

## SES System Efficiency Service – measurements in potentially explosive atmospheres



### Refinery

The commissioning of a multi-stage API pump type CHTRa will be accompanied by measurements performed by SES System Efficiency Service staff in order to detect potential problems in operating mode at an early stage. The measurements are performed in the potentially explosive atmosphere of zone 1.

### Measurements in potentially explosive atmospheres

The API pump from KSB is used in a so-called petrol desulphurisation reformer. During reformer renovation this pump was reinstalled. The pump environment is defined as a zone 1 potentially explosive atmosphere which means that more stringent requirements must be complied with to ensure safety.

In order to monitor the functionality of the pump and the system right from the start, SES System Efficiency Service employees use the KSB data logger to monitor commissioning. After carefully clarifying the on-site conditions in advance, KSB's experts use special ATEX-compliant sensors for the potentially explosive atmosphere to comply with the necessary safety requirements.

Measurements are carried out on the pump over a period of four weeks to record the inlet and discharge pressure and the vibration velocities. At the same time, mobile power measurement equipment is used to measure the effective power of the entire pump set. This is followed by a detailed analysis of the complete operating behaviour based on the measurement data.

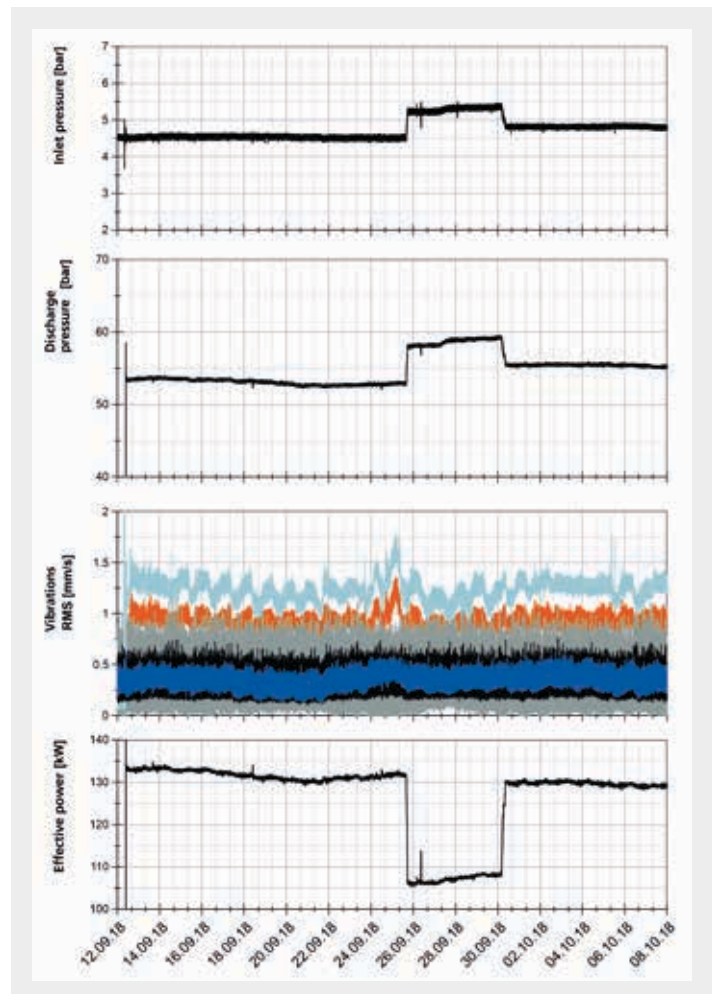
## Result:

The following diagram shows an excerpt of the measured data used to determine the API pump's operating behaviour. Reduced consumption by the reformer noticed during the measurement period changes the inlet and discharge pressure and decreases the effective power.

Checking the permitted operating range confirms that the pump is still operating within the optimum range. The vibrations simultaneously recorded on the drive end and non-drive end also confirm that the CHTRa is running smoothly in both operating conditions.

### More information

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## Your system operates in a potentially explosive atmosphere and you wish to perform measurements there?

No problem, we will perform a detailed analysis of the boundary conditions in advance. The following aspects must be considered:

- Safety requirements
- Connections for sensors
- Data logger installation



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