

**MAKEEN**  
ENERGY

# FAS LPG Vaporizer Technology

Versatility - Performance - Durability

**FAS**  
Flüssiggas-Anlagen

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A MAKEEN Energy Company



In industrial and commercial areas, you often need to draw large quantities of gas from your tank within a very short time. FAS' dry-type LPG vaporizers ensure the gas supply by transforming the liquid gas into its gaseous phase.

The FAS dry LPG vaporizer operates without transfer fluid. An aluminum core, in which the heating and vaporizer coils are cast, serves as the heat carrier.

The heat transfer medium is heated and monitored under thermostat control. After reaching the required evaporation temperature, the solenoid valves open. Liquefied gas enters the vaporizer and is converted into the gas phase without pressure change up to the specified rated output. The energy-efficient design quickly adjusts the required heating output according to the consumption rate.

In case of fluctuations and power failure, the solenoid valves close. An additional safety temperature limiter monitors and prevents an excessively high rise in the gas exit temperature.

When installing this LPG vaporizer outdoors, a protective roof is required (provided by the customer).

### Vaporizer specifications

The vaporizer comes in capacities of 15 kg/h (4 gal/hr), 25 kg/h (6.5 gal/hr) and 40 kg/h (10.5 gal/hr) as a single phase 120V - 240V/50Hz - 60Hz version and in 32 kg/hr (8.5 gal/hr), 60 kg/h (16 gal/hr), 100 kg/h (26.5 gal/hr) and 170 kg/h (45 gal/hr) as a three phase 400V/50Hz - 60Hz version. It is indirectly heated and designed for the use within Ex-zone 2. It is pre-wired and ready for connection.

FAS Vaporizer in capacity 15 kg/h (4 gal/hr), 25 kg/h (6.5 gal/hr) and 40 kg/h (10.5 gal/hr) as a single phase 120V - 240V/50Hz - 60Hz

The FAS-2000, PN25, consists of:

#### Vaporizer casing

Stainless steel construction with an internal aluminum core, intermediate insulation, protective cover, and wall bracket.

#### Heating coil

Resistance heater element, casted together with the LPG coil into the aluminum core as a tubular heater.

#### Safety valve

In the gas phase:

- Set pressure 25 bar
- Without condensate drilling
- Component-tested

#### Temperature control

Fully automatic, thermostat-controlled within the specified limits.

#### Flood protection/low-temperature safeguard

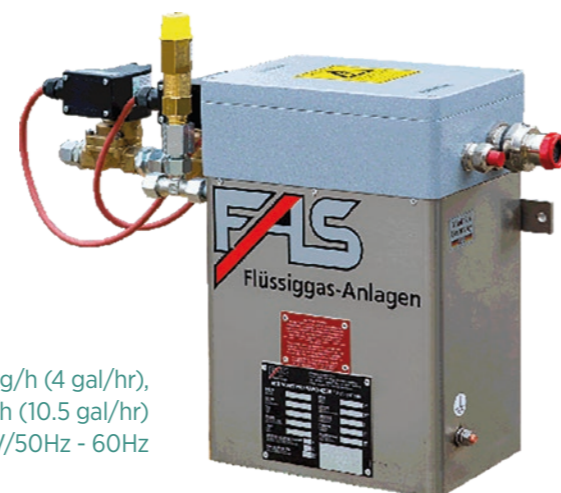
Consists of two redundant thermostat-controlled solenoid valves.

#### Overheat protection

With safety shutdown.

#### Electrical equipment

According to IEC 60079-0/IEC 60070-15  
Ex-Zone 2, Type of protection: Ex II 3G Ex nR IIB T4 Gc



### Dry-type vaporizer FAS 2000

The indirectly electrically heated dry-type vaporizers FAS 2000 in stainless steel housing offer a safe and reliable energy supply for applications with low capacity requirements.

These maintenance-free vaporizers are used in installations with small tanks with a low natural vaporization. FAS 2000 vaporizer systems grant a continuous operation of gas supply without interruption. They are suitable for use in hazardous areas, zone 2.



Vaporizer compact skid unit including storage tank – a „Plug & Play“ solution

- Storage tank capacity according to customer request
- Compact unit mounted on a galvanized base frame
- Different arrangements of vaporizer cabinets available on request

### Version with multiple FAS vaporizers

Three-phase vaporizers with 60 kg/h (16 gal/hr), 100 kg/h (26.5 gal/hr), and 170 kg/h (45 gal/hr) with two redundant solenoid valves each (left to right).





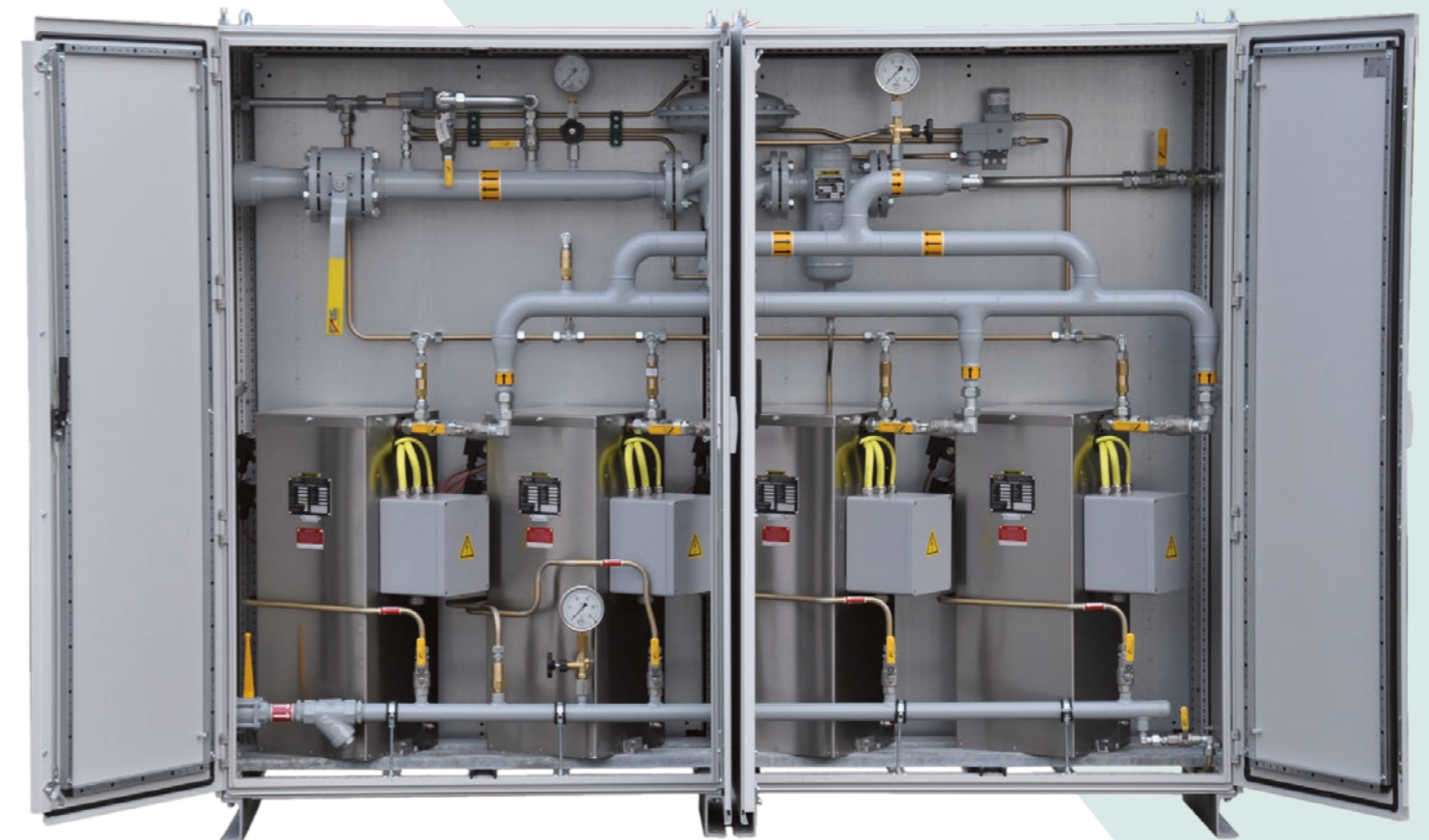
### Vaporizer units with dry-type vaporizer FAS 2000

The FAS dry-type vaporizers FAS 2000 are available as compact unit including all required components such as shut off valves, control valves, safety equipment, pressure regulators set to the requested outlet pressure. All vaporizer units are designed according to customer specification and can be delivered either in cabinet design, in a container or as a compact skid unit including storage tank.

Capacity kg/h (gal/hr)	Voltage	Dimensions of cabinet (mm)
15 (4)	120V to 240V 50Hz - 60Hz single-phase	1200x800x400
25 (6.5)		
40 (10.5)		
60 (16)	400V 50Hz - 60Hz three-phase	1200x1200x400
100 (26.5)		1600x1200x400
170 (45)		



FAS Vaporizer unit in cabinet construction  
Version with single vaporizer max. total capacity 170 kg/h (45 gal/hr)



Version with multiple FAS vaporizers - 2 to 4 pcs. of size 100 kg/h (26.5 gal/hr) or 170 kg/h (45 gal/hr)  
Max. total capacity 620 kg/h (164 gal/hr) (4 pcs. of size 170 kg/h (45 gal/hr))



### Hot water-heated vaporizer unit FAS 3000

Especially in case of increased capacities, the operation costs may be reduced significantly with the use of Hot water-heated vaporizers working with plate heat exchangers.

These compact vaporizer units include all required components such as shut off valves, control valves, solenoid valves, safety equipment, thermometers, liquid level sensors, pressure regulators. The vaporizer units are completely mounted in a cabinet or in a container including piping. They are suitable for use in hazardous areas, zone 1.

- Plate heat exchanger technology
- Capacity up to 20000 kg/h (5250 gal/hr)
- Power supply: 120V to 240V / 50Hz - 60Hz
- Certified according to DIN EN ISO 9001 SCC (Service)



1200kg/h (320 gal/hr) waterbath vaporizer unit in a cabinet with insulated water pipes, liquid trap, electronic level alarms, two stage pressure regulation and over pressure protection with safe gas release.



Waterbath vaporizer unit with redundant pressure regulation and electronic liquid level alarms.



2x170 kg/h (45gal/hr) with Yeturi SNG-Mixing unit



Waterbath vaporizer unit with pressure regulation and electronic liquid level alarms.



Vaporizer skid unit with tank, pump, and dry type vaporizer cabinet with liquid trap and pressure regulation



Different dry type vaporizer units



Industrial redundant vaporizer unit, combining dry type and waterbath vaporizers for high capacities in a 20 feet container solution



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## MAKEEN Gas Equipment

(formerly KC ProSupply) offers a wide range of high-quality gas equipment and components along with expert guidance from the beginning to the end of your project. In that way, our one-stop shop philosophy – and many warehouses around the world – provides you with much more than just a product.

**MAKEEN Energy** is a global, market-leading corporation that delivers equipment, solutions and services to the energy industry. We employ approx. 3,900 people across 6 continents and operate in over 140 countries. With our global reach, local presence and decades of experience, we can deliver responsible solutions that make a difference to people and planet.

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