

## Testing Of **Steering Racks**

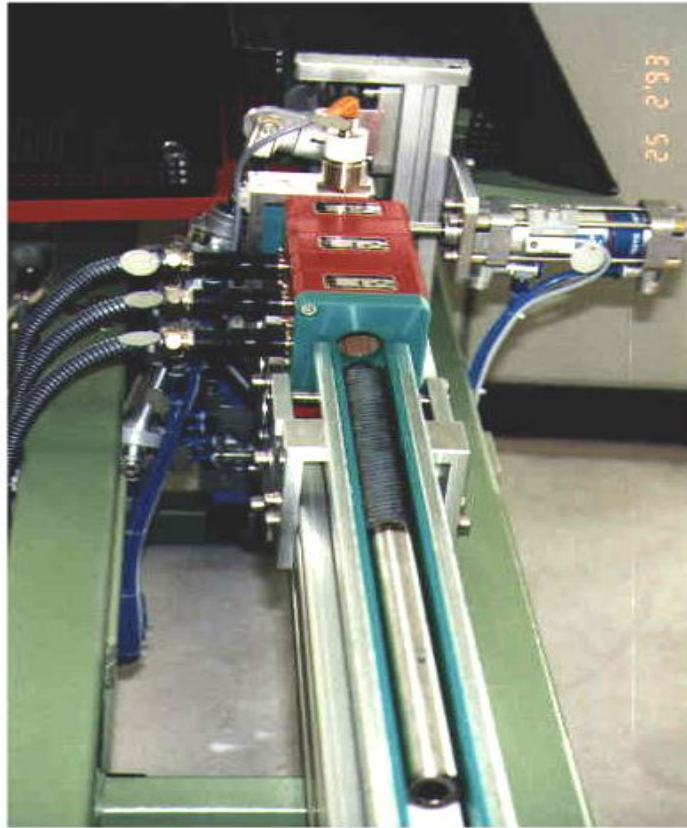
Opel/GM are fully-automatically checking steering racks for hardness, case depth and material in-line after induction hardening and straightening processes.

The racks are power-steering components inductively hardened on one side of the toothed area as shown in the enclosed photos. Proof of correct hardening of teeth (including base) as well as correct material has to be delivered.

The task described is a multi-parameter test (hardness - case depth - material), so that a multi-frequent **eddyliner<sup>®</sup>P** instrument has to be used for each of the 3 test positions (beginning of inductive hardening - mid and end). This concept guarantees that all parameters will be taken into account for testing. Different test frequencies for O.K. decision are essential for hardness and case depth or material, respectively.

The test unit described above has been working in 2-shift-operation since March 1993 and a considerable number of material mix incidents has been found!

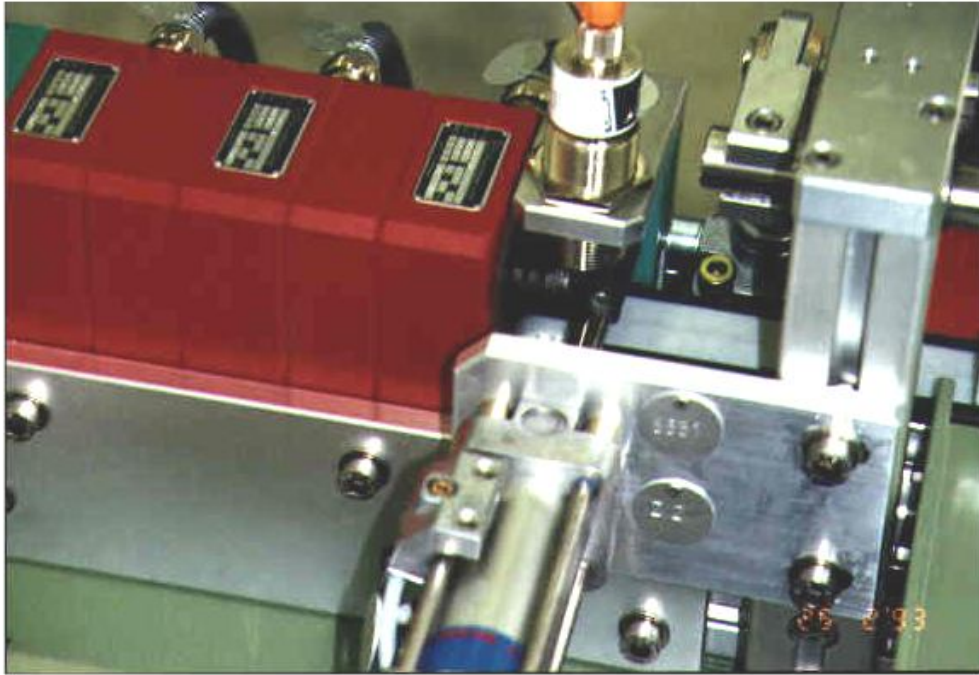
- hardness
- hardening depth
- material mix
- 3 test positions (3 test coils)
- fully-automatic, in-line
- 150 parts/hour
- lockable container for NOT O.K. parts



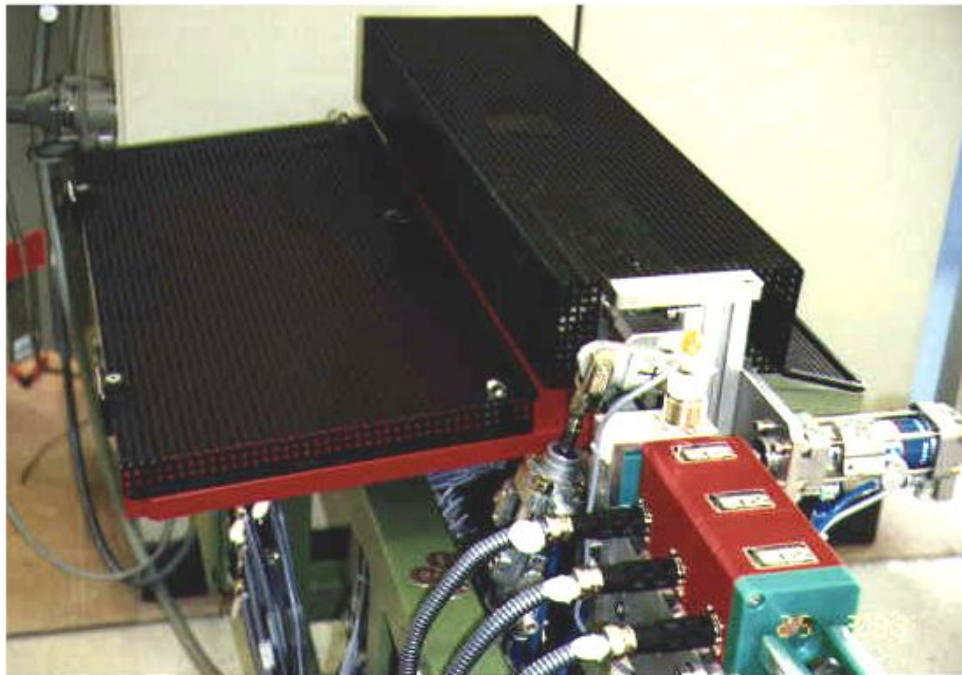
*Feeding and unmatching*



*Test position with coils and stopper*



*Lockable container for NOT O.K. parts*





*container opened, NOT O.K. part visible; ejector*



*Wiring of pneumatic part, sensor and coils*





Rack for test instruments

Control panel

