





 **NET SHAPED
SOLUTIONS**
COLD FORGED PERFORMANCE

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BERKSHIRE HATHAWAY INC.

PCC *Precision Castparts Corp.*

SPS
TECHNOLOGIES

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WWW.PRECAST.COM

Global manufacturer of
complex metal components
Three business segments sales
\$10 Billion.

**162 MANUFACTURING
LOCATIONS/13 COUNTRIES**

INVESTMENT
CAST PRODUCTS



FORGED
PRODUCTS



AIRFRAME PRODUCTS:
AEROSTRUCTURES AND FASTENERS



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AIRFRAME PRODUCTS:

ENGINEERED FASTENERS

FASTENER SYSTEMS

AEROSTRUCTURES AND
PRECISION COMPONENTS



BOLTS & SCREWS

Market leader in manufacturing high-strength bolts and screws.



PIN FASTENING SYSTEM

Torque-controlled fasteners with a threaded pin and self-locking collar.



LOCKBOLT FASTENING SYSTEMS

High-strength, vibration-resistant, excellent fatigue properties.

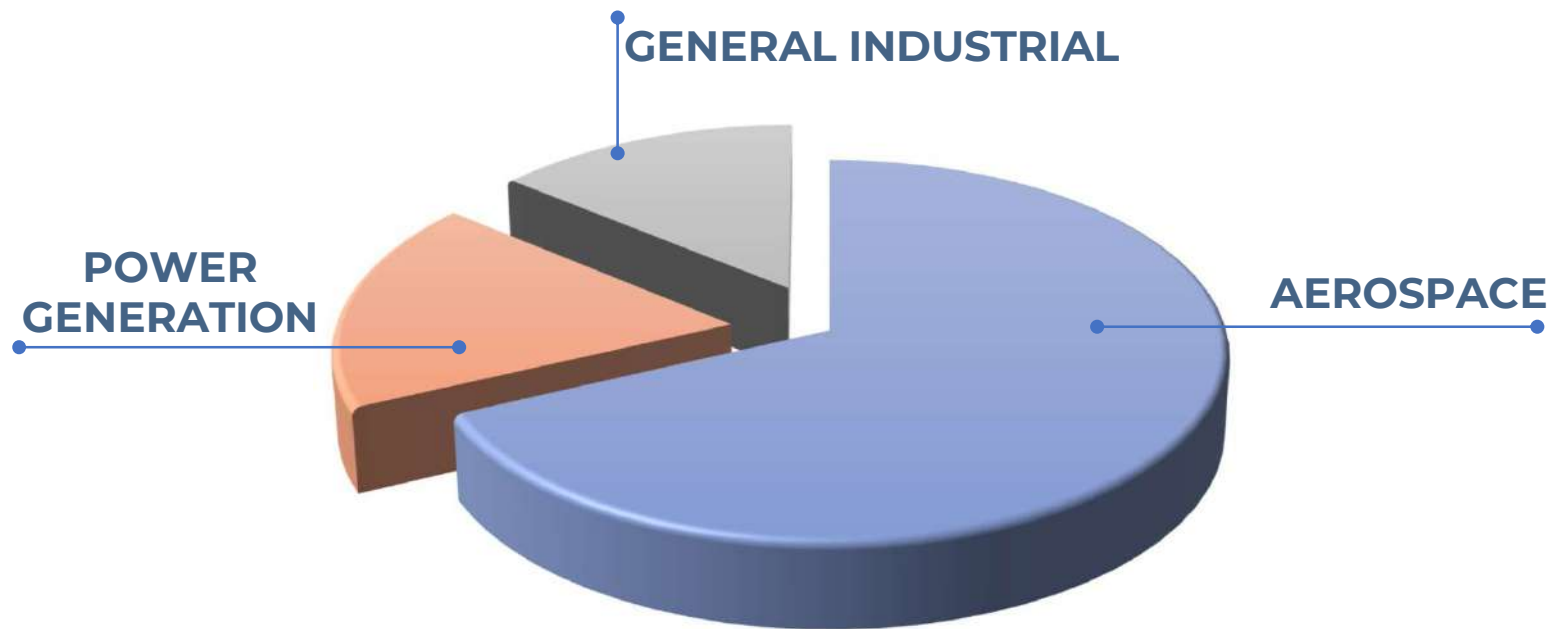


TAPERED SHANK BOLTS

An interference fit fastening system with a self-sealing feature.



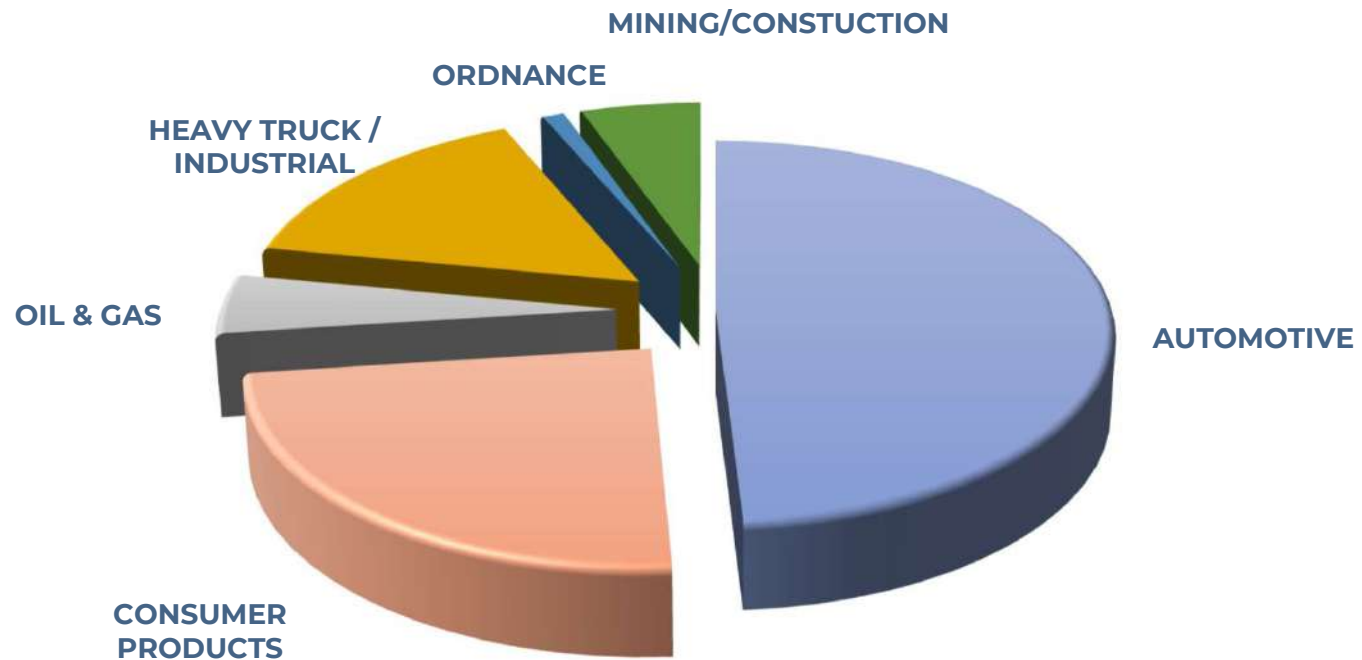
PCC SALES MIX - \$10 BILLION



NSS PLANT / USA - MI



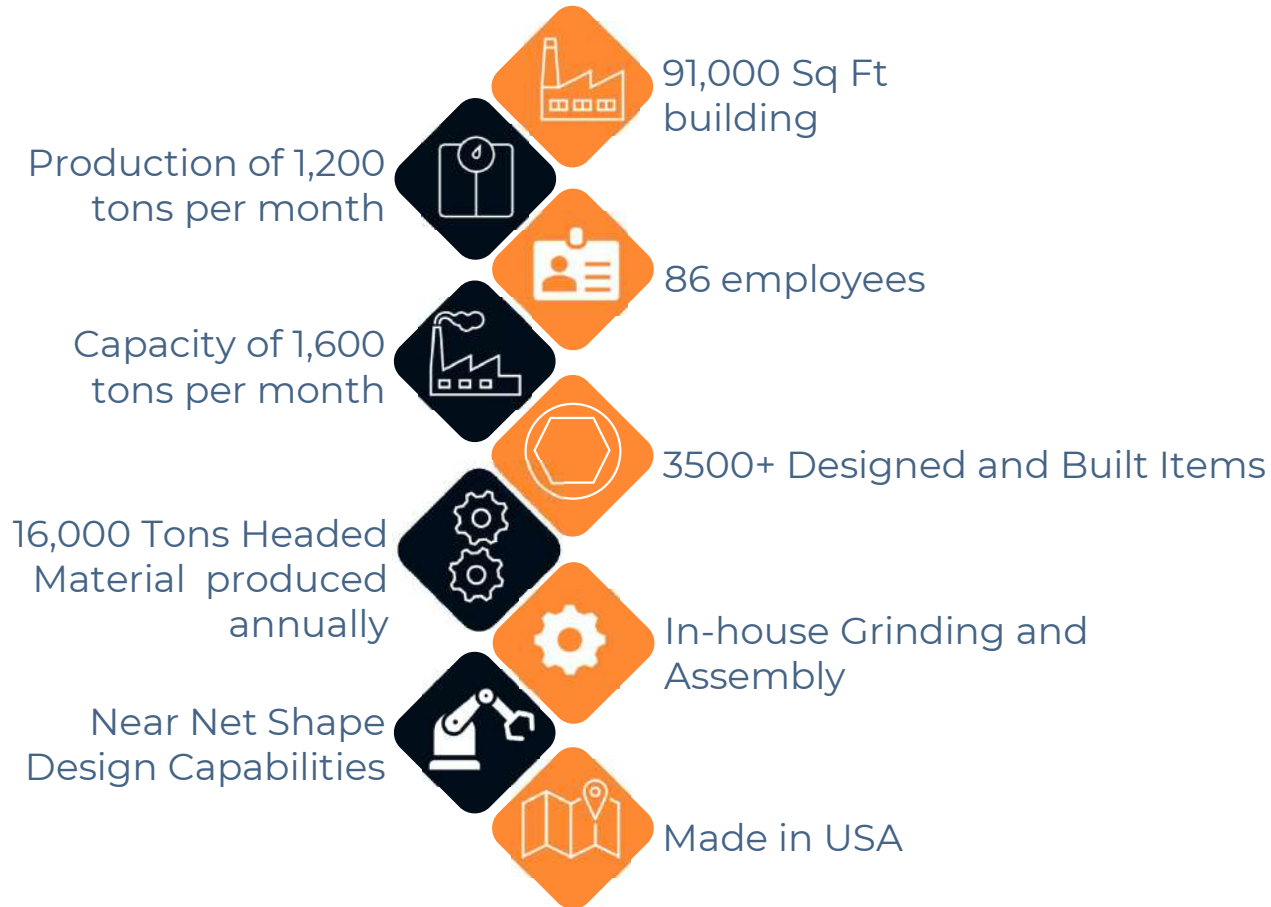
MARKETS WE SERVE



NET SHAPED SOLUTIONS STRENGTHS

- Engineered solutions provider
- Leading large cold heading expert
- Disciplined Program Management Process
- Robust development capability
- Global capabilities by a PCC companies
- Growth oriented, supportive parent company

PLANT DATA – VOLUME - CAPACITY



CAPABILITIES AND EQUIPMENT

Cold Heading

Cold forming: Process of forcing unheated metal, under extreme pressure into a die

Wire diameter feed

3/4" to 1.5"

Slug feed capability

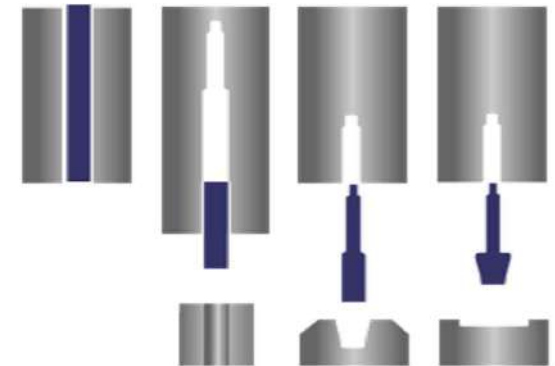
up to of 2.2" diameter

Forming capability


up to 15" length

COLD FORMING TECHNOLOGY


- Cold forming: Process of forcing unheated metal, under extreme pressure into a die
- Multi-station, horizontal equipment
- Punch and die in each station form a characteristic of finished part
- Improves strength, mechanical properties and grain flow



VALUE ADDED PROCESS CAPABILITIES



Net shape and near net shape capabilities





Reduce and/or eliminate additional machining operations



High speed production



Wide-ranging material capability



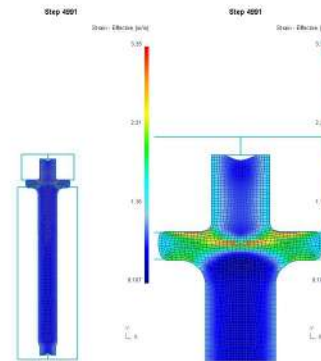
Secondary processing options available

ENGINEERING STRENGTH

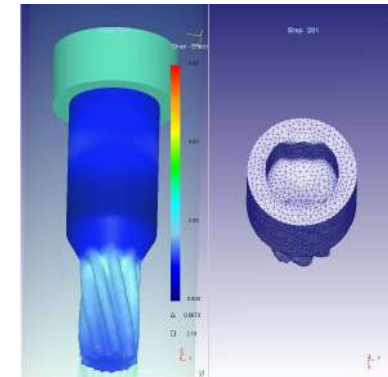
Finite Element Analysis (FEA) Utilization

- Faster design
- Problem avoidance
- Problem solving
- Understand material flow and stress points
- Reduces the number development runs, thereby reducing engineering and development costs

2D & 3D FEA Simulation Capabilities



2 Dimensional



3 Dimensional

KEY PARTNERS



PRODUCT OVERVIEW



AUTOMOTIVE TRANSMISSION COMPONENTS



- Turbine hub
- Intermediate shaft
- Output shaft
- Inner sun shaft
- Gear blanks



STEERING & SUSPENSION COMPONENTS



- Housings and ball studs
- Cross axis and bushing tubes
- Stabilizer link pins
- Inner tie rod components
- Steering pinions and shafts



ENGINE & NVH COMPONENTS

- Cam shaft ends
- Roller bearings
- Starter Gears
- Inner metals



MINE & CONSTRUCTION / INDUSTRIAL COMPONENTS



- Mining tools
- Construction tools
- Trenching tools

- Diesel engine fuel injector nozzles
- Heavy equipment hydraulic fittings



CONSUMER & RECREATION COMPONENTS

- Washing machine transmission shafts
- Dryer roller shafts
- Tool sockets
- ATV transmission shafts



ENERGY / DEFENSE COMPONENTS

- Sucker rod couplings



- ▶ Projectile
- ▶ Energy diffuser



CERTIFICATES

ISO 9001

IATF 16949





THANK YOU

