

RHF SERIES

RING HEAT FLUX SENSORS

The RHF series consists of heat flux sensors designed for studies of fouling behaviour during combustion processes. A RHF is meant to be part of so-called "deposition probes" or "fouling sensors" (typically designed by the user) in slagging and fouling experiments. A typical sensor actually contains 4 separate heat flux / temperature sensors, so that directional fouling information can be obtained as well.

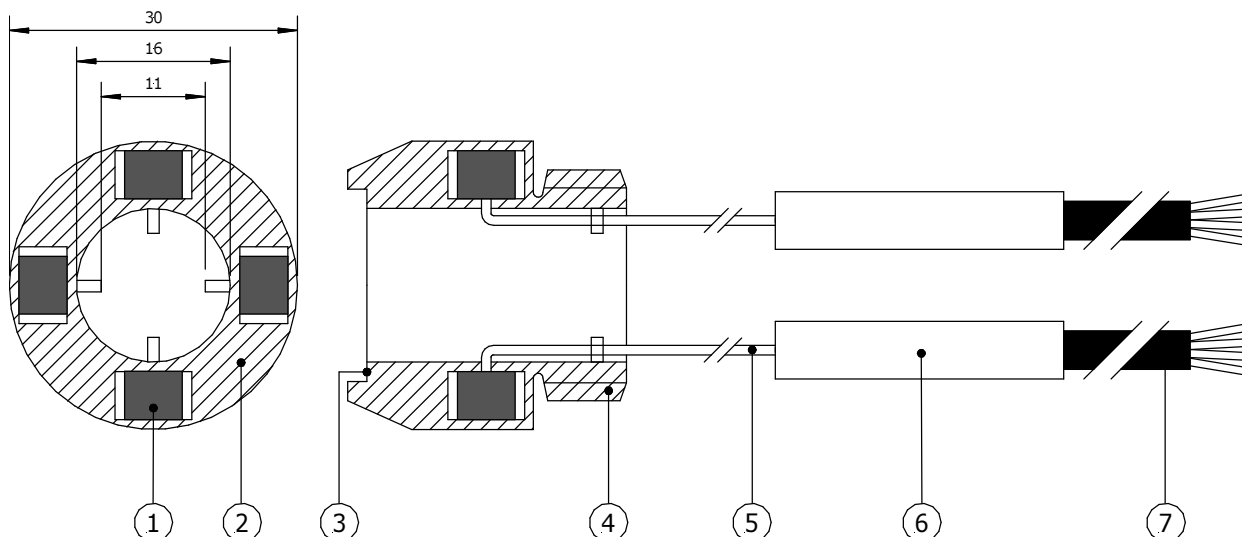


Figure 1 Example of RHF01 ring heat flux sensor consists of four temperature / heat flux sensors (1), in a stainless steel housing (2), with either flat connection for welding- (3) or alternatively threaded connections (4). Metal sheathed wire (5) is usually extended with PTFE wire (7). The sensor is typically incorporated in so-called deposition probes. Cooling should be provided by either air or oil. Dimensions in the drawing are only serving as example. All dimensions are in mm.

INTRODUCTION

The RHF series has been designed to be used in scientific as well as operational experiments to study fouling behaviour.

The user can build his own deposition probe or fouling sensor, and use an RHF as a building block. In practice many RHF sensors are built into probes that also measure temperature and take gas samples (so-called suction probes). RHF's can be supplied in many different dimensions.

Compared to traditional deposition probe designs, advantages of a RHF are that it can provide "directional" information, and that calibration is no longer an issue. The latter is done at the manufacturer. In addition the calibration is far better under control (even traceable) and response times are faster. RHF01 is provided with 4 calibration constants; one for every sensor.

SUGGESTED USE

- Studies of combustion processes
- Studies of fuel fouling behaviour

RHF TYPICAL SPECIFICATIONS

Sensitivity (nominal):	4 $\mu\text{V}/\text{kWm}^{-2}$
Temperature range (sensor including metal sheathed cable):	to +800 °C
Temperature sensing (T):	thermocouple type K
Calibration traceability:	NIST
Response time (typical):	120 s (90%)
Cooling:	air or oil (user responsibility)
Dimensions:	according to customer specifications