idoneus

overSteam ③

online evaluated steam quality

overSteam
steam measurement in modules

overSteam ①
measuring
- NCG
  (non-condensable gases)

overSteam ②
measuring
- Moisture content
- Superheating

overSteam ③
measuring
- NCG
- Moisture content
- Superheating

overSteam ④
measuring
- NCG
- Moisture content
- Superheating
- Massflow and Steam energy content

Especially designed to accomplish energy balance and energy account

In different industrial applications steam is used as a working fluid or a processing aid, but the utilisation of steam is critical in numerous technical processes. Especially in the case of sterilisation the control of steam – considering all relevant parameters – is critical, to achieve the required sterilisation effect. *overSteam-3* allows you to measure and monitor all relevant physical parameters:

- **NCG**
  non-condensable gases restrict access of steam to the items being sterlised → Unsterility
- **Moisture content**
  steam with a high moisture content leads to damp packing after the sterilisation → not suitable for sterile storage
  steam wetness potentially generates cold spots → Unsterility
  droplets entrained from the steam generator may contain contaminants → pyrogenes on the sterilised items
- **Superheating**
  the sterilisation effect of superheated steam is nearly as bad as the sterilisation effect of hot air → Unsterility

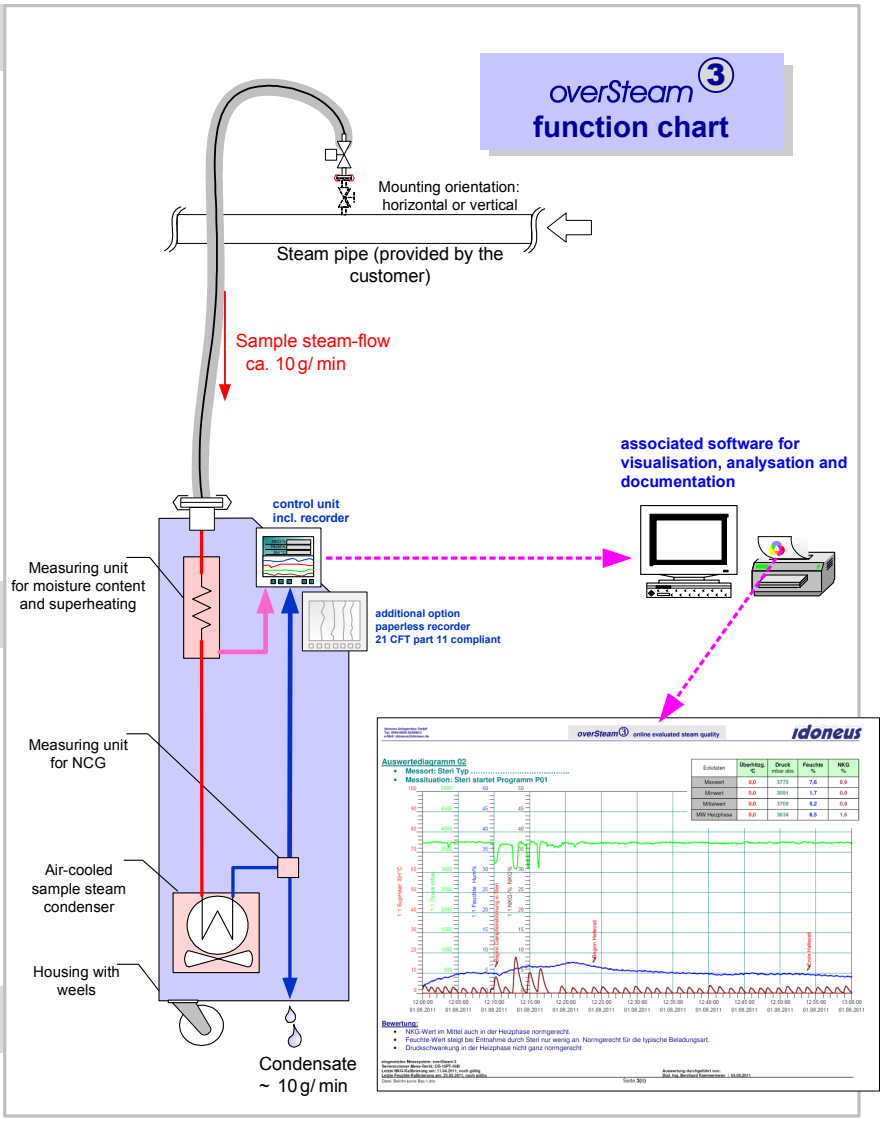
On the one hand *overSteam-3* can be placed on a continuing basis at one representative sampling point. On the other hand changing the sampling point with little effort enables you to monitor different sampling points. Cyclic monitoring for a user-chosen operating time at each single sampling point is thus possible. *overSteam-3* can be installed using any existing process connection at your pure steam system.
→ Data transfer to higher-level systems can be achieved via Ethernet, Profibus or 4-20mA

idoneus Anlagenbau GmbH
Erlinger Strasse 12
82396 Fischen / Ammersee

Tel: 0049-(0)8808-924808-0
Fax: 0049-(0)8808-924808-99
eMail: idoneus@idoneus.de
www.idoneus.de

Steam! but what´s the state?

Companies using steam for sterilisation know the respective requirements regarding the physical state of the steam. DIN 58950 and EN 285 also define limits of non-condensable gases, the moisture content and the maximum acceptable superheating of the steam. Crossing the valid borders of these state variables leads to unsterility or contamination of the sterilised items; thus deviations are an enormous risk for the process and for the product.



State-of-the-art

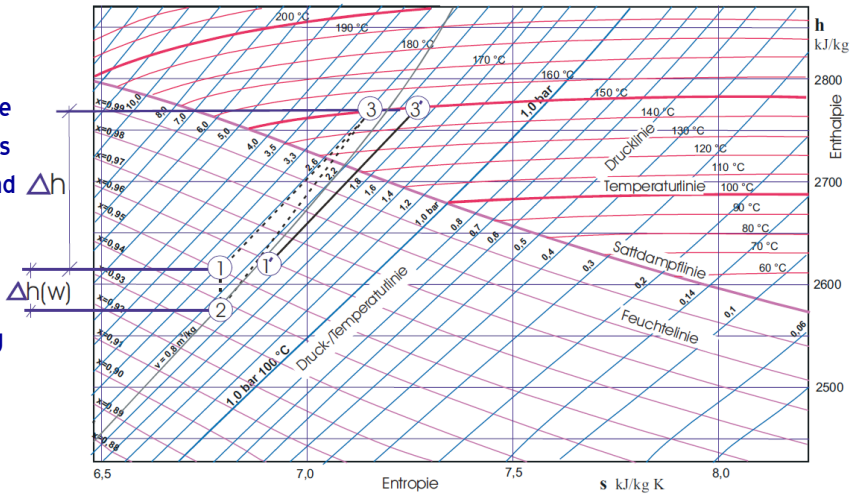
EN 285 describes methods to determine the above-mentioned three parameters, but these methods are laboratory-like. It is only possible to do short off-hand samples in a very complicated and inaccurate way. Furthermore it is not possible to get a continuous data logging and recording.

New idoneus measuring principle

overSteam is an automatic inline measuring system, containing all sensory elements to measure the 3 relevant values (i. e. NCG, moisture and superheating) simultaneous. Especially measuring moisture content and superheating was a particular challenge, because the determination of the moisture content can not be accomplished by using pressure and temperature sensors only. Changing the moisture content in the wet-steam region does not have an effect to the pressure or the temperature of the steam. The classic way is the caloric measurement, which allows deducing the moisture content from the amount of steam condensed and the rise of the temperature. This method is very inaccurate, especially if the steam is nearly saturated. It is necessary to detect a small enthalpy difference, although the condensation enthalpy is huge.

The new idoneus measuring principle

is based on a specific superheating of a defined sample steam-flow at a state, that is located some degree Celsius above the wet-steam region. In this situation, the correlation between temperature und pressure allows to locate the clear physical state of the steam in the h,s-diagram. Knowing the heating energy and the mass flow the location of the primary sample steam can be calculated using the h,s-diagram. Due to physical reasons, this method is much more accurate than the classic methods.



idoneus Anlagenbau GmbH
Erlinger Strasse 12
82396 Fischen / Ammersee

Tel: 0049-(0)8808-924808-0
eMail: idoneus@idoneus.de
www.idoneus.de