

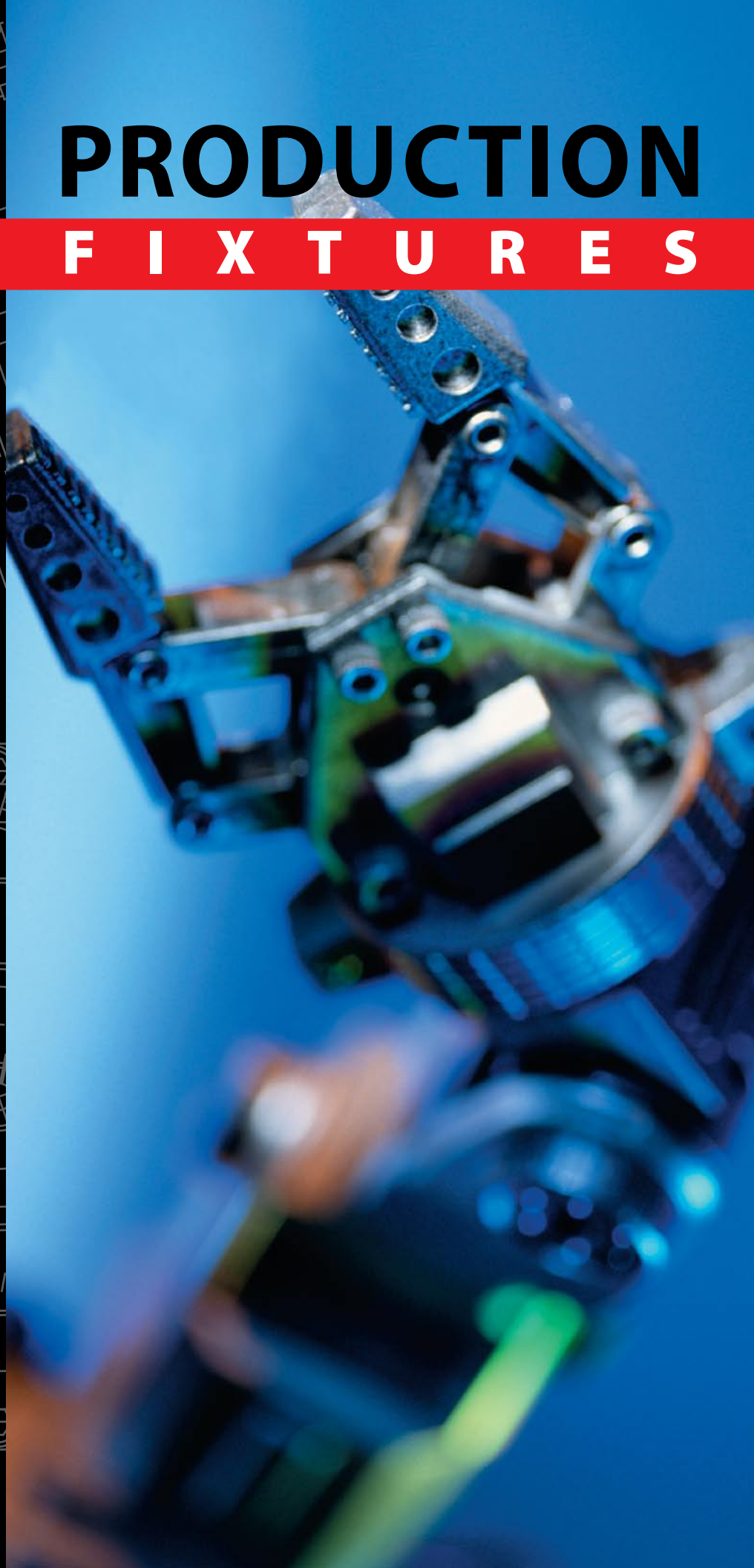
# PRODUCTION FIXTURES

- ▶ Production Fixtures
- ▶ Automation
- ▶ Complete Turnkey Solutions



**CO-OP TOOL**  
**WORKHOLDING SYSTEMS**

A DIVISION OF HAMMILL MANUFACTURING COMPANY

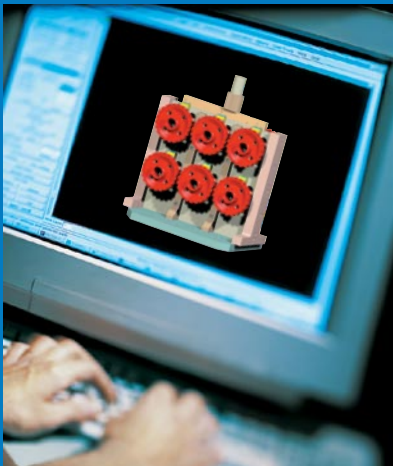




# CUSTOM WORKHOLDING SOLUTIONS FOR MA

## Production Fixtures

- Co-Op Tool Workholding Systems provides a **Turnkey Workholding Package** including concept development, design - including tool layout, manufacture, assembly and prove-out at the customer plant.
- All fixtures are tested for **accuracy** and **functionality** with actual part pieces prior to shipping.
- Our commitment focuses on quality at the source – the manufacturing process. Innovative design, combined with years of experience result in consistent quality in every part.
- Fixture Actuation may be:
  - Hydraulic
  - Pneumatic
  - Manual
  - Captured Oil – accumulator built into fixture for cell applications
  - Spring Clamp with Air or Hydraulic Unclamp

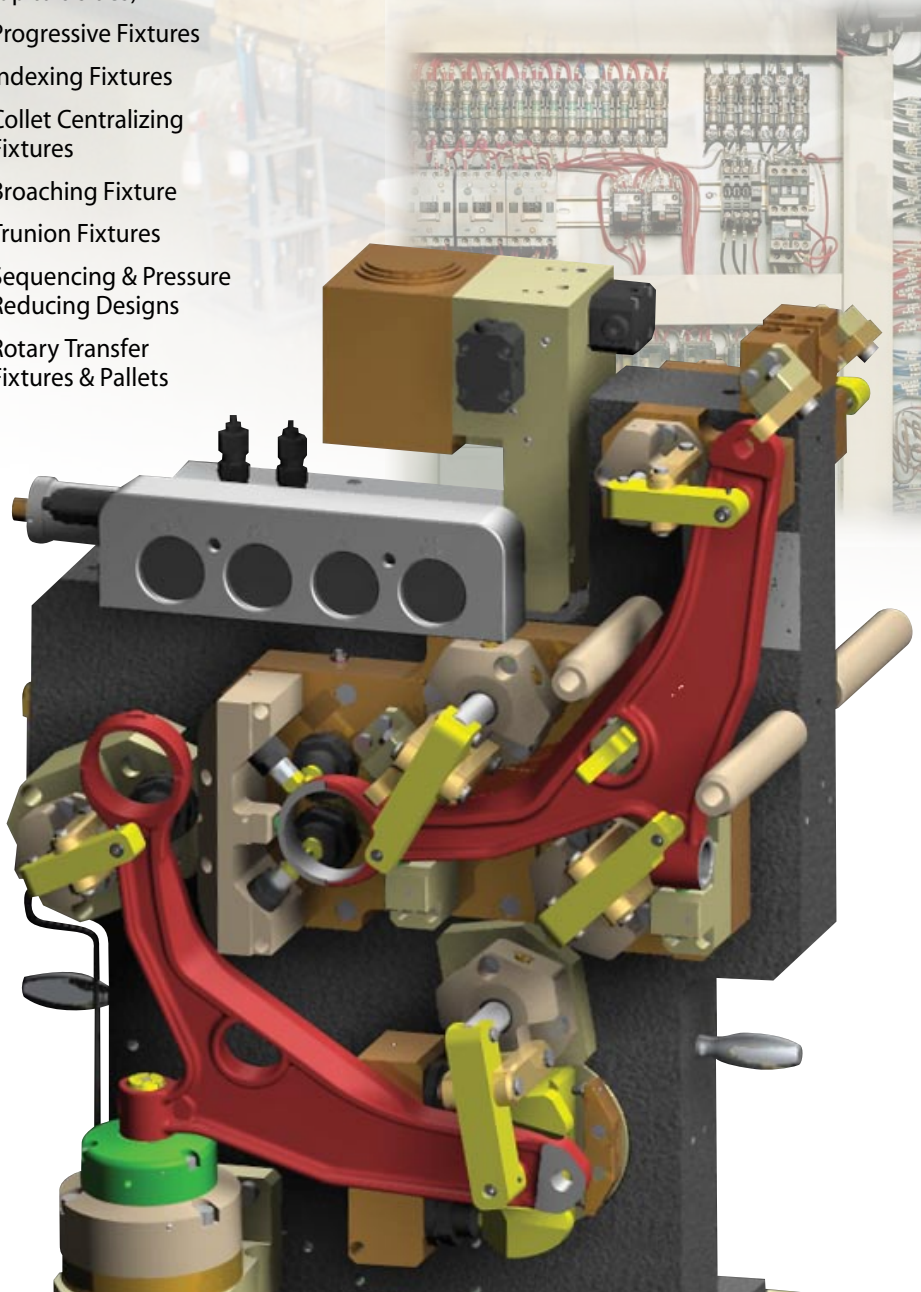
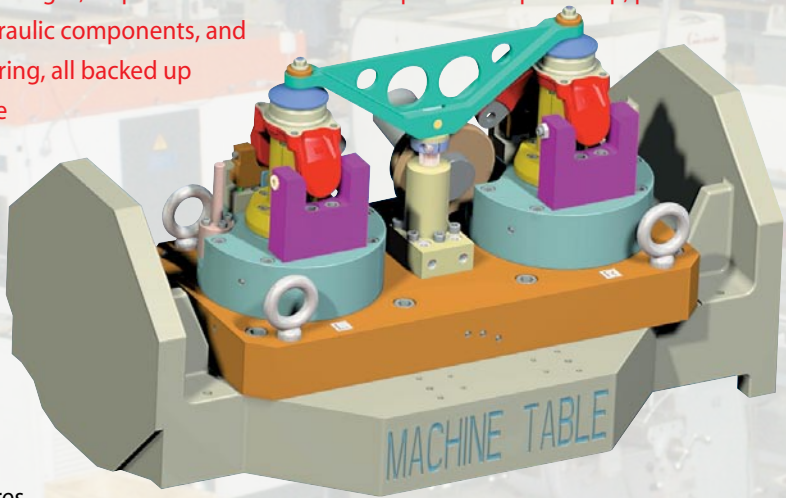


- All fixtures are supplied with a **Complete Engineering Package**, including CAD drawings, all detail drawings and commercial items.
- Where established fixtures exist, Co-Op Tool can provide "Build-To-Print" manufacturing and "Rebuild/Reconditioning Services." In addition, we can reverse engineer existing designs and provide a complete set of manufacturing drawings.
- Co-Op Tool Engineers can **Troubleshoot Existing Fixture Problems** and provide long-term, production-intent solutions to fix the problem.
- Our job is to keep You out of trouble!

All fixtures are **Production Intent** – designed to meet the challenges that face production manufacturing applications. Designs incorporate internal (gun-drilled) hydraulic and air passages, chip and coolant windows to prevent chip built-up, proven and reputable hydraulic components, and rock-solid engineering, all backed up with on-site service and support.

### Applications:

- Multi-sided fixtures (up to 6 sides)
- Progressive Fixtures
- Indexing Fixtures
- Collet Centralizing Fixtures
- Broaching Fixture
- Trunion Fixtures
- Sequencing & Pressure Reducing Designs
- Rotary Transfer Fixtures & Pallets





# MANUFACTURERS WHO DEMAND THE VERY BEST.

**Turnkey Manufacturing Solutions:** Over 50 years of technological advancements gives Co-Op Tool the experience to design and build custom tooling for a customer's unique requirements. This includes concept development, design, approval, manufacture, assembly and prove-out at the customer's plant. We take responsibility for the entire project, providing a single-source for your accountability assurance.

## Automation Solutions

- Custom End-of-Arm Tooling
  - 2-Jaw Parallel Gripping Systems
  - 3-Jaw Concentric Gripping Systems
  - Pullback (Angular) Gripping Systems
  - Rotating Gripping Systems
  - Collet Gripping Systems
  - Custom Gripping Systems

### Automation Modules

Co-Op Tool supplies turnkey automation modules for new applications, as well as retrofitting existing applications. We supply a complete turnkey package from the initial concept development, through manufacturing, assembly, installation and runoff on the customer's floor.

- Orientation Modules / Pre-Staging Modules
- Compliance & Alignment Devices
- Automation Fixtures
- Turnkey Automated Systems – Complete Automated Systems
- Perishable / Backup Tooling

### Custom Controls Engineering & Programming

In cases where the machine control cannot handle the automation requirements, Co-Op Tool will provide turnkey controls engineering and programming. In addition, we provide a complete integration package, including on-site installation and support.

### Complete CAD Engineering Package

Co-Op Tool provides a complete engineering package. In addition, as required, FEA and FMEA analysis is conducted to anticipate and prevent problems in the field.

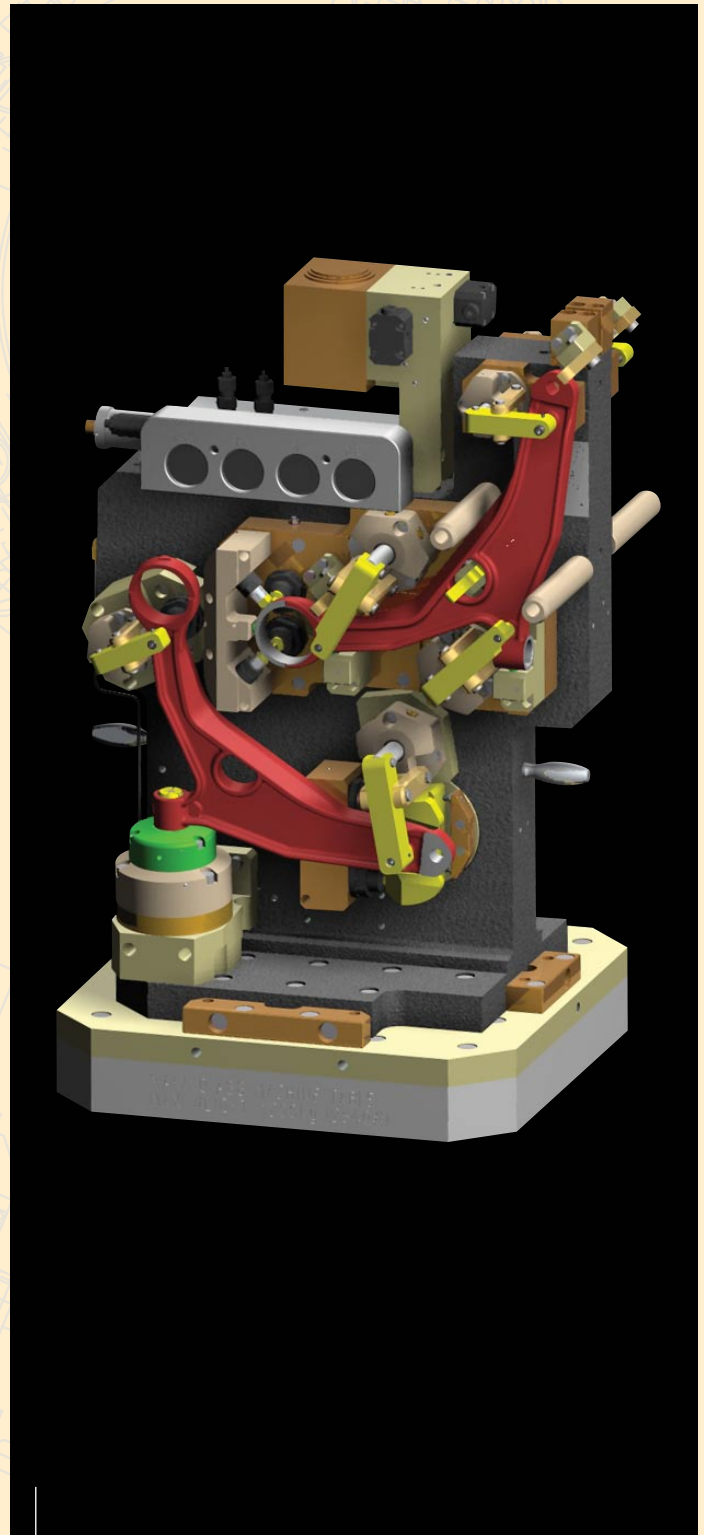




**Fixture:** 2-sided, hydraulic fixture

**Part:** Front axle assembly

**Clamping Function:** Hydraulic clamping with spring actuated load-assist mechanism



**Fixture:** 2-sided, A/B fixture

**Part:** Lower control arm

**Clamping Function:** A-load – hydraulic toggle clamping with load-assist, B-load – spring actuated ID collet chuck with hydraulic assist, and hydraulic toggle clamps

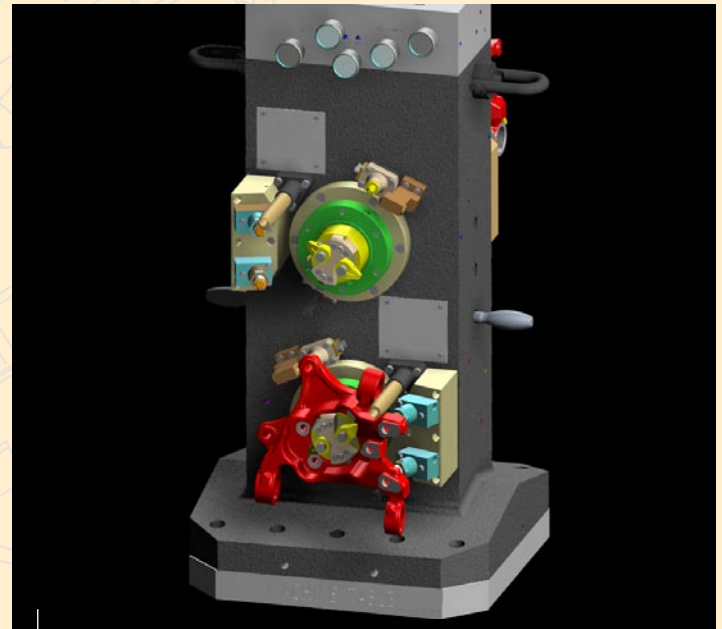




**Fixture:** 2-sided, A/D fixture

**Part:** Rear knuckle, right and left hand

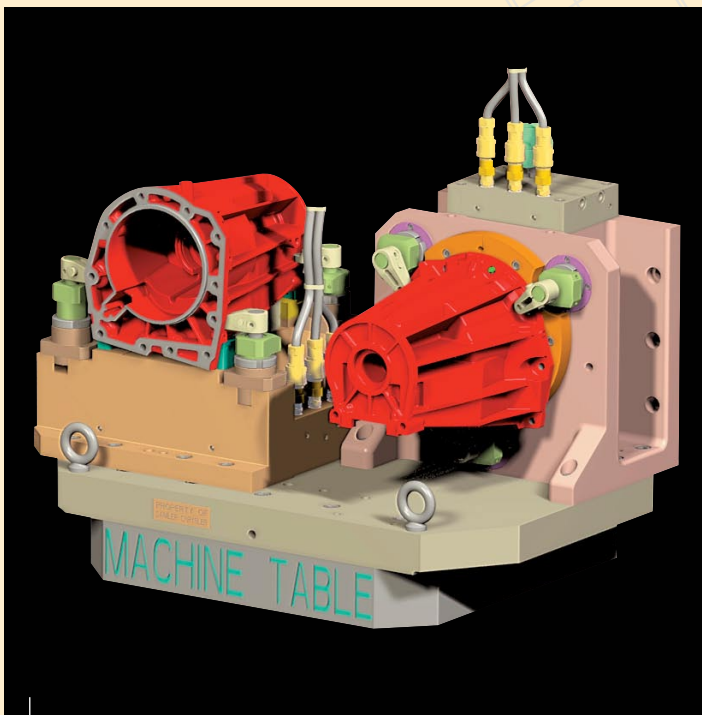
**Clamping Function:** Spring retainer load-assist, hydraulic clamping with sequencing and air sensing



**Fixture:** 2-sided, B/C fixture

**Part:** Rear knuckle, right and left hand

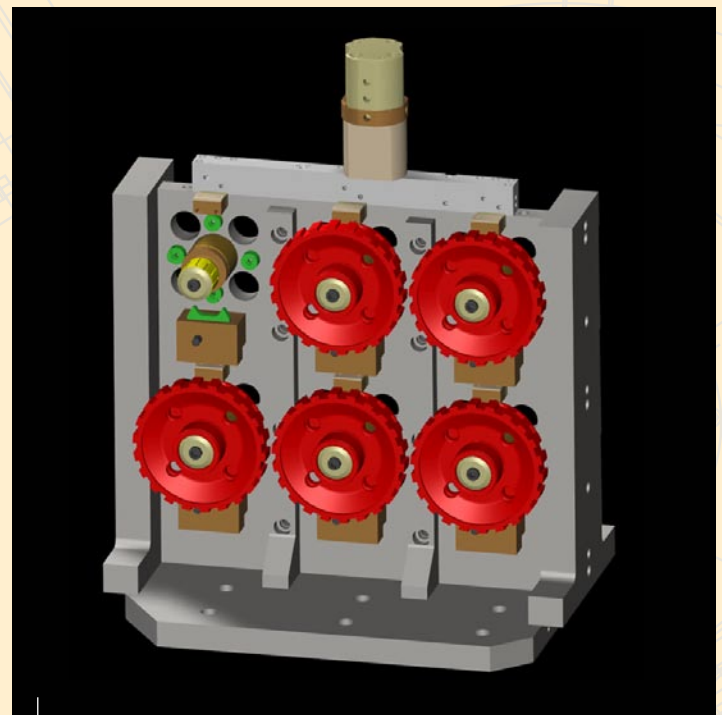
**Clamping Function:** ID collet centering unit, with integral face clamps, and diamond pin orientation device, additional swing clamps for dampening and part stability, hydraulic actuation and air sensing



**Fixture:** A/B fixture

**Part:** Transmission case

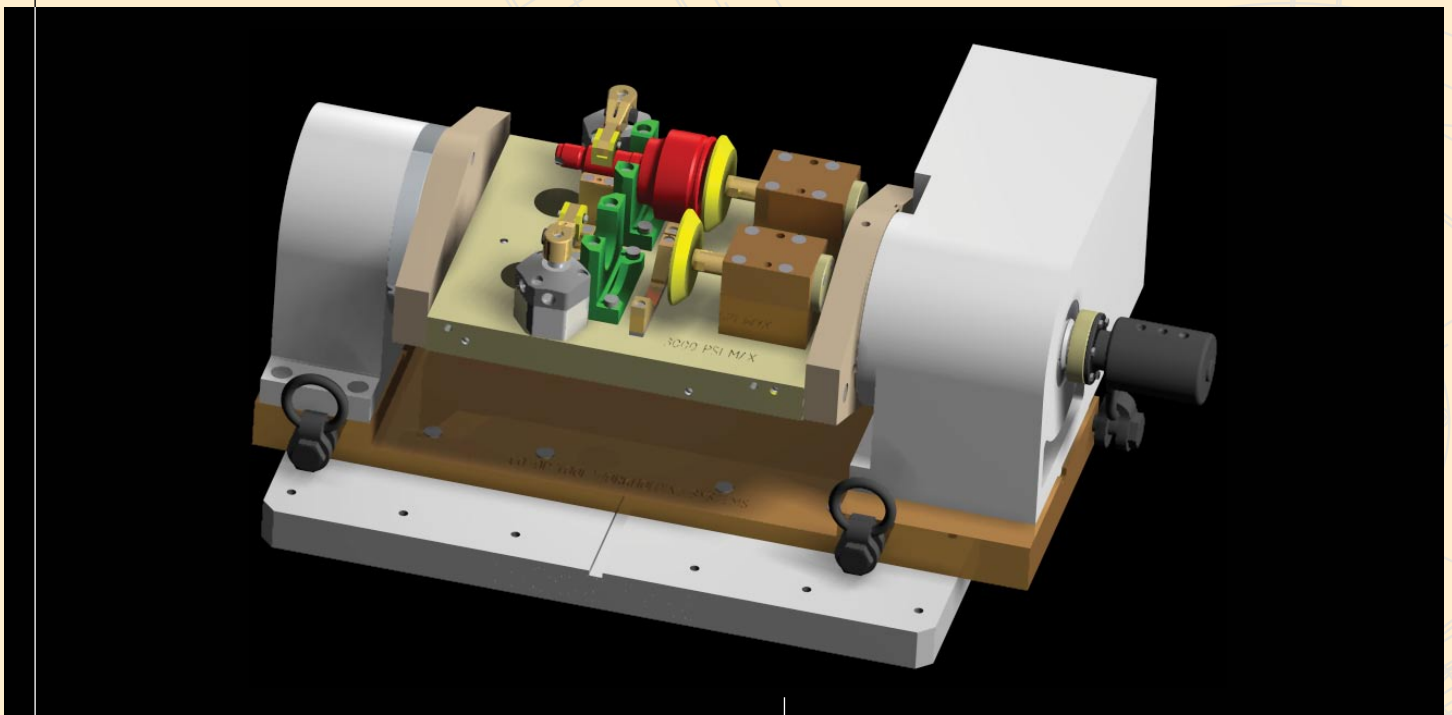
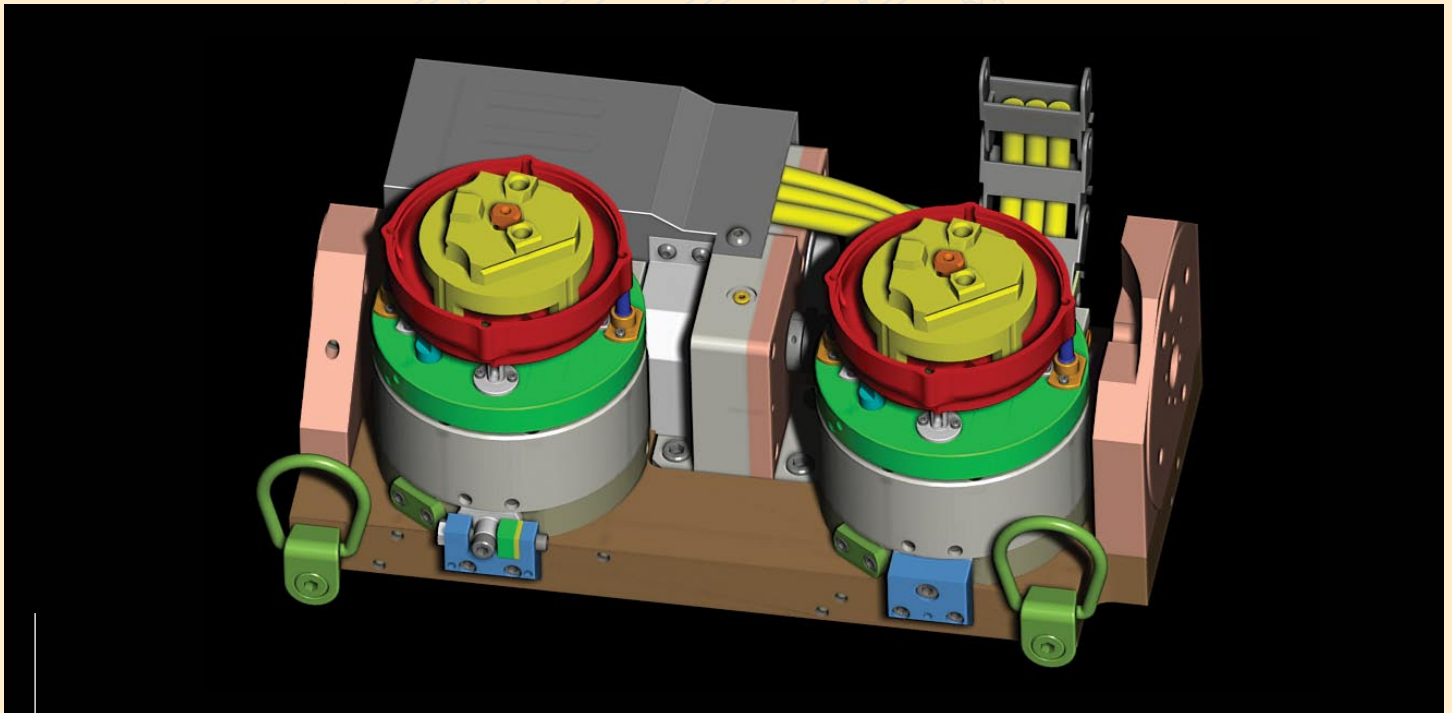
**Clamping Function:** Hydraulic clamping with spring actuated load-assist mechanism



**Fixture:** 1-sided "Window Frame" fixture

**Part:** Pinion carrier

**Clamping Function:** ID pull-back collet chuck with hydraulic actuation, and spring-loaded radial orientation device



**Fixture:** 5-axis trunion fixture with integral servo motor

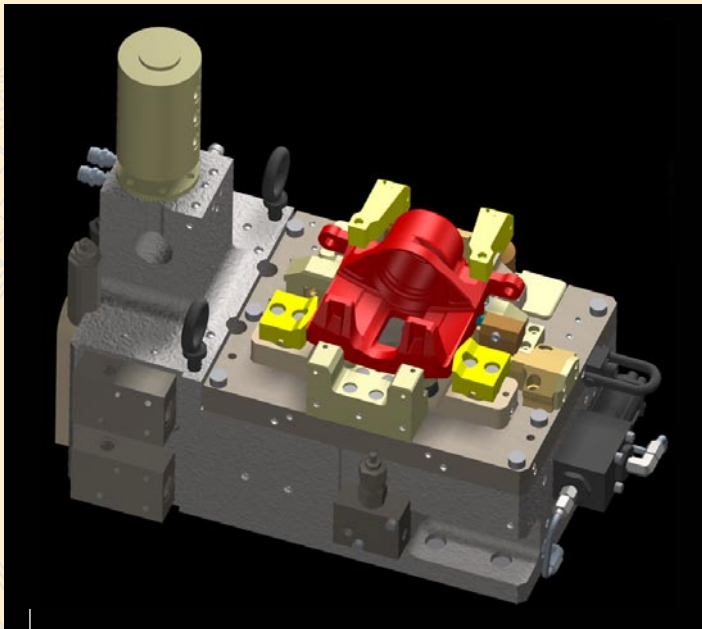
**Part:** Alternator cover

**Clamping Function:** Hydraulic clamping with air sensing, 5-axis motion is electronically controlled

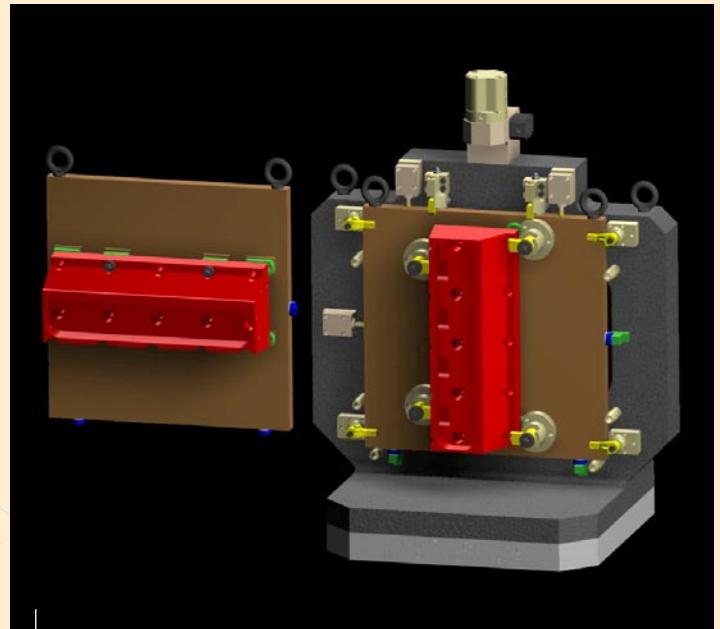
**Fixture:** 4-axis trunion fixture

**Part:** CV housing

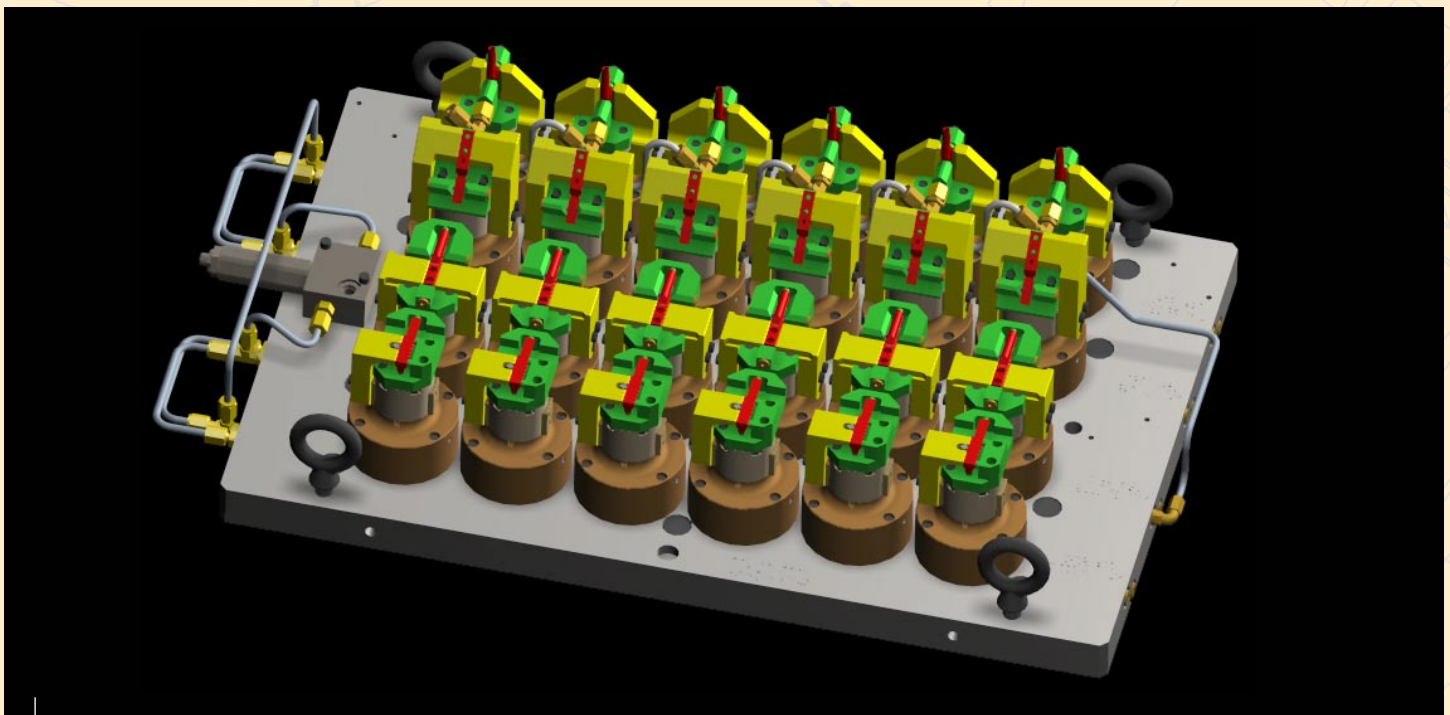
**Clamping Function:** Hydraulic part locator and hydraulic swing clamp, with sequencing



**Fixture:** Rotary Transfer Fixture  
**Part:** Brake caliper  
**Clamping Function:** Hydraulic clamp with air sensing for part presence



**Fixture:** 1-sided "Window Frame" Fixture with replaceable fixture plates  
**Part:** Cylinder head  
**Clamping Function:** Hydraulic clamp with air sensing



**Fixture:** 24-part, A/B/C/D Progressive Fixture  
**Part:** Steel housing  
**Clamping Function:** 2-jaw centralizing vice chucks, hydraulic clamp with air sequencing



# The Divisions of Hammill Manufacturing Company



## **CO-OP TOOL Workholding Systems** **Custom Workholding**

- Excelling in the design, development and manufacture of custom workholding, including chucks, collets, hydraulic arbors and tombstone fixtures
- 90,000 Sq. Ft. Facilities

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MANUFACTURING COMPANY