



**JOEL D. HASSEBROCK, P.E.**  
**SENIOR STAFF CONSULTANT**

[JDHASSEBROCK@ENGSYS.COM](mailto:JDHASSEBROCK@ENGSYS.COM)

Mr. Hassebrock is a Senior Staff Consultant located in the Omaha, Nebraska office of Engineering Systems Inc. (ESi) and is a licensed professional engineer in the State of Nebraska, practicing metallurgical and materials engineering. He is part of ESi's Rail Practice Group and serves as a Site Safety Coordinator for the Omaha office.

Mr. Hassebrock has over a decade of experience specializing in failure analysis, metallurgical analysis, and materials testing. His work experience spans multiple industries and includes a wide range of different projects, including various railroad related failure analyses, bearings, gears, shafts, fasteners, corrosion mechanisms, heat treating, weld failure, and component testing. His experience includes the use of glow discharge and optical emission spectrometers to perform chemical analysis, universal servo-hydraulic tensile testing machines to perform tensile, fatigue and dynamic testing, scanning electron microscopy (SEM), optical microscopy, metallographic sample preparations equipment, the use of microhardness Brinell and Rockwell testing equipment, and metalworking lathes & mills.

Mr. Hassebrock's experience includes field testing, data acquisition & processing, onsite third-party quality assurance, onsite installation & repairs of track deflection measurement systems, and dynamic railway vehicle simulations. Mr. Hassebrock has previously helped develop, implement, and maintain procedures to ensure ISO 17025 accreditation compliance.

## **Areas of Specialization**

- Metallurgical Failure Analysis
- Railcar Wheels, Axles, and Bearings
- Railcar Truck Castings and Assemblies
- Laboratory and Industrial Testing
- Mechanical Testing
- Weld Evaluations
- Corrosion Analysis
- Nondestructive Testing and Inspection
- Fixture and Test Design
- 3-Dimensional Printing

## **Education**

- The Ohio State University
  - Master of Science, Welding Engineering, expected graduation 2027
- Creighton University, Heider College of Business
  - Master of Business Administration, 2013
- Iowa State University
  - Bachelor of Science, Materials Engineering, 2009

## Licensed Professional Engineer (P.E.)

State of Nebraska, License E-17978

## Professional Affiliations

### American Society for Materials International (ASM)

Member

### The Minerals, Metals & Materials Society (TMS)

Member

### American Railway Engineering and Maintenance-of-Way Association (AREMA)

Member of Committee 4 – Rail

### American Welding Society (AWS)

Member

## Positions Held

### Engineering Systems Inc., Omaha, Nebraska

Senior Staff Consultant, 2023 - Present

Staff Consultant, 2019 - 2022

Associate Staff Consultant, 2015 - 2019

### TÜV Rheinland Rail Sciences Inc., Omaha, Nebraska

Manager Vehicle Dynamics and Testing, 2014 - 2014

Laboratory Manager, 2013 - 2014

Laboratory Technician, 2010 - 2013

## Continuing Education

### Crash Reconstruction for the Engineer

Northwestern University Center for Public Safety, Peachtree Corners, GA, 2022

## Publications/Presentations

“A Review of Recent Heavy Haul Wheel and Bearing Failures on North American Freight Railroads”, C. Lonsdale, **J. Hassebrock**, J. Wagner, S. Karunakaran, T. Wynne. International Wheelset Congress (IWC), June 2023, Chicago, IL.

“Failure Analysis of Railroad Components”, **J. D. Hassebrock**, H. C. Iwand, ASM Handbook, Volume 11A: Analysis and Prevention of Component and Equipment Failures, 2021, DOI 10.31399/asm.hb.v11A.a0006837.

“Fracture of Hex Bars During Manufacture”, **J. D. Hassebrock**, H. C. Iwand, Journal of Failure Analysis and Prevention, August 2016.