Ajax TOCCO Magnethermic’s IVSR systems have revolutionized heavy duty engine remanufacturing operations, specifically the task of removing pressed-in valve seats from engine cylinder heads. Ajax TOCCO’s IVSR process has increased profitability of engine reman facilities across North America while increasing quality, efficiency, core retention rates, operator safety and ergonomics. Ajax TOCCO’s IVSR technology is so effective, valve seats can be easily removed by hand without any special tools. Valve seats are heated and cooled in seconds, resulting in mechanical shrinking of the pressed-in valve seats.

**Features & Benefits:**

- Eliminates open flame
- Increases core recovery rates
- Eliminates collateral damage to heads
- Increases production rates
- Special tools, grippers and pullers are not required
- Improves operator comfort and safety
- Compatible with all makes and models of cylinder heads
- Passenger car engine applications, including aluminum cylinder heads

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**Unheated Valve Seat**

**Heating Inductor**

\[ T=0 \text{ seconds} \]

**Cylinder Head**

**Heated Valve Seats Expand Axially**

**Seats Heated to Approximately 1450°F**

**Cool Cylinder Head Constrains Valve Seat Radially**

\[ T=5 \text{ seconds} \]

**Cooled Valve Seats Shrink**

\[ T=10 \text{ seconds} \]
IVSR heating inductors are built to very tight machine tool tolerances in order to provide precise alignment and pinpoint heating zones, thus limiting the heat to only the valve seat area, preventing heat damage to the parent bore of the valve seat pocket.

Ajax TOCCO Magnethermic IVSR inductors are water cooled and equipped with model specific alignment and spacing features to take the guess work out of the process and simplify the process for operators.

Features such as tool-less quick change allow different inductor geometries to be swapped in seconds based on the make and model of head being processed.

The durable design and heat resistant materials allow for thousands of seats to be removed with a single IVSR heating inductor.

Other Applications:

Ajax TOCCO Magnethermic’s IVSR systems can be easily adapted for other reman applications such as gear shrink fitting. Other applications include: nut/bolt heating, coatings removal, weld preheat, and brazing/soldering.