

Hot and Warm Forging Increase Die Life and Part Quality

QH PRESSMAX™ FWG 1820

The Challenge

Our customer, is one of the leading forging companies in Turkey. The customer expects from its suppliers long term reliability, satisfaction and strong financial background. The customer produces close to 30,000 tons of forged products annually and export more than half in the EU.

To be competitive in a challenging market, the customer asked Quaker Houghton to analyse the possibilities of enhancing productivity and reduce overall cost.

The main concern was to push the productivity to its maximum feasible level and to decrease the maintenance cost to the minimum level.

Quaker Houghton's Forging experts reviewed the current situation carefully and by evaluating the data defined three main goals in this project:

- Increase the die life to increase productivity
- No residues on the die forging surface, to minimise maintenance cost.
- Increase part quality

The Solution

Quaker Houghton experts analysed the current situation and process parameters carefully. Based on the requirements of the project, an in-depth intensive analysis of the preselected products in Quaker Houghton's Forging lab highlighted the minor differences of the suggested products for this particular customer application and the effect of those on production and performance. Quaker Houghton's Forging team finalized the product selection after a common technical meeting with the customer, reviewing the exact analysis and effect of each parameter on product performance.

QH PRESSMAX™ FWG 1820 was selected, as it met all the customer requirements. It has better cooling performance with excellent lubricity. The cooling performance results in keeping die temperature at an optimum level and extends the die life.

Additionally, the selected graphite particle sizes and graphite content of this product helps to achieve better material flow during the process, which directly affects the part quality and productivity.

The Benefits

Directly after the first trial with the selected product, the customer could evaluate the performance of the product. Measurement of the die temperature during the process, showed a constant and controllable temperature level.

This performance had a direct effect on the die lifetime. Since the product application was optimised during the trial phase, the customer could see less residue on the die surfaces, which directly affected the maintenance cost. The part quality, independent on the geometry of the forged parts, were fully within specifications.

In summary we can list the benefits of using QH PRESSMAX™ FWG 1820:

- Reduction of residue build up
- Increased die life by 5% at large parts and around 10% in medium sized parts
- Improved productivity by reducing die replacement downtime.
- Better part quality with a better material flow.

The Product

QH PRESSMAX™ FWG 1820 is a water based graphite forging lubricant used in various forging processes. By adjusting the dilution and application, the product is suitable for hot forging, warm forging, valve forging and other applications. The lubricant provides a good combination of cooling performance and lubricity while preserving the necessary release effect.

Quaker Houghton grinds and blends its own graphite mix to achieve the best graphite particle size and ratio. This guarantees the highest quality of its forging products like QH PRESSMAX™ FWG 1820.