

LNG Rental Trailer

1 unit**GOFA LNG semi-trailer****inner and outer vessel in stainless steel****self supporting****for the transportation of LNG UN 1972****Type:**

semitrailer for cryogenic air-gases

customer truck

5th wheel height

LNG

standard European 2 axle truck

1200 mm

Registration:

country of destination

approval

registration

European countries with 40000 kg max. gross weight

European type approval acc. to directive 2007/46

individual registration in customer's country

made by customer with approved certificates

Design:

test pressure

working pressure

design temperature

tank code R 7,8 BN

7,80 barg

5,00 barg

-196 °C - +50°C

Dimension and weights:

dimension

max. gross weight with tractor

max. gross weight of the semi trailer

estimated truck weight

axle weight

technical allowable axle load

5th wheel load

tare weight

tolerance

estimated payload by weight

filling factor (ADR 4.35 TU 18)

max. payload by volume/weight for LNG

LNG with a density of 0,422 kg/l

LNG with a density of 0,430 kg/l

LNG with a density of 0,440 kg/l

LNG with a density of 0,450 kg/l

according to the ECE regulations

40000 kg

34000 kg

7500 kg

24000 kg

27000 kg

11000 kg

12440 kg

+/- 2 %

20060 kg

85,5 %

18943 kg

19302 kg

19751 kg

20060 kg

Inner vessel:

shape

approval

approved by

calculated capacity warm

calculated capacity cold

tank shape

self supporting pressure vessel

cylindrical vessel

TPED / ADR

German authorities

52500 l

52000 l

cylindrical

LNG Rental Trailer

baffles	6
tank material	stainless steel
x-ray of the vessel	100%
cleaning	cleaned for LNG use

Outer vessel:

shape	cylindrical vessel
material	stainless steel 304 / 1.4301
vacuum resistance	100 %

Insulation and vacuum connections:

insulation Type	vacuum multi-layer-insulation
safety valves for vacuum space	1 off
vacuum connection	Flange KF DN 50

Instrument cabinet:

position	at the rear end
material of cabinet	aluminium with GRP roof
operation	one big door at the rear side opening upwards
maintenance doors	on each side one opening for maintenance work
handling	from the rear side

P&ID:

P&ID	approved GOFA P&ID
pipe material	all pipes are made of stainless steel 304 seamless pipes in the annular space
filling line	size: DN 65
discharge line	size: DN 40
gas balance line	size: DN 40
valves	valves for the cryogenic liquid are made as globe valves
valve manufacturer	Herose
valve material	manually operated valves are stainless steel body with brass head pneumatically operated valves are stainless steel
discharge valve	Herose as non return valve
safety relief valves for vessel	4 units stainless steel / brass safety relief valves 1" set at MAWP brand: Herose
safety relief valves for pipes	one change over valve for the safety relief valves material: brass brand: REGO

Couplings and connections:

filling connection	flange DN 65 PN 40
filling coupling	Coupling: Male DN65 TR104 x 8 LH threaded (stainless steel with dust cap brass)
discharge connection	flange DN 40 PN 40
discharge coupling	Coupling: Male DN40 TR69 x 8 LH threaded

LNG Rental Trailer

discharge hose
gas balance connection
gas balance coupling

(stainless steel with dust cap brass)
with 1x hose 8 m / in hose pipe
flange DN 40 PN 40
Coupling: Male DN40 TR69 x 8 LH threaded
(stainless steel with dust cap brass)

Vaporizer (PBU):

PBU unit material
capacity
connections
position

aluminium pipes with aluminium fins
adequate to requirements
flanged connection
between landing legs and axles

Liquid level indicator:

position

type Samson Media 5
in the cabinet
table in kg LNG @ 0,43 kg/l

Liquid level gauges (trycock):

quantity
set at

2
max. level ADR
second trycock level to be negotiated

Analyse connection (sample):

liquid phase
gas phase

Swagelok coupling
Swagelok coupling

pump Vanzetti

delivery and installation of a hydraulic driven cryogenic pump

brand of pump
type of pump
pump speed
delivery capacity
diff. Pressure
max suction pressure
pump inlet:
pump outlet
temperature controle
hydraulic motor
hydraulic power
hydraulic flow rate
safety feature for hydraulic pump

Vanzetti
HGM 185 LNG
8190 1/min
500 l/min at 16 bars
16 bars
reinforced
2,5 "
2"
one temperature gauge for checking the cooling down
Parker / Volvo F12-30 with gear box
27 kW
90 l Oil per minute at 200 bars
Pump starts by pneumatic switch.
Within this a safety System switch off system can be installed
3 lines of hydraulic pipes at the side with connection at the front side of the vehicle on the king pin plate and universal hoses to connect to the truck.
hydraulic lines with rubber saddling for lower noise emission

hydraulic lines



LNG Rental Trailer

hydraulic couplings

hydraulic on the truck

3 units - to be delivered by customer

truck hydraulic to be provided by customer

min. 90 l Oil per minute at 200 bars

remark: truck to be equipped with 3 hydraulic lines with hoses at the front of the 5th wheel plate

safety systems for pump system:

Pump control: automatic activated safety temperature/pressure controlled electric/pneumatic system:

Temperature sensors

Cool down, Leakage, Hot spot

Inhibits the start or stops pump and closes pneumatic valve automatically

with optical indications if temperature sensors are inside the operation conditions

Only with flowmeter: stops the automatically if the tank is empty

with safety override function to charge the tank without electricity

Provide space for a later mounting of a Shell safety system

Measuring system:

flowmeter

brand of system

type of system

size

delivery and installation of a measurement system

Flow Instruments

Flowcom 3000

DN 50

system installed in cabinet

Flowmeter with MID confirmation certificate and pre-

calibration with measuring pipe electronics and printer

Exact measuring of the LNG weight by programming the LNG components

official calibration of the meter with the authorities

is included. (MID approval)

system pipe is in the instrument box,

computer in the additional box

Within the ADR required for FL cabling, the computer

is connected to the truck 24 V system.

permanent measurement and adjustment of the density for the measuring system

Density Column

Ex-approval:

all electrical parts in the cabinet

in acc. with ADR Ex-regulation

Running gear as follows:

Construction:

beam section

stainless steel

saddles of aggregate

stainless steel

landing leg saddle

stainless steel



LNG Rental Trailer

5th wheel saddle

5th wheel plate

stainless steel

welded carbon steel plate

5th wheel coupling:

2" with EN approval

Landing legs:

material

load facility

foot

operation

steel

to carry the laden semi trailer

foot for concrete floor

from one side

Axles:

brand of axles

type

offset

size of disc

lifting axle

steering axle

JOST

DCA

0 mm

big disc brake 22"

yes, first axle

without

Tyres:

size of tyres

brand

6 units

385 / 65 R 22,5

Goodyear with 3PMSF-marking

Sparewheel:

without but enough space for later mounting

Rims:

brand

surface

aluminium rim

premium brand (Speedline or equal)

one side polished

Brake system:

brand

type

road stability system (RSS)

type of brake system

pneumatic connection to truck

in accordance with EC regulations

Wabco or equal

EBS - Generation E

RSS engaged

4S 2M + 1M

standard red and yellow connection

system without Airflex lines to the truck tractor

Rear underride guard:

material

according to ECE

aluminium

Side guards:

material

according to ECE

aluminium

Mudguards:

separate polyethylene mudguards

with rubber wheel flaps according to ECE.

Spare wheel holder:

without spare wheel holder but with enough space for late

LNG Rental Trailer

Electrical installation:

rear lamps

system

license plate lamp

side lamps

cable support

electrical connection to truck

according to ECE

7-chamber lamps in the rear bumper

normal bulb

2 licence plate lights

LED side lamps in accordance with EC regulations

one pipe from the rear to the front

one support with 15 pin AMP plug

Equipment:

hose carrier

material, diameter and length

1 unit at the left side

stainless steel, 159 mm o/d, 8,5 m long

tools

toolbox

drag shoes with bracket

working lamp in the rear cabinet

tool holder in the cabinet

without

2 units in yellow

1 unit with switch

ADR equipment:

fire extinguisher

dangerous good signs

loading

2 boxes for 6 kg Extinguisher provided

3 for flammable gas

1 label plate: 223/1972

Labels:

contour marking

customers logo

acc. to ECE R 104 white at the side, red at the rear

GOFA/Chart logo

Safety equipment:

anti-tow away (ATD)

emergency buttons

static earthing reel

earthing bracket

engaged, when opening the door

disengaged at a speed over 8 km/h

one on each side to close the main valve

operated manually, with cable 15 m

1 unit

Paintwork:

acryl paint without lettering

- vessel

- undercarriage

painting on the base of 2-component paint

white RAL 9010

grey - RAL 7005

Documentation:

customer documentation

in English

Delivery:

drying of the trailer

vessel dried with warm nitrogen