



# TimkenSteel & Value-Added Supply Chain Overview

# TimkenSteel Manufacturing Plants and Warehouses

## ▶ Raw Material Manufacturing Plants

- Faircrest Steel Plant, Canton, OH
- Harrison Steel Plant, Canton, OH
- Gambrinus Steel Plant, Canton, OH

## ▶ Component Manufacturing

- St. Clair Plant - Eaton, OH
- TimkenSteel Material Services, Houston, TX
- Virtual supply chain network

## ▶ Warehouse Operations

- Tryon Peak Plant - Columbus, NC
- Monterrey – Mexico





# TimkenSteel Product Portfolio

*450 grades of carbon and alloy steels*  
*Well suited for power transmission applications*

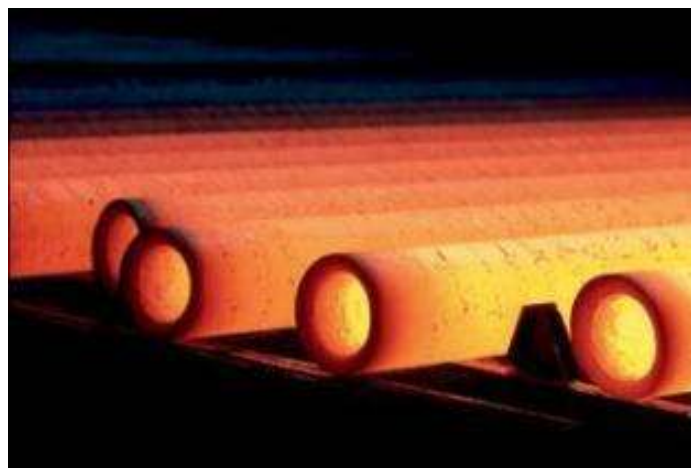
Special bar quality steel



Seamless mechanical  
steel tubing



Value-added solutions



# Industries/Products Served

## ***MOBILE ON-HIGHWAY***

**Passenger Car**



**Light Truck**



**Heavy / Medium  
Truck**



**Energy Efficient  
Vehicle**





# TimkenSteel Applications in Autos

## Engine ~35%

- Crankshafts
- Connecting rods
- Fuel components



## Transmission ~40%

- Shafts
- Hubs
- CVT pulley
- Sun, ring, pinion gears
- Drive gears

## Driveline ~25%

- Bearing hubs
- Ring gear
- Drive pinion
- Axle tubing
- Side gears
- Steering knuckle
- CV Joint housing & cages
- Ring gears



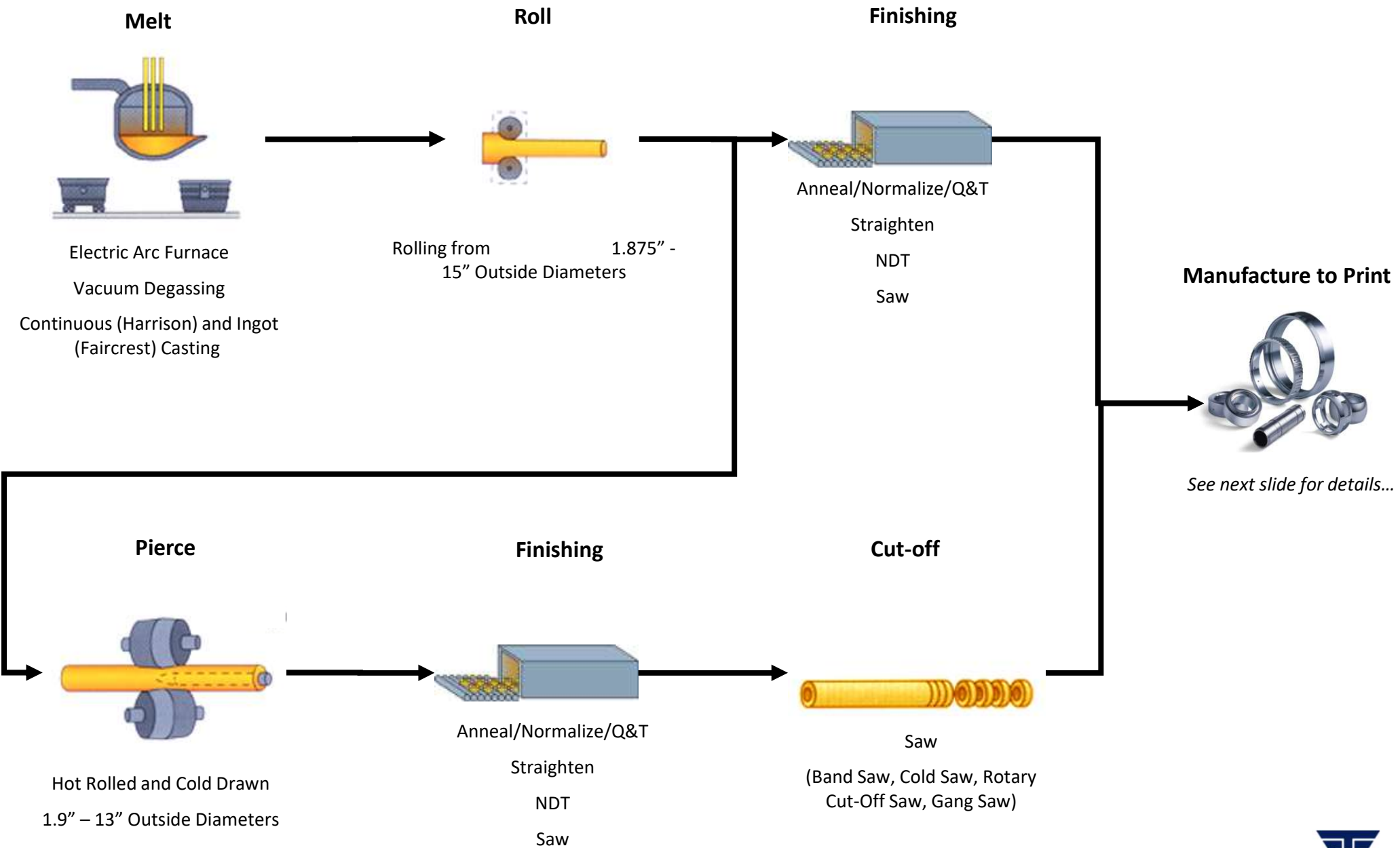
# Industrial End-Market Sector Applications

## Applications

- Bearings components
- Connecting components
- Driveline/axle components
- Engine components
- Ground engaging tooling
- Hydraulic components
- Missile components & projectiles
- Track components
- Planetary gear components
- Steering components
- Track components
- Transmission components
- Drilling
- Others



# TYPICAL PROCESS FLOW – CONTROL OF RAW MATERIAL THROUGH VALUE ADDED OPERATIONS



# Typical Process Flow – Control of Raw Material through Value Added Operations (Cont'd)

Manufacture to print

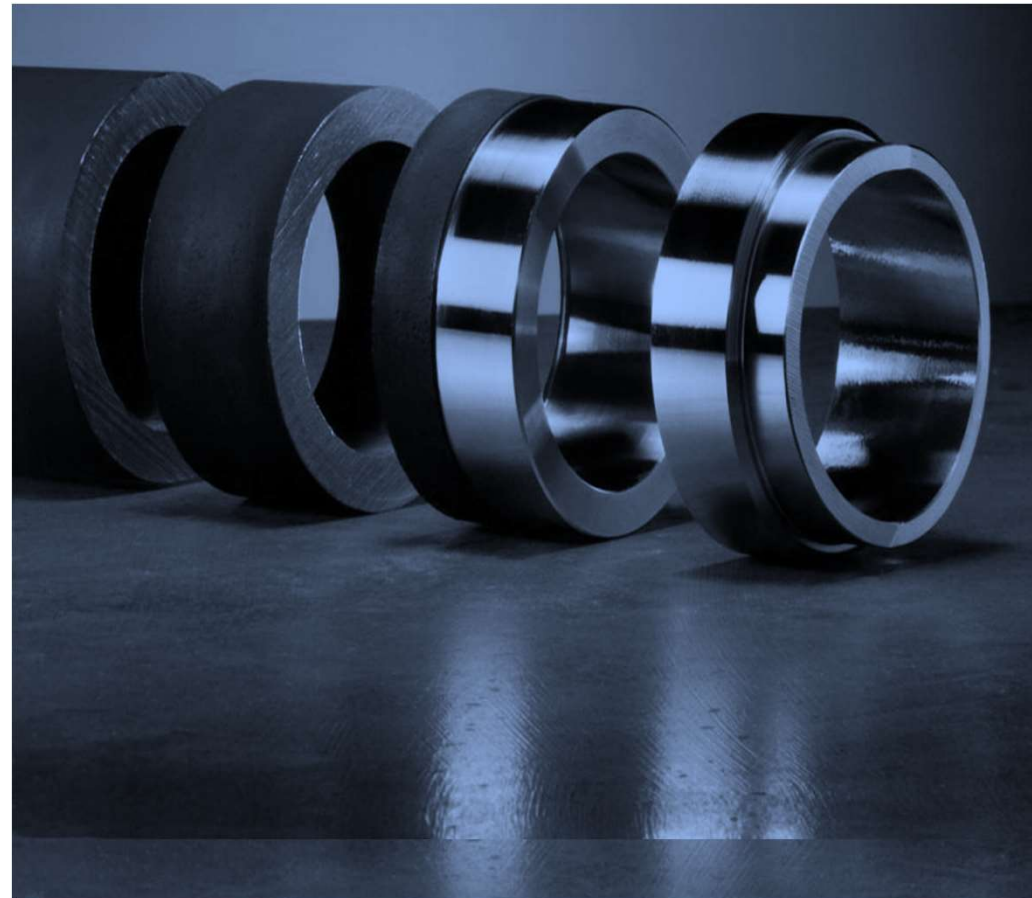


Sawing	Band Saw...Cold Saw...Rotary Cut-Off Saw...Gang Saw
Standard Green Machining	CNC...Bar Feed...Screw Machine
Special Green Machining	Drilling...Castellation...Broaching...Cold Forming...Milling
Heat Treatment	Case Carburize...Induction Temper...Normalize...Quench & Temper
Finishing	Grinding...Honing...Hard Turning
Inspection	Bench Gauging...Automatic Gauging...Magnetic Particle Inspection...Eddy Current...Visual Inspections...Hardness...CMM...Contracer... Microstructures...Weights



# Value-Added Supply Chain

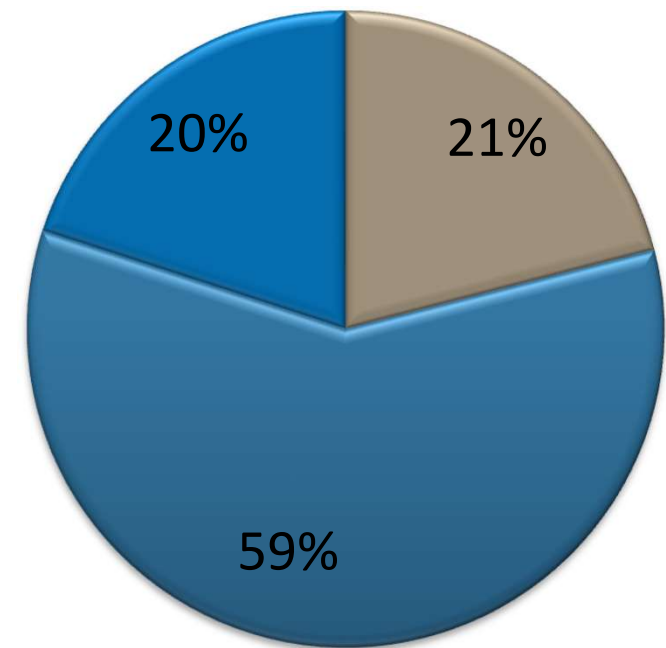
- Value Added Supply Chain provides customers with semi-finished and finished components produced from TimkenSteel raw material
- Established in 1993
- Raw Material converted to a value-added form through an optimized supply chain
- Low to high volume applications
- Hundreds to millions of parts annually
- Started in early 1990's with automotive gear pre-forms (ready to broach/hob)



# Value Added Supply Chain Creating Customer Value

- Customized cutting, machining, heat treatment, & inspection solution
- Optimal combination of cost competitive manufacturing, engineering, quality, and supply chain management processes
- Robust control processes to mitigate risk
- May utilize internal resources for complex operations
- 50M+ components per year
- Reduced inventory levels and lead times
- Improved material utilization
- TS16949 certified quality management system

**TimkenSteel Product Mix**

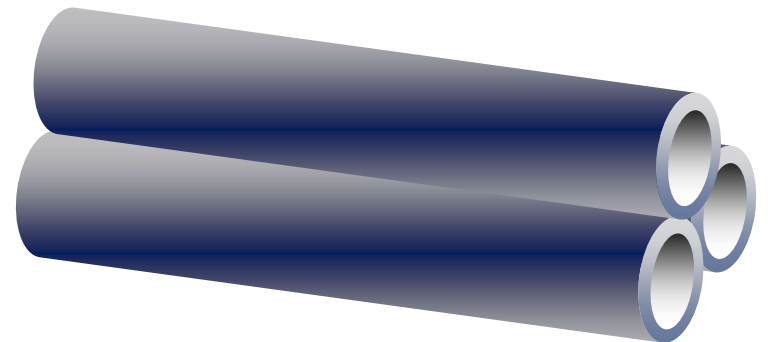
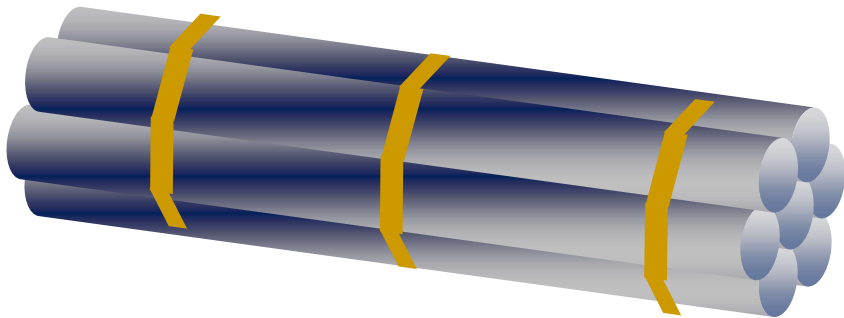


■ Value Add ■ Long Length Bar ■ Long Length Tube



# TimkenSteel Material Utilized in Component Manufacturing

- Hot Rolled Solids
  - 26 mm to 406 mm (1.024" to 16.000")
- Hot Rolled Seamless Mechanical Tubing
  - 41mm to 330 mm (1.625" to 13.000")





# Value Added Supply Chain Primary Roles & Responsibilities

- Support business segment value added inquiries
  - Process design
  - Supply chain design
  - Manage quote and costing processes
- Launch new value added business
  - External supply chains
  - Supplier and TimkenSteel initiated changes
- Supply chain management
  - Commercial relationships
  - Sourcing execution
  - Supplier development
  - Quality improvement
  - Gauge engineering and management



# Primary Needs for Outsourced Conversion

- ▶ Sawing
- ▶ Machining Seamless Alloy Steel Tube & Bar
- ▶ ID & OD Broaching or Hob
- ▶ ID, OD, & Face Grinding
- ▶ Drilling, Milling & Tapping
- ▶ Thermal Treatment
- ▶ Eddy Current & Magnetic Particle Inspection
- ▶ Tooling & Gauging



# Advantages of Doing Business with TimkenSteel

- Stability of the Company
- Historically profitable even in weak economy
- Growth opportunities
- Experienced sales staff with expertise in Automotive, Industrial, & Energy markets
- Strong brand recognition and reputation
- TimkenSteel is the Tier 1 supplier to OEM's
- TimkenSteel retains ownership of material
- TimkenSteel manages material planning activities so suppliers can focus on their core activities
- Long term strategic partnerships and contracts with successful suppliers



# Attributes of Successful Business Partners

- Superior Customer Service
- Advanced Technology and Capabilities
- Process Capability Alignment with Requirements
- Competitive Pricing
- Effective Communication
- Flexibility/Ease of Doing Business
- Innovative
- Well Developed Quality Systems
- ISO 9001:2000 Certified, TS16949 Certification Preferred for Automotive Suppliers
- Profitable and Strong Balance Sheet
- Willing to Invest
- Stable and Experienced Management, Manufacturing, and Engineering Staff

Thank you

