



Engine Valves

Eaton is known throughout the world for its expertise in engine air management. Our design and developmental results databases support the most comprehensive system analysis in the world. Focusing on efficient systems has helped reduce emissions and improved fuel economy. Eaton's Global valve facilities apply their in-house developed proprietary technology to produce a complete range of original equipment and aftermarket valves. For over 75 years, Eaton has been designing and developing engine valve technologies for manufacturers requiring the highest quality standards for petrol, diesel and alternative fuel engines.

Product Overview

- Monolithic/Bimetallic
- Tip end hardened
- Ultrahot
- Hollow valves, sodium cooled
 - Friction welded
 - Gun drilled
 - Top of Head Plug Laser welded
- Seat hard facing by Plasma Transfer Arc (PTA) Process

Engineering

As a pioneer in engine valve design, beginning in the 1930s, our failure analysis capabilities have been proven time and time again.

Our proprietary instrumentation and analysis software is peerless in gathering information. This acquired knowledge influences prototyping efforts. We emphasize system optimization and component standardization to ensure that Eaton partners receive the preeminent valve design in the world.

Materials

Eaton's commitment to develop long term and financially viable solutions has led to many metallurgical advancements. Using a proprietary alloy

optimization process, Eaton has developed the wear-resistant low nickel alloy Crutonite. Crutonite serves as just one example of Eaton's innovative problem solving for high temperature and pressure requirements of modern engines. New alloys are currently in the development process.

Surface Treatment

- Chrome Plate
- Nitride

Design

Eaton offers a complete portfolio of valves to meet new trends in engine

development. Our prototyping, failure analysis and proprietary instrumentation give Eaton clients and partners the best in valve design.

Eaton differentiates itself by using innovative technology to produce hollow, nickel-based superalloy and other specially-designed valves. Improving engine systems through valve design supports increased performance, lower emissions and overall efficiency.



Powering Business Worldwide

Engine Valves



Technical Capabilities

- Global Technical Facilities in North America, Europe, South America, Asia
- Component and system design optimization, including: seat insert, valve guide, stem seal, spring, retainer, keeper, valve, valve actuation and cylinder head.
- Integrated design, prototyping and testing facilities
- Simulation and analysis capabilities
 - FEA Modeling
 - Kinematic Modeling Tool "Universal Valve Gear Study" (UVGS)
 - Dynamic Modeling Tool "Adams Engine"
- Proprietary instrumentation and analysis software with extensive database support
- In-house instrumented bench testing facilities for cylinder heads as well as fired engines
- Portable data acquisition systems for use at customer locations

Applications

- Automotive/Passenger Cars
- Heavy Duty Vehicles
- Motorcycle/ATV
- Construction
- Industrial
- Marine



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