

THE “SILENT SHIFT” IN HEAVY EQUIPMENT DESIGN

MANUFACTURERS ARE REPLACING STEEL WELDMENTS WITH COMPLEX IRON CASTINGS, FASTER THAN THE MARKET RECOGNIZES.

SURVEY OF
335

decision-makers and
U.S. iron & steel purchasers

Tariffs, trade policy, and ongoing supply chain volatility are reshaping industrial procurement. Manufacturers are shifting from lowest cost to long-term reliability, predictability, and Total Cost of Ownership.

MARKET VALIDATION

THE SHIFT IS ALREADY UNDERWAY

56%

HAVE REPLACED WELDMENTS

99%

REPORT BENEFITS



99%

PLAN ADOPTION IN 2 YEARS



THIS IS NO LONGER EXPERIMENTAL, IT IS OPERATIONAL AT SCALE.

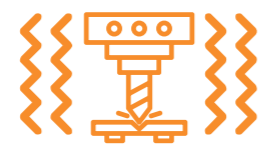
WHY THE SHIFT IS HAPPENING

ENGINEERING AND MARKET FORCES ARE DRIVING CHANGE



78%

Durability priority



40%

Vibration damping

44% / 42%

Quality & consistency



33%

Labor shortage

ADI OUTPERFORMS STEEL IN HIGH-STRESS ENVIRONMENTS

WELDING WORKFORCE SHORTAGE ACCELERATING SHIFT

PERFORMANCE DEMANDS + WORKFORCE REALITIES ARE ACCELERATING ADOPTION.

BARRIERS TO TRANSITION

WHAT'S HOLDING MANUFACTURERS BACK?

TOOLING COST CONCERNS



50%

QUALITY RISK CONCERNS



49%

PERFORMANCE UNCERTAINTY



47%

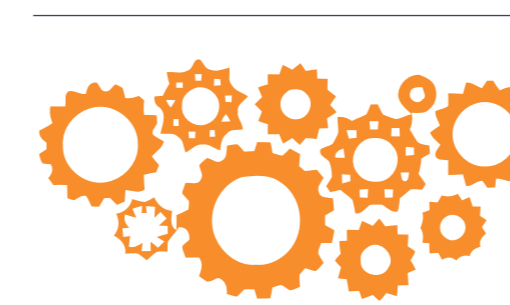
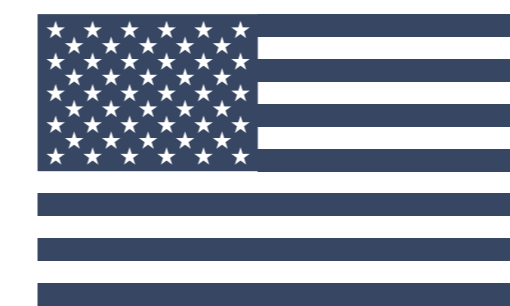
THE BARRIERS WERE REAL, BUT SOLUTIONS ARE NOW DRIVING ADOPTION FORWARD

STRATEGIC CONTEXT

SUPPLY CHAIN REALITY IS REINFORCING THE SHIFT

70%

Prefer “Made in the USA” sourcing



DESIGN DECISIONS ARE NOW DRIVEN BY VOLATILITY, NOT JUST COST OR SOURCE

THE IMPACT ON ENGINEERING

FROM MULTI-PART WELDMENTS TO SINGLE-PIECE CASTINGS

8-10

WELDED PARTS



1

INTEGRATED CASTING

- Reduced assembly complexity
- Improved durability
- Greater consistency
- Lower long-term cost

THE MARKET IS SHIFTING FROM STEEL TO IRON. THE REAL DIFFERENCE IS WHO CAN MAKE THE TRANSITION SUCCESSFUL.

Charter Casting provides engineering-led conversion support to de-risk the transition.

To learn more about this research, contact news@chartercasting.com

BRAND POSITION

“Manufacturers know the shift is coming. The advantage goes to those who convert first, winning on cost, reliability, and supply chain control.”

SHANE BONNER,
President, Charter Casting

