WEIGHT REDUCTION & SPEED CONTROL & EFFICIENCY
- IMPROVED FUNCTIONAL SAFETY & SECURITY
- ELECTRIFICATION & AUTONOMOUS SYSTEMS
- LIFE-TIME ESTIMATION



- JOINTS, COUPLINGS, SUSPENSION & BRAKE SYSTEMS MULTI-BODY SIMULATIONS
- > ADVANCED MATERIAL SOLUTIONS INCLUDING COMPOSITES
- NOISE, VIBRATION & HARSHNESS (NVH), THERMAL COMFORT ANALYSIS
- HEATING, VENTILATION AND AIR CONDITION (HVAC) SYSTEMS





## **FROM OUR PROJECTS**

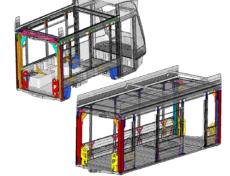
#### **MOTOR BOGIE**

- Standard load-case combinations
- Strength assessment
  - Fatigue evaluation of welds

#### **INSTRUMENT PANEL**

- Quasi-static loadcases
- Layer optimization of polymer composite
- Evaluation of composite failure criteria



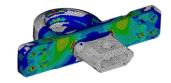


#### **TRAM CALCULATION**

- Stiffness and strength analysis
- Life-time estimation
  - Mass-optimization



## WHY eCON?



#### PROVIDING CUTTING-EDGE ENGINEERING SERVICES

- 18+ YEARS EXPERTISE IN ENGINEERING SIMULATION & AUTOMATION SERVICES
- > 70+ PROFESSIONAL ENGINEERS WITH UP-TO-DATE KNOWLEDGE
- > PROFESSIONAL ENGINEERING **SUPPORT** TEAM TO HELP YOU OUT
- NUMEROUS INTERNATIONAL PROJECTS IN DIFFERENT INDUSTRIES AND AREAS
- > HIGHLIGHTED EXPERTISE IN **COMPOSITE** MATERIALS
- > ADVANCED R&D COMPETENCIES, IN-HOUSE MEASUREMENT LABORATORY
- ➤ TAILORED SOLUTIONS FROM SIMPLE MODEL BUILDING THROUGH COOPERATION WITH IN-HOUSE CAE TEAMS, TO COMPLETE SIMULATION BACKGROUNDS
- > WIDE SIMULATION PORTFOLIO COVERING ALL IMPORTANT AREAS AS:
  - STRUCTURAL (FINITE ELEMENT ANALYIS)
  - FLUID (COMPUTATIONAL FLUID DYNAMICS ANALYSIS)
  - ELECTROMAGNETIC ANALYSIS
  - MULTIBODY SIMULATION (MBS)
  - 1D SYSTEM SIMULATION
  - INJECTION MOLDING SIMULATIONS
  - METHOD DEVELOPMENT
- eCON IS AN INDUSTRIAL AUTOMATION EXPERT (AS PRIME CONTRACTOR), CAPABLE OF OFFERING COMPLETE SCALE OF PRODUCT DEVELOPMENT PROCESS

### SOME OF OUR REFERENCES







































BorgWarner

