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LNG-DISPENSER TYPE

DYNAFLOW 3000-DIS

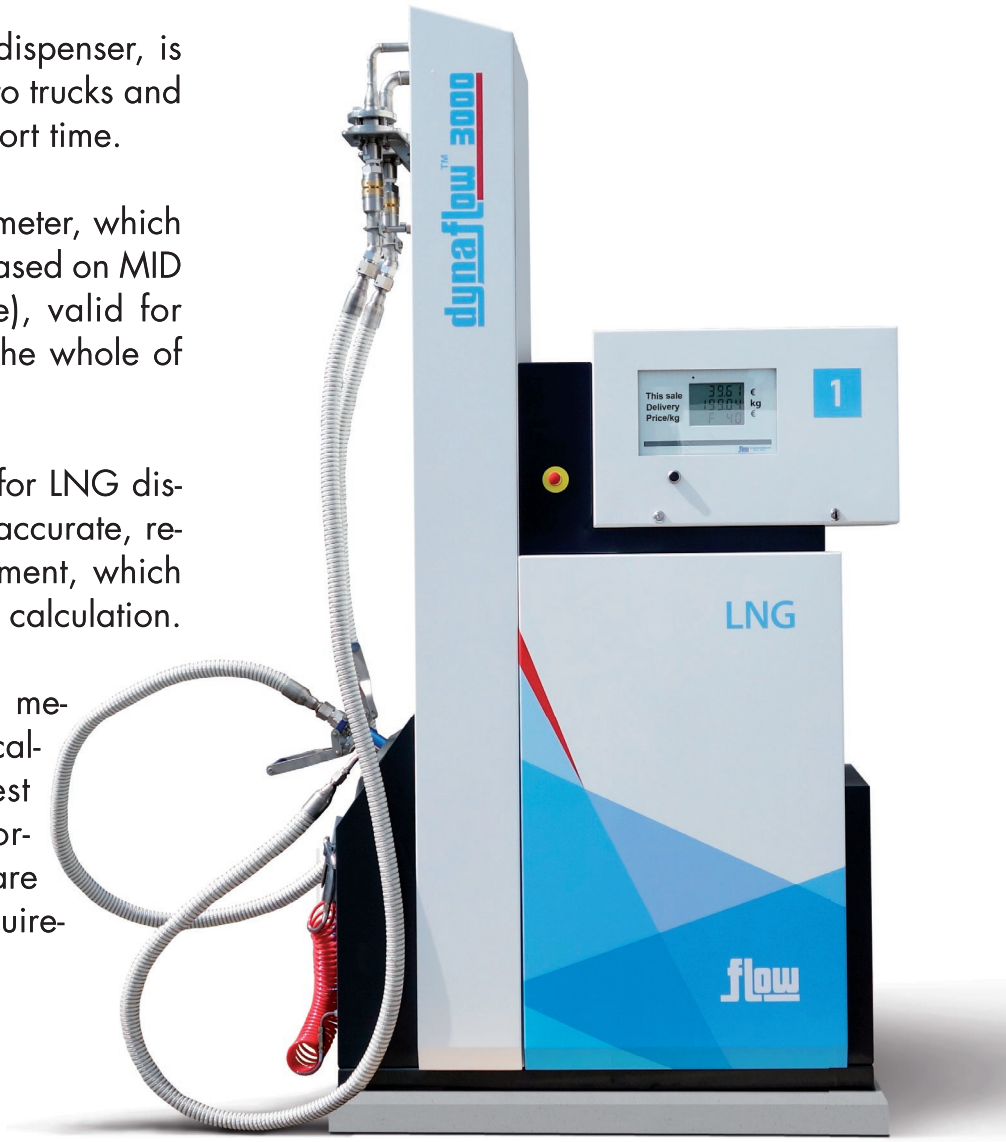
NEW FLOW MEASUREMENT SOLUTION FOR LNG

Flow's **Dynaflow 3000 LNG** dispenser, is designed for delivering LNG fuel to trucks and city buses tanks reliably and in short time.

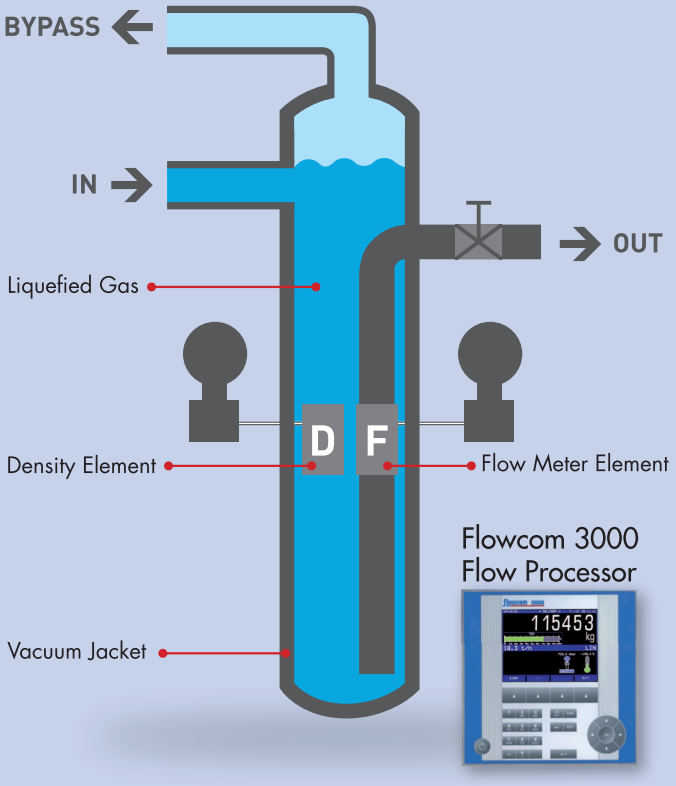
The system includes a mass flow meter, which has an European type approval based on MID (Measuring Instruments Directive), valid for the growing markets throughout the whole of Europe.

Using **dynaflow 3000** meters for LNG dispensing provides operators with accurate, real-time dynamic density measurement, which assures a very accurate mass flow calculation.

Each dispenser is electrically and mechanically pre-tested and factory calibrated. On site performance test validates that the process performances of the refueling stations are met. It fulfills the ATEX safety requirements.



Schematic:



Key facts:

- **High measurement accuracy (0,25%)**
- **European type approval based on MID**
- **High safety level**
- **Fueling and vent back hoses and nozzles with breakaway system**
- **Designed following ATEX and PED**
- **Compressed air hose for purging/cleaning of the JC-Carter nozzles**
- **Digital display for total volume, total price, and price per kg**
- **Ready to connect to electronic payment systems (POS). Different communication protocols available.**
- **Boil-off gas recovery ensuring best commitment to environment**

Features	Advantages/Benefits
• Real-time dynamic density measurement	• Automatically corrects for LNG-composition change • No manual setting needed, eliminates chance for fraud • Consistant accuracy over a wide range of conditions • As accurate, as the Coriolis meters on the market
• No moving parts	• No need to replace metering section during the whole lifetime of the equipment • Reduce lifetime cost • Long term stability
• Permanently submerged metering section	• No pre cooling needed • Allows immediate delivery and measurement • Dramatically reduce recirculation time o Shorter start up time o Startphase in less than a minute • Shorter overall delivery time • Allowed minimum measured quantity is reduced
• No diversion of metered flow	• No bypass after the flow meter • No problems with W&M • No inaccuracy caused by a leaking valve etc. • 100% compliant to all codes (OIML, MID, NTEP, ...)
• Soft start and stop of metering	• Improves the system accuracy dramatically • Accurate metering from the beginning till the end • Lower allowed minimum delivery quantity • Minimizes inconvenient restarts caused by unstable conditions at the start of delivery • Eliminates "ghost flows" at the end of the delivery, caused by pressure spikes

Typical characteristics for LNG station:

Fuelling temperature:	-150°C (cold) to -130°C (saturated)
Fuelling pressure:	3 to 8 bar
Fueling flow at nozzle:	160 l/min (80kg/min)
Average refueling time:	3 minutes for 450l tank
Number of vehicles per hour:	10 vehicles/dispenser

Options:

Dual display
Different types of nozzles

Quality management system as per ISO 9001 : 2008 Certified from TÜV NORD CERT GmbH

Specification: LNG Dispenser type dynaflow 3000-DIS	
LNG Dispenser based on Flowcom 3000 flow processor with dynamic density measuring type dynaflow -3000 and flow meter element based on differential pressure flow measuring.	
Measuring system:	
dp-metering system:	Flowcom 3000
metering section:	SWM 33.7 x 2.6 -12-1773
Flow range:	16 – 80 kg/min (standard LNG)
Density range:	300 – 700 kg/m³
Calculator system:	Betacontrol ADP 1/2T
Communication to POS:	Betacontrol Protocol converter EasyCall – IFSF
Operating conditions:	
Temperature:	-25 - +55°C (-40 - +70°C only as option)
Humidity:	5% - 95% (non condensing)
Vessels and Installation code:	PED
Ex-Proof according to:	ATEX 94/9
	Ex-zone in dispenser "pneumatic/piping" enclosure Ex-zone 2
	electronic box Ex-p.
Additonal safety equipment:	Zones 1, 2, 21, and 22
CDA hose/nozzle	for purging/cleaning of the JC-Carter nozzle
Safety gas return hose:	½" stainless steel hose 3,5 m length, with JC-Carter connection
Dispense hose:	1" stainless steel hose, 3,5 m length with JC-Carter connection
Enclosure Material:	Stainless steel, white painted
Water / Dust protection:	Electronic section: IP54 / Flow meter section: IP44
Dispenser dimensions:	Footprint: 1235x500 mm / Height: 2500 mm / Basis height: 60 mm
Power supply:	230V AC

Full integration into Chart's mobile, easily relocable and permanent LNG fuelling stations.

Other LNG Solutions from Flow Instruments:

Transport • IMC-Station • Truck-Filling • Ship-Filling

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For more Infomation, please have a look to our dynaflow 3000 brochure.