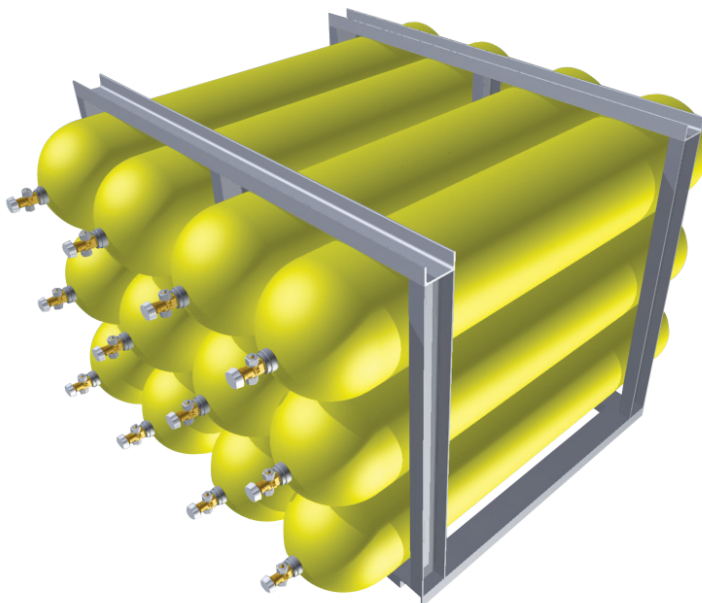
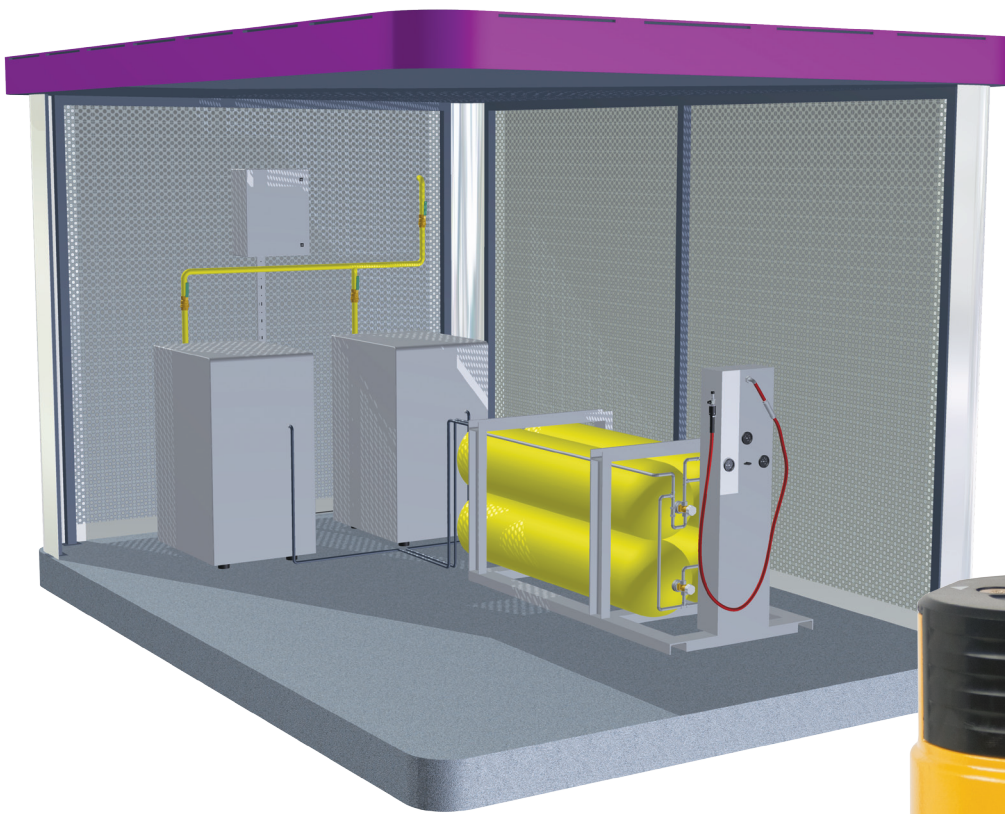


# CNG - Compressed natural gas

## Product overview



# MICRO CNG STATIONS

flow rate	5 to 40 Nm <sup>3</sup> /h
storage capacity	280 to 1680 l

## APPLICATIONS

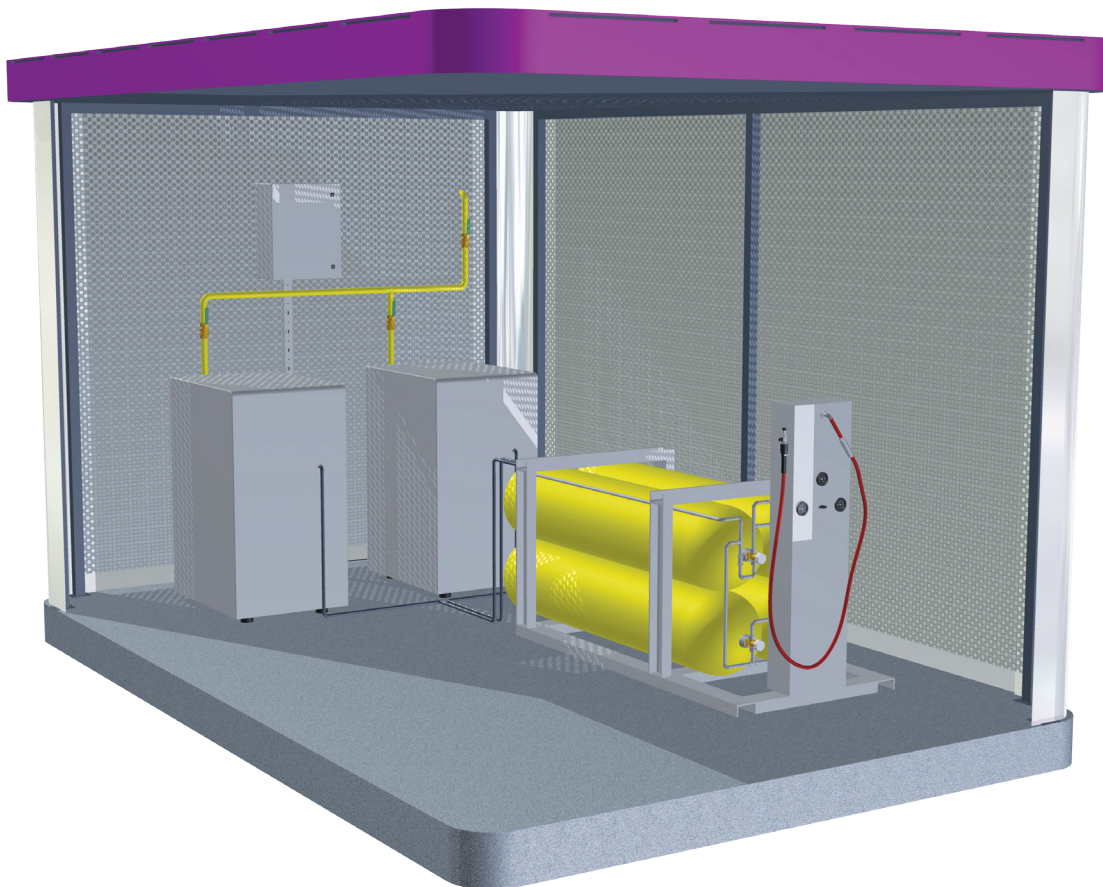
- Filling of CNG to passenger cars, vans, forklifts...

## DESCRIPTION

CNG (compressed natural gas) filling stations are used for filling of CNG powered vehicles. In CNG filling station compressor compresses the natural gas from pressure of 0,02-0,2 bar (domestic gas supply system) to 200-250 bar which is used to fill a storage tank in vehicle. There are two different technologies used in CNG filling stations.

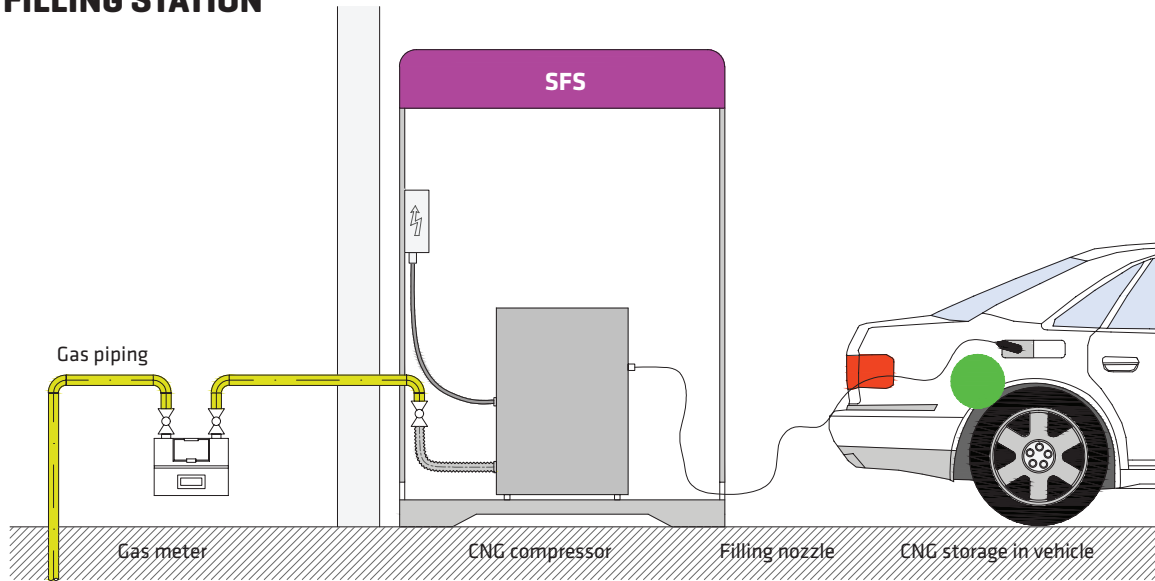
Slow filling station use compressor to compress the natural gas directly into the car CNG tank. This technology is used in small fleet of vehicles that are not used constantly.

In fast filling station the compressor compresses the natural gas to pressure storage tank. Compressing of natural gas to storage tank is made before filling of the car therefore storage tank is constantly full and available for filling. This technology is used in a larger fleet of vehicles and in public filling stations.



# SFS

## SLOW FILLING STATION

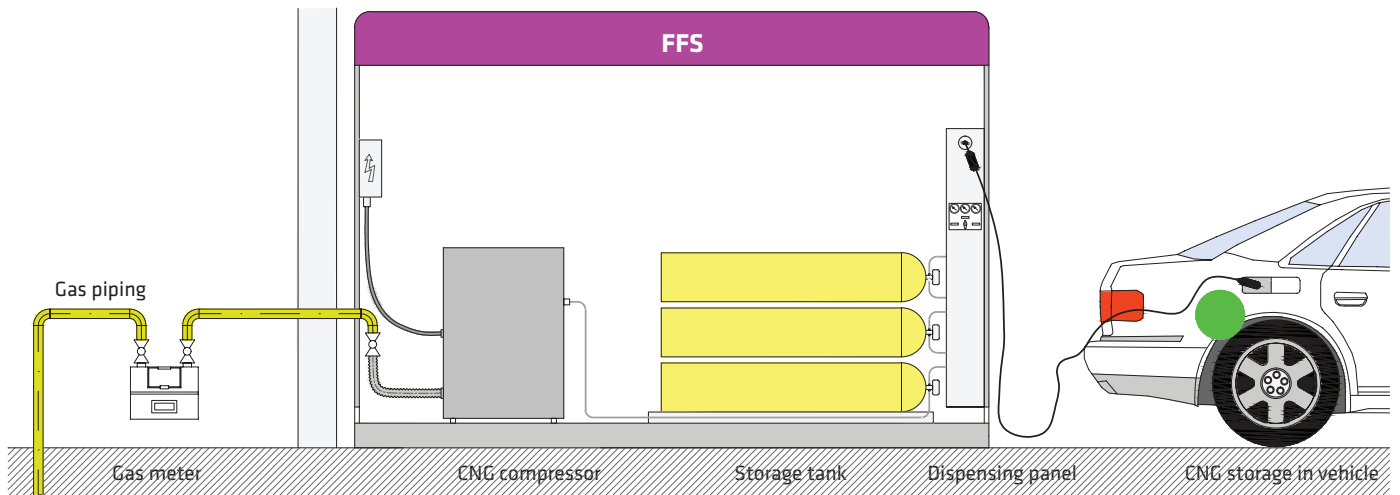


### TECHNICAL DATA

Type	Flow rate	Electric power	Inlet pressure	Maximum output pressure	Storage capacity
SFS 05	5 Nm <sup>3</sup> /h	2,2 kW/400V/230V	20 - 200 mbar	235 bar	without
SFS 10	10 Nm <sup>3</sup> /h	4,0 kW/400V/230V	17 - 200 mbar	250 bar	without
SFS20	20 Nm <sup>3</sup> /h	9,0 kW/400V/230V	17 - 300 mbar	250 bar	without

# FFS

## FAST FILLING STATION



### TECHNICAL DATA

Type	Flow rate	Electric power	Inlet pressure	Maximum output pressure	Storage capacity
FFS 1C05 280	5 Nm <sup>3</sup> /h	1x2,2 kW/400V/230V	20 - 200 mbar	235 bar	280 l
FFS 1C05 560	5 Nm <sup>3</sup> /h	1x2,2 kW/400V/230V	20 - 200 mbar	235 bar	560 l
FFS 2C05 560	10 Nm <sup>3</sup> /h	2x2,2 kW/400V/230V	20 - 200 mbar	235 bar	560 l
FFS 1C10 840	10 Nm <sup>3</sup> /h	1x4,0 kW/400V/230V	17 - 200 mbar	250 bar	840 l
FFS 2C10 840	20 Nm <sup>3</sup> /h	2x4,0 kW/400V/230V	17 - 200 mbar	250 bar	840 l
FFS 1C20 1680	20 Nm <sup>3</sup> /h	1x9,0 kW/400V/230V	17 - 300 mbar	250 bar	1680 l
FFS 2C20 1680	40 Nm <sup>3</sup> /h	2x9,0 kW/400V/230V	17 - 300 mbar	250 bar	1680 l

# CNG HIGH PRESSURE COMPRESSORS

## MJC 05



### TECHNICAL DATA

Dimensions	780 x 600 x 1050 mm
Weight	135 kg
Electrical power	3 x 400V / 50Hz
Gas flow	5 m <sup>3</sup> /h
Gas input pressure	0,02 to 0,2 bar
Max. output pressure	235 bar
Operating temperature	-20°C to 50°C
Noisness (5 m distance)	65 dB

## MCH 10



### TECHNICAL DATA

Dimensions	670 x 700 x 1050 mm
Weight	180 kg
Electrical power	4 kW (400V / 50Hz)
Gas flow	10 m <sup>3</sup> /h
Gas input pressure	0,17 to 2 bar
Max. output pressure	200 or 250 bar
Operating temperature	-20°C to 50°C
Noisness (5 m distance)	65 dB

## MCH 20



### TECHNICAL DATA

Dimensions	1330 x 820 x 1790 mm
Weight	420 kg
Electrical power	9 kW (230/400V / 50Hz)
Gas flow	20 m <sup>3</sup> /h
Gas input pressure	0,17 to 3 bar
Max. output pressure	200 or 250 bar
Operating temperature	-20°C to 50°C
Noisness (5 m distance)	70 dB

# CNG FILTERS

## GHF 50

50 bar



### CAST ALUMINIUM CNG FILTERS

Max. operating pressure	50 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	71 - 2760 Nm <sup>3</sup> /h
Connections	1/2" - 3"

## GPft 50

50 bar

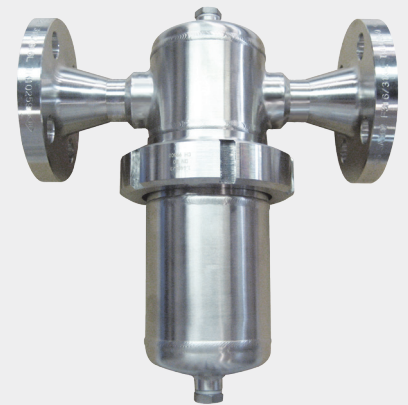


### STAINLESS STEEL CNG FILTERS

Max. operating pressure	50 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	60 - 2760 Nm <sup>3</sup> /h
Connections	3/8" - 3"

## GPff 50

50 bar



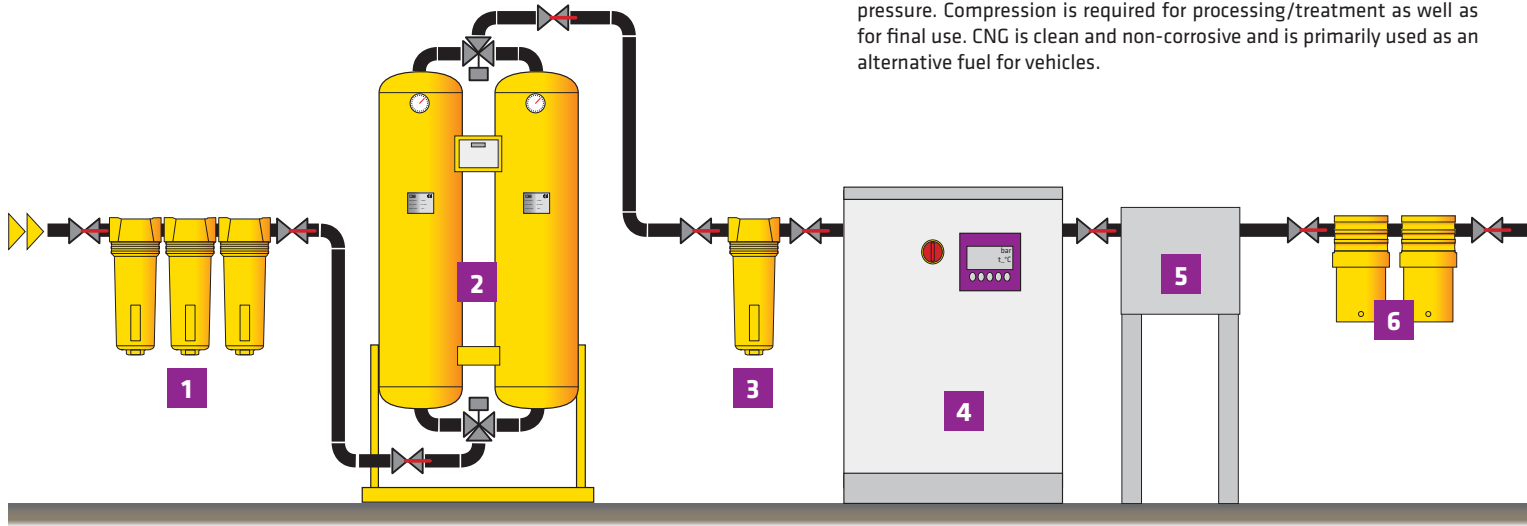
### STAINLESS STEEL CNG FILTERS

Max. operating pressure	50 bar
Operating temperature range	0 - 150°C
Flow rate at 7 bar(g)	150 - 21120 Nm <sup>3</sup> /h
Connections	DN15 - DN200

# CNG FUEL STATION LAYOUT

## What is Compressed Natural Gas (CNG)

CNG is natural gas (mainly consist of Methane) compressed to a higher pressure. Compression is required for processing/treatment as well as for final use. CNG is clean and non-corrosive and is primarily used as an alternative fuel for vehicles.



### 1 Low pressure filtration stage 1

The first stage of filtration should include filters that effectively remove pollutants from CNG:

- solid particles,
- oil,
- condensate.

### 2 CNG dryers

Natural gas dryers remove water vapor prior to storing or using natural gas for a vehicle fuel. High water content can cause blockage of CNG in fueling systems and can contribute to corrosion in storage vessels and piping.

### 3 Low pressure filtration stage 2

Low pressure filter installed downstream of the desiccant dryer removes solid particles, resulting from the desiccant bed.

### 4 CNG high pressure compressor

CNG compressors enable compression of the gas to a higher pressure stage.

### 5 Aftercooler

A great amount of heat is transferred to CNG during compression to high pressure. Aftercooler is used for lowering the temperature of CNG.

## GAHP 64

64 bar



### ALUMINIUM CNG FILTERS

Max. operating pressure	64 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	30 - 720 Nm <sup>3</sup> /h
Connections	3/8" - 2"

## GCHP 100-250-350-420

100-250-350-420 bar



### CARBON STEEL CNG FILTERS

Max. operating pressure	100-250-350-420 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	40 - 715 Nm <sup>3</sup> /h
Connections	1/4" - 2"

## GAHP 250m

250 bar

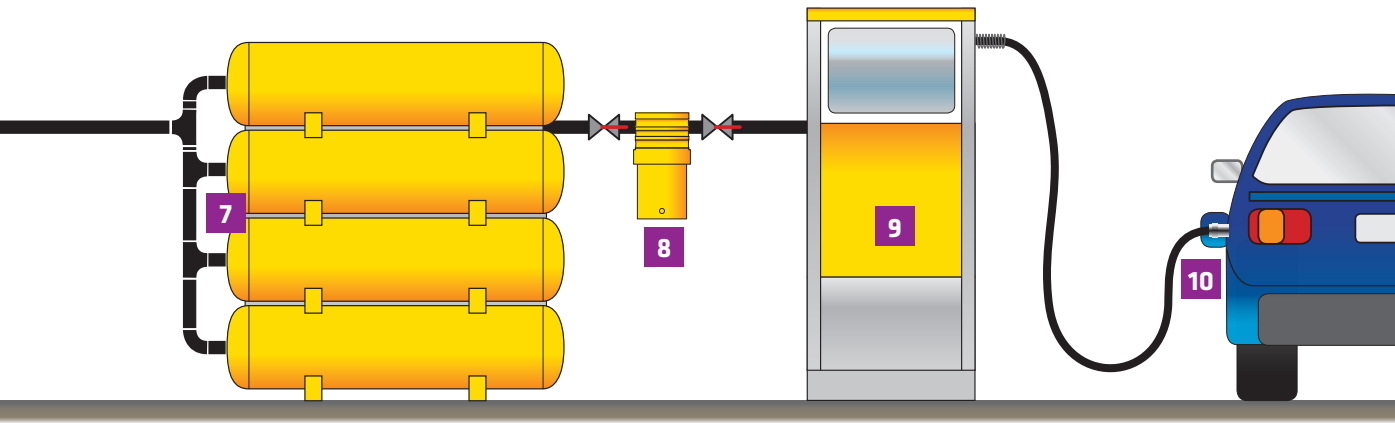


### ALUMINIUM CNG FILTERS

Max. operating pressure	250 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	Nm <sup>3</sup> /h
Connections	1/8"

## Compressed Natural Gas Treatment

Natural gas in pipelines contains impurities such as solid particles and certain amount of water vapour. After compression there is also oil aerosol present. In order to achieve required quality of CNG proper gas treatment needs to be provided. Gas treatment mainly refers to filtration with CNG filters and drying with CNG dryers. Complete installation is normally equipped with several different filters which are selected based on operating pressure, flow and filtration grade.



### 6 High pressure CNG filters

High pressure filters must be installed at the outlet of the compressor, which remove oil and oil vapor coming from the compressor. Filters should be superfine and activated carbon type.

### 7 Storage vessel system

Compressed natural gas is stored at high pressure stage.

### 8 High pressure CNG filter

High pressure CNG filter eliminate solid particles and oil vapours generated by compressor during underground transit. Filter must be installed before CNG is transported from storage to dispenser.

### 9 CNG dispenser

High efficiency high pressure coalescer filters are installed inside the CNG dispenser for extra protection of very sensitive equipment inside the dispenser. They also prevent oil from entering into the vehicle.

### 10 Final stage - safe distribution into vehicles

Compressed natural gas is now purified, on high pressure stage and it is ready for use in vehicles.

## GAF 6

6 bar



### CAST ALUMINIUM CNG FILTERS

Max. operating pressure	6 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	60 - 2760 Nm <sup>3</sup> /h
Connections	3/8" - 3"

## GBF 6

6 bar



### WELDED CARBON STEEL CNG FILTERS

Max. operating pressure	6 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	1680 - 31400 Nm <sup>3</sup> /h
Connections	DN80 - DN300

## GCF 20

20 bar

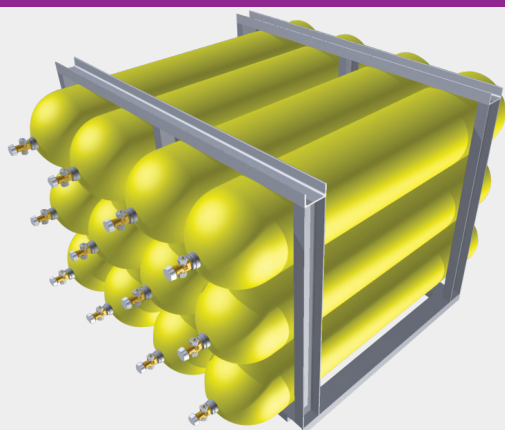


### CAST ALUMINIUM CNG FILTERS

Max. operating pressure	20 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	72 - 2760 Nm <sup>3</sup> /h
Connections	3/8" - 3"

# CNG STORAGE SYSTEM

## GS SERIES



### TECHNICAL DATA

Type	GS 280	GS 560	GS 840	GS 1680
Number of cylinders	2	4	6	12
Cylinder volume	140 L	140 L	140 L	140 L
Total volume	280 L	560 L	840 L	1680 L
Dimensions (LxBxH)mm	1780 x 840 x 470	1780 x 840 x 840	1780 x 840 x 1200	1780 x 1630 x 1200
Weight	385 kg	720 kg	1050 kg	2060 kg
Operating temp.	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Max. oper. pressure	250 bar	250 bar	250 bar	250 bar

# CNG DISPENSER

## SINGLE / TWIN



### TECHNICAL DATA

Type	SINGLE/TWIN
Maximum flow rate	30 / 80 / 100 kg/min
Minimum flow rate	0,3 / 0,8 / 1,0 kg/min
Minimum dispensed volume	2 / 2 / 5 kg
Operating ambient temperature	-30 to +55°C
Minimum operating pressure	7,0 MPa
Maximum operating pressure	25,0 MPa
Hose lenght	4 m

## GLF 25

25 bar



### CAST ALUMINIUM CNG FILTERS

Max. operating pressure	25 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	71 - 2760 Nm <sup>3</sup> /h
Connections	1/2" - 3"

## GBF 25

25 bar



### WELDED CARBON STEEL CNG FILTERS

Max. operating pressure	25 bar
Operating temperature range	1,5 - 65°C
Flow rate at 7 bar(g)	1680 - 31400 Nm <sup>3</sup> /h
Connections	DN80 - DN300

## GPF 25

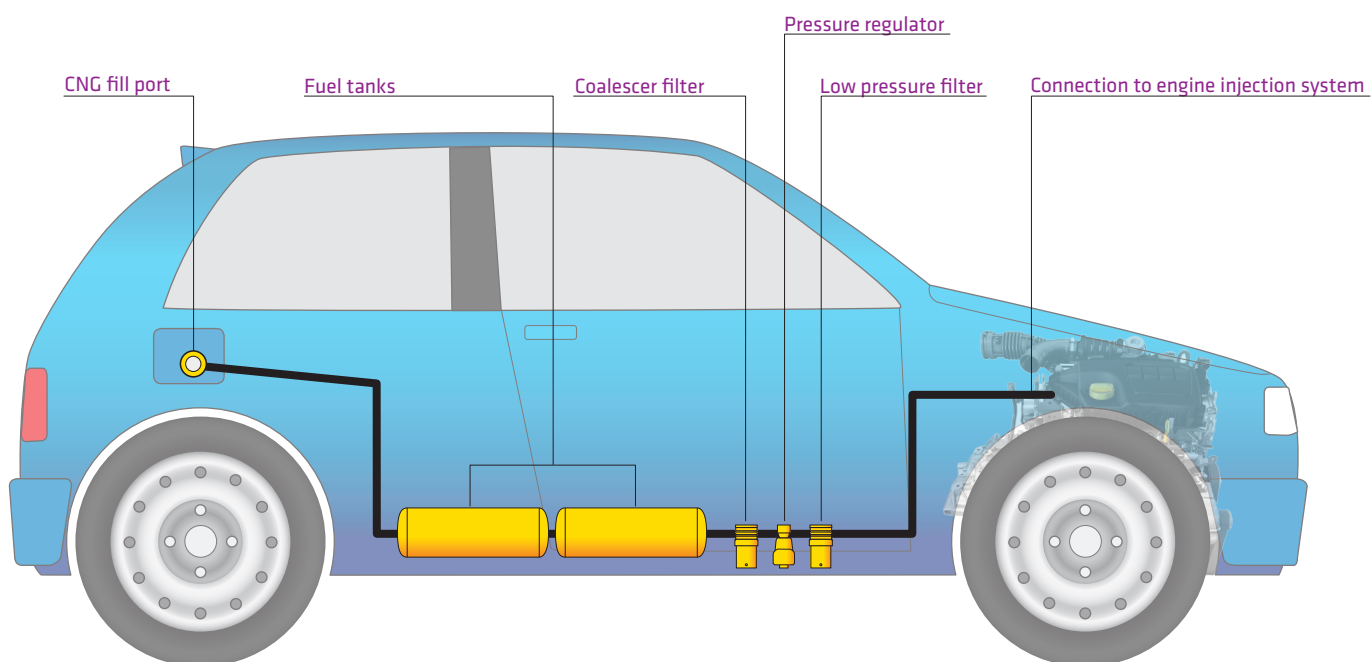
25 bar



### STAINLESS STEEL CNG FILTERS

Max. operating pressure	25 bar
Operating temperature range	0 - 150°C
Flow rate at 7 bar(g)	75 - 3600 Nm <sup>3</sup> /h
Connections	1/4" - 3"

# CNG VEHICLES INSTALLATION LAYOUT



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