



Pressure Measurement in Engineering



Application:

Diaphragm pressure gauges for the measurement of steam pressure in field kitchens

for manufacturers of field kitchens



A field kitchen is a mobile facility for the preparation of food. The field kitchen plays an important role in the military and also in emergency management, where large amounts of food have to be prepared to ensure the sustenance of the people.

The problem:

Generally, different types of cooking modules in the application of field kitchens exist. In our particular case, it is a cooking module with double jacket (inner and outer wall welded steam-tight). This jacket is partially filled with water. The water vaporises due to the temperature rise and causes an even heating in the kettle. Thus, the food is also heated evenly. The operating pressure is 1.5 to 2 bar (at 130 °C (266 °F) in the double jacket) and must not exceed 3 to 3.5 bar. The pressure in the kettle would get too high and increase the risk of destruction of the kettle, also entailing a higher risk of injury.

Our solution:

In order to save space, we use a vertical diaphragm pressure gauge. A special thread connection according to DIN 2999 ensures that no steam can escape and the system remains leaktight. The kettle is operational at 1.5 to 2 bar. If the pressure rises into the scale area marked in red (3 to 3.5 bar), a safety valve opens automatically, steam escapes and the pressure drops. Water has to be refilled accordingly, and the system has to be vented in order to use the instrument again. If vacuum occurs (-0.6 to 0 bar), the kettle also has to be checked and, if necessary, has to be filled and vented.

Measurement of steam pressure: PsPKOe 63 – 3

- ◆ Pressure range: -1 / + 5 bar
- ◆ Operating pressure: 1.5 – 2 bar
- ◆ Red (critical) range: 3 – 3.5 bar
- ◆ Not operational: -0.6 / 0 bar (filling and venting necessary)
- ◆ Special thread connection made of 316L R 3/4" conical DIN 2999 with extended connecting piece
- ◆ Case filling oil for ambient temperatures from -35 up to +140 °C (-31 up to +284 °F)



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