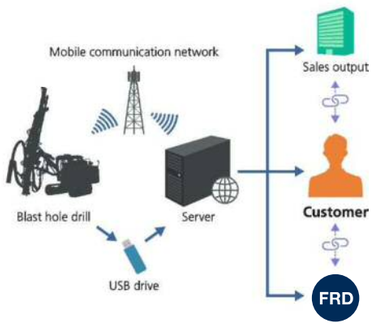
What is F-MICAS?

F-MICAS stands for "**F**RD **M**achine **I**nformation **C**ontrol & **A**nalysis **S**ystem," a blast hole drill operation support system developed by Furukawa Rock Drill.
The system collects operation data and alert information from blast hole drills, to support customers in their machine operation and maintenance.
The customers can check their machine information by logging in to the special member site "F-MICAS Web Site."

Member's site "F-MICAS Web Site"
* Recommended to browse in Google Chrome or Microsoft Edge.

Structure of F-MICAS

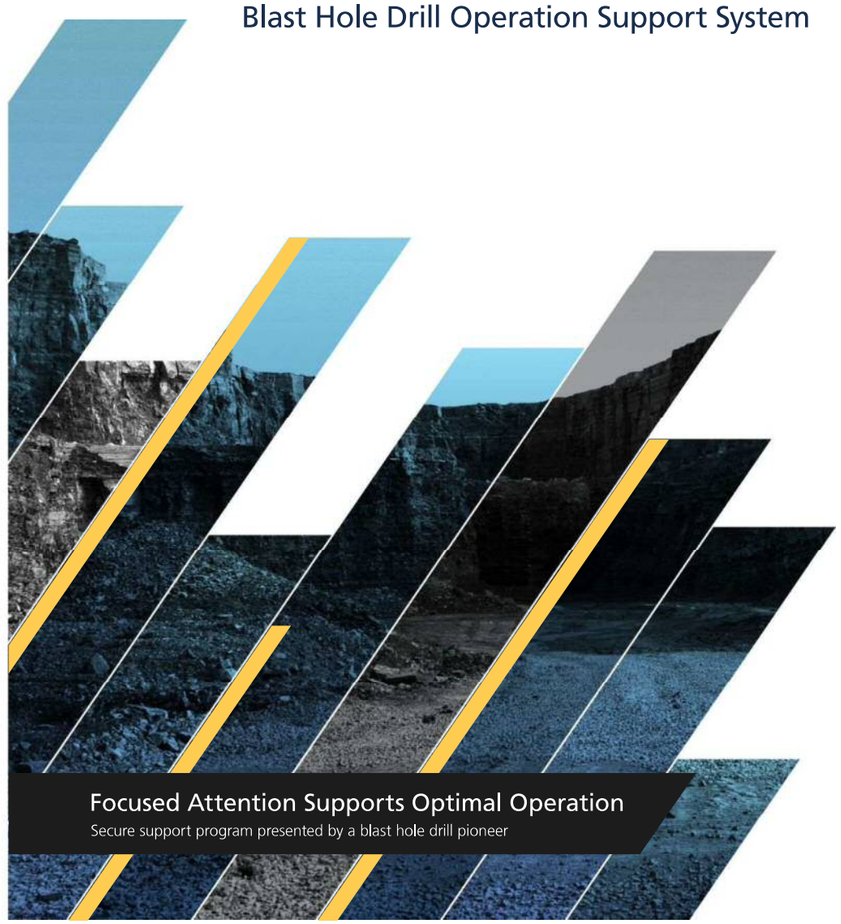
The communication device equipped inside the operator cabin collects data from the machine, sending the data to the server via a mobile communication network.
For sites without such a network, the collected data can be stored in the device and exported to a USB drive, etc.
The sent data will be provided to the customer and FRD personnel over the internet. Sharing real-time data in this way can realize optimal machine support.



FURUKAWA ROCK DRILL

F-MICAS

Blast Hole Drill Operation Support System



Focused Attention Supports Optimal Operation
Secure support program presented by a blast hole drill pioneer

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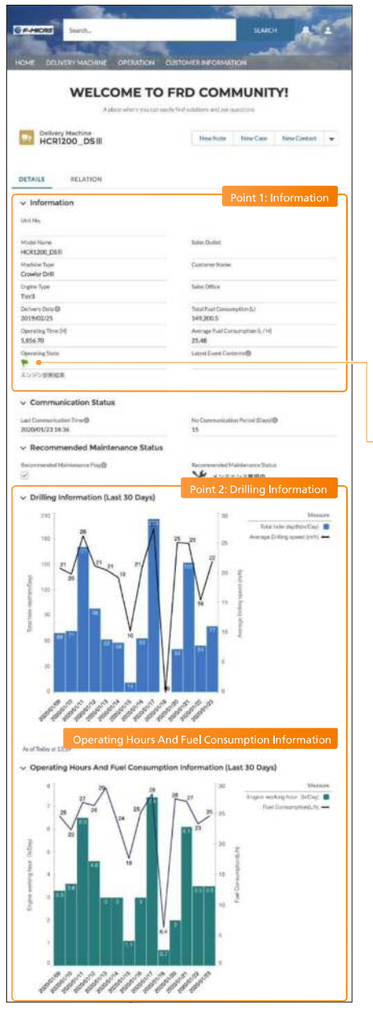
Blast Hole Drill Operation Support System

F-MICAS

Whether you are in the office or out, F-MICAS allows you to check on-site machine information in real time. The system enhances cooperation between your office and worksite through a clearly visualized machine operation status, providing a variety of benefits including stable site operation, improved work efficiency, and repair cost reduction through preventive/predictive maintenance.

F-MICAS's 4 benefits

1	**Repair cost reduction**	Early identification of problems prevents failures Contributing to decreased repair cost.
2	**Efficient operation management**	Daily and monthly reports created automatically from operation data Decrease work cost for operation management.
3	**Securing stable operation**	Immediate alert notifications and visualized parts replacement guideline Decrease downtime and contribute to stable operation.
4	**Improving drilling efficiency**	Quantified hole depth, operating hours, and operation Improve drilling efficiency.



1 Repair cost reduction

Proper maintenance (periodical and on-demand) based on machine operation data collected by F-MICAS prevents unpredicted failure, thus contributing to repair cost reduction and work safety.

Point 1

The basic information and operation data of your machine are clearly listed. You can check the machine status in real-time, including engine data and current usage of electrical components, as well as alert notifications.

The operating state can be easily recognized by icons.

Normal Caution Abnormal

2 Efficient operation management

Daily and monthly reports can be automatically created from everyday operation data, which reduces the desk work load on sites, and enhances management work efficiency.

The automatically created data can be downloaded as CSV files.

Point 2

The operation status can be checked in clear graphs. You can evaluate operation suitability to the current bedrock conditions from "Drilling Information," including total hole depth and average drilling speed.

"Operating Hours And Fuel Consumption Information" allows for checking the operating hours and average fuel consumption for each day, supporting your analysis of the running cost.

3 Securing stable operation

To prevent failure, F-MICAS notifies you by email of the appropriate timing for parts replacement and maintenance based on machine use frequency, as well as alert information from the engine and blast hole drill.

Point 3

The use counts of electrical components with high use frequency are plotted as graphs. Referring to the replacement recommendation guidelines, you can procure replacement parts beforehand to avoid unanticipated failure or downtime for parts replacement.

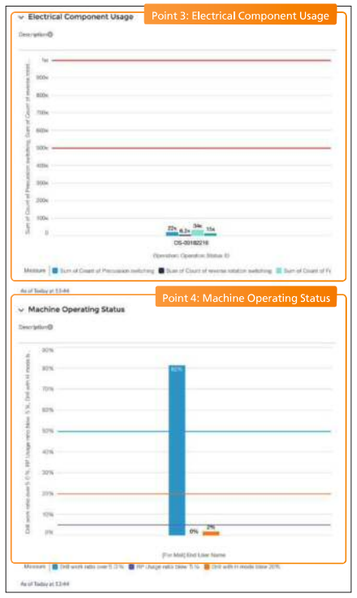
4 Improving drilling efficiency

F-MICAS proposes more efficient drilling by analyzing general machine operation and "drilling efficiency," a ratio of percussive operation used for the actual drilling of holes.

Point 4

You can check whether your machine has efficiently performed drilling or not by referring to the drilling efficiency. The value can be used as a guideline to review the current work method and drilling accessory selection.

F-MICAS also displays the operation data of "drilling with H mode" and "RP usage," which apply high load onto drifter parts and drilling accessories, as a reference for examining tool selection and work operation.



Swift and appropriate advice and consultation

FRD or its sales output will analyze and assess the customer's machine status from F-MICAS data, realizing preventive maintenance before occurrence of failure. We also propose ideal tool selection and work operation utilizing the data as necessary.
Customers can also receive professional work consultation (paid service) based on analysis reports.