



MacLean-Fogg
COMPONENT SOLUTIONS

MACLEAN-FOGG COMPONENT SOLUTIONS

COMPANY OVERVIEW

AUG2021

MACLEAN-FOGG COMPANY OVERVIEW

MacLean-Fogg Company is a group of global enterprises which partner with key customers to engineer, manufacture, and distribute products for the automotive and power utility marketplaces worldwide.



1925 **Our Beginning**

Founded in 1925, MacLean-Fogg offered one lock nut to North America's railroads.



3,600 **Our Employees**

MacLean-Fogg's worldwide workforce consists of more than 3,200 dedicated employees.



2 Businesses **Our Divisions**

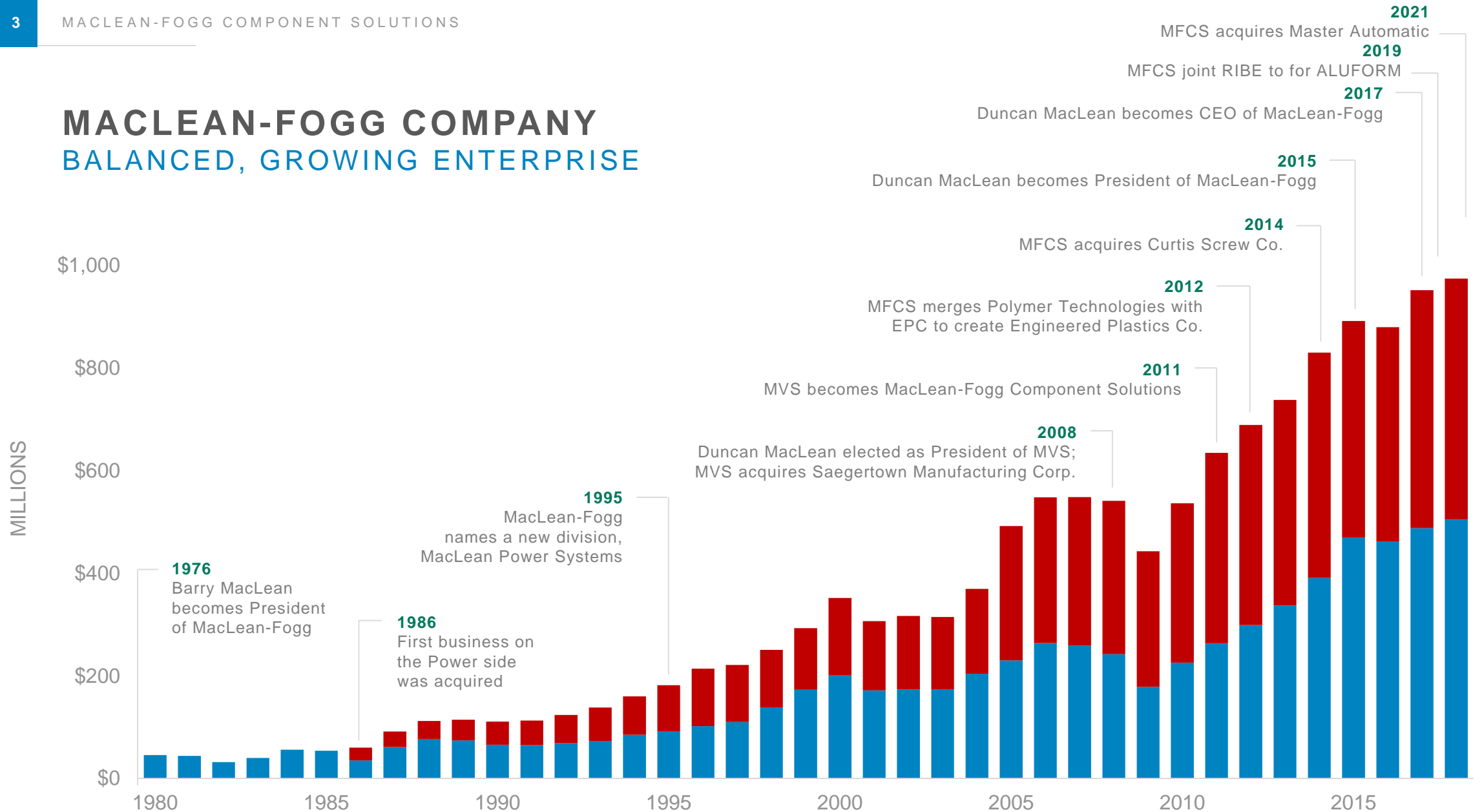
MacLean-Fogg is comprised of two primary businesses: MacLean-Fogg Component Solutions & MacLean Power Systems



28 **Our Facilities**

MacLean-Fogg has 26 manufacturing facilities throughout North America, Europe and Asia.

MACLEAN-FOGG COMPANY BALANCED, GROWING ENTERPRISE



MACLEAN-FOGG COMPANY CORE VALUES



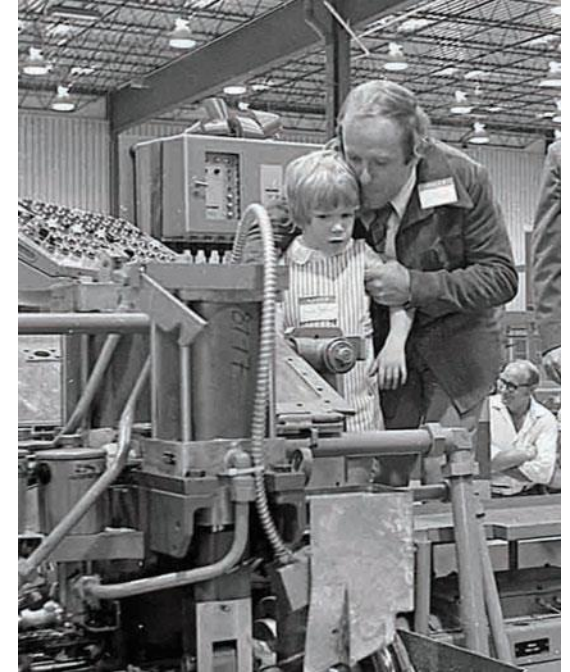
INTEGRITY IS THE
VALUE UPON WHICH
EVERYTHING ELSE
RESTS



IT'S ABOUT
PEOPLE



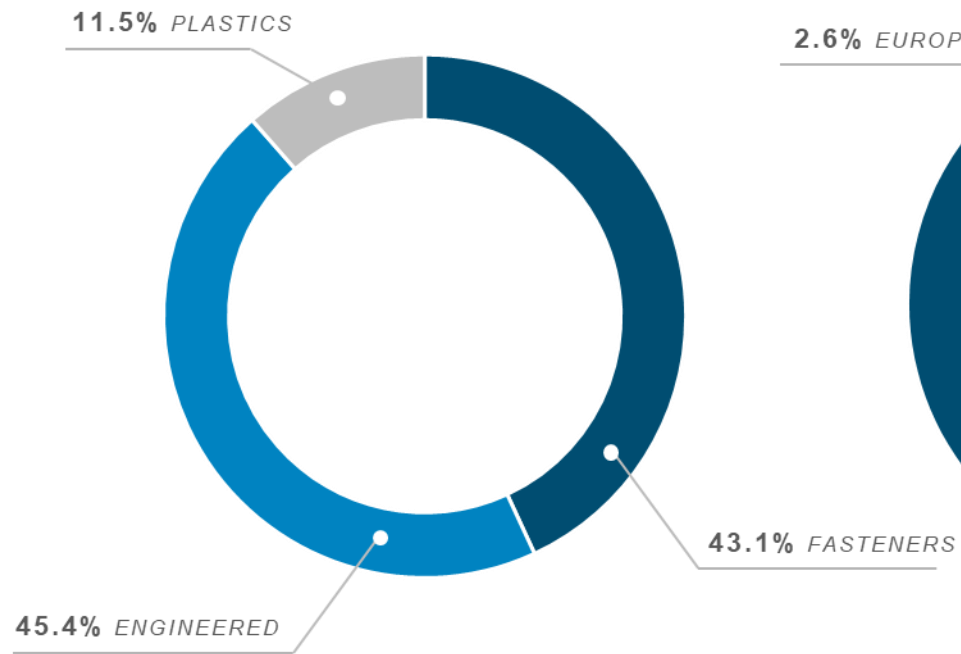
OUR ***CUSTOMERS***
ARE THE FOCUS OF
EVERYTHING WE DO



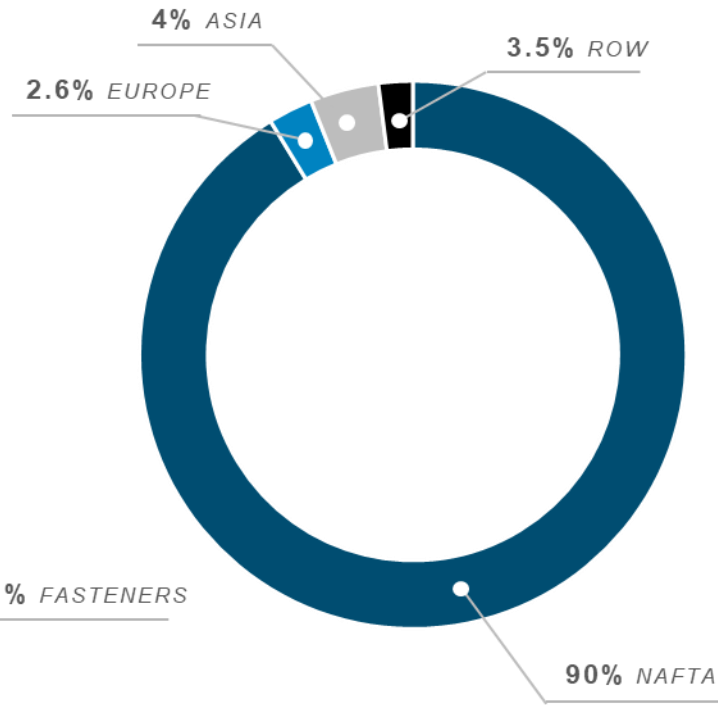
WE VALUE
STEWARDSHIP

2020 MFCS REVENUE

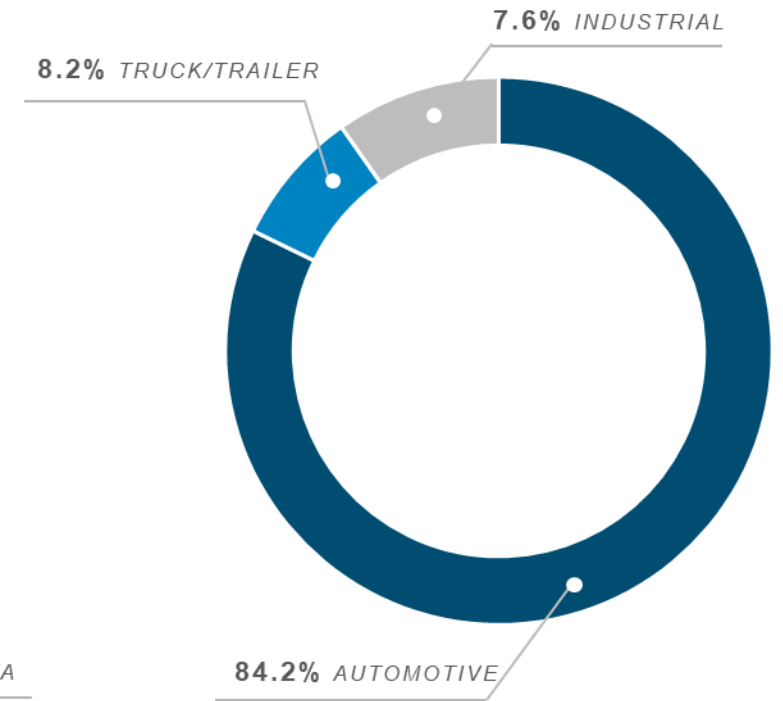
BY DIVISION



BY REGION



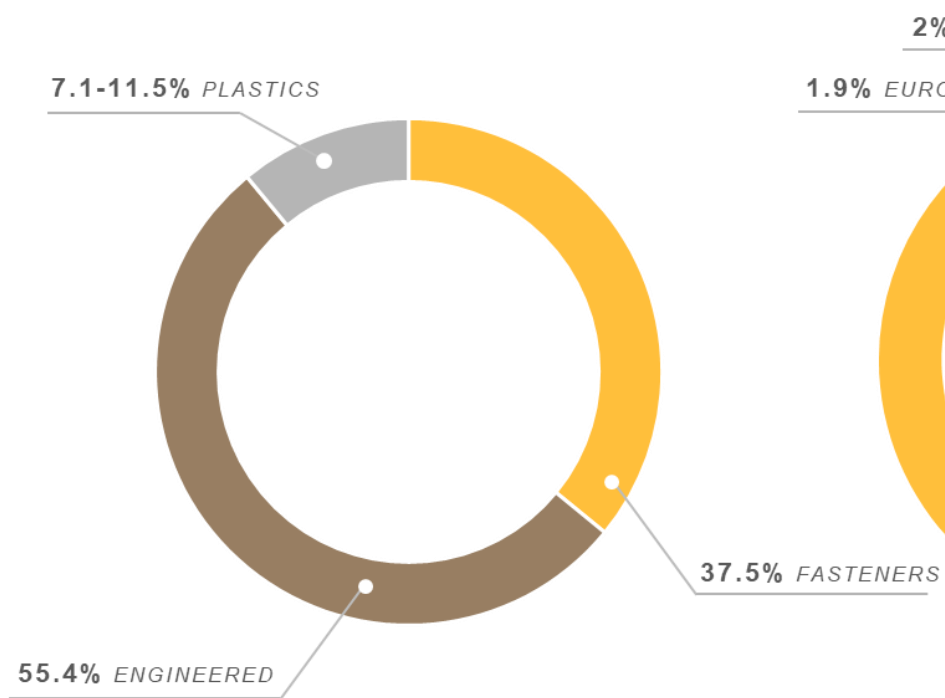
BY MARKET



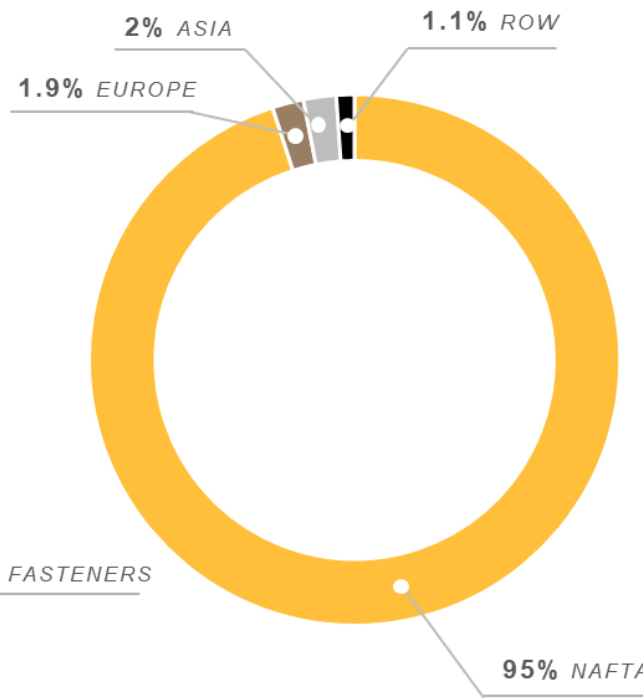
\$400.6M TOTAL SALES

2023 MFCS REVENUE

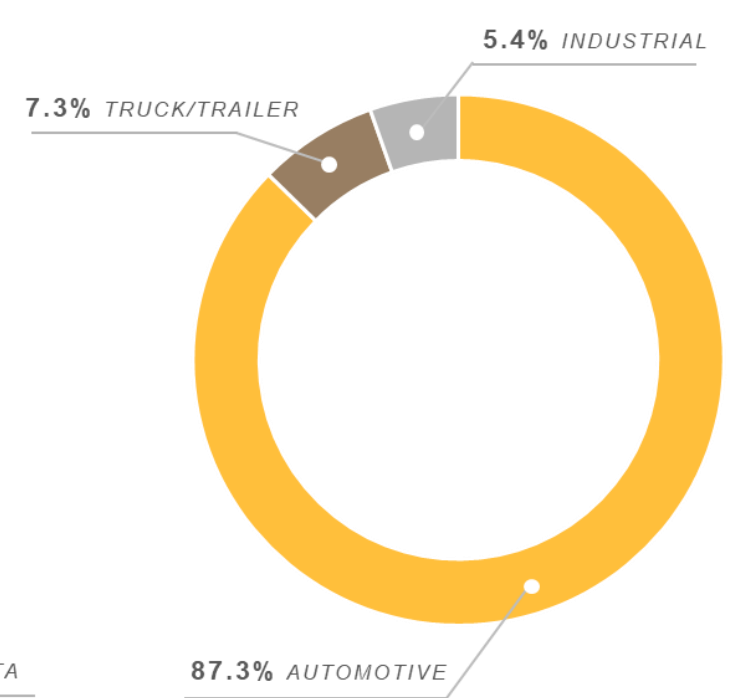
BY DIVISION



BY REGION

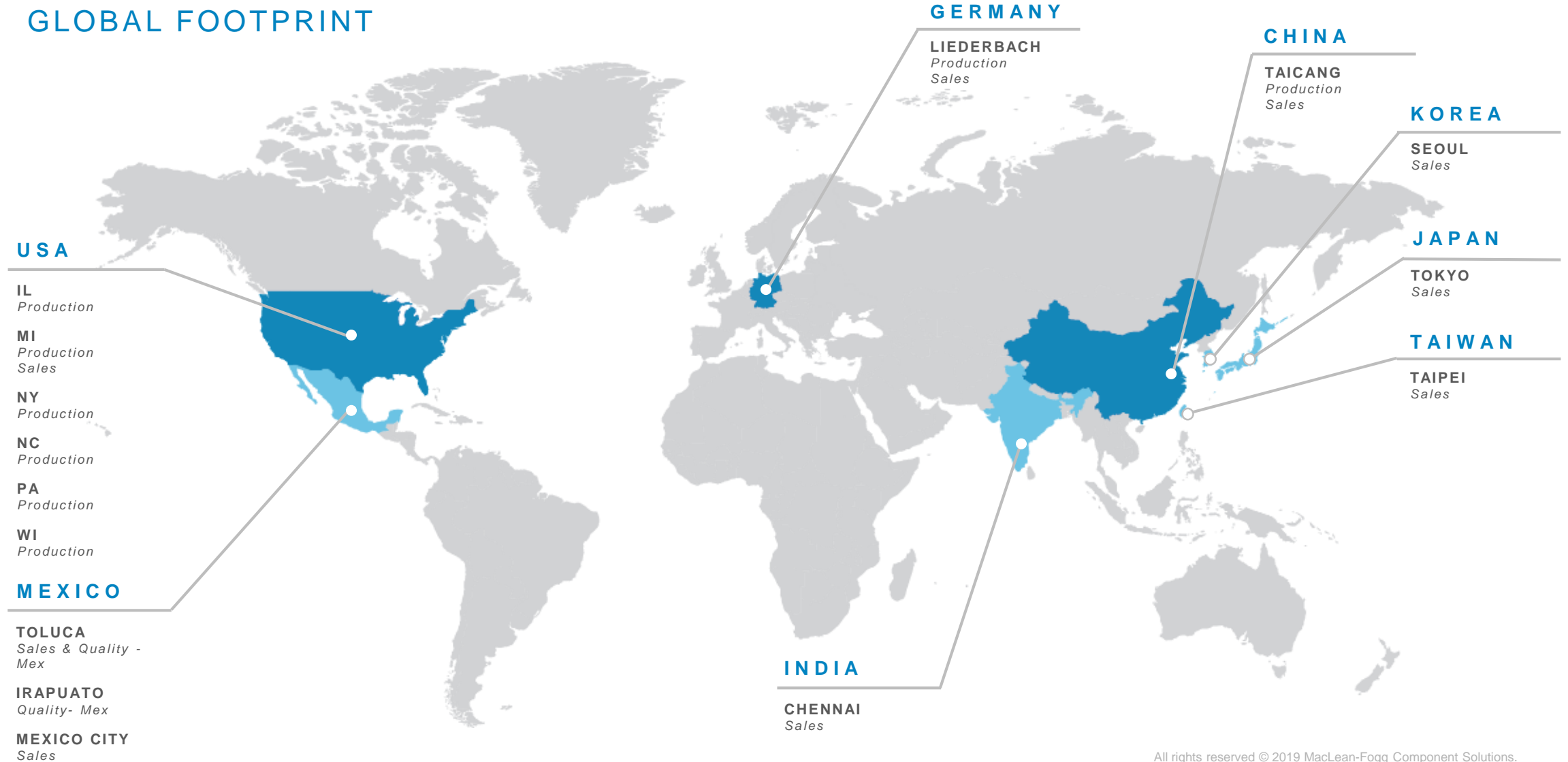


BY MARKET

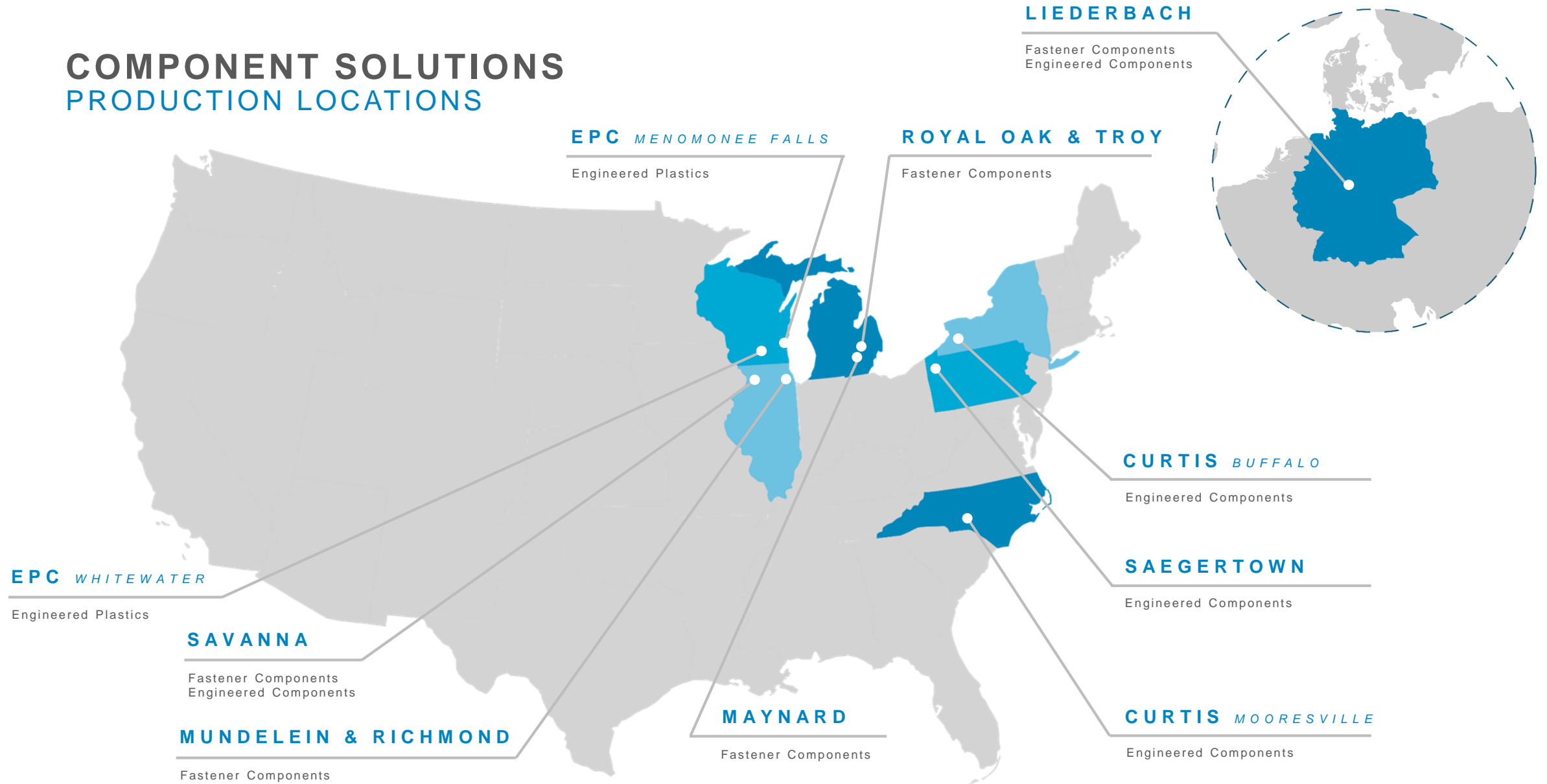


\$600M TOTAL SALES

COMPONENT SOLUTIONS GLOBAL FOOTPRINT



COMPONENT SOLUTIONS PRODUCTION LOCATIONS



CERTIFICATIONS, ORGANIZATIONS & AWARDS



ISO
9001:2015

TS
16949:2016

ISO
14001:2015

ISO
17025:2005



MAPP PMPA



MACLEAN-FOGG
COMPONENT SOLUTIONS

MFCS NAMED A
TOP 100 SUPPLIER
IN NORTH AMERICA BY
AUTOMOTIVE NEWS
ONCE AGAIN



GENERAL MOTORS
SUPPLIER
of the
YEAR

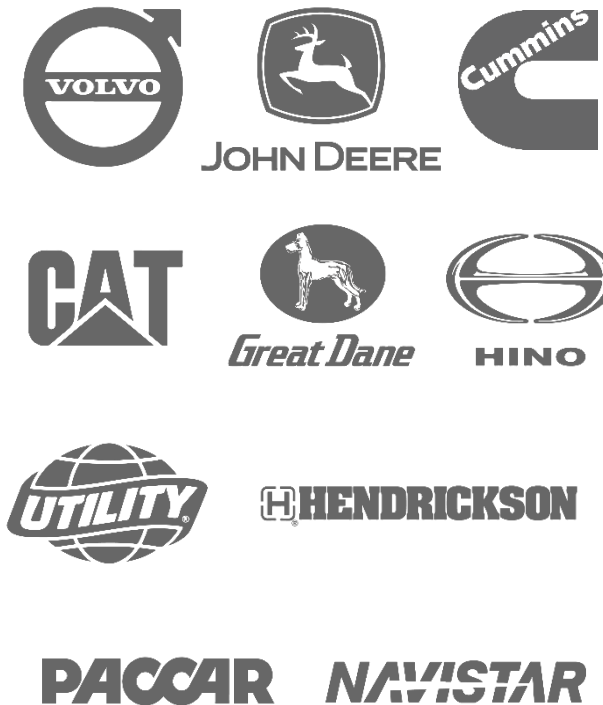


A FEW OF OUR CUSTOMERS

AUTOMOTIVE



H.D. TRUCK & OFF-HIGHWAY



INDUSTRIAL



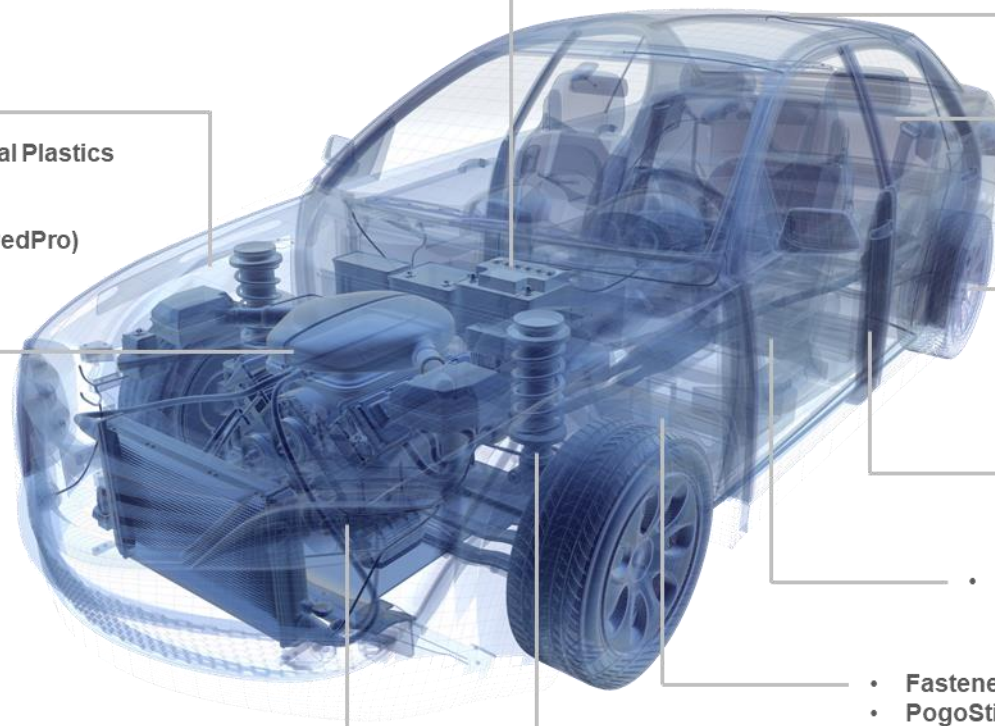
AUTOMOTIVE APPLICATIONS

- Connection, Plugs and Fittings
- Driveline Fasteners
- Parking Lock Components
- Transmission Gear Blanks

- Injection Molded Underhood Functional Plastics
- Insert Molded Brackets
- Insert Molded Hood Levelers
- Pedestrian Protection Hood Leveler (PedPro)

- Exhaust Manifold Fasteners
- Fluid Plugs
- Turbocharger Fasteners

- Headlight Adjustment Linkages
- OBJ/SBJ Ball Studs



- Aluminum Spin Weld Nuts

- Insert Molded Spare Tire Tie Downs

- Decorative Wheel Bolts
- Decorative Wheel Nuts

- Exhaust System Fasteners

- Nut Inserts for Molded Components

- Fasteners
- PogoStick Stabilizer Linkage

- Shock Rings & Extensions

PRODUCT OFFERINGS



FASTENER COMPONENTS

Wide range of internally and externally threaded fasteners for specialized applications



ENGINEERED COMPONENTS

Value-added, unique, application specific components for automotive, appliance, heavy duty, mining, hand tool & industrial applications



ENGINEERED PLASTICS

Close tolerance engineered functional plastics for a variety of applications

ALUFORM USA
A RIBE & MACLEAN-FOGG COMPANY

HIGH STRENGTH
ALUMINUM BOLTS



MacLean-Fogg
COMPONENT SOLUTIONS

RIBE



MACLEAN MASTER

With over 75 years of experience, MacLean Master's range of capabilities, technology and products make us a leader in the precision machining industry.

New Product Line

Description

- Transmission Shafts

Applications

- Hybrid Automatic Transmission

Operations

- Cold Form
- Turning
- Shaper Cutting

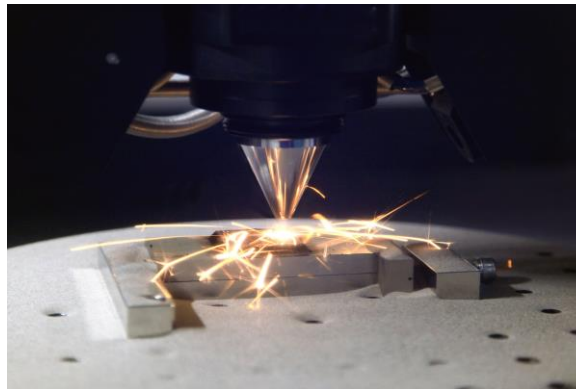
Capability

- Diameter = <75mm
- Overall Length = <350mm



MACLEAN-FOGG ANNOUNCES ACQUISITION OF METAL 3D PRINTING PIONEER FORMETRIX

- MacLean-Fogg Component Solutions of Mundelein, IL, announces the acquisition of the assets of Formetrix, LLC of Mansfield, MA. The acquisition includes the substantial market-leading metal powder intellectual property portfolio that will broaden the capabilities of MacLean-Fogg to service new and existing OEM, Tier 1 and 2 customers, as well as tool and die makers in automotive, EV, industrial, agriculture, heavy truck and construction markets.
- **MacLean Formetrix L-40**
- MacLean Formetrix's L-40 is a patented, high-performance steel alloy designed to provide users with an unparalleled combination of hardness, ductility, toughness, and 3D-printability.
- **Applications**
- With their remarkable combination of hardness, toughness, and ease of use, MacLean Formetrix high-performance powder materials are a perfect fit for end-users to leverage the benefits of Additive Manufacturing in many of the following applications:
- Compression Dies
- Aluminum Die Casting
- Hot Stamping
- Injection Molds
- Specialty Components



CORE TECHNOLOGIES



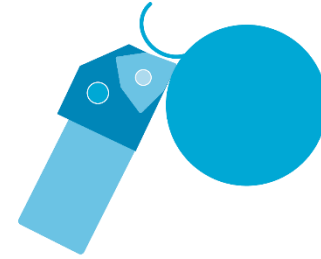
COLD FORMING



WARM FORMING



HOT FORGING



**CNC & SCREW
MACHINING**



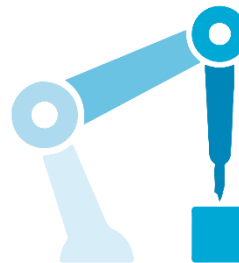
HEAT TREAT



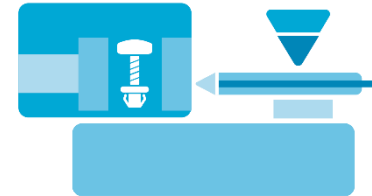
THREAD TAPPING



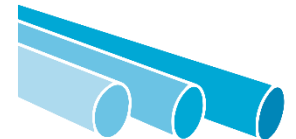
DEEP DRAWING



**AUTOMATED
ASSEMBLY**



**INJECTION & INSERT
MOLDING**



**ENGINEERED &
EXOTIC MATERIALS**



PLANT OVERVIEW

APPENDIX



MUNDELEIN & RICHMOND

174K SQ. FEET | 2 LOCATIONS | 255 EMPLOYEES

Size Range

- **Body Diameter**
.250" – 1.500"
6mm – 38mm
- **Body Height**
.200" – 1.750"
5mm – 44mm



KEY PRODUCTS

Wheel Nuts
Engine Plugs
Transmission Plugs
Machined Specials
Cold Formed Specials
Nut Washer Assemblies



KEY INDUSTRIES

Automotive
Heavy Duty Truck
Heavy Duty Trailer
Industrial Engine
Agriculture
Off-Highway
Recreational Vehicles

Materials

- Low Carbon Steel
- Alloy Steel
- Stainless Steel
- Aluminum



CORE PROCESSES

Cold Forming
CNC Machining
Internal / External
Threading
Design & Applications
Engineering



MACLEAN MAYNARD

53K SQ. FEET | 82 EMPLOYEES

KEY PRODUCTS & MATERIALS

Maynard Lockthread
ILT / SALT
Studs & Bolts
High Strength Aluminum



KEY INDUSTRIES

Automotive
Heavy Duty Truck
Heavy Duty Trailer
Industrial Solutions
Agriculture
Off-Highway
Military & Defense

Size Range

Diameter: M6 - M14 (1/4" - 5/8")

Length: 10mm -135mm (0.39" – 5.30")

High Temperature Stainless Steel Fasteners and
Exotic Alloys, including:

Studs, Bolts, Screws, Nuts, T-Bolts, Maynard
Lockthread (ILT / SALT)

A286 – ASTM A453/A453M 660, DIN EN 10269
1.4980

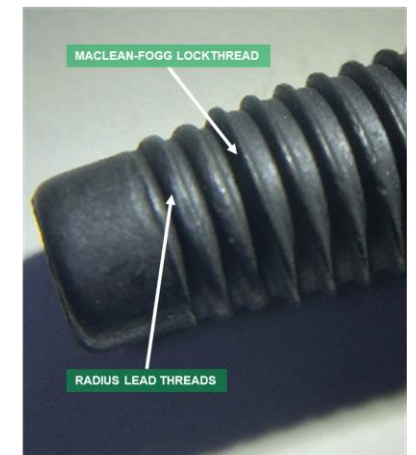
80A "Nimonic" – ASTM B637 NS07080, DIN EN
10269 2.4952

718 "Inconel" – ASTM B637 NS07718, DIN
EN10269 2.4668

- SALT (Self Aligning Lock Thread)
- Lockthread and MAThread® or MATPoint®

CORE PROCESSES

Warm Forming
Cold Forming
Thread Rolling
Heat Treatment
Inspection & Packing



ROYAL OAK & TROY

107K SQ. FEET | 2 LOCATIONS | 150 EMPLOYEES



KEY PRODUCTS

Wheel Fasteners
Wheel Nuts
Wheel Bolts
Security Fasteners



TRUSTED BY
THE WORLD'S
LEADING OEMs



CORE PROCESSES

Cold Forming
Close Tolerance
Deep Drawing
Tapping
Automated Assembly



SAEGERTOWN

140K SQ. FEET | 150 EMPLOYEES

9 National Machinery Cold Formers, including (7) 1250's
More than any other cold forming facility in the world
Value-Added Precision Machining and Threading
Heat Treat Capability
Automatic Inspection Systems

KEY PRODUCTS

Transmission Components
 Chassis Components
 Appliance Couplings
 Fire Safety Couplings
 Cutter Bit Bodies
 Industrial Fittings



KEY INDUSTRIES

Automotive
 Heavy Duty Truck
 Heavy Duty Trailer
 Agriculture
 Off-Highway
 Military & Defense
 Appliance
 Hand Tool

Size Range

O.D. maximum 2 inches (50.8mm)
 O.D. minimum 3/8 inch (9.525 mm)
 Length maximum 9 inches (228.6 mm)
 Length minimum 3/8 inch (9.525 mm)

Materials

Alloys
 Low to medium carbon and boron steel



CORE PROCESSES

Cold Forming
 Precision Machining
 Precision Threading
 Heat Treat Capability
 Automatic Inspection



METFORM

314K SQ. FEET | 4 LOCATIONS | 450 EMPLOYEES



KEY PRODUCTS

Transmission Components
Fasteners
Wheel Nuts
Special Formed Parts



KEY INDUSTRIES

Automotive
Heavy Duty Truck
Industrial Engine
Agriculture

CNC, Broach, Shaper Cutting & Drill Machining

Heat Treat - Quench & Temper,
Normalize / Isothermal Annealing

Phosphate Coating (PTFE)

Secondary Operations
& Machining



CORE PROCESSES

Horizontal Hot Forging
CNC Machining
Thread Rolling / Tapping
Warm & Cold Forming
Secondary Operations
Heat Treating



- (1) Hatebur AMP50XL (max OD 110mm, 2.0 kg)
- (4) Hatebur AMP30 (max OD 73mm, 0.7 kg)
- (5) Hatebur AMP20 (max OD 40mm, 0.18 kg)

- Start with Hot Rolled Bar Material
- Induction Heated up to 2200 degrees F
- Processed in a multi-station hot forging machine with an output up to 180 pieces/minute

CURTIS

250K SQ. FEET | 2 LOCATIONS | 275 EMPLOYEES

Size Range

- 10-100 mm diameter

Materials

- Free Machining Steel
- Alloy Steels
- Aluminum
- Stainless Steel

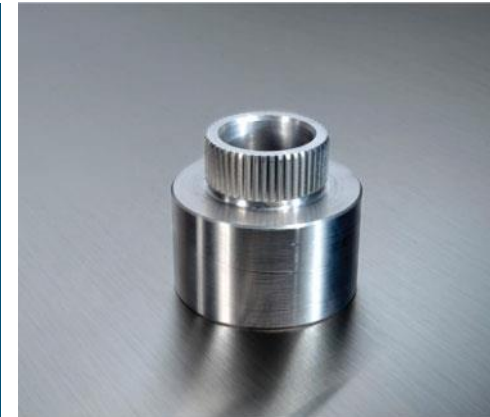


KEY PRODUCTS

Gear Blanks
Transmission Components
Engine Components
Hydraulic Connectors
Fasteners



Multi-Spindle Screw Machining
Hydromat Rotary Transfer Machining
CNC Machining CNC
Skiving
Assembly



KEY INDUSTRIES

Automotive
Heavy Duty Truck
Off-Road

CORE PROCESSES

Multi-Spindle Machining
Rotary Transfer Machining
CNC Machining
Assembly



MACLEAN MASTER

- MacLean-Fogg Component Solutions (MFCS) and Master Automatic Announce the Merger of Master Automatic into the MFCS Engineered Solutions Group

Transmission Valves
Steering Components
Machine & Welded Assemblies
Precision Ground Components

- Gears
- Pistons
- Rack Shafts
- Valves
- Sensor Housings
- Bushings
- Sleeves
- Inner/Outer Races
- Pinions
- Shafts
- Manifolds
- Pressure Relief Assemblies
- Complex Assemblies
- Hubs

CAPABILITIES

- Multi-Spindle Machining
- Rotary Transfer Machining
- Broaching (Vertical/Horizontal)
- Drilling (including BTA- Deep hole)
- Milling
- Robotic Welding
- Automated 100% Inspection/Testing
- Honing
- Ballizing
- CNC Chucking (Net Shapes)
- CNC Turning
- CNC Milling
- Grinding (profile/ center-less)
- Grinding (In & Through Feed)
- Cell Machining
- Cellular, universal, ultrasonic part washing
- Finished Assemblies



ENGINEERED PLASTICS COMPANY

130K SQ. FEET | 2 LOCATIONS | 150 EMPLOYEES



KEY PRODUCTS

Functional Engineered Plastics
Automotive Hood Leveling
Insert Molded Products
Molding & Assembly
Seals & Bumpers



KEY INDUSTRIES

Automotive
Water Treatment
Heavy Duty Truck
Industrial Engine



CORE PROCESSES

Injection Molding
Insert Molding
Welding
Assembly



LIEDERBACH

11K SQ. FEET | 10 EMPLOYEES

KEY PRODUCTS

Stabilizer Linkages
Sensor Linkages
Steel & Plastic Fasteners
Distribution



DISTRIBUTED PRODUCTS

Decorex Fasteners
Maynard Lockthread
High Temp. Bolts & Studs
Prevailing Torque Nuts
Securex Fasteners



CORE PROCESSES

Manual Assembly
Automated Assembly
Product Development
Prototyping
On-Site Product Testing
MFCS Product Distribution
Customer Service



FASTENER COMPONENTS



ENGINEERED COMPONENTS



ENGINEERED PLASTICS



MACLEAN MASTER RANGE

STEERING & CLIMATE CONTROL COMPONENTS



STEERING COMPONENTS



DRIVETRAIN & POWERTRAIN COMPONENTS



TRANSMISSION CLUTCH RACES & GEAR BLANKS



Rack & Pinion Components



MACHINED FORGINGS



COMPLEX ASSEMBLIES

TRANSMISSION VALVES, SLEEVES & PLUGS

Master currently manufactures more than 100 different transmission components.



COMPLEX ASSEMBLIES

PRESSURE RELIEF ASSEMBLY



DOG CLUTCH #1691



SENSOR ASSEMBLY



DIGITAL SAMPLE CASE

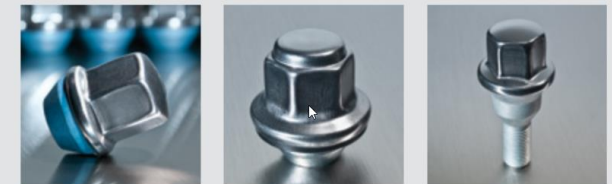
Click on the link to see the sample case:



Mundelein – [PRODUCTS](#)



Maynard – [PRODUCTS](#)



Royal Oak – [PRODUCTS](#)



Engineered Solutions – [PRODUCTS](#)



MFCS AUTOMOTIVE OEM/TIER SUPPLY FURTHER GLANCE



- **Machining** – We have capability to *Hot Forging, Warm & Cold Forming* and **machine over 200 million pieces a year**. #1 machined product line is 8/9/10 speed transmission gear blanks for ZF, FCA, Ford, Toyota, Aisin, and GM among others. We also machine smaller safety critical transmission components, engine timing components and machined fasteners. We also hot forge and cold form net shape components.
- **Fasteners** – We make over **1.25 billion fasteners/year**. **M6-M30+** locknuts, wheel fasteners and high-temp/high vibration specialty fasteners are our key niches. On the high temp/high vibe applications, that is our strongest niche and our products are truly the best in the world (20% of our sales are exported to China).
- **Plastics** – We have a growing engineered plastics business based in Wisconsin. **Functional black plastics** is their focus. Great track record in helping customers take expensive, heavy metal components and converting them to plastic components. We've won two Society of Plastics Engineers awards in the past three years. Key supplier to innovative products from Magna, Dayco, Stackpole and JCI.
- **Stamping** – MFCS **stamp about 250 million pieces of 436 and 304 stainless steel a year on ICOP presses**. We're looking to expand that technical competence to other areas beyond wheel fasteners.



MacLean-Fogg
COMPONENT SOLUTIONS

THANK YOU

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