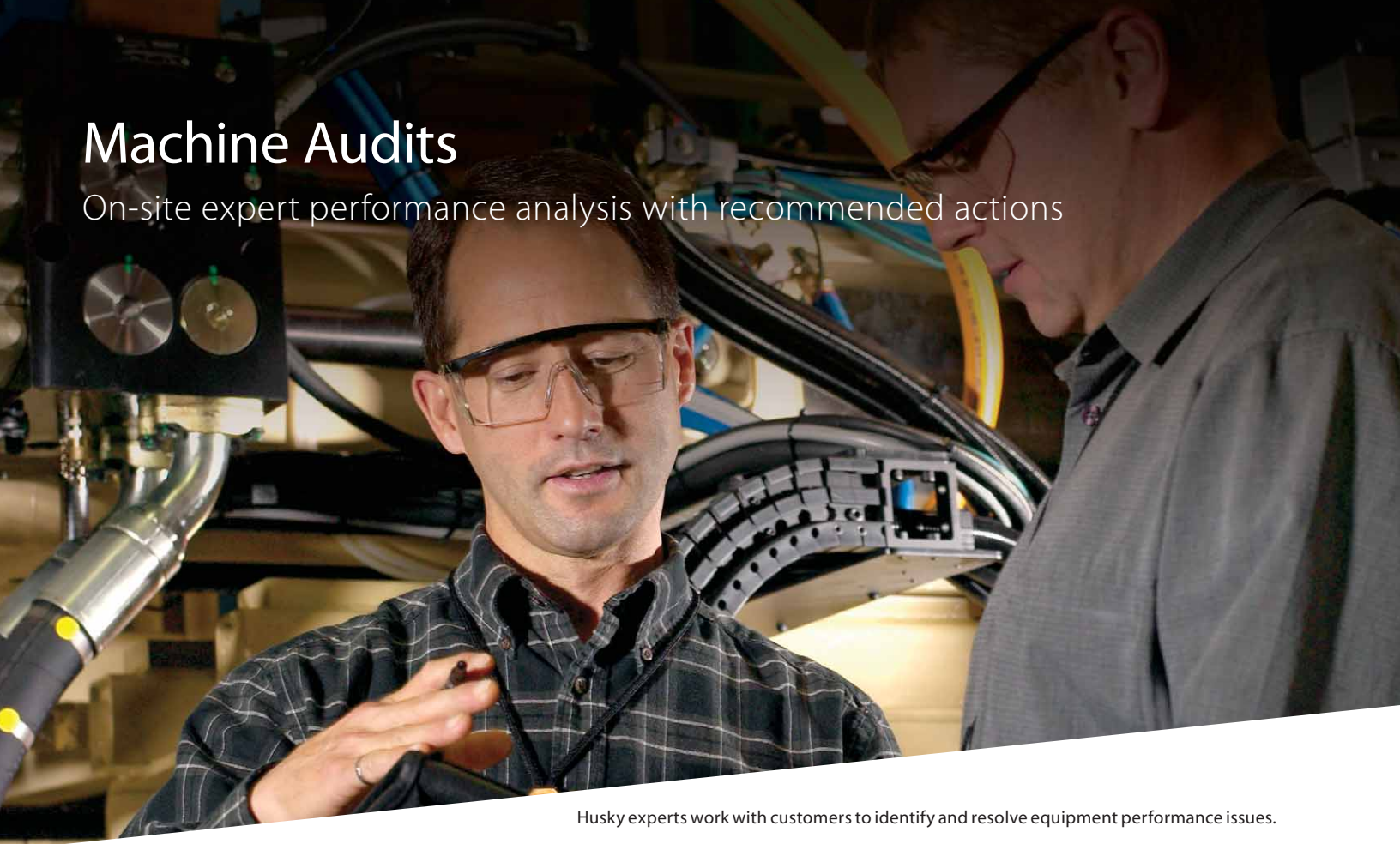


# Machine Audits

On-site expert performance analysis with recommended actions



Husky experts work with customers to identify and resolve equipment performance issues.

## Benefits

- Husky machine audits identify performance gaps and provide solutions
- Audits identify outstanding safety bulletins and available upgrades
- Implementation of audit recommendations restore machines to as new performance condition

## Features

- Ideal for machines more than 3 years old
- Safety audit check points
- Geometric inspection
- Thermal imaging of electrical cabinet, pumps and motors
- Energy utilization measurement
- Field Bus signal and strength robustness (where applicable)
- Pump case drain flow testing (where applicable)
- Oil contamination measurement and analysis
- Recommended actions to help restore machine to as-shipped condition

## Degradation

Studies of hundreds of machine audits have shown that if not properly maintained the performance of injection molding machines degrades over time. Our analysis has shown that over the course of a 10 year period, performance degradation averages 17%. The Husky® machine audit program identifies performance gaps and recommends courses of action to make a customer's older machine perform like new again.

## Husky machine audit

Machine audits are a valuable way for customers to understand if their injection molding machines are running at peak performance. This is achieved by performing a gap analysis, which helps to define recommended actions that will restore machinery

back to its as-shipped condition. The audit consists of a technical evaluation and a predictive audit to detect possible failure sources that can affect machine reliability.

This is an opportunity for customers to gain insight into factors that may be affecting overall productivity targets. Prior to visiting the customer, performance data and other information, such as safety and service bulletins, are gathered and call logs are reviewed. Any previously recommended upgrades or enhancements are examined to see what may have already been implemented. In addition, model and serial numbers for the machine are required, allowing us to fully research any customizations in advance.

**HUSKY®**

*Keeping our customers in the lead*

### Summary list of audit check points

Each audit check point is rated on a scale of pass, fail, not applicable. In many categories the technician will take photographs, applicable screen shots or other images that will be included in the report to support the written documentation. Check points range from safety focused elements to specific measurements of the machine for energy utilization and oil contamination.

Audit checkpoints include:

- Safety issues (verification of safety interlocks, all applicable safety bulletins examined)
- System visual inspection (hydraulic/water/air leakage, hoses, etc.)
- Control measurements (voltages, hydraulic pressures, temperatures, levels, etc.)
- System level check and platen parallelism inspection
- Review of machine events (analysis of cycle interruptions/alarms)
- Repeatability (analysis of machine data logging)
- Upgrades installation check (implementation verification)
- Energy measurement and consumption
- Oil particle analysis (contamination level per ISO standard 4406)
- Thermographic analysis (power pack/electrical panels)
- Field Bus testing—where applicable (analyzes the integrity and signal quality levels of the Profibus communications system)
- Pump case drain flow testing—where applicable (measures the flow rate back to tank on variable displacement pumps)



Performance analysis is a valuable tool to help maintain productivity.

### Post-visit reporting

Following the audit, findings are presented to the customer in two ways, the first is the audit check list. The second is the system audit summary, which is a comprehensive post-visit report that includes the following:

- Complete summary of system issues and findings
- Husky's recommendations for immediate, medium and long-term solutions
- An associated cost evaluation for the advised corrective actions and improvement opportunities
- Risk assessment chart detailing a machine's low, medium, and high risk issues with respect to safety, downtime and reduced performance

This report typically includes visual images

of issues found and the recommendation for correction. If previous audits were performed on the machines the report will highlight what was recommended and implemented or not implemented since that time.

### Who should have machines audited?

Machines that are more than three years of age may no longer be running at optimal rates and are ideal candidates for an audit. The output may be slightly less than when the machine was new. Machines that have not been maintained to the standards outlined in the machine maintenance manual, because of productivity demands, should also be audited.

Contact Husky today for more information on machine audits.

**Husky Injection Molding Systems**  
[www.husky.ca](http://www.husky.ca)

**Head Office**  
**Asia**  
**Europe**

Canada • Tel. (905) 951 5000 • Fax (905) 951 5384  
China • Tel. (86) 21 3850 8000 • Fax (86) 21 5048 4900  
Luxembourg • Tel. (352) 52 11 51 • Fax (352) 52 60 10

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