



Clarion Sintered Metals

RIDGWAY, PA
814.773.3124



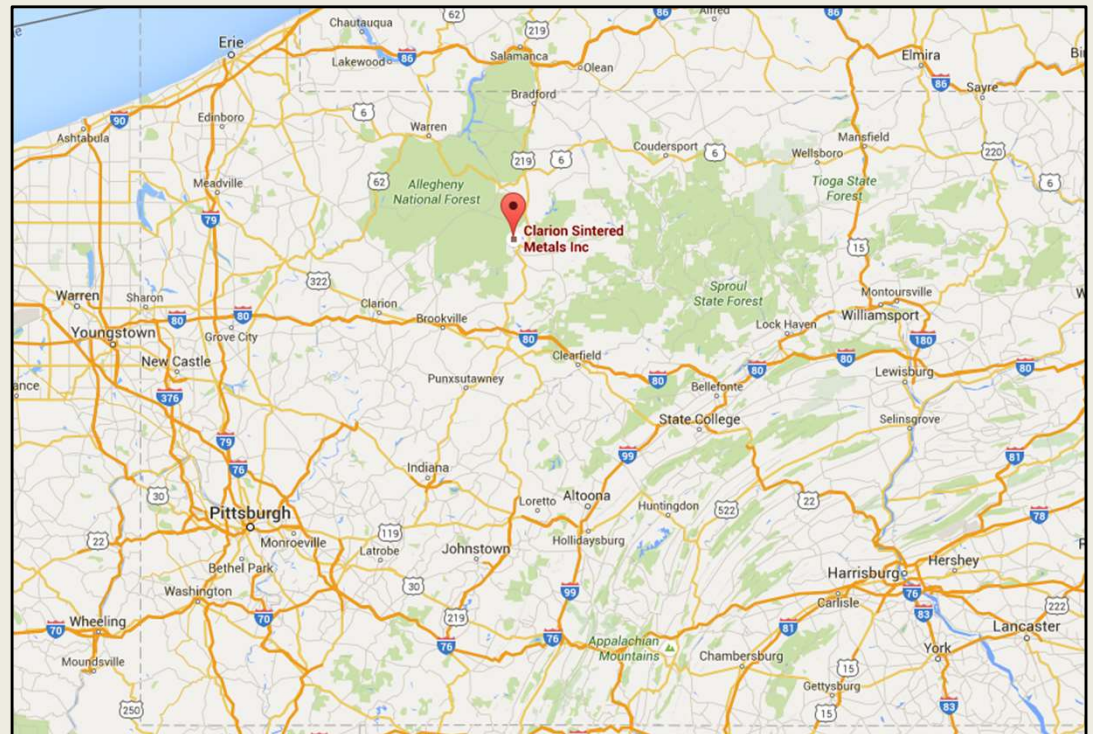
Company Overview

Spring 2023

EXCELLENCE [™] IN INNOVATION
T O D A Y A N D T O M O R R O W

Company Profile

- ❑ Established in 1984 (employee buyout)
- ❑ Company remains privately-owned by original owners
- ❑ Two facilities - -
 - Main: Administration and PM Manufacturing
 - ‘South’: PM Secondary Operations and PTFE Manufacturing
- ❑ 200 total employees (approximate)



Company Profile

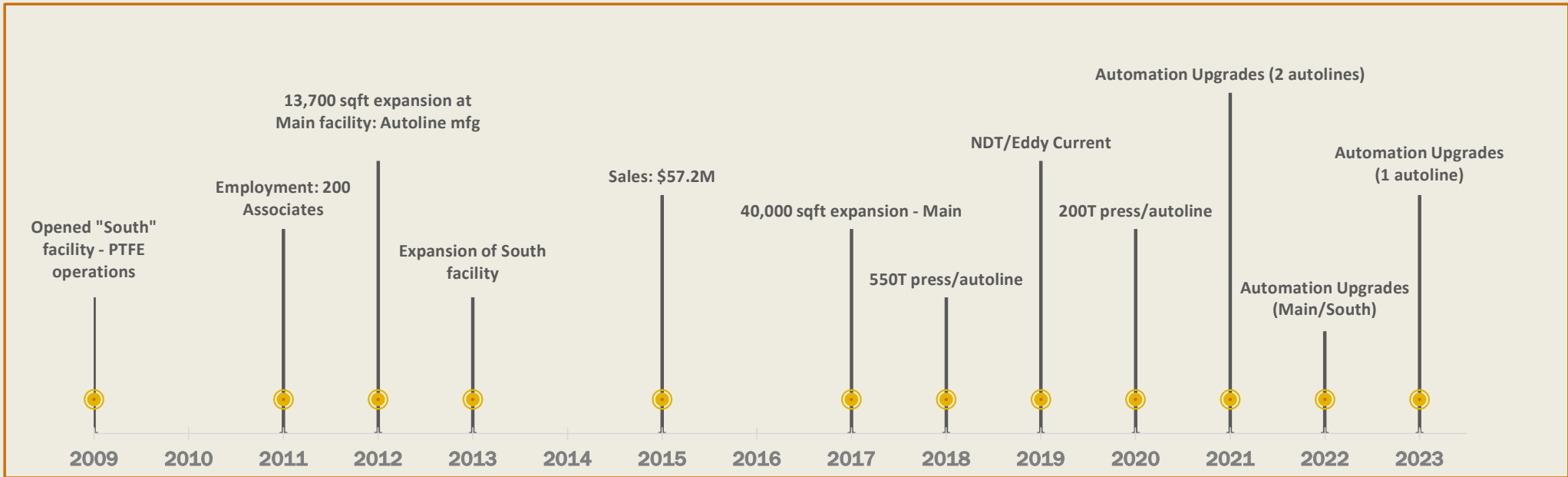
- Main Plant:
 - Administration and PM Manufacturing
 - 170,000 total ft² (15,795 sqm)
 - 150,000 ft² manufacturing (13,935 sqm)
 - Campus located on 99-acre property to accommodate future expansions

- Approx. 175 employees

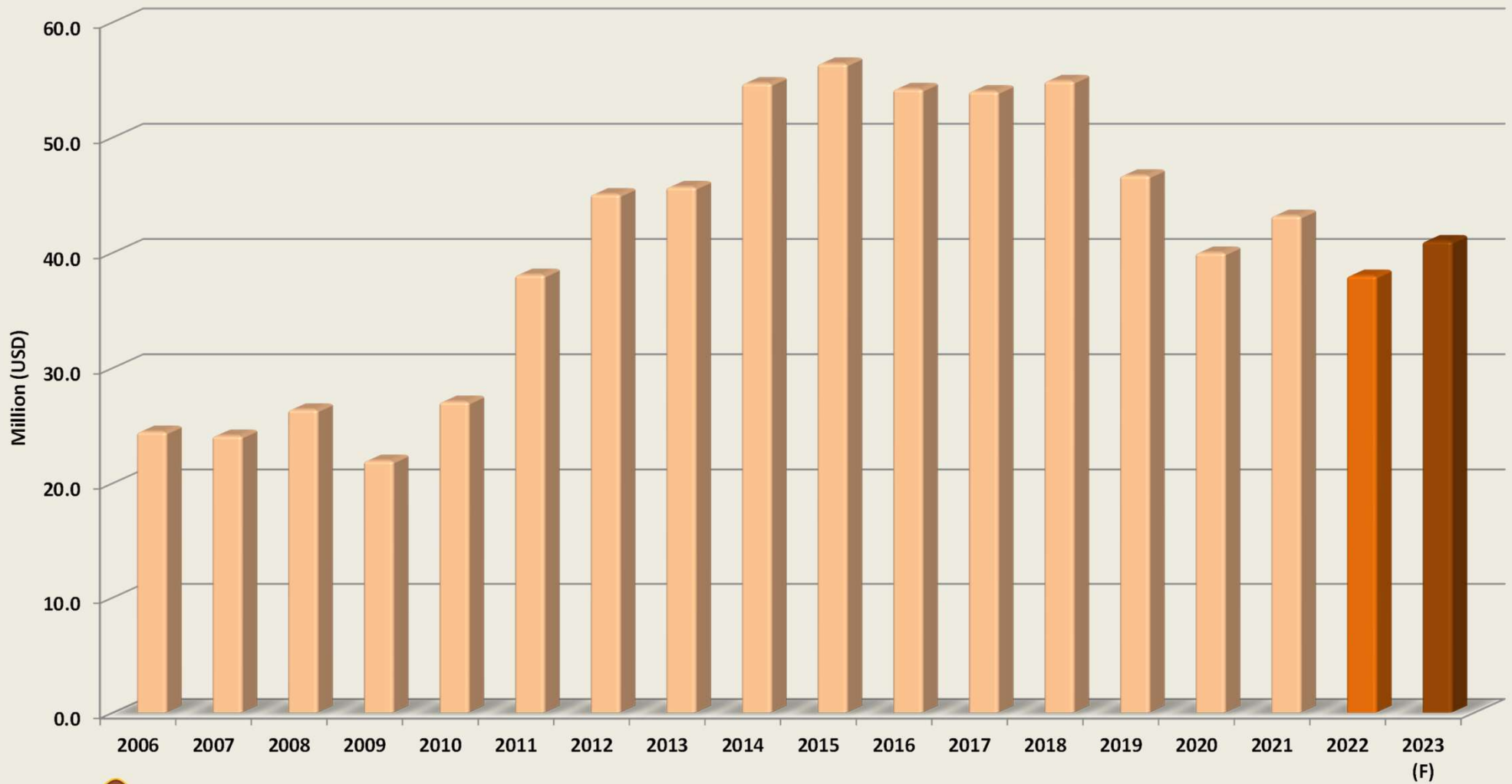
- Average of 38 years PM experience in the management team



Recent History

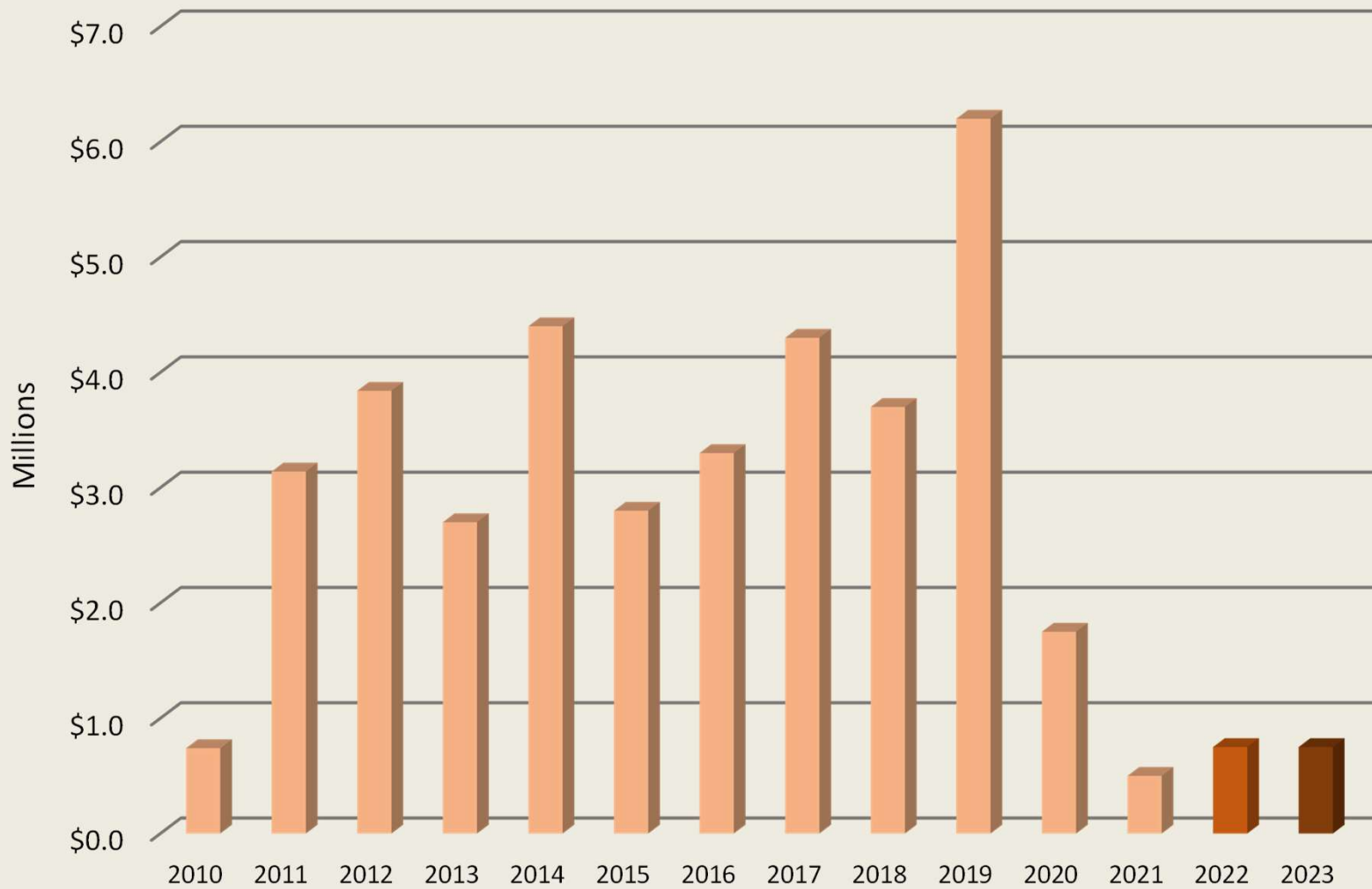


Sales History



Clarion Sintered Metals

Capital Expenditures



Process & Equipment Profile

□ Complete In-House Tool Capabilities

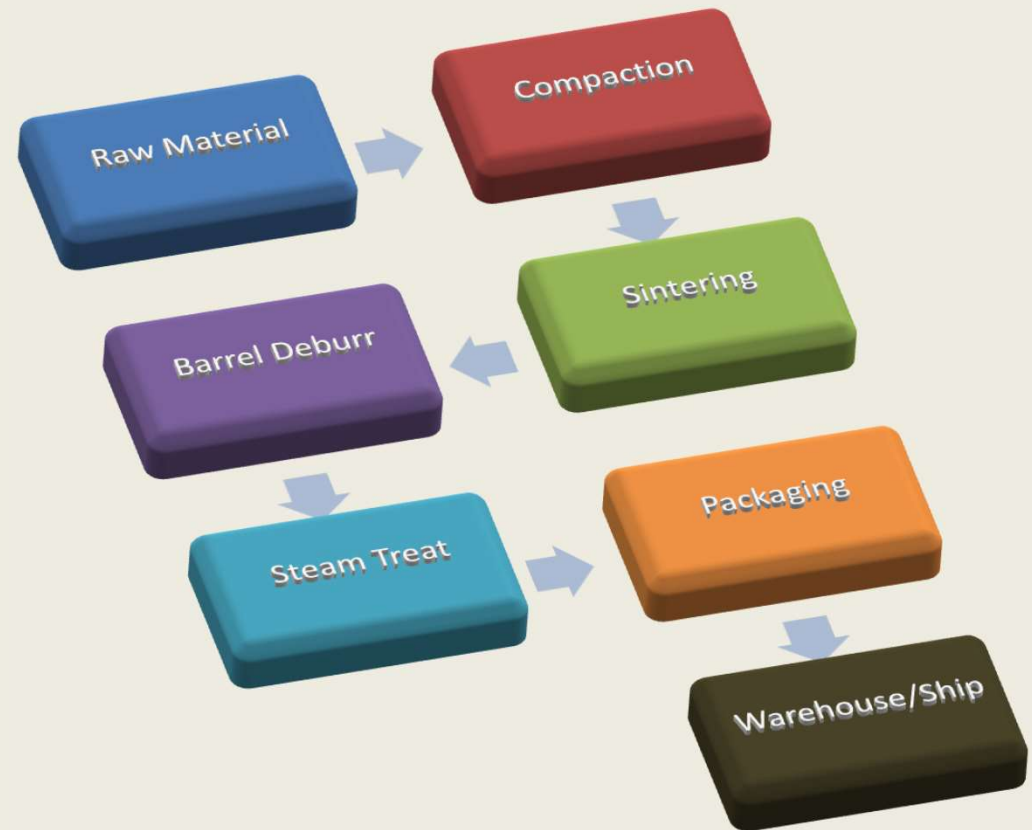
- Jig Grinders
- Conventional Electronic Discharge Machines (EDM)
- CNC Electronic Discharge Machine
- Astec EDM Hole Drill
- Charmille Wire EDM
- CNC Lathes



Process & Equipment Profile

□ Linked Manufacturing Operations

- 27 active 'auto-lines'
- "Powder-to-box"
- Reduced overhead
- Improved leadtime
- Improved efficiency
- Improved quality



** EXAMPLE ONLY **



Process & Equipment Profile

- ❑ Compaction
 - Mechanical and Hydraulic
 - Tonnage range: 20T to 550T
 - Multi-level capability
- ❑ Sintering
 - Continuous Belt Furnaces
 - High-Temp and Sinter Hardening capabilities
 - Furnace Monitoring System w/Email Escalations
- ❑ Sizing
 - Tonnage range: 25 to 220T
 - Automated Feed Systems
- ❑ Steam Treatment
 - Continuous Feed Systems



Process & Equipment Profile

- ❑ On-Site high purity nitrogen generation system for sintering atmosphere
- ❑ High purity hydrogen / nitrogen – 99.99%



Process & Equipment Profile

□ Secondary Operations

– In-House

- CNC turning centers
- Assembly units
- Tapping
- Oil Dip
- Deburring

– Outsourced

- Local sources for: oil and resin impregnation, plating, coating, tumbling, drilling, heat treating, grinding, etc.



PM Product Profile

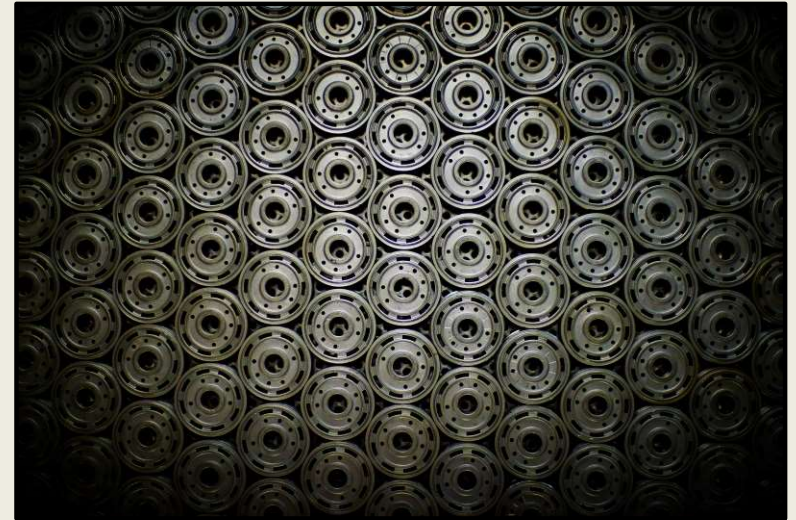
- Density Range
 - Standard (6.4 - 6.8 g/cc)
 - High (6.8 - 7.1 g/cc)
 - Ultra-High (7.1 - 7.4 g/cc)
- High Performance Materials
- Material Selection Assistance Provided



PM Product Profile

□ Automotive Applications

- Safety Systems
- Ride Control
- Engine
- Fuel Pump
- Steering
- Exhaust
- Brake (ABS)



Automotive Customer Profile

- ❑ Autoliv
- ❑ BWI Group
- ❑ Borg Warner
- ❑ Condumex
- ❑ Daido Metal
- ❑ Dayco (Mark IV)
- ❑ Faurecia
- ❑ Gabriel Ride Control
- ❑ General Kinetics
- ❑ Hitachi-Astemo
- ❑ International Truck & Engine
- ❑ KYB Americas
- ❑ Linamar
- ❑ Magneti Marelli
- ❑ Multimatic Ride Dynamics
- ❑ Oiles America
- ❑ Ride Control Mexicana
- ❑ Siemens
- ❑ Stanadyne
- ❑ TRW
- ❑ Tenneco
- ❑ ZF Suspension



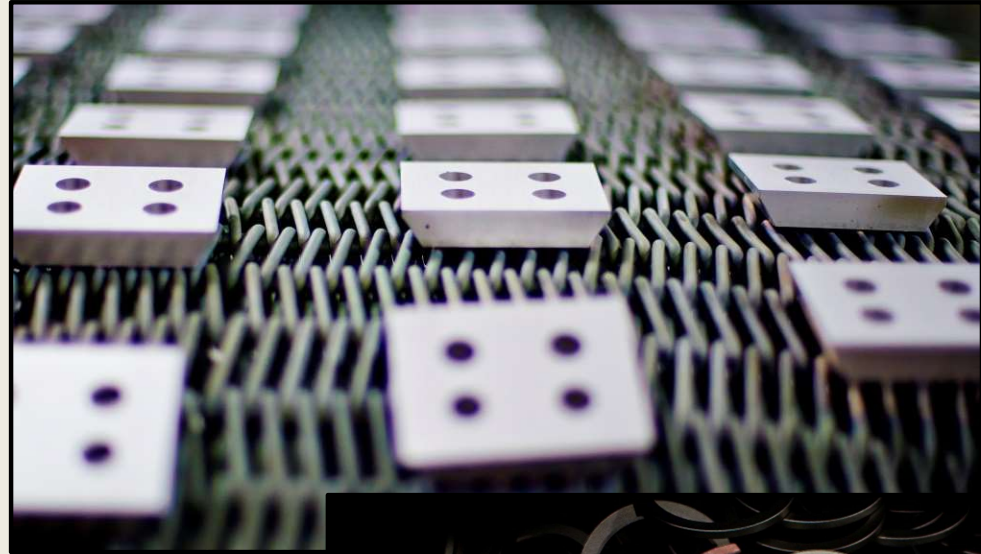
PM Product Profile

- ❑ Lawn & Garden
 - Idler sleeve, fan hub, spring retainer, sprockets, thrust washer, pump clamp, swash block, guide plate, drive gear, counterweights
- ❑ Industrial
 - Pole pieces, counterweights, pulleys, end caps, couplings, tensioners
- ❑ Locomotive
 - Crab injector, rocker-arm cap, rocker-arm shaft support, spring segment
- ❑ Recreational
 - Park gear, pawl



Industrial Customer Profile

- ❑ Case
- ❑ Eclipse Combustion
- ❑ Electromotive Diesel
- ❑ Gunnebo-Johnson
- ❑ Hydro-Gear
- ❑ John Deere
- ❑ Kongsberg
- ❑ Milwaukee Tool
- ❑ Stanley Black & Decker
- ❑ U.S. Electric Motors



Export Customer Locations



Clarion Sintered Metals

Technical Capability

- ❑ Full Complement of Engineering Support
 - Design, Quality, Product, Process, Project
- ❑ FEA Capability
- ❑ 3-D Modeling Available
- ❑ Creo, Solid Edge, AutoCAD systems
- ❑ Material Selection and Design Assistance Provided



Quality Assurance



Registered to: IATF 16949, ISO 9001:2015



Clarion Sintered Metals

Quality Assurance

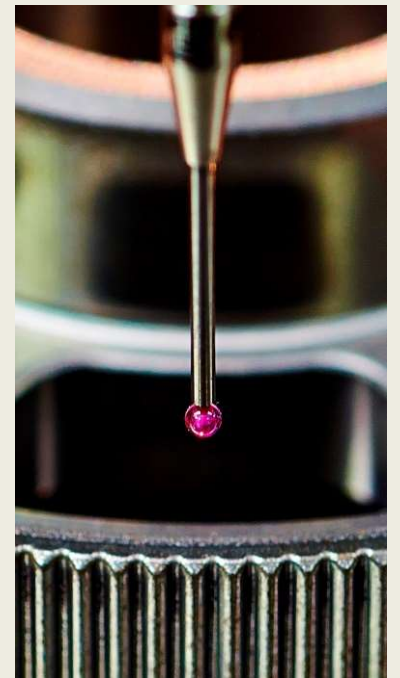
□ Complete Testing & Inspection Capabilities

– Powder and Metallurgical

- Chemical Testing
- Microstructure
- Microhardness
- Carbon Analysis

– Quality Lab

- Trained and Certified auditors, engineers, technicians
- Full Complement of Inspection Equipment



CSM – 'South'

- 'South' Plant
 - PM Secondary Operations
 - Machining
 - Finishing
 - Assembly
 - Non-Destructive Testing
 - Automated Inspection
 - PTFE Manufacturing
 - 35,000 total sqft (3,250 sqm)
- Approx. 25 total employees



PTFE Manufacturing

- Dedicated 5,000 ft² facility
 - Newly renovated
 - Environmentally Controlled
- Processing material for seals, washers, bands, rings
 - Dual 12-ton hydraulic press
 - 2 independent presses, 1 frame
 - Furnace
 - 270 ft³ programmable
 - Furnace monitoring system
 - Lathe
 - ID, OD, slice
 - Auto load/unload



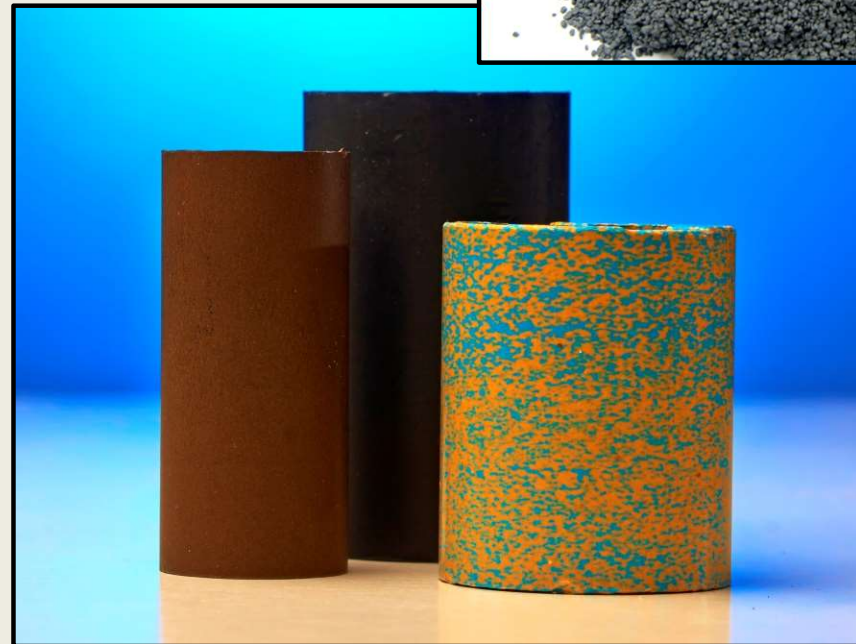
PTFE Materials

□ Virgin PTFE

– Additives can include:

- Graphite
- Glass
- Bronze
- Carbon Fiber Filled

– Compositions tailored to application requirements



PTFE Markets and Applications

□ Applications

– Ride Control

- Skirted pistons – bars and bands
 - For use internally and by customers
- Rod guides – slip rings

– Industrial (air compressor)

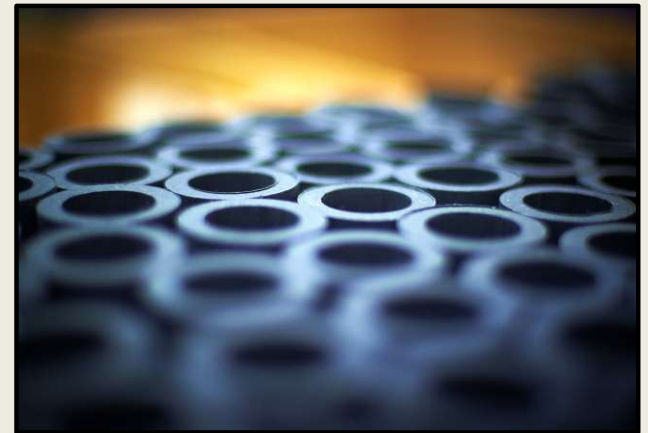
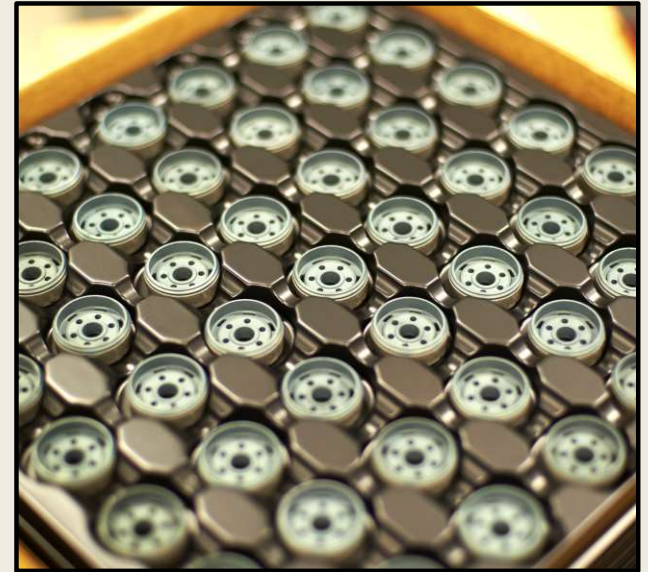
- Flip Washer



Value-Added Operations

□ PTFE Piston Banding

- Current total band capacity:
6.5 million/year
- Available band capacity:
1.5 million
- 24 PPAP Approved Part Numbers



Value-Added Operations

- Rod Guide Assembly
 - Press-fit bushing into rod guide ID
 - Can include PTFE ring seal
 - 20+ years experience
 - >16 million units assembled annually
 - Six (6) assembly machines in-house



CSM Value-Added Advantages

- Streamlined supply chain
 - ‘One-stop’ location for subcomponents
 - Lower end cost for customer
 - Elimination of transportation time/cost
 - Reduced leadtime
 - Reduced inventory
- Technical expertise and quality systems to meet all customer requirements





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*A Major Independently Owned Powdered
Metal Company, and Proud of It!*



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