

LPG-Flex®

Flexible reinforced pipe for LPG transport



- Flexible reinforced thermoplastic pipe
- Corrosion resistant
- 35 bar rated pressure
- Lower pressure drop than steel pipe
- Installed in continuous runs
- Reduced installation time from days to hours and reduced installation cost
- Most efficient and safest pipe to install

The logo for CGH Belgium, featuring a stylized blue and yellow circular graphic to the left of the text "CGH" in a large, bold, black font, with "Belgium" in a smaller, italicized black font below it.

LPG-Flex® pipe

Advanced pipes for LPG transport

Based on more than 25 years of experience in non-metallic pipework design and project engineering in both upstream and downstream segments of the Oil & Gas Industry, CGH Belgium offers technology for safe underground LPG transport with an advanced pipe.

The flexible and continuously spooled pipes provide for an extremely rapid installation at a lower cost. The use of advanced polymers and aramid fibre braid ensures corrosion resistance, high strength and a longer lifetime. The LPG-Flex® pipes are installed in continuous runs between tank and dispenser, which eliminates all buried and inaccessible joints. The plastic inner wall is 100 times smoother than steel and smaller pipe diameters will give identical flow results as the typically larger steel pipes and flexible corrugated steel pipes.

LPG-Flex® pipes eliminate the disadvantages of traditional steel pipework, the welding with the required X-ray testing as well as the internal and external corrosion, a major concern of the safety authorities.

Applications

The LPG-Flex® pipes are used for the transport of Liquefied Petroleum Gas (LPG), propane, butane, pentane and dimethyl-ether (DME) in liquid phase as well as in gaseous phase.

Thousands of installations are in use worldwide since 2009 in many applications:

- Autogas installations in service stations of several major oils companies
- Agriculture: poultry + livestock, wheat and corn drying, frost protection
- LPG distribution centres and filling installations for gas cylinders
- Industrial applications: heating, production processes, asphalt mills...
- Heating and cooking applications in hotels in remote areas
- Firefighting training centres
- And many more...

Installation of the fittings

The NPT male thread or flanged fittings are crimped on site or in a workshop by means of a (hand operated) hydraulic radial crimping machine. The crimping action locks the pipe wall and the pipe's braid between the insert and the ferrule, ensuring leaktightness and high mechanical resistance.



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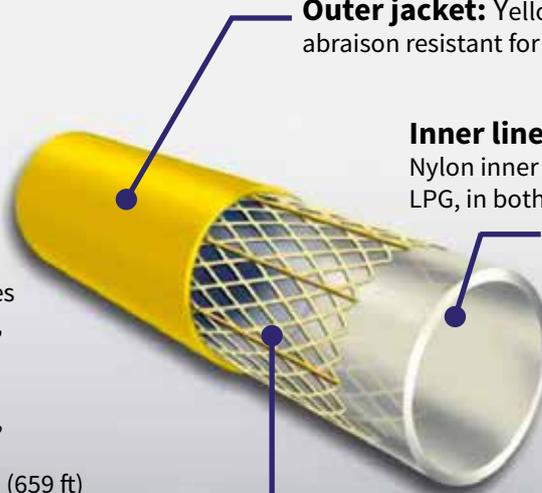
The strength of the pipe is entirely determined by the braid and NOT by the wall thickness, making the LPG-Flex® pipe extremely flexible and easy and fast to install!

Features & composition

- Max. operating temperature: -40 °C to +65 °C / -40 °F to 149 °F
- Pipe braid design strength: 2,2 times the max. operating pressure
- Max operating pressure: 35 bar - 500 psi
- Maximum testing pressure: 52 bar - 760 psi
- Min. installation temperature: 0 °C. Pipe must be heated before uncoiling at low temperatures
- Crush resistance: 25 to 30 kg/cm²/ 284 to 427 psi, depending on the pipe diameter
- Max. pulling force : 5.000 kg - 11,000 lbs
- Standard pipe diameters: DN20, DN25 and DN32, larger diameters on demand
- Disposable reels with a standard length of 200 m (659 ft) or 400 m (1318 ft) with length marks in meter or foot
- Only for buried applications, directly in a trench or in a secondary duct

Outer jacket: Yellow polypropylene, abrasion resistant for braid protection.

Inner liner (Base tube): Nylon inner liner compatible with LPG, in both gas and liquid phase.



Reinforcement: Aramid fiber radial criss-cross braiding provides strength while the longitudinal braiding prevents elongation.

Fittings

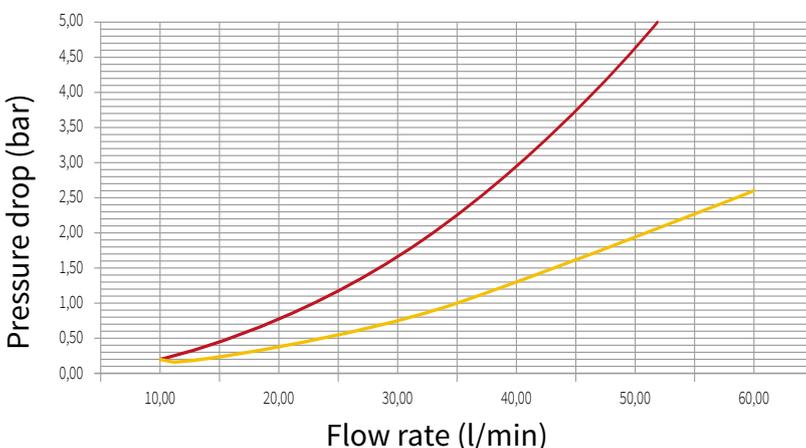
- Insert: carbon steel ending on male NPT thread, stub flange including slip-on flange and O-ring or 500 mm seamless carbon steel pipe. BSPT threads are available on demand
- Ferrule: 304 stainless steel

Product codes and dimensions

Pipe	DN	O.D. mm - inch	I.D. mm - inch	Bending radius m - ft	NPT fitting	Fitting thread	Flange fitting	Tube fitting 500 mm	Tube type
LP1025	20	31,75 - 1 1/4"	22,35 - 0.88"	0,44 - 0.29	MC20075-NPT	3/4"	MC20075-FLA	MC20075-500	22L
LP1050	25	38,10 - 1 1/2"	27,00 - 1.08"	0,62 - 0.42	MC25100-NPT	1"	MC25100-FLA	MC25100-500	28L
LP1075	32	44,45 - 1 3/4"	33,80 - 1.33"	0,70 - 2.29	MC32125-NPT	1 1/4"	MC32125-FLA	MC32125-500	35L

Note: Coupling sleeves are AISI304, inserts are carbon steel. NPT inserts are available in AISI304.

Add -SS to the reference for stainless steel NPT inserts, e.g. MC20075-NPT-SS.



Plastics are about 100 times smoother than steel. The smaller LPG-Flex® pipes will give identical flow results than the typically larger steel pipes.

This pressure drop chart is based on a typical 80 m DN20 pipe run at different flow rates.

LPG-Flex® pipe: Steel tubing:

LPG-Flex®



LPG-Flex®

Certification

The LPG-Flex® pipes meet the new EN 16125 standard.

The LPG-Flex® pipework has successfully passed different national test procedures, including pressure hold tests at temperatures down to -40 °C, burst tests, corrosion resistance, dielectric resistance and low temperature bending tests.

Since 2009, the pipes are introduced and installed in more than 20 countries worldwide and different test reports are available (Italian Ministero dell'Interno, LNE in France, Polish Oil & Gas Institute...)

In Europe, DN20 and DN25 pipes do not fall under the PED. A Bureau Veritas signed manufacturer's declaration to EN 10204-3.2 is provided. DN32 pipe falls under the PED.

A manufacturer's CE-Declaration of conformity according to directive VII 97/23/EG Module A1 is available. LPG-Flex® pipe contractor training and certification is always done under the supervision of engineers from CGH Belgium or from officially recognized local LPG-Flex® distributors.



The picture shows a setup of a dielectric test of the LPG-Flex® pipe by a third party lab to meet the new EN 16125 Standard.

To meet the standard, the walls of a non-metallic LPG pipe must pass a 100 kV DC test.

The test results: LPG-Flex® pipe walls do not exhibit dielectric breakdown at voltages up to 140 kV DC.

The elimination of both welding and internal and external corrosion of steel pipes increases the safety of the LPG installations, the authority's most important objective.

This, combined with the reduced installation time and cost, makes LPG-Flex® piping the safest and most cost efficient pipework to install!

Under and above ground tanks

CGH Group offers under- and aboveground LPG tanks from 9 to 200 m³

- Tank diameters from 1.250 mm to 3.200 mm
- External coating: anticorrosive protection – Endoprene high density polyurethane coating for underground tanks
- Arc Welding Technology
- Produced according to EU standards (PED 97/23/EC, AD2000)



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