



Flare plants have an important share in emission protection and emission trading

Flare plants are an environment-friendly and economic solution for the disposal of polluting gas and exhaust gas flows. HAASE flares have an important share in the Kyoto objectives and are of great interest to the emission trade with CO₂ certificates. HAASE Energietechnik has been manufacturing flare plants for more than 25 years and has shaped with innovations the state-of-the-art in this field.

-> Pictures see page 4

Flare plants are applied for the auxiliary or continuous combustion of polluting gases. Emergency flares serve as secondary gas recipient for high energy gases like sludge gas, marsh gas, landfill gas and biogas, in cases of downtimes of the primary gas recipient, e.g. maintenance of the CHP gas engine. Continuously operating flares are applied for the thermal exhaust gas purification, in order to dispose harmful exhaust air and exhaust gas flows resulting from industry.

HAASE flares combust hydrocarbon compounds like methane (CH₄) to water vapour and carbon dioxide at high temperatures. Thus the methane (CH₄), which amounts to half of the biogas volume and which is 21 times more harmful to climate than carbon dioxide, loses its extremely harmful effect to climate. Low energy gases like solvent steam that are not able to burn solely, are combusted by adding propane or natural gas. An autothermic combustion (without auxiliary gas) can be realised already for methane concentrations between 10 and 27 Vol% by means of heat recovery systems.

Modern HAASE high-temperature flares are low-emission, energy optimised high-tech plants, which meet all requirements of the latest TA-Luft amendment dated 2002 and BImSchV as well as the stringent UK guideline and if so specific local requirements. Mainly they are ground flares with a total height between 4.5 and 10m and a combustion capacity between 100kW and 27MW.

Emergency flares for biogas are relatively easy to design. They are available with an open combustion (type LTO) or enclosed flame (type LTU) at 800°C. High-temperature combustion plants (type HT) for the continuous disposal have a very high emission reduction degree and allow a thermal post-combustion for the decontamination and purification of toxic media mainly having an organic character.

Flares, type HT, can be adjusted to temperatures from 850°C to 1,200°C. Due to the insulated combustion chamber, they do not release radiant heat and thus do not need any min. spacing to neighbouring buildings or plants. The innovative combustion technology with the option of several burner circuits enables the combustion of different gases with one single flare (control range 1:10). The combustion is low-noise and „invisible“ from outside.

Generation of CO₂ certificates by means of HAASE flare plants

Due to their capacity for the lasting reduction of harmful emissions, HAASE flares are splendidly suitable for the generation of CO₂ certificates. In principle this is valid for the entire product range of HAASE flare stacks. Thus the high-temperature flares are especially interesting, as they have the highest emission reduction degree. The emission reduction has to be reported continuously in order to use the full potential for CO₂ certificates. For this purpose a suitable exhaust gas technology is installed on the flares.

Some application examples

- Cancer causing benzene exhaust air
High-temperature flare with 1MW, natural gas auxiliary firing, for the combustion from three metering matters at the same time (*year of construction 2007*)
- Ethylene oxide from the sterilisation of clinical devices
High-temperature flare for combustion > 850°C with propane auxiliary firing (*year of construction 2006*)
- Tank degassing flare (-> **Picture 1**)
Mobile high-temperature flare for flammable volatile gases from the loading in tank farms and from purifying refinery tanks, 5MW, 500 up to max. 3,000m³/h, combustion >850°C with propane auxiliary firing, stringent requirements acc. to TrbF20, certified by Germanischer Lloyd, innovative flare burner for changing heating values of the combustion gases minimises operation costs and emissions (*year of construction 2007*)
- High-temperature flare with heat recovery for liquefied petroleum gas
0.6MW; heat exchanger system for water heating from 70 to 90°C recovers 100kW (*year of construction 2006*)
- Flash gas flare
at the second largest natural gas storage in Central Europe, Austria; 3.2MW at 13m height, control range 10:1 (*year of construction 2007*)
- Sludge gas flare (-> **Picture 2**)
27MW, with two-stage burner and pilot burner for midget quantities (*year of construction 2007*)
- Landfill gas flare plant (-> **Picture 3**)
6 high-temperature flares on an English landfill site with a total combustion capacity of 60MW (*year of construction 2007*)
- Mobile landfill lean gas flare (hired flare)
for landfill gas resulting from an old landfill with methane contents between 10 and 60 Vol%
1,000°C, 1.8MW, control range 3:1, suction capacity 600-1,800m³/h

Safety

More than 1,000 reference projects with HAASE flare plants represent decade-long know-how and a high international quality standard. All HAASE flares say *safety first*. The plants comply with all requirements of the explosion protection guideline ATEX and the DVGW. A comprehensive quality assurance is guaranteed by the certification acc. to DIN EN ISO 9001:2000. The HAASE concept ensures safety beyond legal regulations. This is certified by independent experts like the German TÜV or Germanischer Lloyd.

Besides flare plants, the HAASE Gas Engineering Department also offers containerised gas booster stations and CHP plants, the VocsiBox[®] for the thermal disposal of exhaust air with energy contents from 0.4 to 10 Vol%, as well as the BiogasUpgrader for processing biogas to biomethane with natural gas quality.

HAASE experts at the IFAT:

Hall B2, stand 447/546

Additional information:

Dr. Falk Karstens
Phone +49 (4321) 878-216
falk.karstens@haase.de

Jochen Specht
Phone +49 (4321) 878-209
jochen.specht@haase.de

Press contact:

Ursula Packhäuser
Phone +49 (4321) 878-122
ursula.packhaeuser@haase.de

Pictures on the next side →



Picture 1:
Mobile high-temperature flare
 for the disposal of explosive mixtures
 from tank farms. The total combustion
 capacity amounts to 5MW with a suction
 capacity from 500 to 3,000m³/h



Picture 2: HAASE sludge gas flares
 Next to the flare operating since 2004
 (left, 17MW), an additional flare was
 installed (right, 27MW). It is furnished
 with a two-stage burner and a pilot
 burner for midjet quantities



Picture 3: 6 landfill gas flares on Brogorough landfill site, England
 Total combustion capacity 60MW. The appending gas booster station
 supplies 13,800m³/h of landfill gas