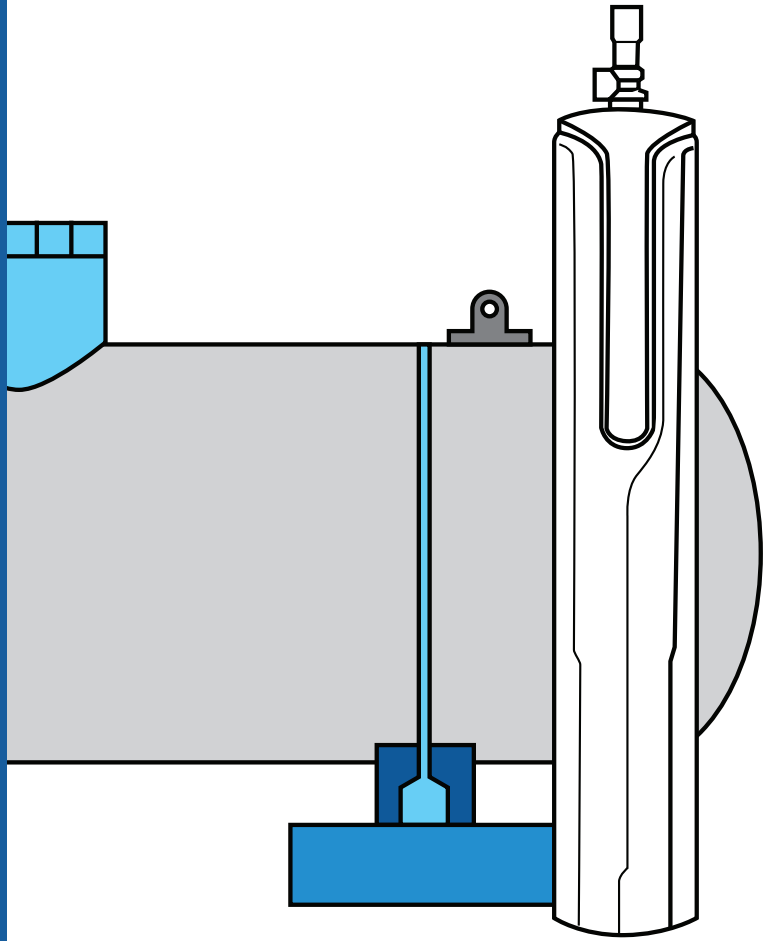
KC ProSupply

LPG Vaporiser

An investment that will secure your profit

LPG
EXCEPTIONAL ENERGY



Who needs a vaporiser? And why is it important?

"Vaporisers are only for cold climates" An often-heard statement and common knowledge since, well, forever. But what if we told you that is a common misconception?

According to popular belief, a mild climate with relatively stable temperatures makes vaporisers unnecessary as it provides enough energy to keep the natural vaporisation going inside an LPG tank. And yes, you can get by without a vaporiser. So why do we still claim the myth to be false? Simply because a vaporiser is the ultimate cost-saving device. Read on, and we will show you why.

Vaporiser ABC

Welcome to chemistry class

In order to fully understand the benefits of a vaporiser, we need to start by looking at how vaporisation actually works and why it is necessary.

Essentially, vaporisation is a phase change from liquid to vapour. Since it is transported and stored as a liquid under pressure, LPG must be converted to vapour before being combusted by LPG-consuming equipment. Insufficient vapour pressure will cause the equipment to shut down or produce less energy than required.

Vaporisation requires energy

With natural vaporisation, the phase change occurs within the tank and the gas leaves the tank as a vapour. When you draw gas from the tank, the pressure inside it drops and the liquid starts boiling. Part of the liquid then vaporises, pressure is restored and the liquid stops boiling. High ambient temperature increases the rate of vaporisation and thereby the outlet pressure. The higher the pressure, the more LPG you can draw from the tank.

If, on the other hand, the ambient temperature is too low, the system pressure drops because of a lack of natural vaporisation, in which case you may not be able to draw as much LPG as you need to run your equipment.

Tank size and liquid level play a crucial role

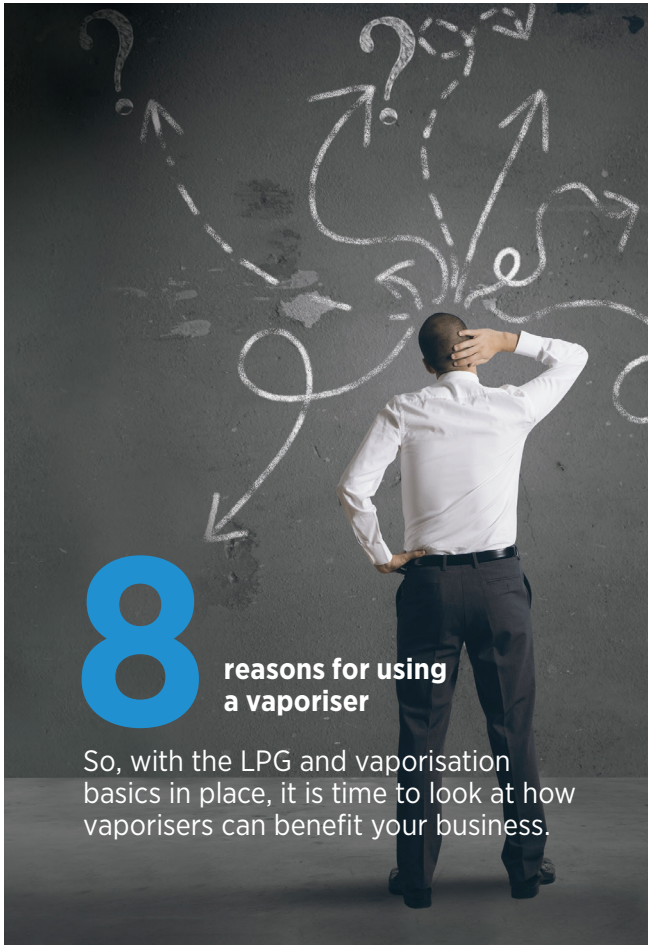
The energy (i.e. heat) needed for natural vaporisation is transferred from the surroundings through the tank walls to the liquid inside. The surface where the liquid LPG is in contact with the tank walls is also known as the heat transfer area. This area becomes smaller the less LPG is in the tank.

As the liquid level decreases, the tank temperature – and with it the outlet pressure – drops until reaching a point where the tank is too cold for any natural vaporisation to take place. The lower limit can be up to 30 percent, which means that about one third of an LPG tank's capacity is actually useless – but you still pay for it.

Vaporisation by means of a vaporiser

Whereas natural vaporisation occurs within the tank, a vaporiser moves that process outside the tank. That means that instead of extracting vapour, you extract liquid LPG.

As explained above, vaporisation is necessary in order for you to draw LPG from your tank. The question now is whether you can rely on natural vaporisation or you need a vaporiser.



8 reasons for using a vaporiser

So, with the LPG and vaporisation basics in place, it is time to look at how vaporisers can benefit your business.

Here are the 8 most compelling reasons for installing a vaporiser:

1. **Higher capacity (kg LPG/h) without investing in new tanks**
   If you rely on natural vaporisation, there are only two ways to increase capacity: To install a bigger tank or add more tanks. A vaporiser lets you draw as much LPG as you need from the tank – even the 30% which would be left unused when using natural vaporisation only.

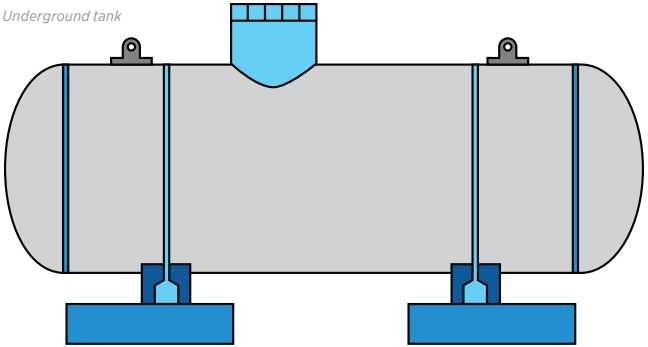
2. **Stable production all the time**
   As mentioned before, natural vaporisation causes pressure drop and reduced capacity. The stable pressure provided by a vaporiser allows you to adjust your burners more accurately while avoiding the risk of your equipment unexpectedly shutting down or producing less energy than required.

3. **Less tank filling operations**
   No "useless" tank capacity means fewer deliveries and larger volume per delivery to the benefit of both gas retailers and consumers. As any transfer of gas from one vessel to another constitutes a potential risk, it is good for safety too. Add to that the environmental bonus of fewer emissions during transfer, and we certainly have a winner.

4. **Makes it easier to use low-price butane**
Ok, back to chemistry class for a second. When mixed with propane, butane reduces the natural vaporisation rate and the tank outlet pressure. That is because butane is less volatile than propane and boils at -0.5°C whereas propane boils at -42°C. A vaporiser makes it easier to use a mixture of butane/propane or pure butane – and both are cheaper than pure propane. The vaporiser also prevents accumulation of butane, caused by its higher boiling point, so you can maintain a homogenous mixture.

5. **No accumulation of oil and heavy ends in the tank**
When drawing liquid LPG from the tank into the vaporiser, any impurities in the gas are caught by a filter in the pipeline instead of accumulating as residue and reducing vaporising capacity. This makes potentially dangerous tank draining procedures unnecessary.

6. **Higher capacity (kg LPG/h) when using underground tanks**
Safety concerns and local regulations make the use of underground tanks widespread in certain areas, and from a safety perspective they are a very good choice. But since an underground tank cannot absorb as much heat from its surroundings as its above-ground counterparts, its capacity is much lower when relying on natural vaporisation.



7. **Increased tank lifetime**
Natural vaporisation makes the tank surface cold and covered in dew; the perfect conditions for algae and rust. A vaporiser can help reduce maintenance costs and extend the lifetime of the tank.

8. **Savings on pipe installations**
Placing the vaporiser close to the consuming equipment lets you have liquid pipelines almost all the way. And as they can be designed with a smaller diameter, they cost less. Even vapour pipelines can be downsized due to more stable pressure.

How to know if your tank needs a vaporiser?
When estimating whether your business would in fact benefit from having a vaporiser installed, the decision is based on a worst case scenario estimate. In other words, we estimate the natural vapour ability of your equipment at the least favourable conditions to ensure that your production will be running no matter what happens, i.e. the lowest temperature your tank will reach and the maximum capacity you will need to draw from your tank and therefore the minimum level of LPG in the tank.

Please contact KC ProSupply if you think that a vaporiser may be just what your business needs in order to reach its full potential. The following 'Data detection scheme' helps us to estimate your business' needs by filling out the grey spaces.

For further information on vaporisers,
please call your nearest KC ProSupply office:
KC ProSupply Denmark: Tel +45 8644 8734
KC ProSupply Portugal: Tel +351 220 938 677
KC ProSupply UK: Tel +44 1792 224 000
KC ProSupply Argentina: Tel +54 (911) 3953-1717

Or send us an e-mail: kcprosupply@makeenenergy.com

We will be pleased to guide you in your decision.

Data detection scheme

Product	Vaporisers	KC ProSupply
Sales rep.		
Customer		Date of request
Quantity		Delivery date

	✓				
1. Energy need		1A		kg LPG per hour	or
		1B		kW per hour	or
		1C		BTU/h	
2. Specification needs		2A	ATEX		
		2B	CE		
		2C	FM		
		2D	None		
3. Gas mixture		3A		% propane	
		3B		% butane	
4. Electrical power available		4A	None		
		4B	1 x 220-240 VAC		
		4C	3 x 400 VAC		
		4D	Other		
5. Location of vaporiser		5A	In building		
		5B	Next to building or tank		
		5C	Away from tank or building		
6. Temperature range		6A		minimum °C	
		6B		maximum °C	
7. Other equipment needed for the vaporiser installation		7A	Electrical connection kit		
		7B	Strainer		
		7C	Values before and after vaporiser		
		7D	Stand (for Torrexx)		
		7E	Economy valve		
		7F	Heavy end drain kit		

KC ProSupply

KC ProSupply is MAKEEN Energy's trading division. We offer a wide range of gas equipment and components along with expert guidance from the beginning to the end of your project. In that way, we provide you with much more than just a product.

Our one-stop shop philosophy makes the world of gas components as convenient and efficient as it should be. Our many warehouses around the world are stocked with products from our global network of leading manufacturing partners. This allows us to offer high-quality gas equipment at competitive prices with short delivery time.

We have decades of practical experience with design, installation and servicing of gas equipment which means that we can expertly assist you with any challenge you face. The result is an ideal and safe solution for your business – every time.

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