

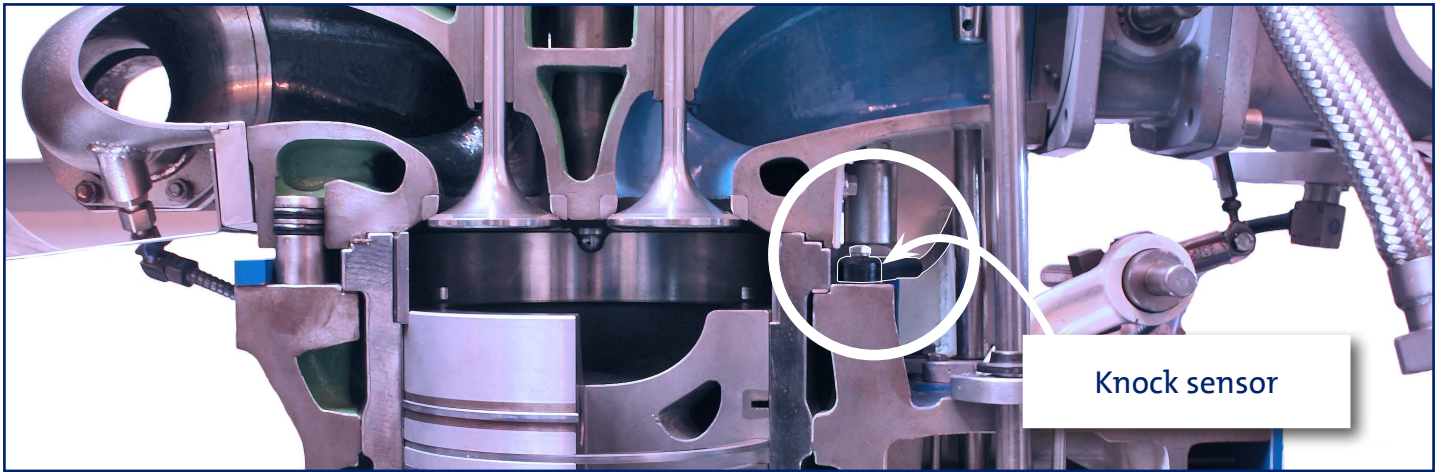


Rolls-Royce

## Knock detection upgrade

Improve safety at your plant





## Reduce the risk of engine breakdowns

## Benefits from the upgrade

In a well-functioning gas engine cylinder, the spark plug ignites the air/fuel mixture and a flame front burns across the top of the piston, creating a fast and evenly-expanding gas that pushes the piston down.

Knocking occurs when the air-fuel mixture doesn't burn smoothly and self-ignites before the spark plug fires, such that the two flame fronts collide within the cylinder, creating a knocking sound. Self-ignition can occur for many reasons, such as a component failure (spark plugs, pre-chamber valves, high voltage cables or gas admission valves), bad fuel quality, poor air/fuel mixture, or carbon buildup inside the combustion chamber.

Knocking can expose cylinder components to unusually high load because of excessive combustion pressure. Combustion chamber temperatures may also increase drastically, which can expose components such as the piston crown and exhaust valves to excessive wear over time. Modern engines include knock detection systems, but there are still legacy engines in operation without such systems installed.

The knock detection system's purpose is to identify knocking in one or more cylinders of the gas engine by measuring the vibration level in each cylinder.

The system has three alarm levels that trigger the following actions automatically:

1. adjustment of ignition timing
2. load reduction, maximum 85% load
3. engine shutdown (only if excessive knocking occurs)

- Increases operational safety
- Reduces risk of engine breakdowns
- Ensures stable operation
- Robust and proven system
- Vibration resistant
- Maintenance free
- Easy to install
- Modular design

If your engines are not equipped with knock detection, we strongly recommend installing this system. The knock detection upgrade is robust and proven through many years of operation. The system increases safety at your plant and ensures a more stable operation.

## Applicable installations

Engine type	Fuel type
KV-G1	Gas

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