



Guided radar sensor VEGAFLEX steams ahead to ensure efficient process heat supply

Steam is a hot business. Flexible, sterile and reliable, it is a particularly efficient carrier of [thermal energy](#) – absolutely ideal for energy-intensive processes. Saturated steam, as used by DSM, transports 24 times the energy of the same amount of hot water. Level control is the crucial factor determining the efficiency of the [boiler system](#). To get the most out of the available energy, the system processes have to be continuously monitored and evaluated.

At the DSM site in Visp, Switzerland, they specialise in [food additives](#), and 30 % of the energy needed for their processes is made by generating steam. The energy production process ranges from the combustion of waste materials, as well as the typical stages of steam generation, right through to complex flue gas cleaning systems. The combustion chamber, which supplies the energy for the steam boiler, extends over three building floors at DSM. At a temperature of 190 °C, the boiler generates saturated steam at 13 bar pressure, increasing the specific volume of the water by 15 % compared to its specific volume at atmospheric pressure. The level values in the boiler, which supplies the steam distribution system, requires perfect balancing. It needs to be meticulously controlled according to preset, fixed safety parameters.

Since 2017, the boiler system has been monitored by a combination solution consisting of a **VEGAFLEX 86** guided radar sensor and **VEGASWING 66** vibrating level switches. Their tasks are level measurement, for controlling the feed water supply via continuous measurement, and level detection, for determining high and low water levels. The VEGAFLEX 86 level transmitter constantly maintains the level of the boiler and thus avoids any overheating of the process or possible entrainment of condensate in the outlet. This measurement has redundant support from a VEGASWING 66 for additional high and low water limitation. VEGAFLEX 86 ensures a robust and completely density-independent measurement under these conditions. In the coaxial tube version, it is totally unaffected by steam generation.



The redundant measurement ensures that the water level stays in the optimum range.



A sturdy 'combination' flange is installed on top of the boiler, it brings two instruments together on one process connection that are essential for the safe process control of the boiler. This transmitter and level switch combination delivers live boiler level information and makes the process more secure, as both instruments can confirm the reliability of each other's results.

Combination flanges are generally used in confined spaces and difficult installation situations, but are also ideal for safety-critical applications.

Mounted on a shared flange, both the transmitter and point level switch instruments confirm each other's results.

Measurement technology for use in steam boilers



"Every vessel connection we can avoid is an advantage for us," says Christoph Fux, senior process control engineer responsible for automation, explaining the potential risk of leaks. Theoretically, any kind of installation can lead to steam leakage and the additional work and high costs associated with it. The combination flange simplifies not only setup and commissioning, but also maintenance and servicing.

Christoph Fux is quite pleased with the new solution, as it contrasts strongly with his recent negative experience with capacitive based measurement at the same location. The steam generation system has been running smoothly and safely ever since.