

Main Bearing Caps

**Advanced Engineering Industries
Manufactures Main Bearing Caps for EMD 567,
645, and 710 Crankcases!**

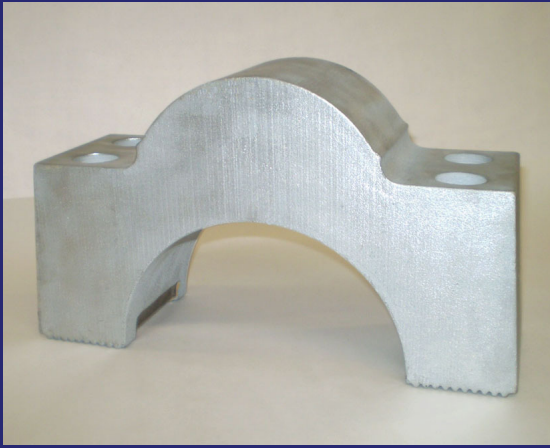
AEI Process

Our Main Bearing Caps are precision machined to meet or exceed all EMD Specifications.

Advantages

In stock and ready for shipment!

Serrations and landing surfaces are cut to EMD specifications giving plenty of machine stock.



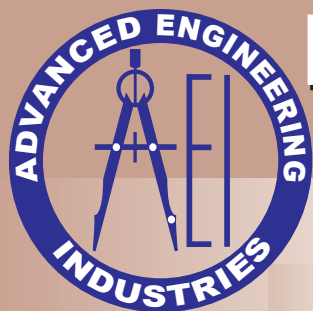
Our 12 Point Inspection Process guarantees perfect quality every time!

**See Why Advanced Engineering Is the Leader in
EMD Crankcase and Pan Remanufacturing Equipment!**

FOR MORE INFORMATION CONTACT US TODAY

**Advanced Engineering Industries
201 S. Mill Street
South Lyon, MI 48178**

**248.486.0354 office
248.437.0007 fax
www.aei-quality.com**



Remanufactured Main Bearing Caps

**Advanced Engineering Industries
Remanufactures Main Bearing Caps for EMD
567, 645, and 710 Crankcases!**

AEI Process

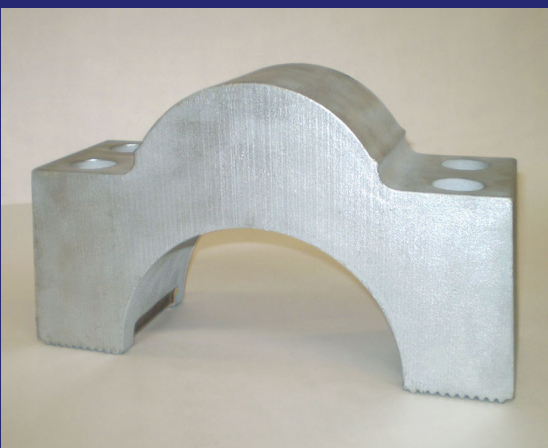
Our new Plasma Weld™ technology is so advanced it is used to re-build jet engines.

Advantages

New Technology Saves \$\$

Save 30% compared to new caps! Our Remanufactured Main Bearing Caps are precision machined to meet or exceed all EMD Specifications.

Remanufactured Main Bearing Caps are as good as new, but cost less. Serrations and landing surfaces are cut to EMD specifications giving plenty of machine stock.



We also buy used Main Bearing Caps!

AEI will send someone to your facility to pick up your used main bearing caps while delivering new and remanufactured caps.

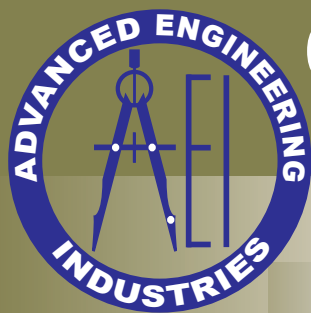
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Crankcase Rotary Positioner

**Significantly Reduces Time and Labor
Increases Accuracy
Lifetime Support**



Our New Rotary Positioner!

Accurately and conveniently rotates and positions EMD Crankcases for machining campads, exhaust decks, pan rails, boring lower liners and upper liners, seal faces, etc.

Advantages

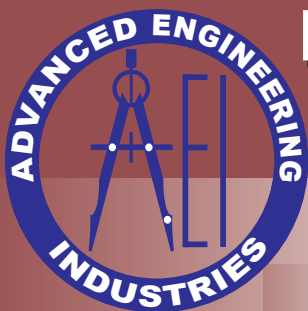
- Easy to use remote control.
- Accommodate various engine sizes: 8 cylinder, 12 cylinder, 16 cylinder, and a 20 cylinder.
- Digital readouts for accurate positioning.
- Allows the operator to set up the crankcase and know its exact position.
- Disk Brake system locks the unit into position.
- Rapid button quickly rotates it and the rotary speed dial and directional switch fine tunes the crankcase into an exact position.
- Heavy Duty, heat treated; built to hold 20,000 lbs.
- Includes 2 industrial slides on hardened ways, a manual and a power slide and pendent that conveniently moves it into position.

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High Efficiency Laser Alignment System **HELAS**

**Efficiently and Accurately Measure and Plot the
Position and Diameter of EMD Main Bearing
Bores in as little as 5 minutes!**

Advantages

- Laser technology is applied to crankcase inspection.
- Our laser includes a precision columnated beam and rechargeable 8-hour battery.
- We take as many as 200 samples per measurement to assure accuracy and repeatability
- LVDT's are extremely accurate probes that are mounted in 6 different positions on the HELAS package
- Our custom software computes all of the information for the operator and displays the data in easy to read graphs on the screen
- All the information is easily printed in data and graph form eliminating any operator error

What does the HELAS package tell me about my Crankcase?

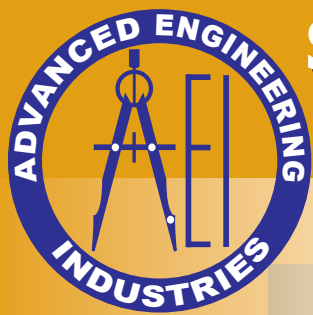
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|-----------------|--------------|------------------|
| ■ Caseline | ■ Bore taper | ■ Effective step |
| ■ Capline | ■ Egg shape | ■ Vertical bow |
| ■ Bore center | ■ Bore tilt | ■ Vertical crown |
| ■ Bore diameter | ■ Step | ■ Horizontal bow |

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Super Portable Line Boring Machine DB1000

**For Tug Boats, Off Shore
&
Low Volume Production
Operates in Any Postion
Less Than 3 Minutes Per Cut**

Advantages

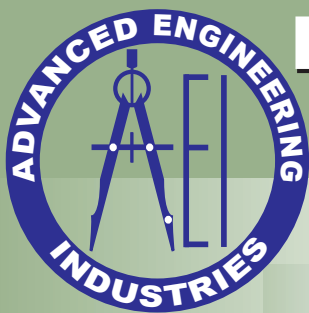
- Lightweight – drive unit – under 300 lbs
- Clean & Reliable
- Small package – less than 30" x 30" x 30"
- 60" or 110" manually telescoping shafts
- Aircraft aluminum & Stainless Steel
- Powder coated for durability
- 700 SFPM
- 3 high speed roller bearings
- 1 cast iron boring head
- Portable unit is fast & easy
- Offshore use or lower into workboat
- Precision shafts are hardened & chromed
- Telescoping shaft up to 180" long
- 8 1/2" of travel
- Operates sideways & upside down

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Portable Line Boring Machine HB1000

**Significantly Reduces Time and Labor
Reduces Need for Welding
Lifetime Support**

Advantages

- Process time reduced from 50-70 hours to less than 10
- Capable of a .080 cut at 860 SFM
- Hardened, ground, chromed shafts
- End boring/facing head
- Hardened, ground, chromed shaft
- Lightweight drive unit weighs only 30 lbs.
- One piece rigid mount drive unit
- Face and bore with same machine
- Quick disconnect
- 10 Horsepower

Quality Components and Construction

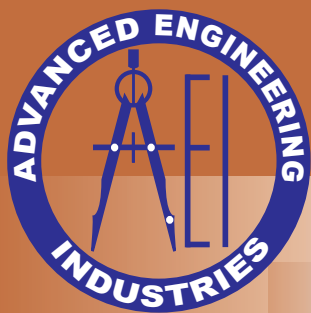
- Computer feedback Display
- Custom Ergonomic Pendant
- Drive unit weighs 30 lbs
- Large, Bright Display
- Custom Ergonomic Pendant

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High Speed Line Boring Machine SB1000

Significantly Reduces Time and Labor
Reduces the Need for Welding
Lifetime Support

Advantages

- Process time reduced from 50-70 man hours to less than 4
- Capable of a .120 cut at 1000SFM
- Single set-up allows all bores to be processed at once
- Self-contained: Power unit, shaft, and room to store all necessary tools in one roll away unit
- Telescoping shaft allows single change in set-up
- Adjustable table height to accommodate different size engine blocks

Speed and Efficiency

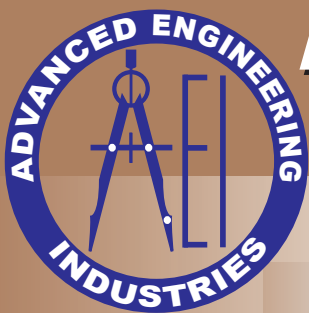
- Our Fastest and Most Efficient Line Boring Machine
- Improved repeatability
- Excellent surface finish
- 3 cuts to finish welded bores
- 3 cuts to finish new caps
- Less than 2 minutes per cut
- No honing
- No grinding

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A-Frame Pro

AEI has what it takes to save you time and money while reducing outsourcing and increasing quality.

AEI Process

The A-Frame Pro is a high-speed, portable serration cutting machine that cuts serrations on EMD Crankcases in less than 10 minutes.

Advantages

- Significantly reduces time and labor
- Easier set-up
- 7.5 horsepower
- Cuts 3 A-Frames in one set-up
- No tools required
- 645 & 710 Crankcases
- Free up your boring mills for more important projects

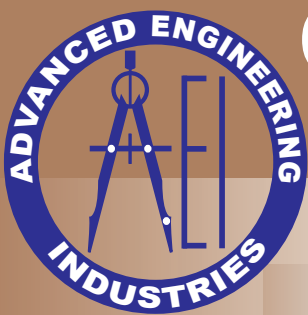


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On Site Service and Repair

AEI has what it takes to save you time and money while reducing outsourcing and increasing quality.



EMD Onsite Repair

- Advanced Engineering Industries will bring our equipment ON-SITE for EMD crank case repair
- Our technicians will repair your crankcase and help put your EMD engine back in service
- Line Boring, Serrations, or Power Units
- Laser measuring, super portable equipment, experienced technicians
- Tug boats, workboats, offshore or in your facility

Advantages

AEI's remanufacturing process ensures the kind of reliability you want and expect. From start to finish, AEI will:

- Clean the crankcase, pan and components to bare metal
- Conduct non-destructive (NDT) magnetic particle testing of welds and high stress areas
- Check crankcase line bore with precision gauges and retain all measurements for future reference and quick accessibility
- Check all threaded holes
- Thorough inspection by experienced, trained AEI technical staff

If necessary, AEI will also:

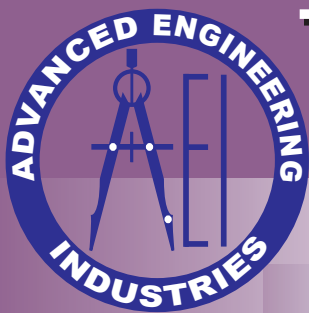
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|--------------------------------|----------------------------------|--------------------------------|
| ■ Repair cylinder pot cracks | ■ Repair structural damage | ■ Repair threaded holes |
| ■ Repair test cock tube cracks | ■ Repair main bearing serrations | ■ Restore cylinder pot surface |
| ■ Correct crankcase line bore | ■ Restore mounting pad surfaces | ■ Resurface the exhaust deck |
| ■ Repair A-frame cracks | ■ Repair hand hole window | ■ Remachine the end sheets |

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The Workstation

AEI has developed a new set of Rotary Workstations for EMD Crankcases.

AEI Process

Each Workstation utilizes a Composite design for versatile loading and mounting of EMD Crankcases.

Advantages

These units include:

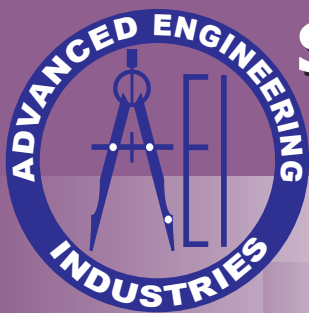
- Loading Pan Rail
- Loading on Water Holes
- Unloading upside down or right side up
- Integrated tool storage
- Work bench with vise
- Forged wheels for easy movement
- Optional Jib Crane for up to 1000 lbs capacity
- Available in electric or pneumatic control
- Configurable Screens
- Configurable Tolerances
- Digital Gages

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Serration Cutting Machine Serrator

Significantly Reduces Time and Labor
Compatible with all Main Bearing Caps
Precision and Power Cutting
Lifetime e Support

Advantages

- This high-speed, portable serration cutting machine cuts serrations on EMD Crankcases and Main Bearing Caps in less than 2 minutes. Provides you the ability and versatility to process your main bearing caps and reduce welding at the line boring station.
- The Serration Cutting Machine cuts all of the serrations on both sides in one pass. Each pass can take up to .050" of material.

Compatibility

- Fits all EMD Main Bearing Caps and crankcases including: 645, 710, Thrust Bearing, Standard Caps, End Sheet Caps and Old Style Cast Caps.

Convenience

- When placed next to your line-boring station each main bearing cap can be removed and processed at the boring station and then re-applied to the crankcase.



Reliability

- Powerful, durable, heavy-duty, rigid and built to last.

Support

- Our high-speed custom carbide inserts are titanium nitride coated for long-lasting durability and made with the highest quality standards.
- Not only do we back all of our equipment; we provide support for the life of our equipment.

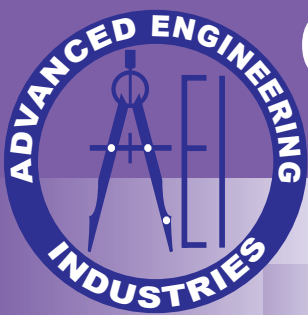


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Crankcase Rotary Positioners

Significantly Reduces Time and Labor
Increases Accuracy
Lifetime Support

AEI Process

AEI manufactures a complete line of gear driven Crankcase Rotary Positioners which maximize both safety and production.

Advantages

Our positioners enable easy loading and better accessibility. The boxed section design takes up minimal floor space and allows unrestricted movement throughout the work area. Many safety features have been incorporated into the structural, mechanical

and electrical components of these positioners to ensure safe, productive operation. A large selection of optional equipment includes: back-lash control, variable speed tilt, and optional tables. These units are specifically designed for EMD 645 and 710 Crankcases.

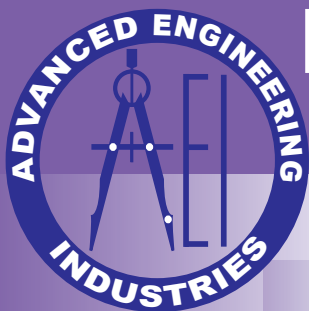


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Equipment Rental

Rent Machines When You Need Them!
Take a look at our FREE introductory program!



Advanced Engineering Industries (AEI) is offering rentals on a complete line of Portable High Speed Equipment. AEI has developed the best equipment in the industry for Machining large diesel engines. We also offer training and on-site consulting to help you efficiently re-manufacture EMD, GE, and ALCO engines.

Advantages

Renting machines can save you time, money, and frustration. Our equipment will help you perform these processes:

- Align Boring
- Laser Measurement
- Lower Liner
- Head Seat Seal Face

Use the same technology and equipment that the Larger Companies use without the large capital expenditure.

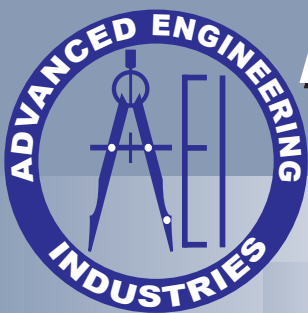
- Eliminate a bottle-neck in re-manufacturing
- Increase progress throughout your facility
- Eliminate station "overload"
- No Capital Expenditures
- Rent by the Contract
- Increase Cash Flow
- Increase Efficiency

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Advantages of AEI Boring Systems

Significantly Reduces Time and Labor
Increases Accuracy
Provides Documentation
Lifetime Support

AEI Process

A crankcase is completed as quickly as 3 hours by:

- Accurately measuring each bore separately
- Welding only where necessary
- Machining only the necessary bores
- Re-measuring for quality assurance
- Selective boring

Advantages

Significantly reduces time and cuts manual labor.

- Average time is 3 to 6 hours compared to the normal 50 to 70 man hours (Over 10 times faster!)
- No cap removal required
- Less welding

Accuracy

- Provides accurate measurements
- Accurately measures both the diameter and the laser position of the bores along with the caseline and capline then documents it on the screen for the operator.
- Our system is EMD Reviewed and Approved!



Simple to Use with Color Coded Data

Highlights for the operator what is in and out of spec: **red = too small**, **blue = too big**, and **black = good**

Prints and Stores Data for Future Analysis

- With each press of the button 8 pieces of data are sent to the computer and logged to show what work was completed to the crankcase and the condition of the crankcase when it arrived and left the line boring.

Support

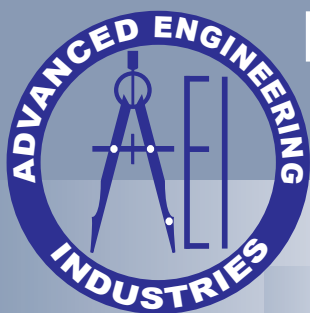
- Our products are heat-treated and made with the highest quality standards.
- Not only do we back all of our equipment; we provide support for the life of our equipment

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High Efficiency Laser Alignment System HELAS Plus

Efficiently and Accurately Measure and Plot all critical data in less than 1 hour!

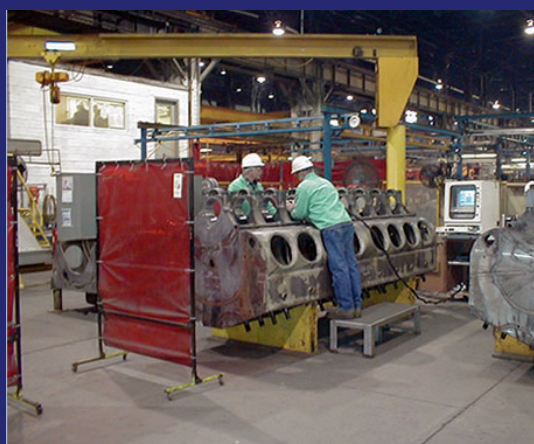
AEI Process

The HELAS Plus is the fastest and most accurate machine available for measuring EMD Crankcases.

Advantages

The new package will complete the following:

- Measure position and diameter of Main Bearing Bores
- Produce a Road map to complete the work efficiently
- Measure Cam Pads
- Pan Rail flatness
- End Sheet Squareness
- Distance from Main Bore to Cam Pads
- Distance from Head Seat to Main Bores
- Distance from Rear End Sheet to Thrust Surface
- Distance between Thrust Surfaces
- Serrations on Caps
- Serrations on Case
- Overall Length
- Time Tracking
- Statistical Analysis for Quality Control
- Technician Tracking



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