

PRODUCTION WORKHOLDING [SOLUTIONS]

FOR MANUFACTURERS WHO DEMAND PRECISION



PRODUCTION FIXTURES
CUSTOM CHUCKING APPLICATIONS
ENGINEERED AUTOMATION SYSTEMS
**PRECISION MACHINING
& SPARE PARTS**

PRODUCTION WORKHOLDING SOLUTIONS

FOR MANUFACTURERS WHO DEMAND PRECISION

CO-OP Tool Workholding Systems provides a **Turnkey Workholding Package**: Concept development and design – including tool layout, manufacture, assembly and fixture run-off are all inclusive in your custom solution.

Our job is to keep you out of trouble!

► PRODUCTION FIXTURES

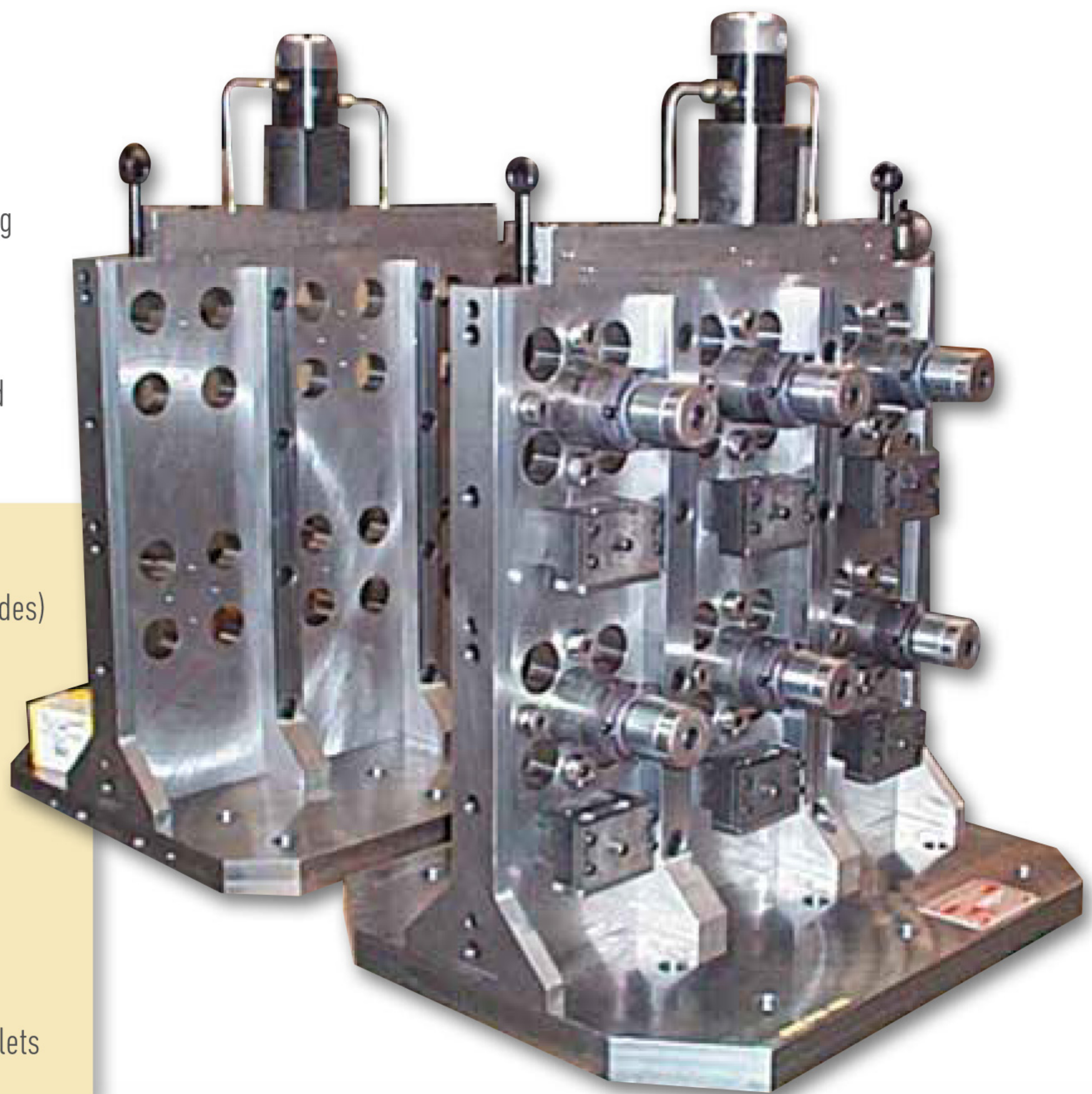
- All fixtures are tested for accuracy and functionality with actual part pieces prior to shipping.
- Our commitment focuses on quality at the source – the manufacturing process. Innovative design, combined with years of experience result in consistent quality in every part.
- Co-Op Tool Engineers can Troubleshoot Existing Fixture Problems and provide long-term, production-intent solutions to fix the problem.

Fixture Actuation:

- Hydraulic
- Pneumatic
- Manual
- Captured Oil – accumulator built into fixture for cell applications
- Spring Clamp with Air or Hydraulic Unclamp

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



► CUSTOM CHUCKING APPLICATIONS

Over 45 years of engineering experience goes into every custom power chuck, collet chuck or diaphragm chuck we manufacture. We design and build custom workholding and tooling for machine tool builders, distributors, tier 1 and tier 2 manufacturers and OEMs.

- Power Chucks
- Collet Chucks
- Diaphragm Chucks
- Advanced Workholding Applications

[PRODUCTION FIXTURES]

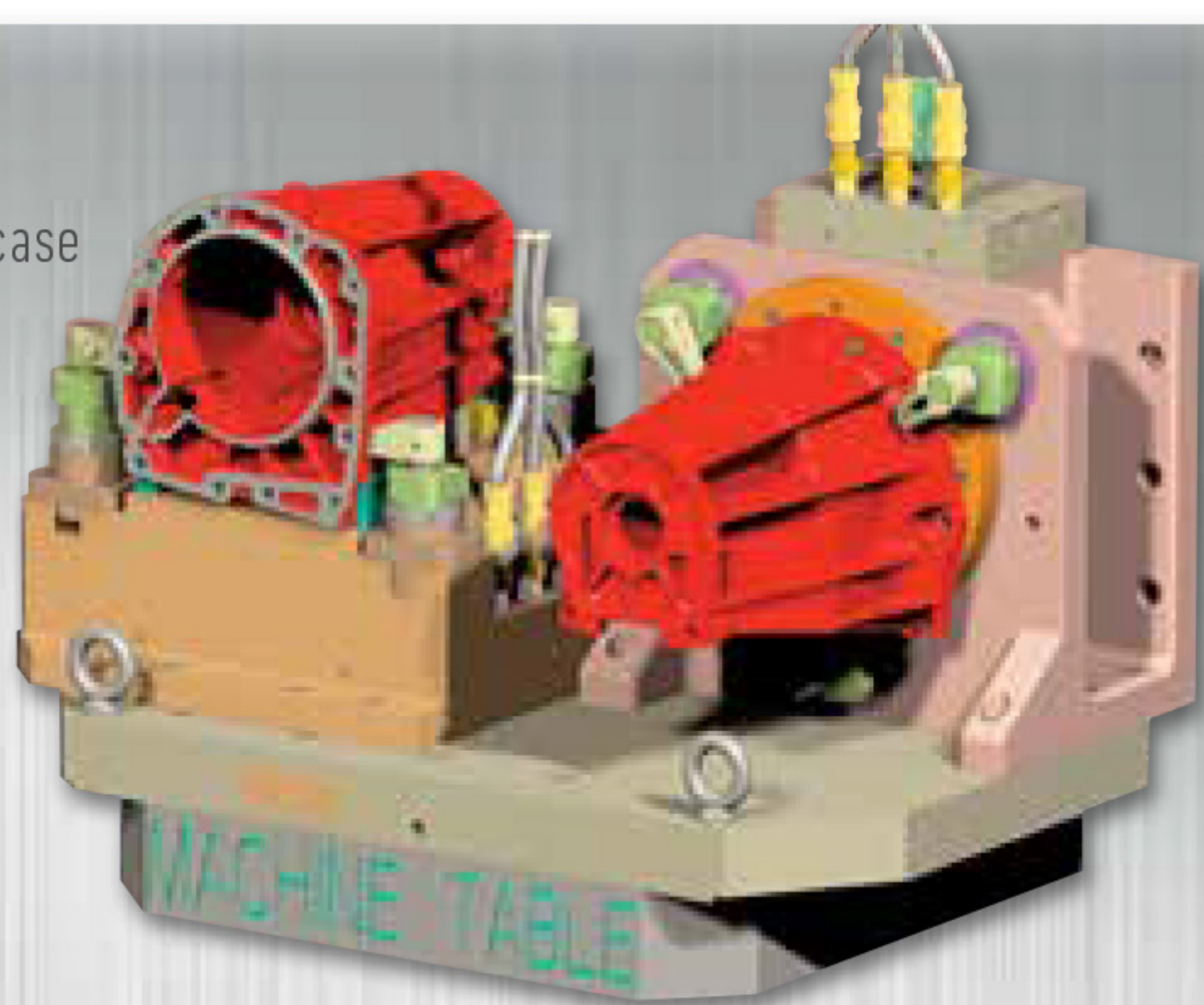
All fixtures are supplied with a Complete Engineering Package, including CAD drawings, all detail drawings and commercial items.

A/B FIXTURE

Part: Transmission case

Clamping Function:

Hydraulic clamping with spring actuated load-assist mechanism

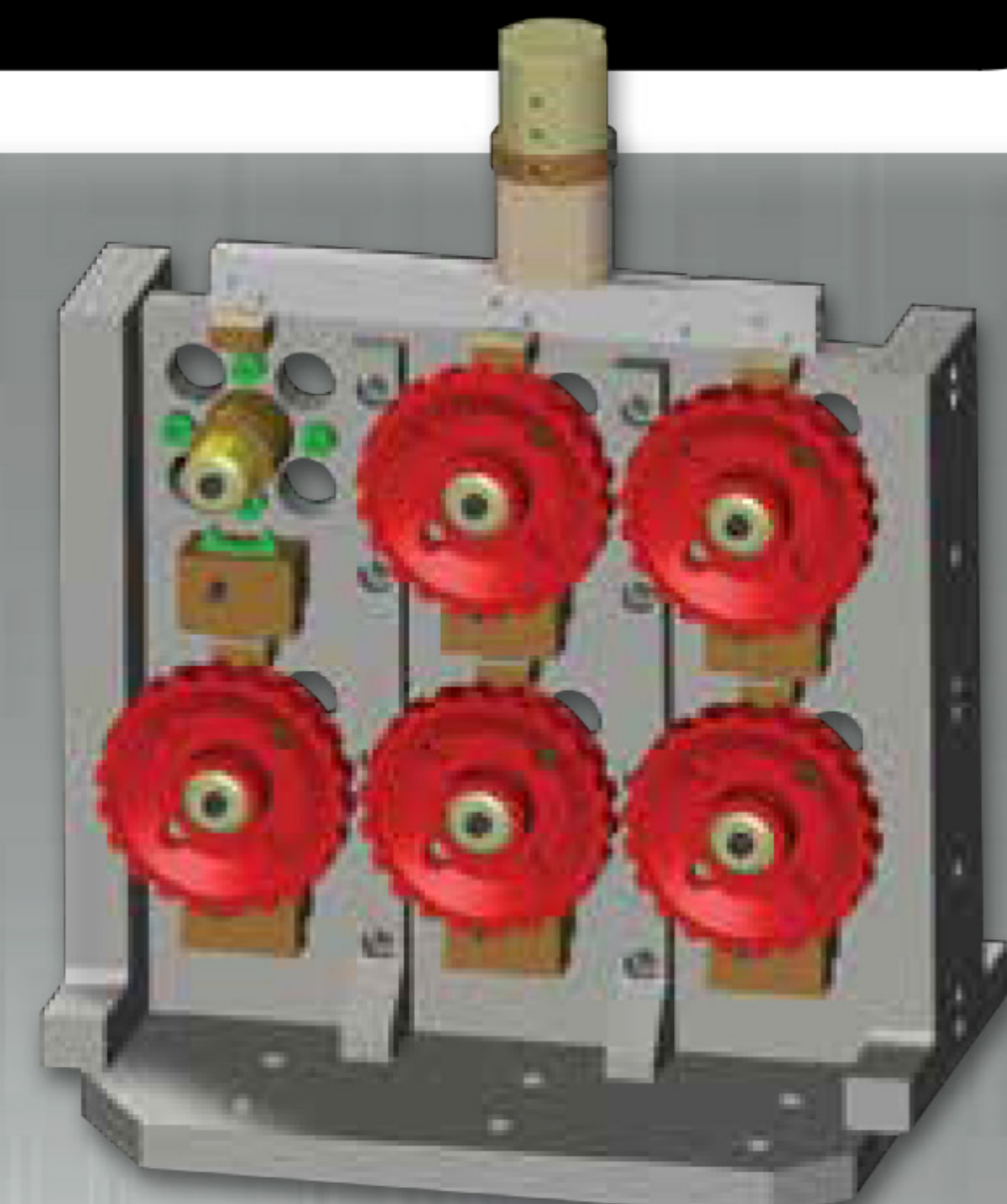


1-SIDED "WINDOW FRAME" FIXTURE

Part: Pinion carrier

Clamping Function:

ID pull-back collet chuck with hydraulic actuation, and spring-loaded radial oriental device

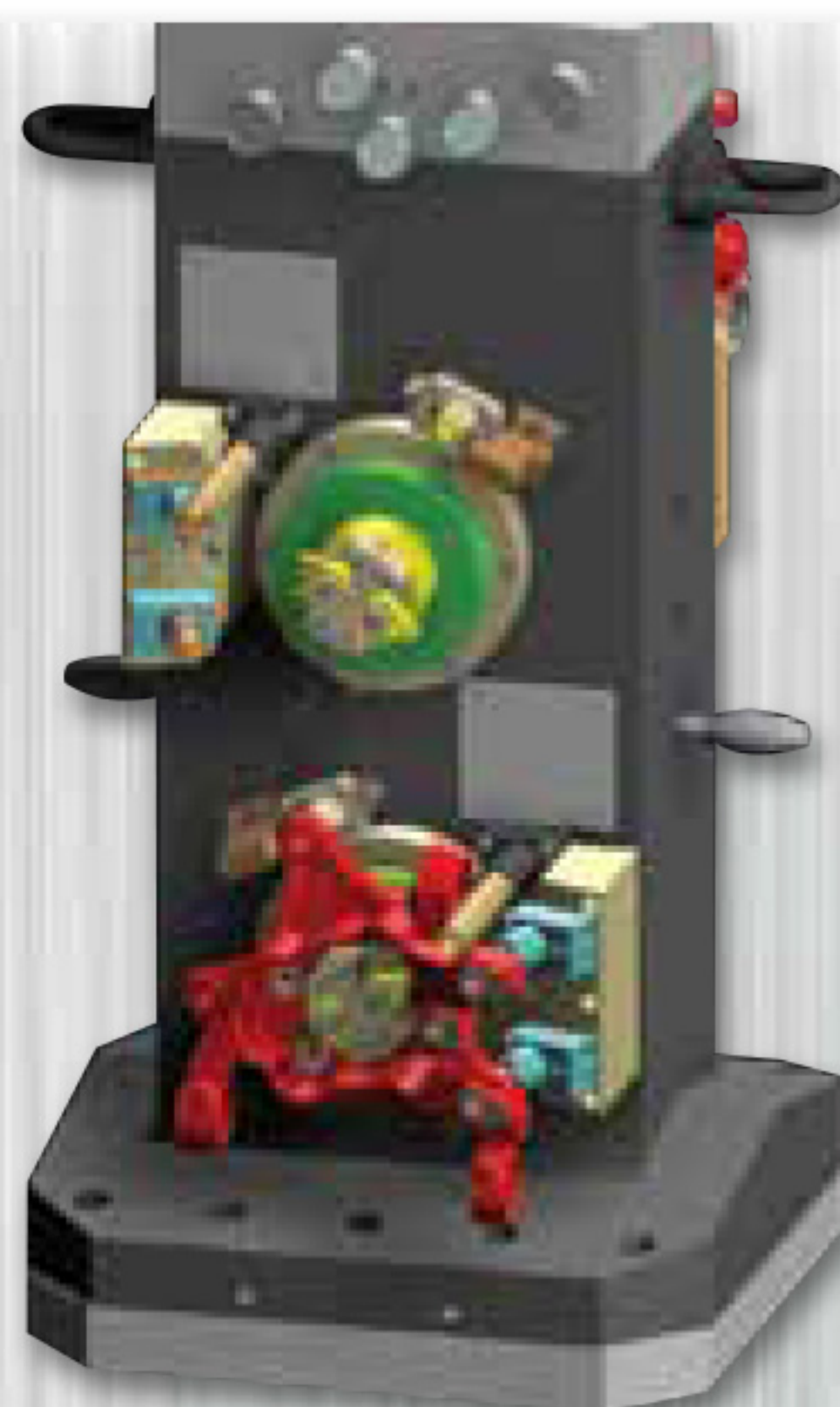


2-SIDED, B/C KNUCKLE FIXTURE WITH CENTRALIZING COLLET CHUCK

Part: Rear knuckle, right & left hand

Clamping Function:

ID collet centering unit, with integral face clamps, & diamond pin orientation device, hydraulic actuation & air sensing

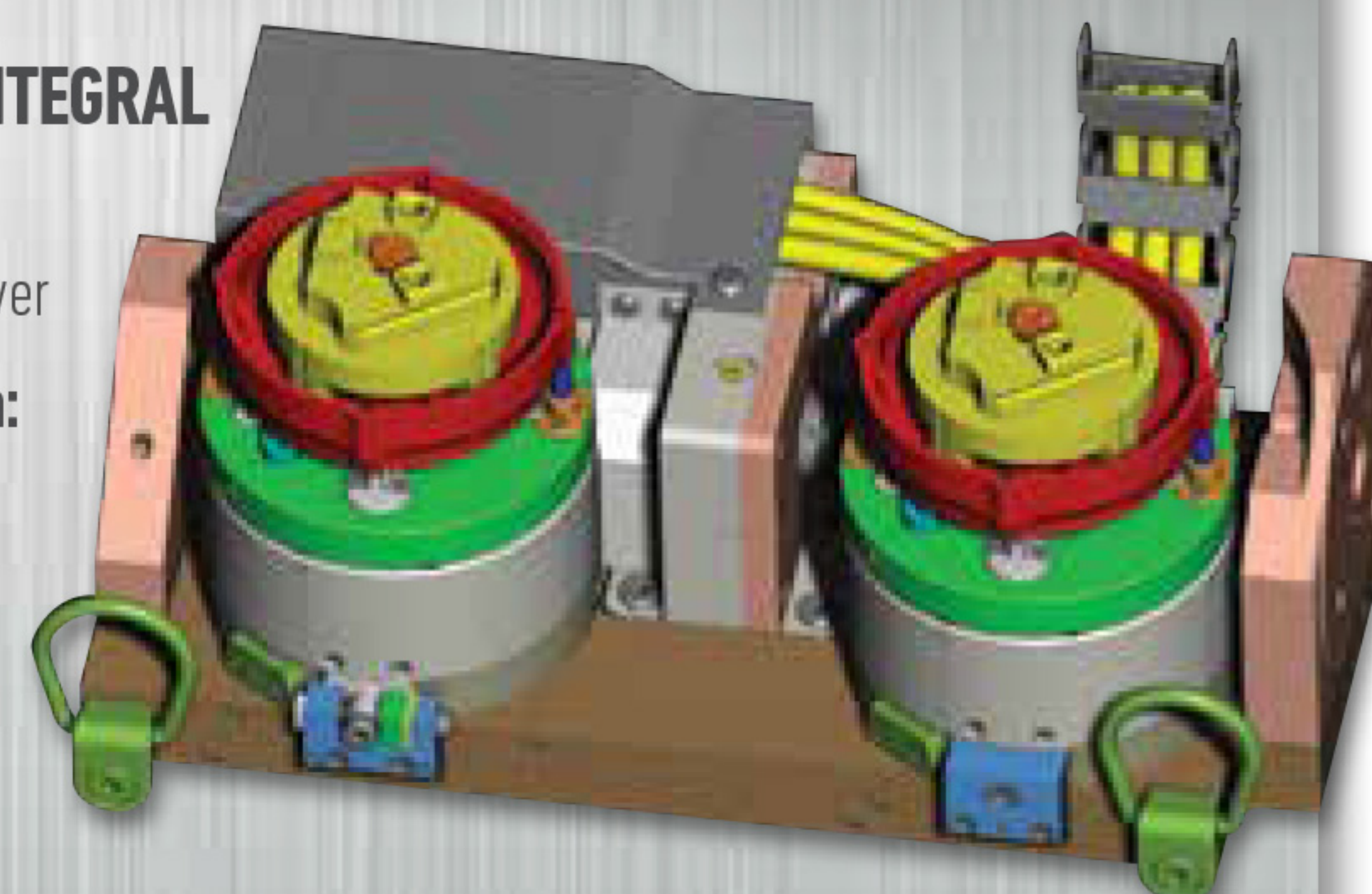


5-AXIS TRUNION FIXTURE WITH INTEGRAL SERVO MOTOR

Part: Alternator cover

Clamping Function:

Hydraulic clamping with air sensing
5-axis motion is electronically controlled

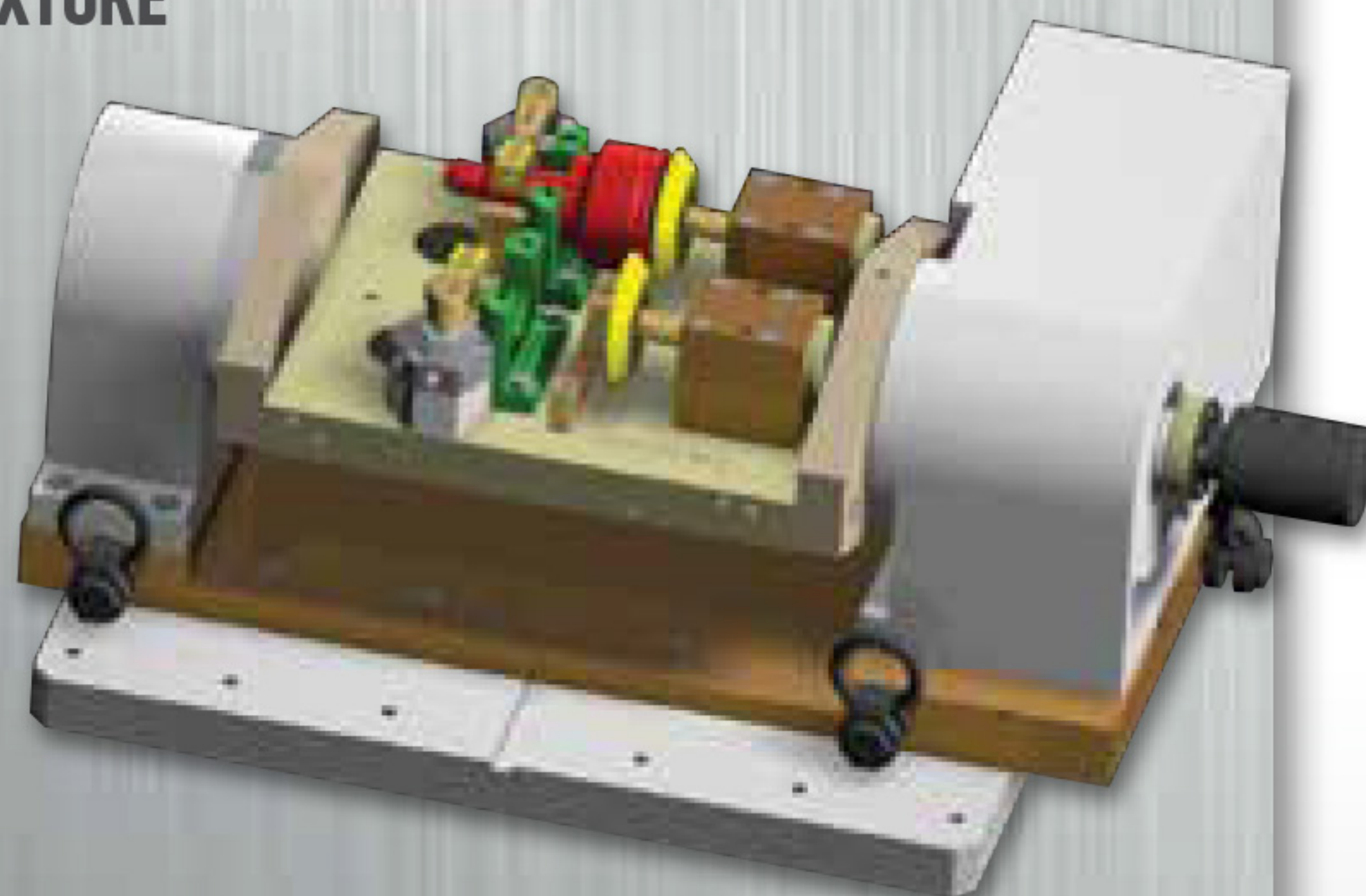


4-AXIS TRUNION FIXTURE

Part: CV housing

Clamping Function:

Hydraulic part locator and hydraulic swing clamp, with sequencing

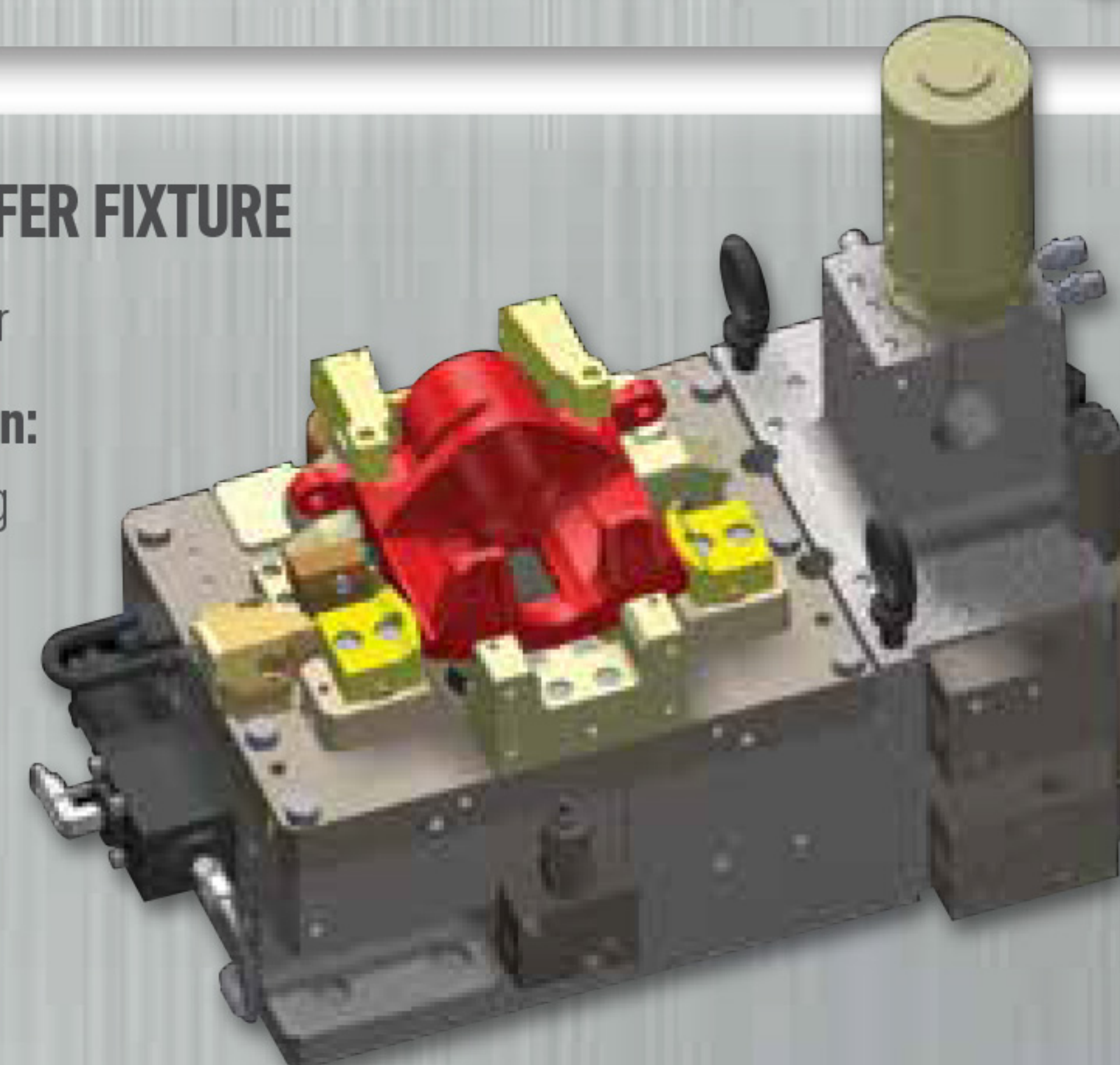


ROTARY TRANSFER FIXTURE

Part: Brake caliper

Clamping Function:

Hydraulic clamping with air sensing for part presence

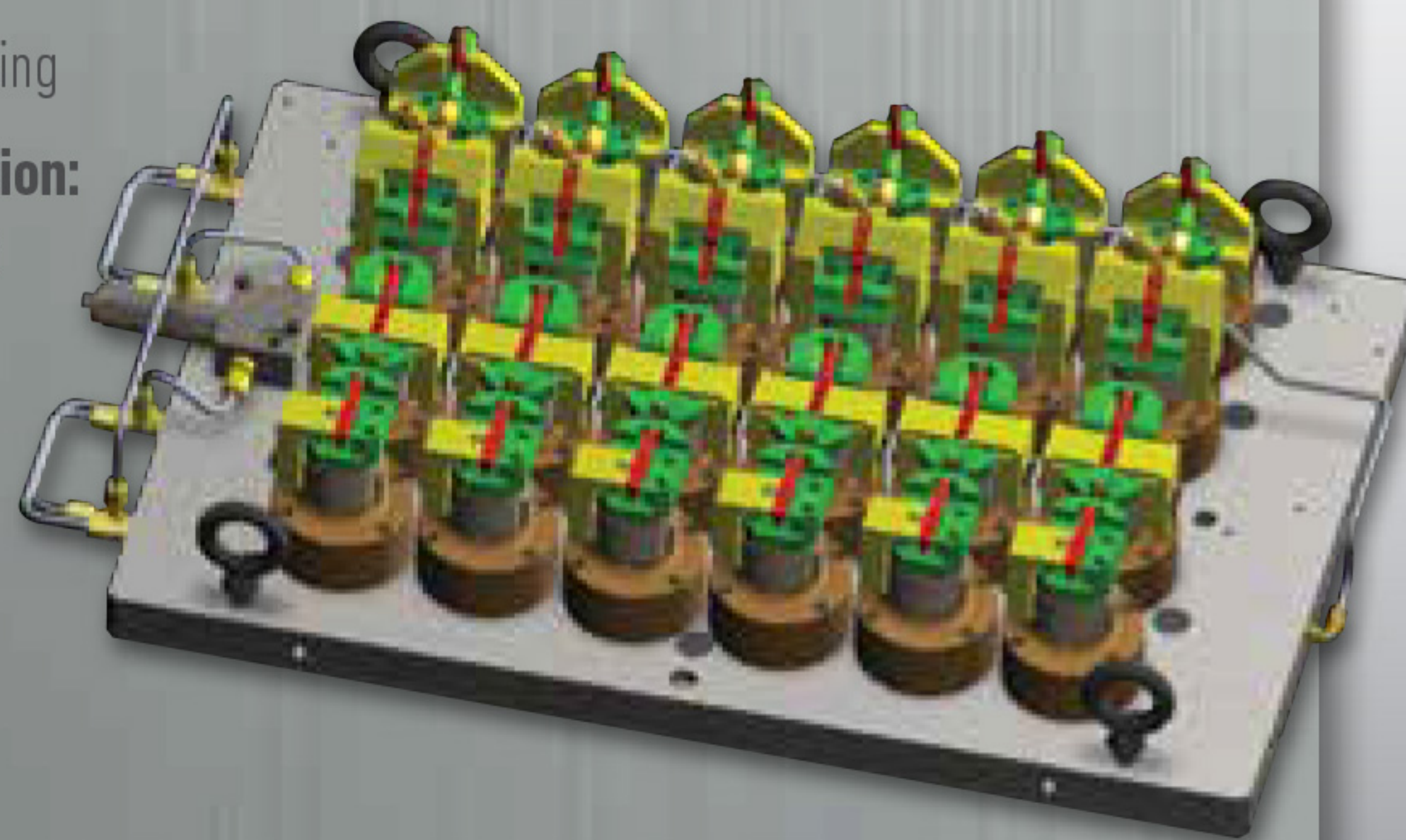


24-PART A/B/C/D PROGRESSIVE FIXTURE

Part: Steel housing

Clamping Function:

2-jaw centralized vice chucks, hydraulic clamp with air sequencing

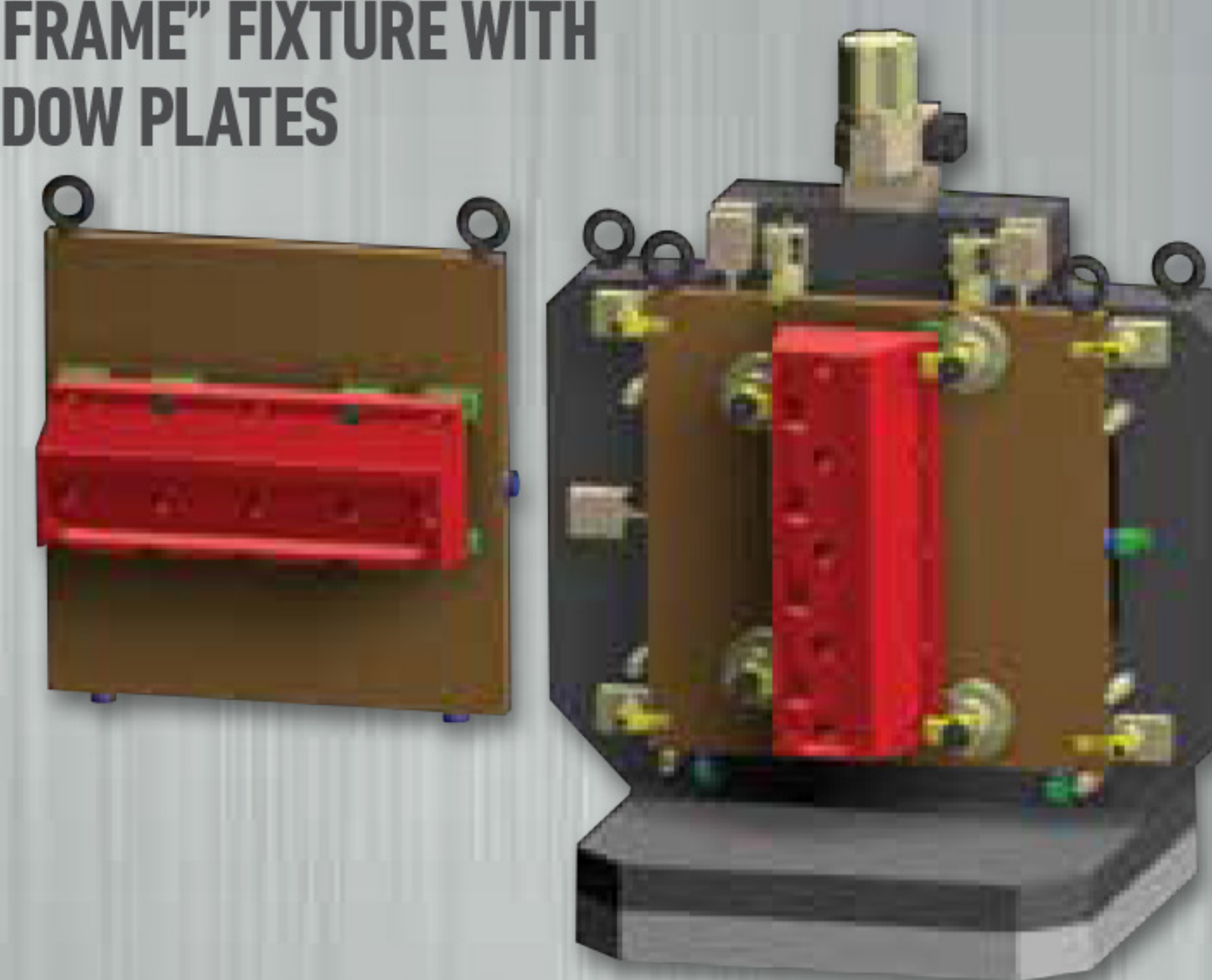


1-SIDED "WINDOW FRAME" FIXTURE WITH REPLACEABLE WINDOW PLATES

Part: Cylinder head

Clamping Function:

Hydraulic clamping with air sensing

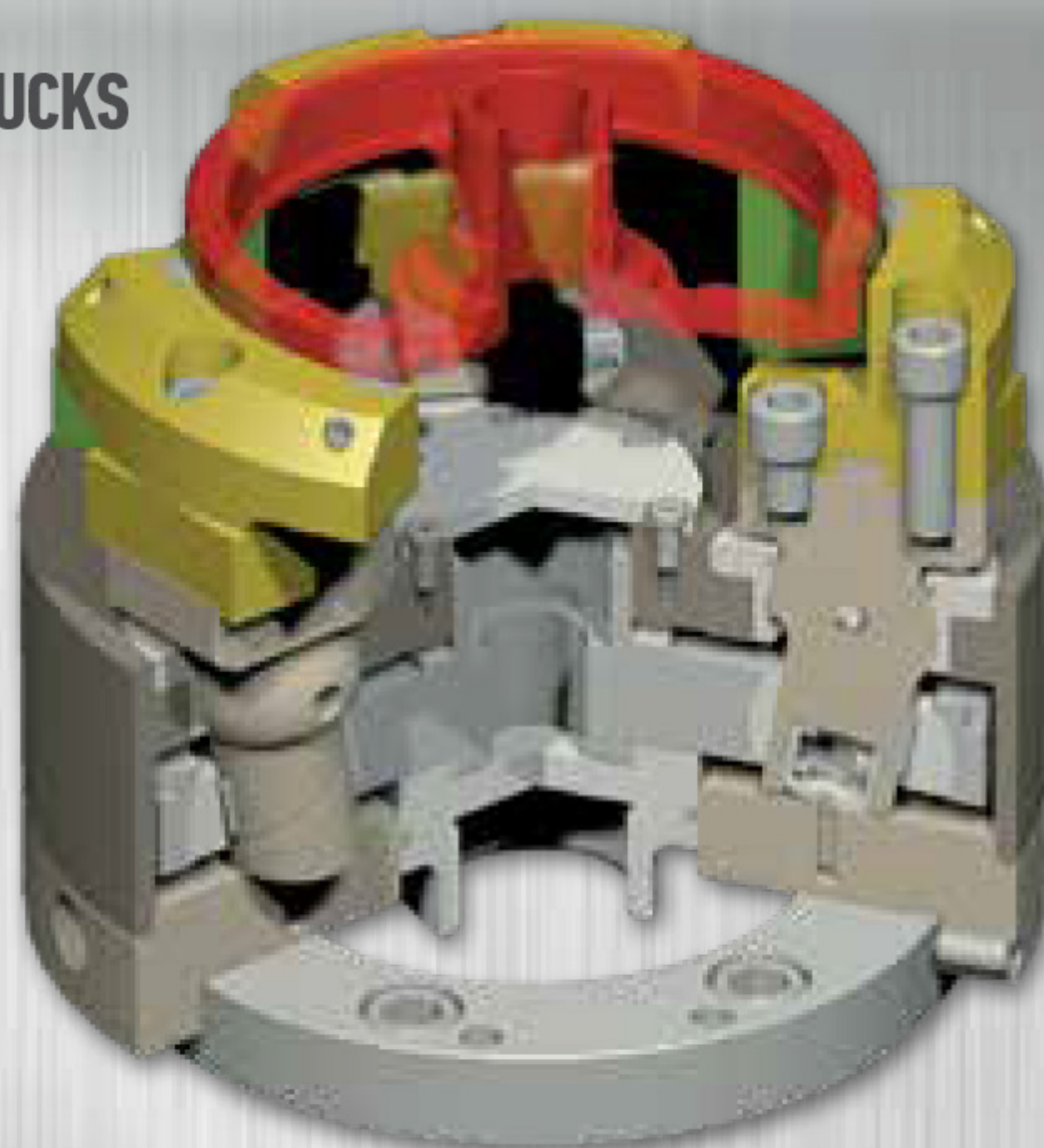


[POWER CHUCKS]

Versatile, power-gripping chucks designed for first operation applications:
Ball Lock Power Chucks / Wedge Grip Power Chucks / 2-Jaw & 3-Jaw Power Chucks

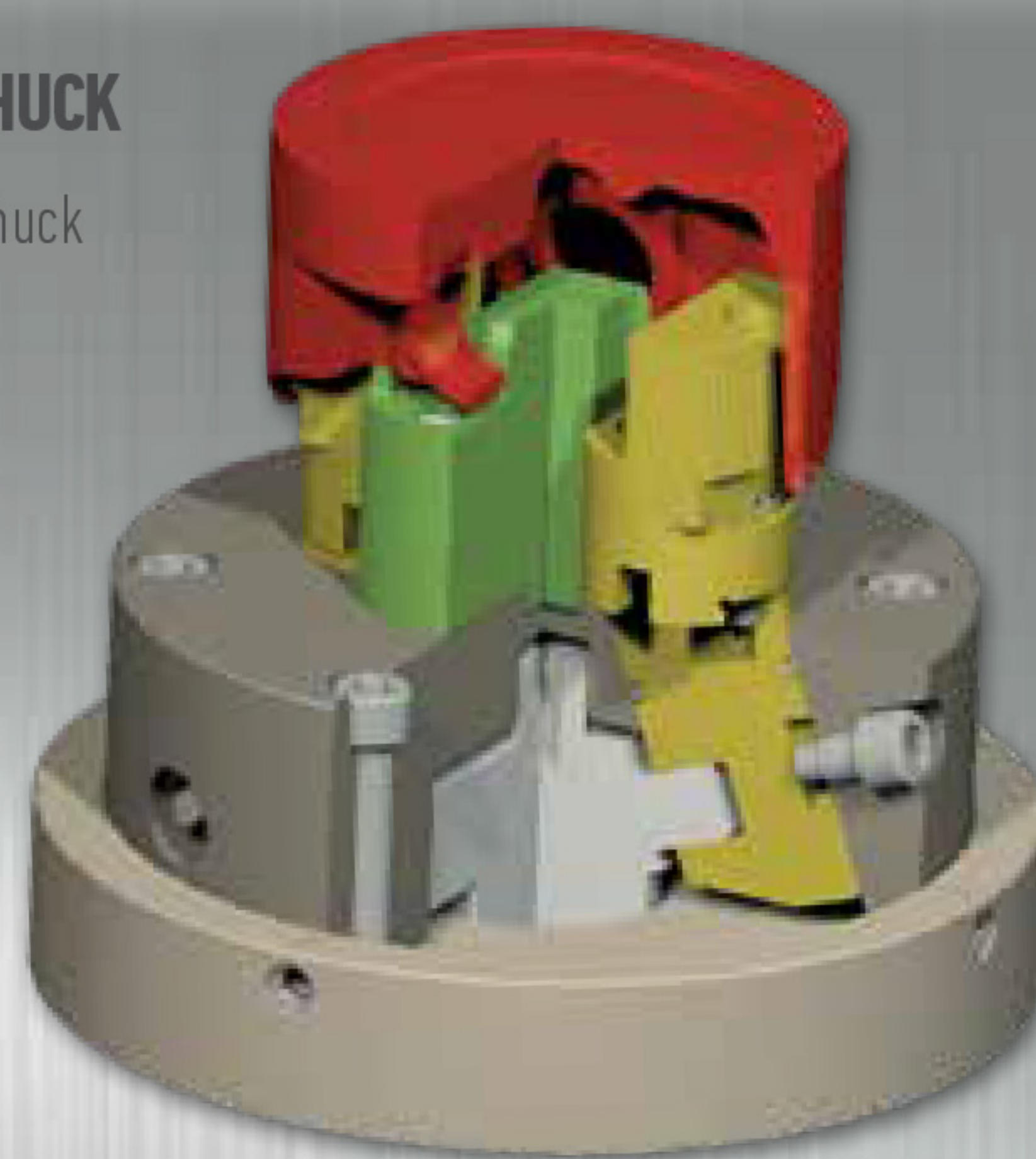
BALL LOCK POWER CHUCKS

OD Ball Lock Chuck for turning, boring and facing automotive damper hub



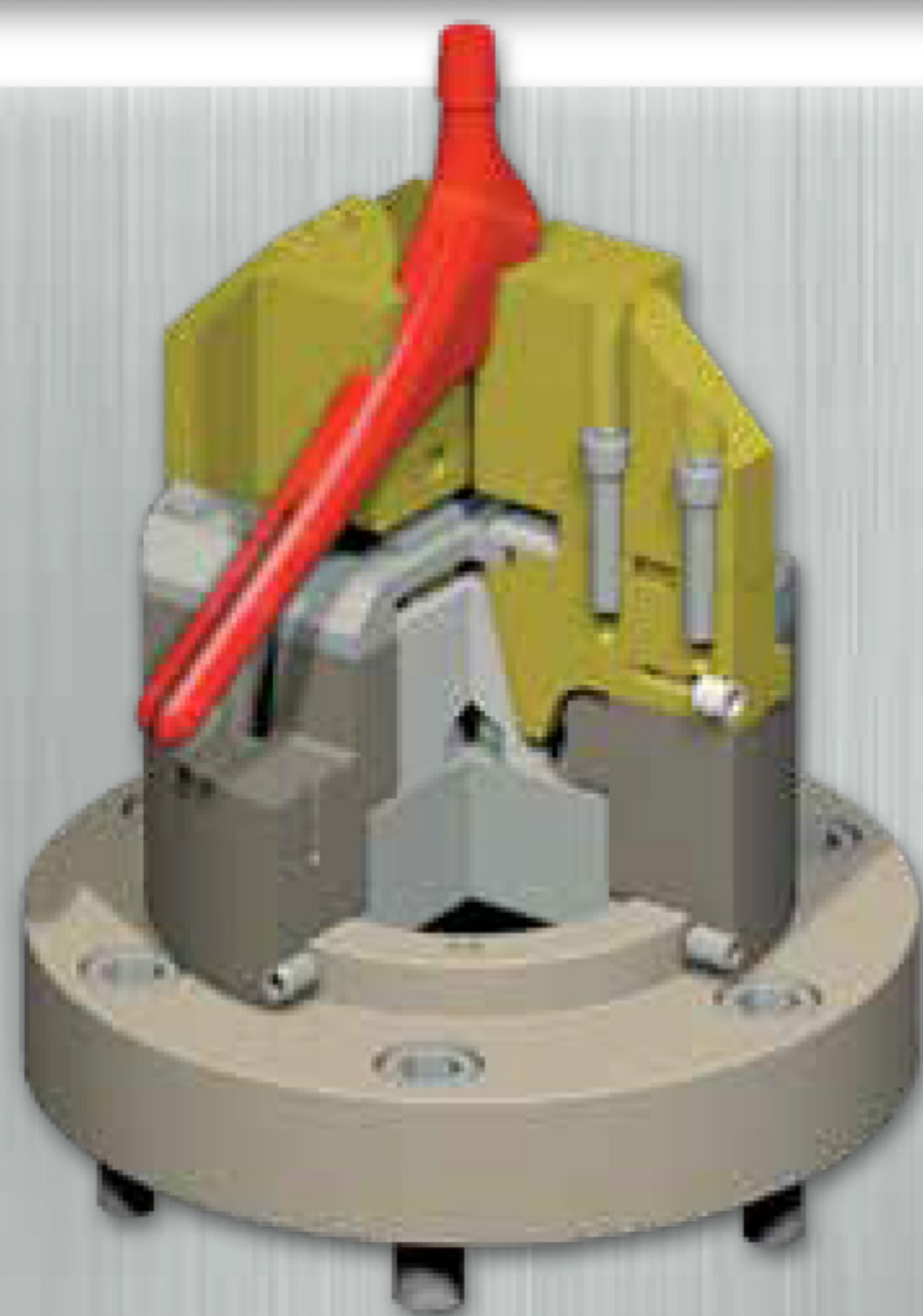
WEDGE GRIP POWER CHUCK

Jaw ID Wedge Grip Piston Chuck for turning and grooving automotive piston



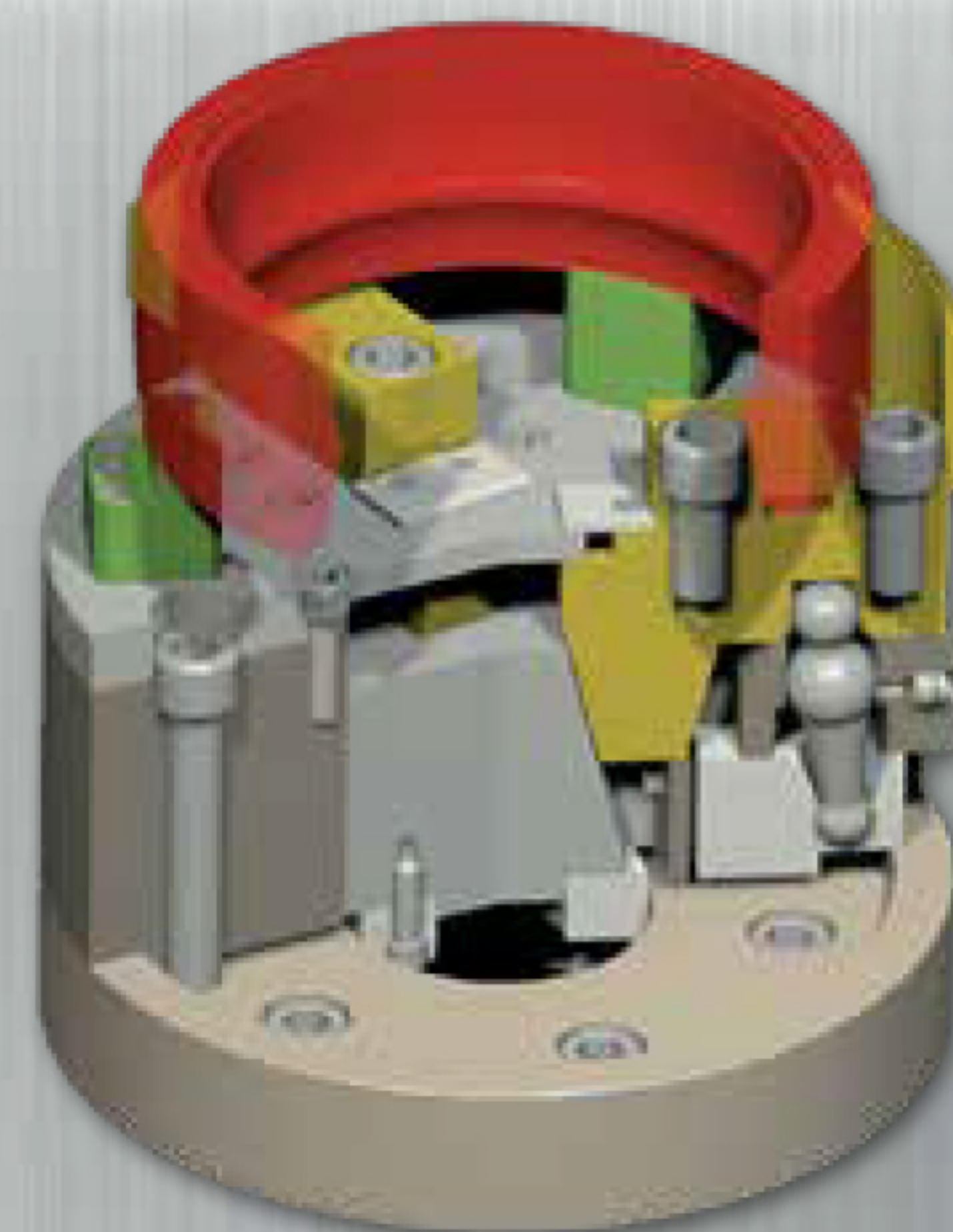
2-JAW POWER CHUCKS

Jaw OD Counter-Centrifugal Chuck for finish turning medical hip implant



3-JAW POWER CHUCK

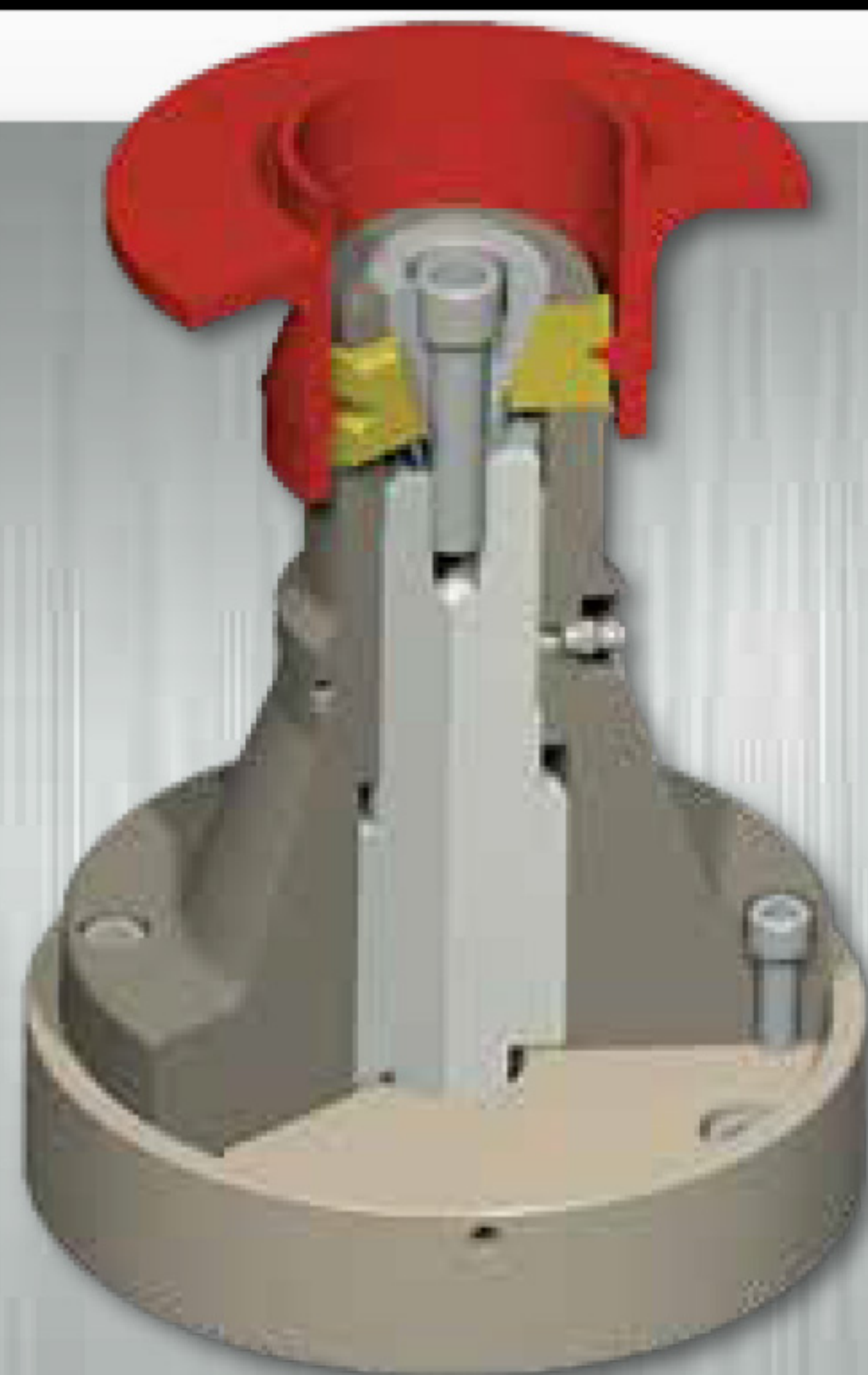
Jaw OD Counter-Centrifugal Chuck for facing, turning and boring automotive damper ring



[ADVANCED WORKHOLDING APPLICATIONS]

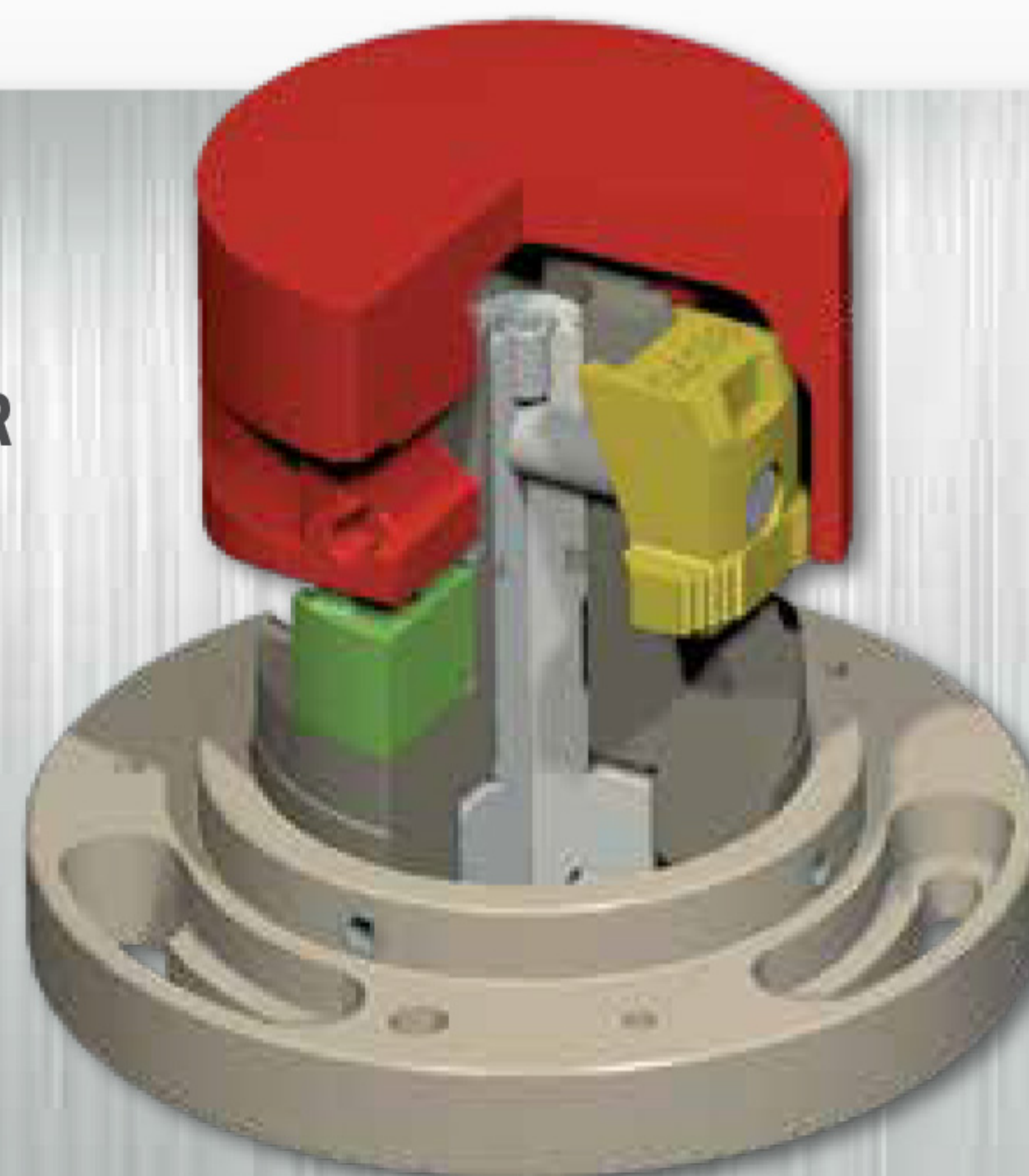
5-JAW SHOE CHUCK

For finish turning, boring and facing outer ring bearing hub



2-JAW DOVETAIL PISTON CHUCK WITH QUICK CHANGE ADAPTER

For rough and finish turning piston

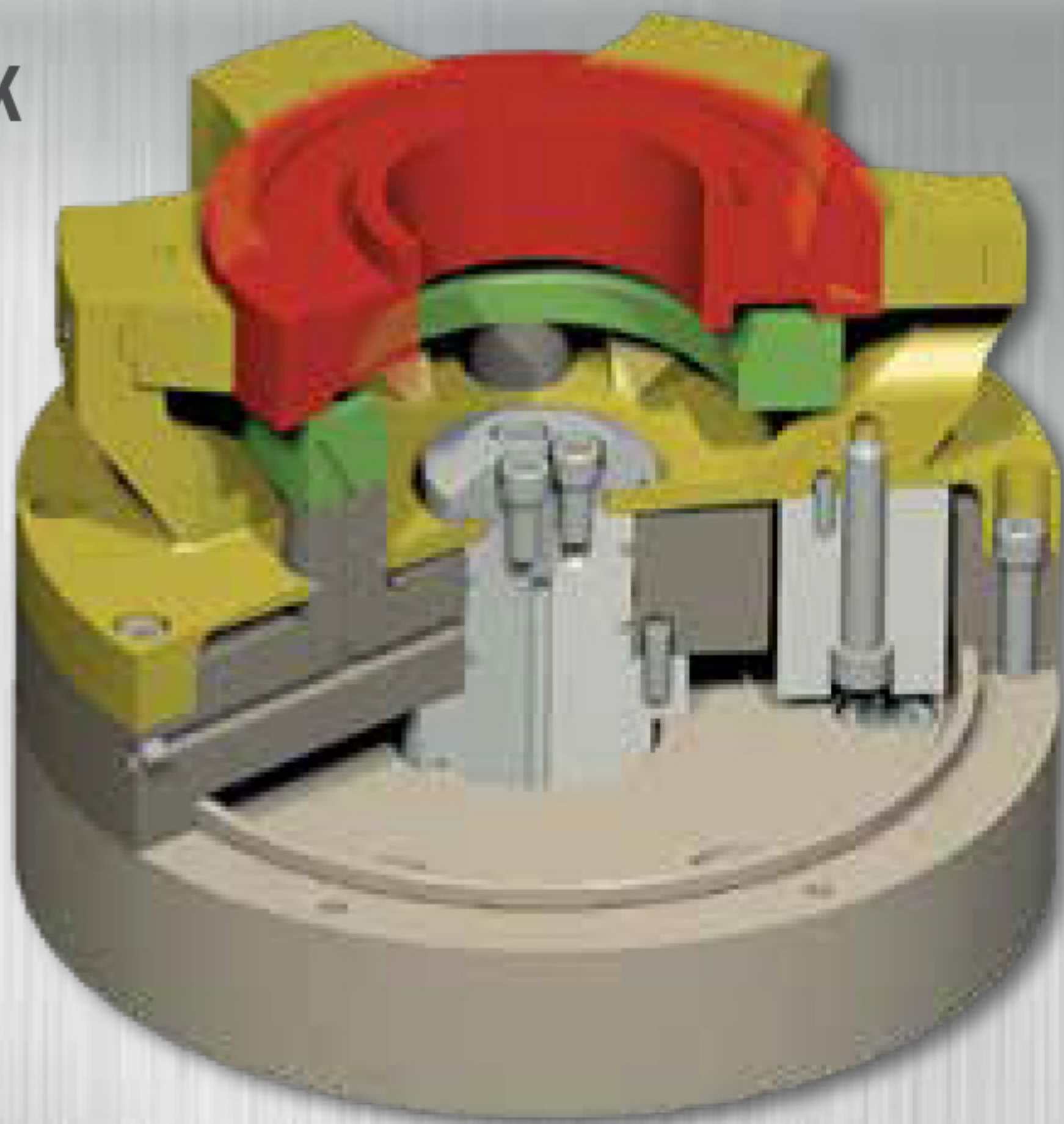


[DIAPHRAGM CHUCKS]

Primarily a second operation chuck generally used for grinding, boring, facing and turning applications.

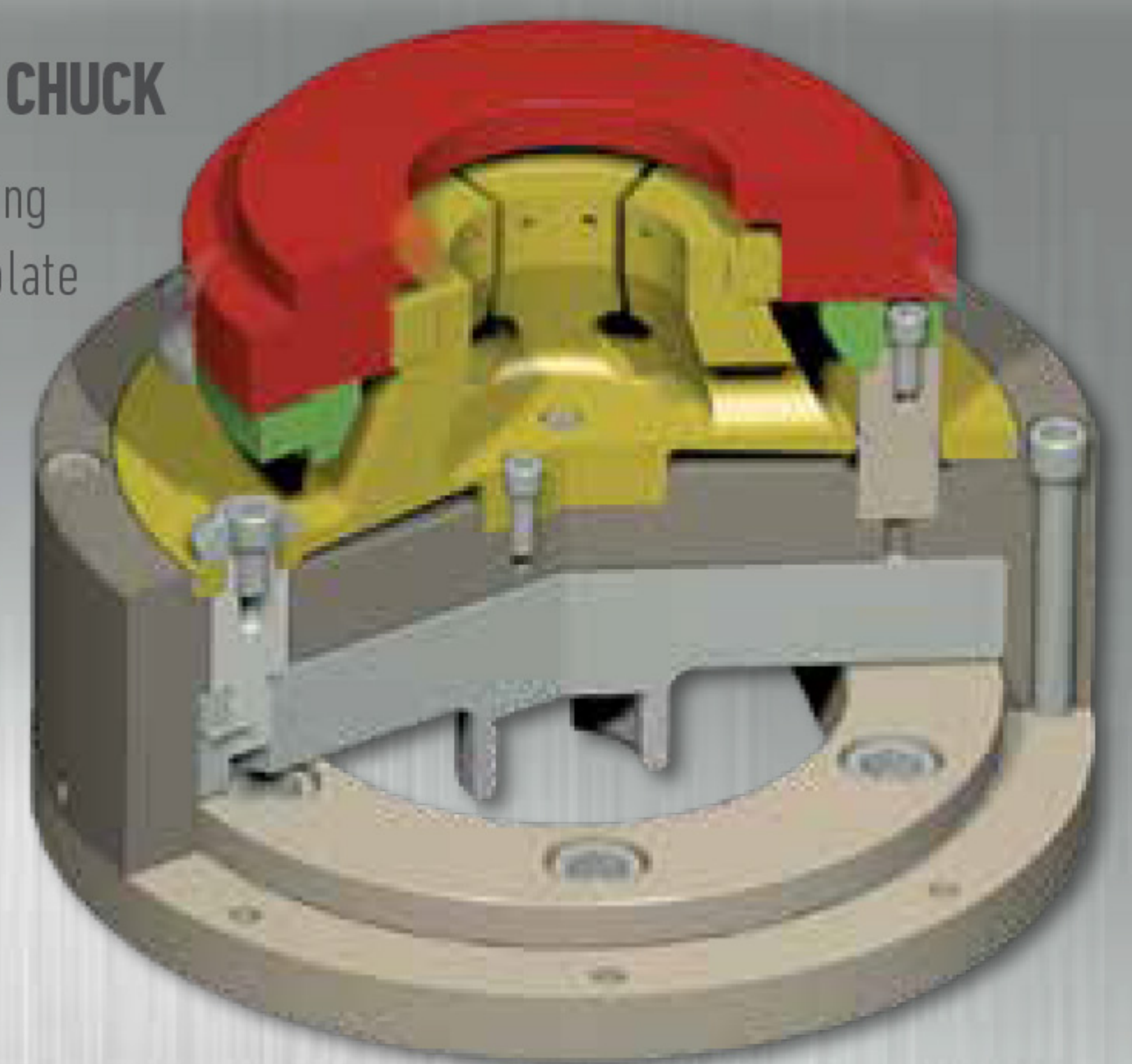
OD DIAPHRAGM CHUCK

For high-speed turning automotive ring gear



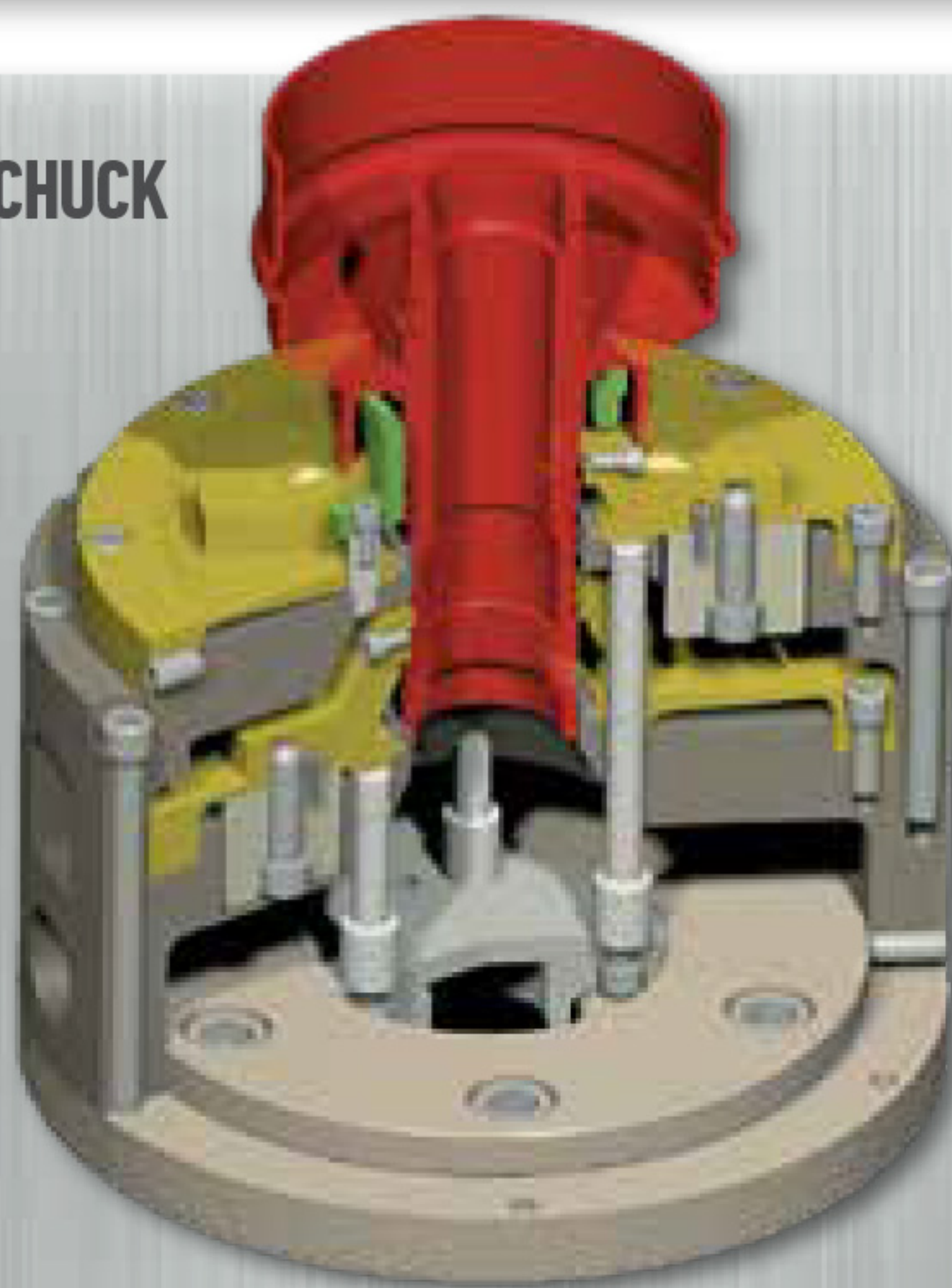
OD DIAPHRAGM CHUCK

For turning and facing compressor cover plate



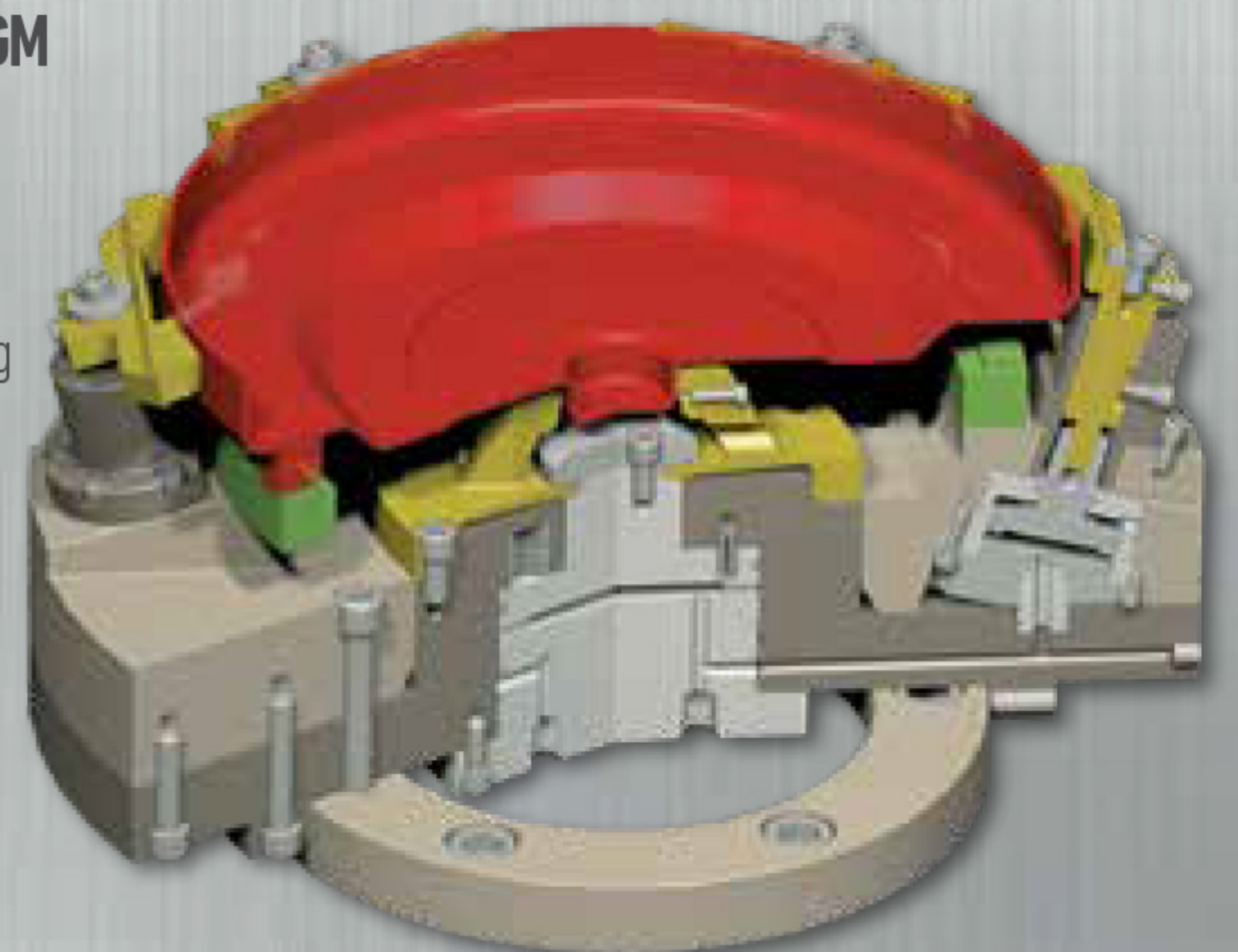
OD DOUBLE DIAPHRAGM CHUCK

For finish boring automotive input clutch housing assembly



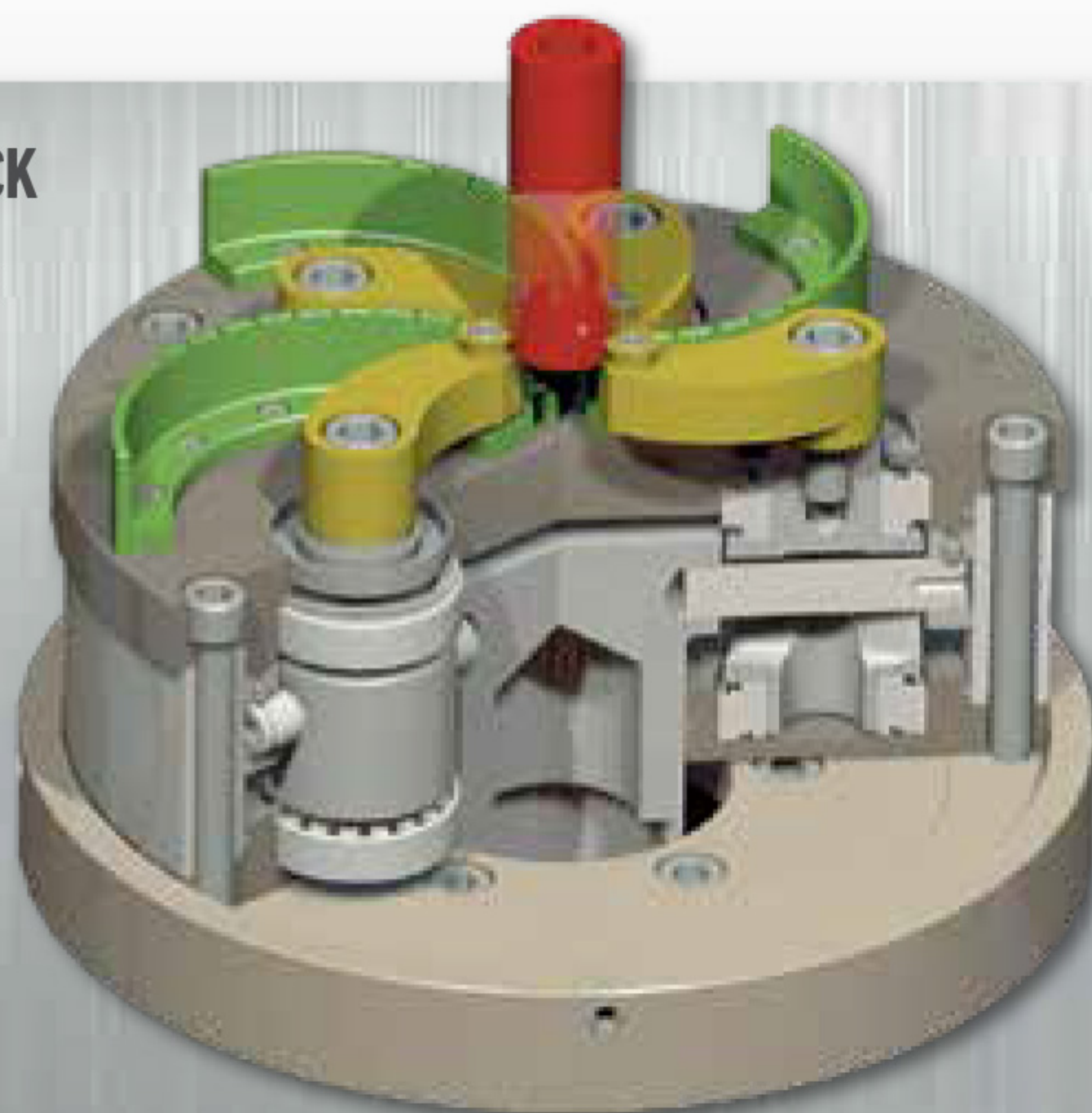
OD DIAPHRAGM CHUCK WITH HYDRAULIC DAMPENERS

For finish turning and boring automotive torque converter



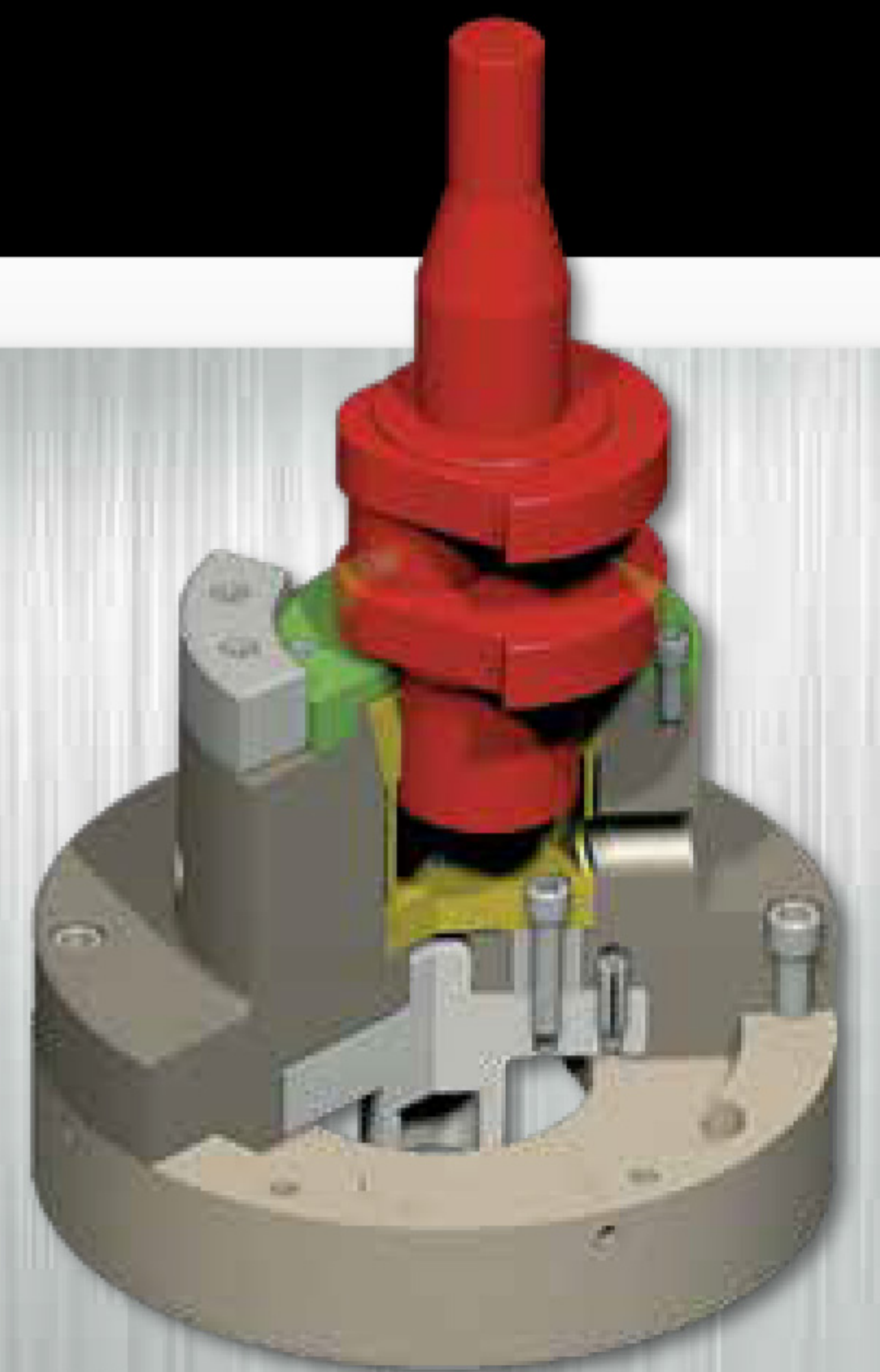
5-JAW IRIS CHUCK

Ultra-wide Clamping Range, suitable for a large variety of applications (Patent Pending)



OD ECCENTRIC COLLET CHUCK

For finish turning small engine crank shaft

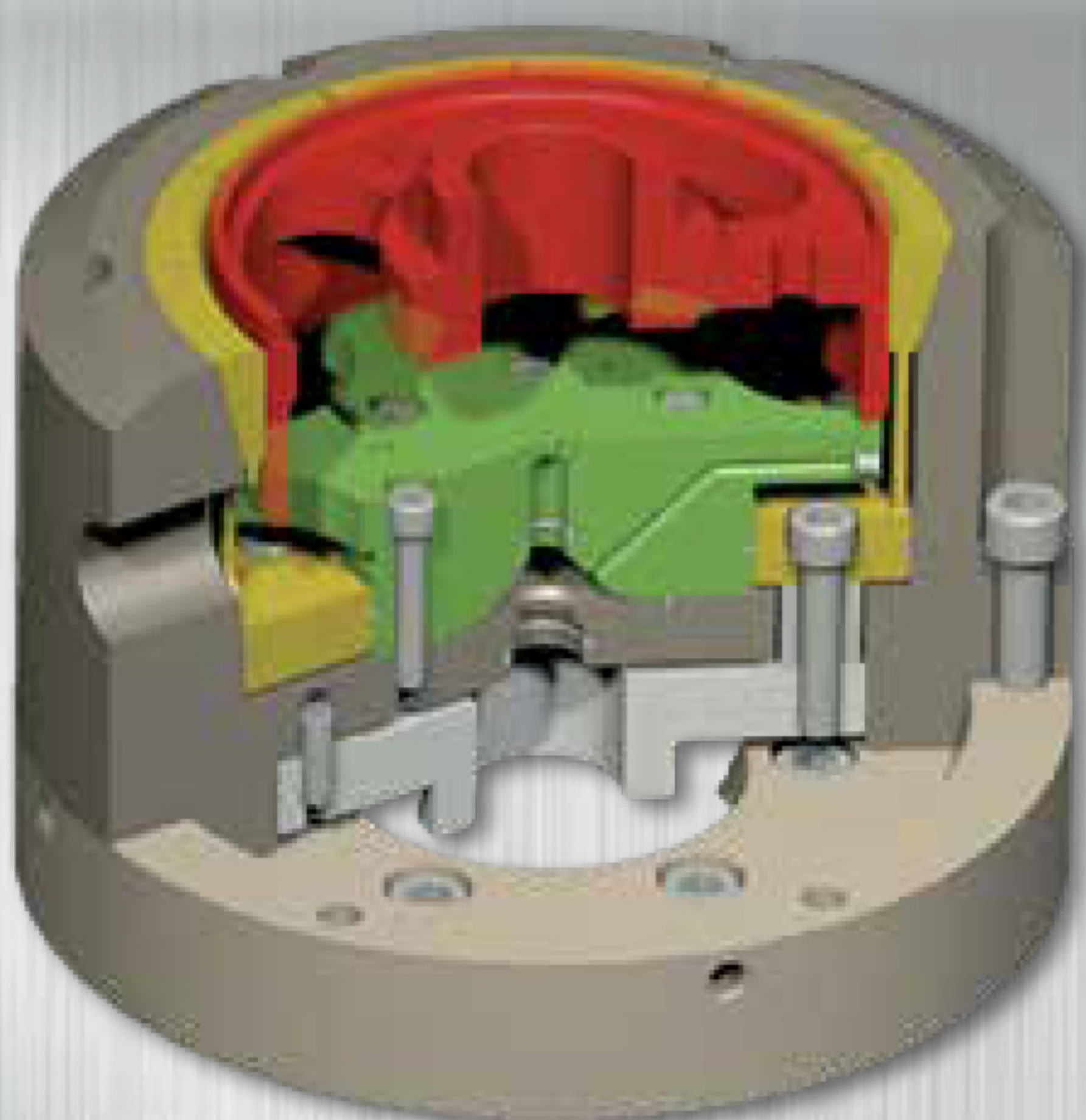


[COLLET CHUCKS]

The most common and versatile of all workholding devices. Superior holding power, higher accuracy and engineered for high-speed applications.

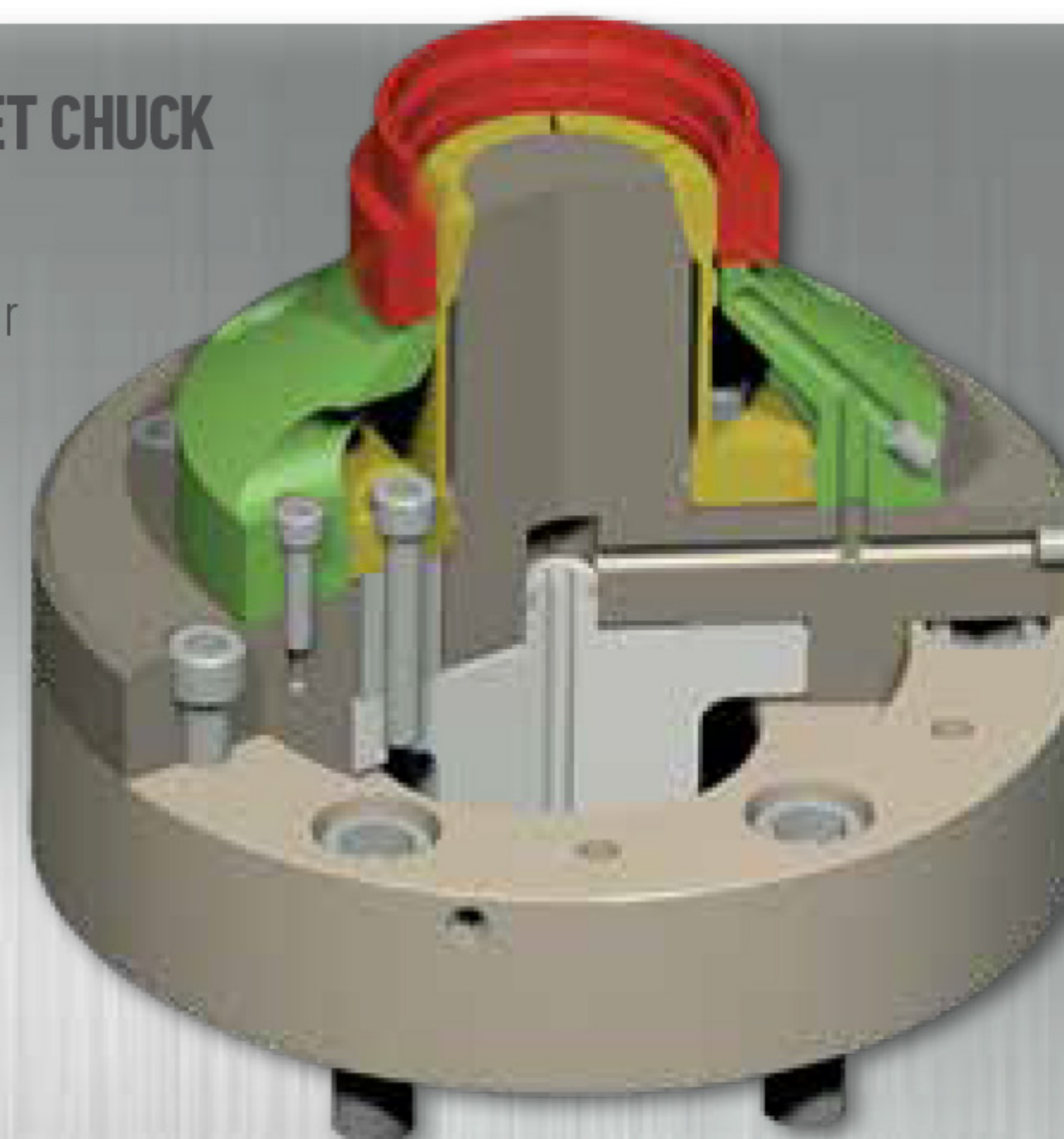
OD PULLBACK COLLET CHUCK

For facing, boring and turning automotive damper hub



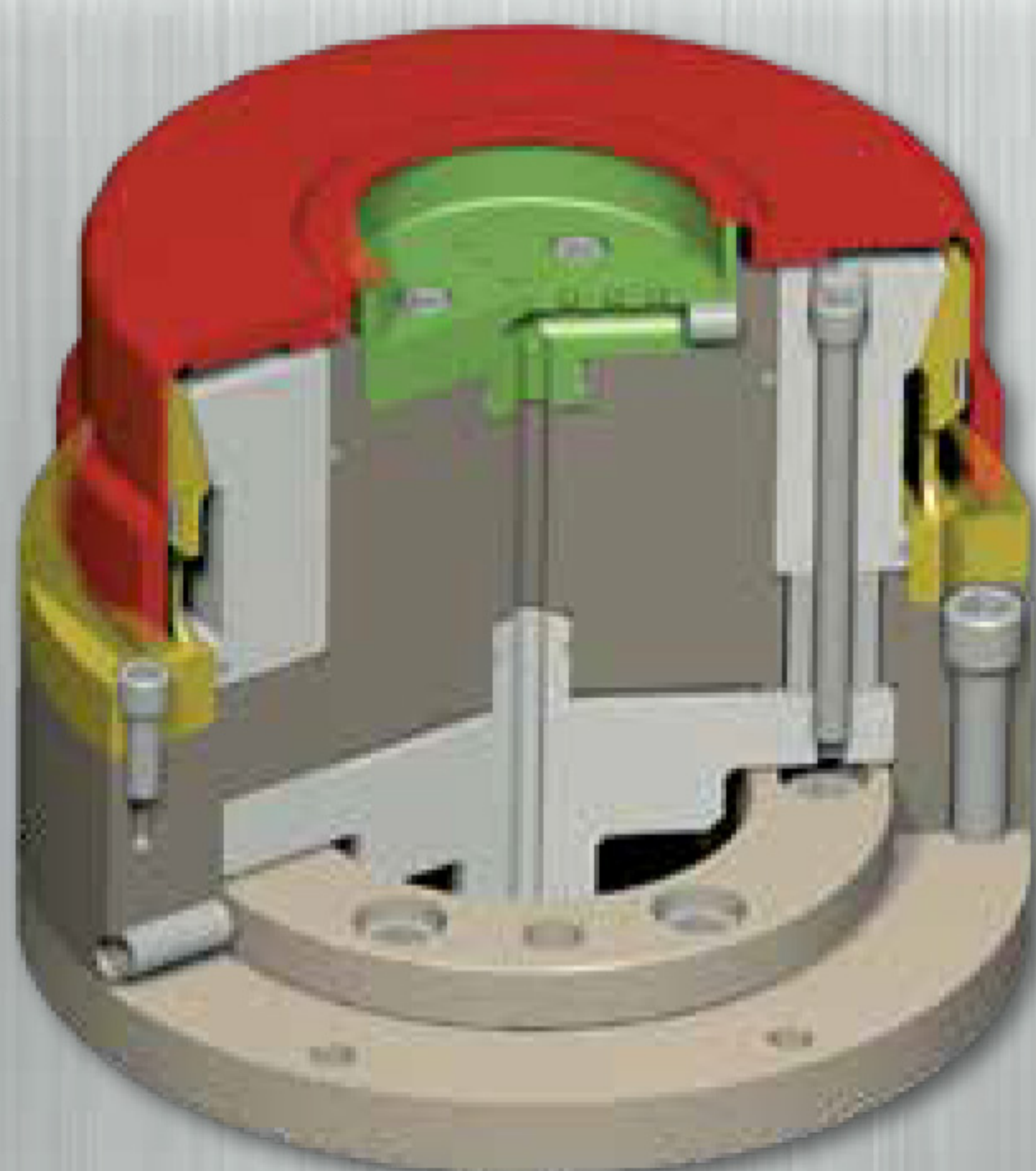
ID PULLBACK COLLET CHUCK

For high-speed turning automotive rear sun gear



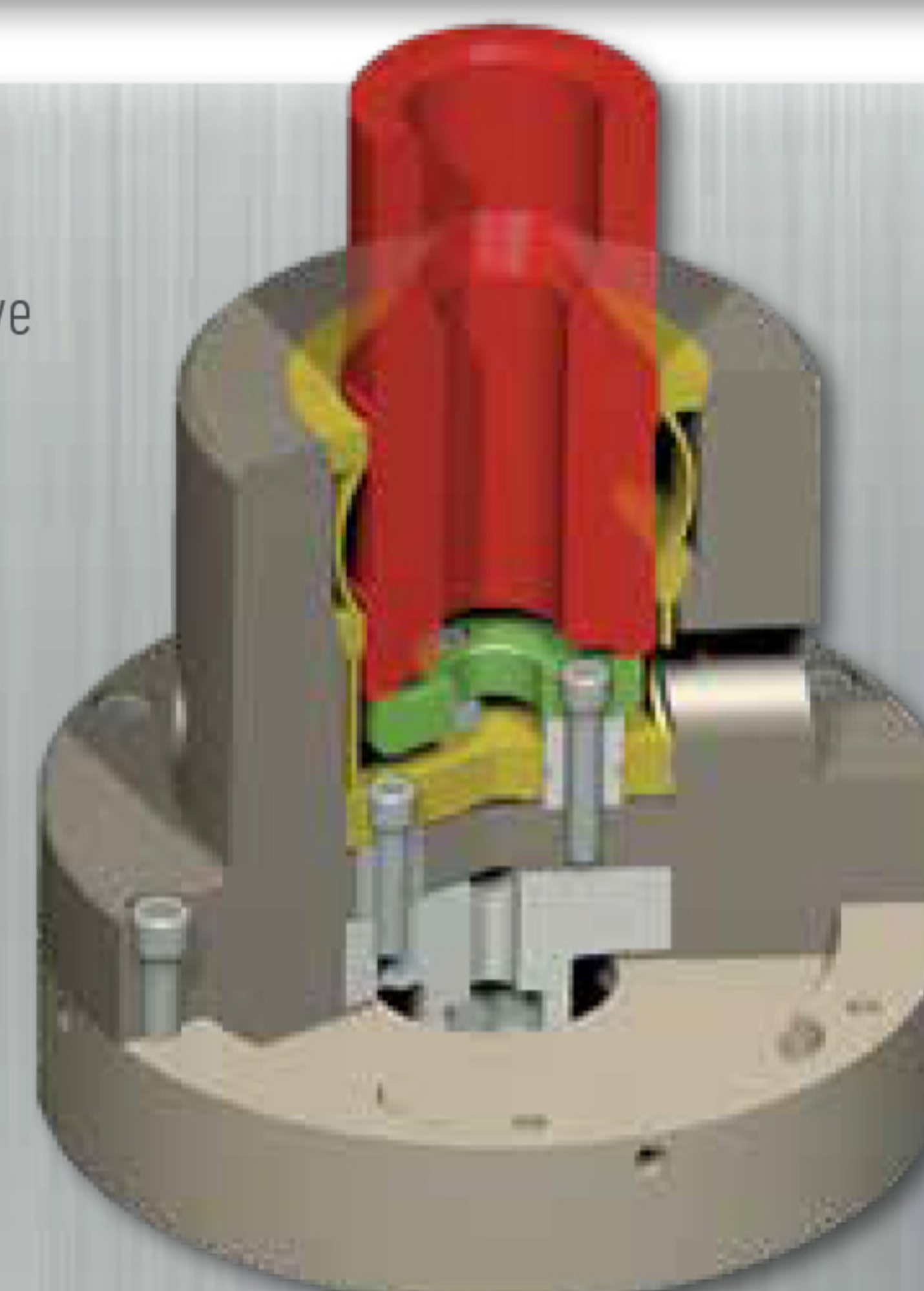
STATIC COLLET CHUCK

For high-speed turning and facing automotive clutch housing



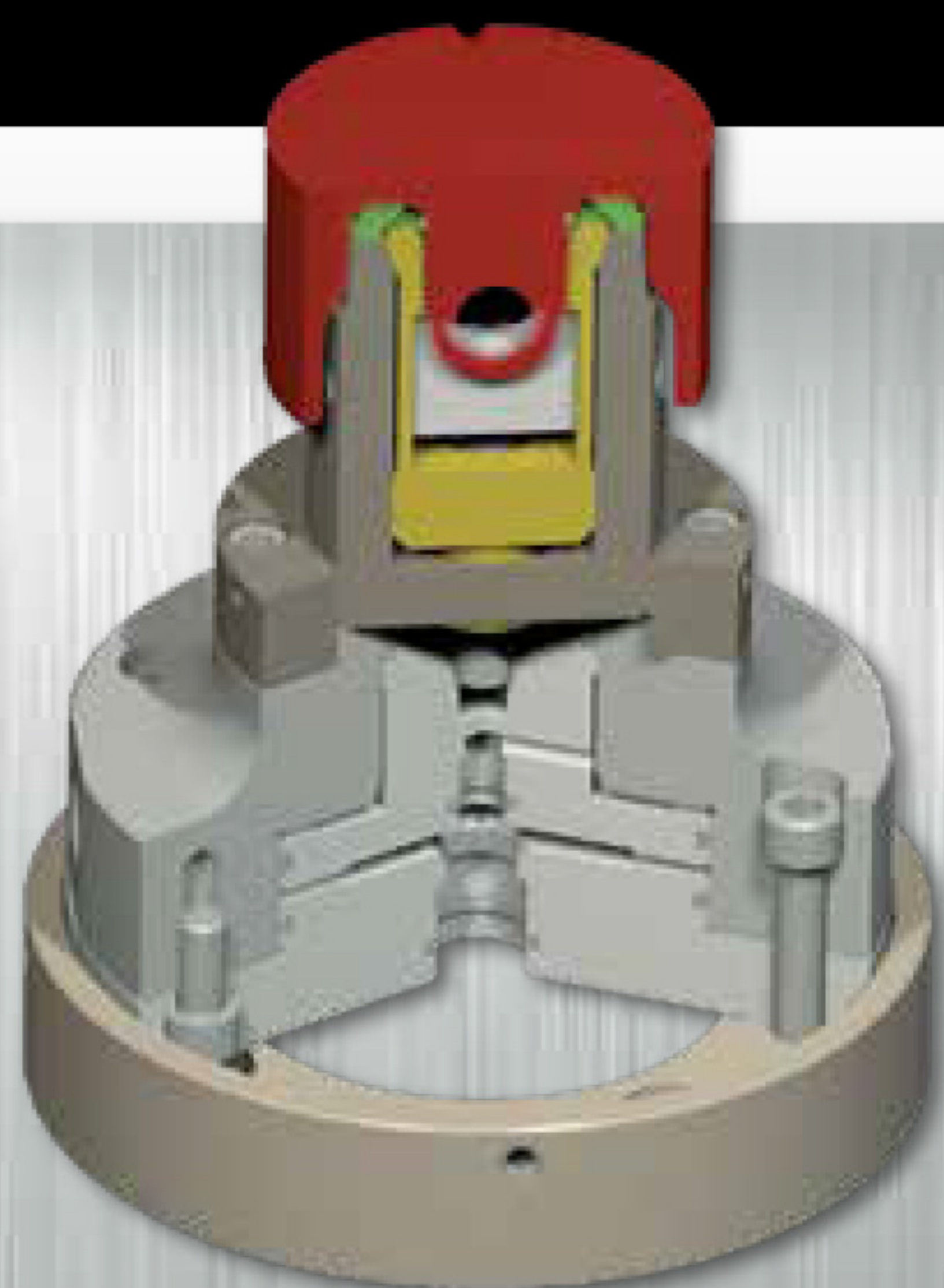
BUBBLE COLLET CHUCK

For "dual-gripping" automotive axle tube assembly



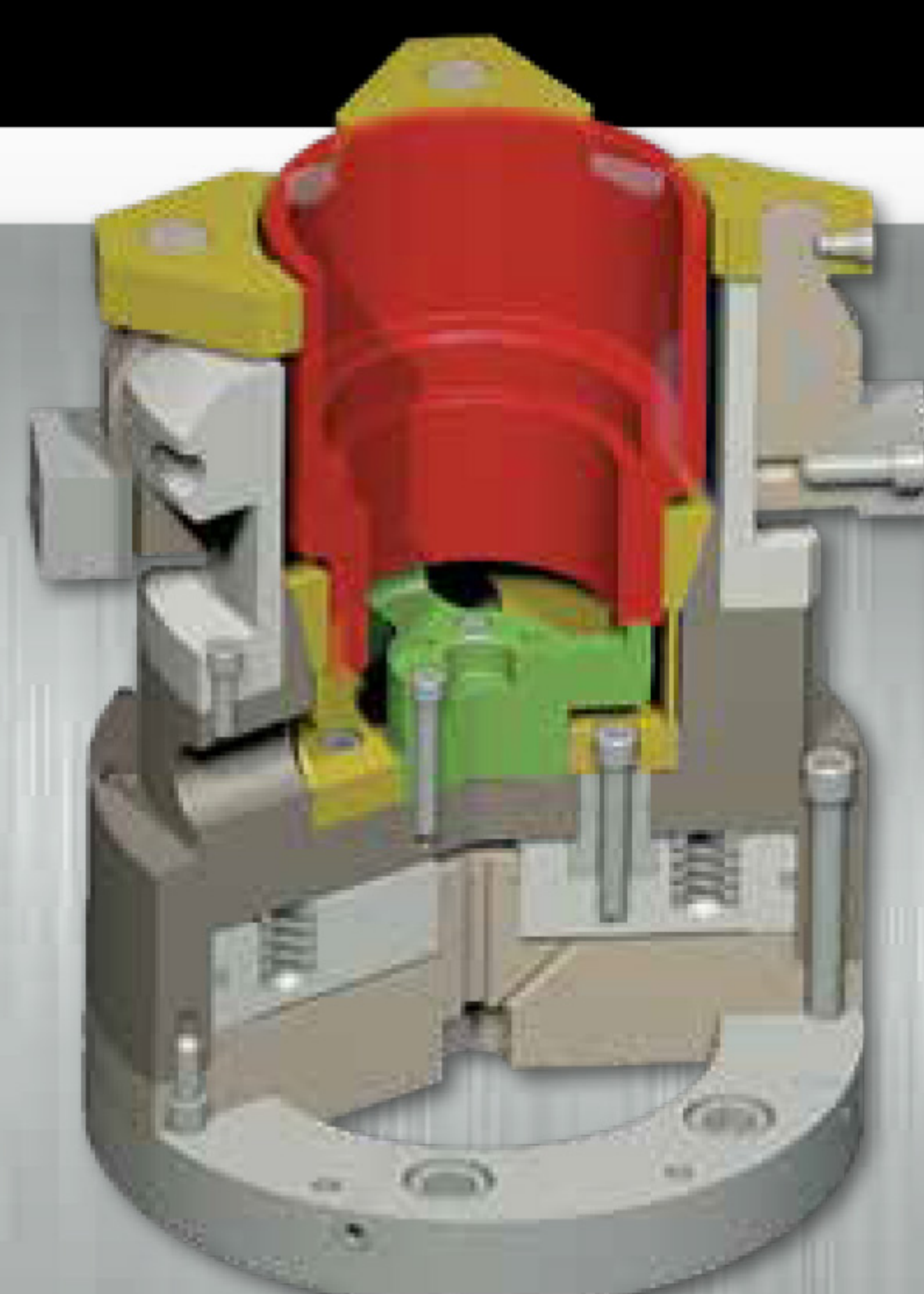
ID PULLBACK COLLET CHUCK WITH SPECIAL COLLET

For finish turning, facing and grooving small engine piston



OD COLLET CHUCK WITH CENTRIFUGAL DAMPENERS

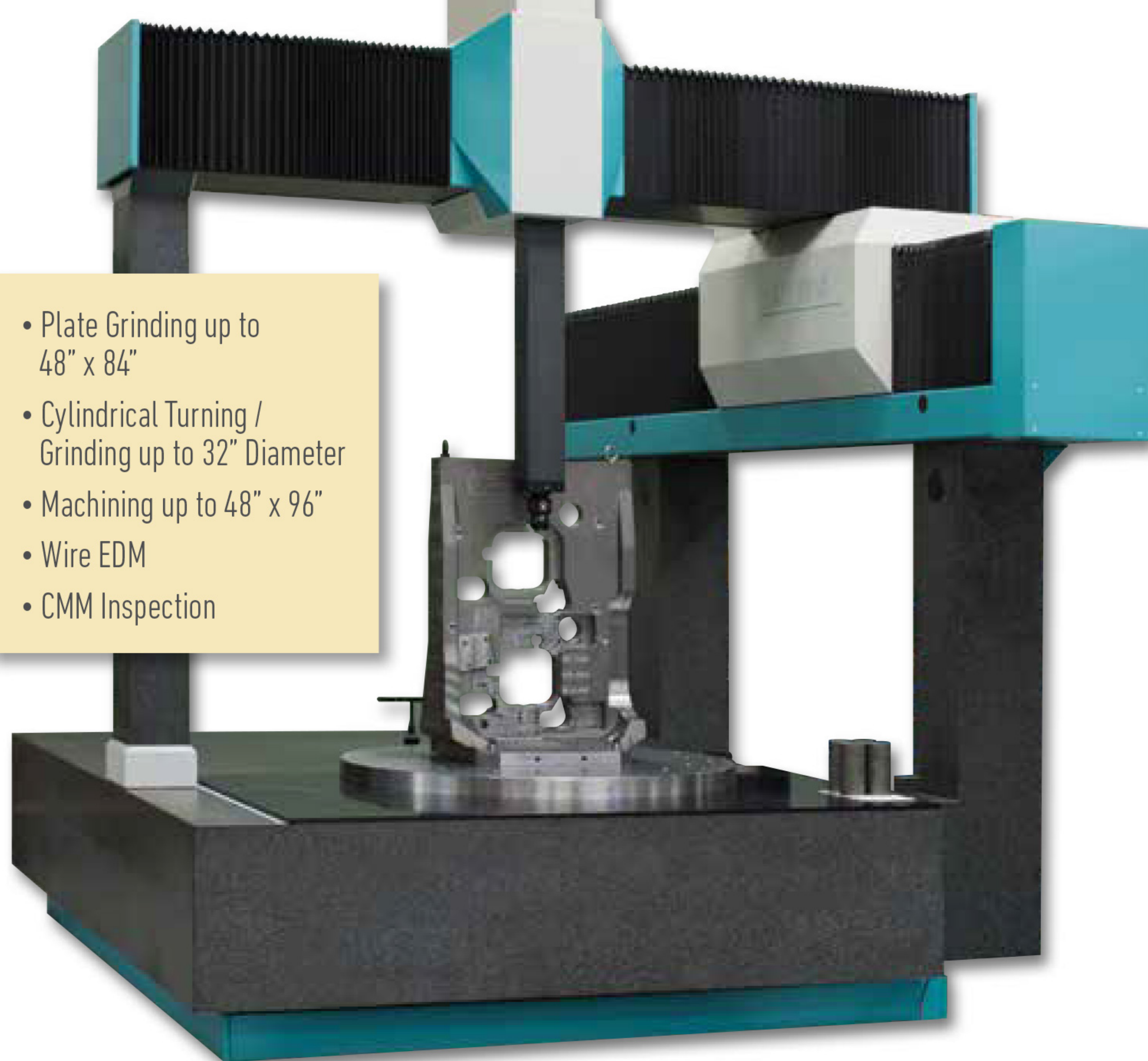
For finish boring automotive input clutch housing



► PRECISION COMPONENT MACHINING

Large Part Machining and Inspection

- Plate Grinding up to 48" x 84"
- Cylindrical Turning / Grinding up to 32" Diameter
- Machining up to 48" x 96"
- Wire EDM
- CMM Inspection



- In-House Deep Hole Drilling
- Hole diameters as small as 3/16"
- Hole depths up to 72"
- Leak Testing

► AUTOMATION SYSTEMS



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.

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

SPARE PARTS, REPAIR AND RECONDITIONING

**A Big Part of CO-OP Tooling
Experience is Service and Support**

- Spare Parts & Perishable Tooling
- Build-to-print Replacement Details
- Rebuild / Recondition Programs
- Hydraulic / Pneumatic Troubleshooting and Repair Services

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
- ▶ 40,000 Sq. Ft. Facilities

1517 Coining Drive | Toledo, Ohio 43612

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HAMMILL MEDICAL

MEDICAL IMPLANTS & INSTRUMENTS

- ▶ The highest machining technology serving the medical implant industry
- ▶ 90,000 Sq. Ft. Facilities

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