# NK Group provides total solution for Green Energy

### ENK

- CNG Fuel Tank

Gas Logistics by Tube Trailer for CNG & Industrial Applications

- Plant Engineering

- CNG Mother / Daughter Station

### NKSH

### NKSH in Shanghai, China

- Jumbo Tube Production & Sales - Jumbo Tube Retest Center

### GESKO

- Special Gas & Conversion Kit - Service Engineering - Sales Spare Parts

### NK 1st Factory(Shinpyeong)

NK 1st Factory(Shinpyeong) in Busan, Korea

- Fire Fighting & Safety System
- High Pressure Vessel
- CNG Carriers
- Ballast Water Treatment System
- Offshore Equipments

### NK 2nd Factory(Noksan)

NK 2<sup>nd</sup> Factory(Noksan) in Busan, Korea

- Jumbo Tube / Tube Trailers
- Y-Ton Tank
- ASME Storage Cylinders

### NKTECH

### NKTECH in Osan, Korea

- Equipments & Facilities for Plant
- CNG & Industrial Cylinder Sales
- Cylinder Retest Center

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# **TOTAL SOLUTION** FOR **GREEN ENERGY**











# Manufacturing Process





ENK has the world leading technology and manufacturing facilities to produce mass quantities of high pressure cylinders with ordinary or highly durable super-light weight for special use of the alternative energy, fire fighting, medical service, scuba system, aircraft and aerospace system as well as industrial gas by not only processing of seamless pipe but also the most innovated processing of Cold and Hot Deep Drawing & Ironing from high tensile strength steel with or without reinforced fiber glass.

## **ENK Global Network**



# **Product Specification**

# COMPRESSED NATURAL GAS CYLINDER

Material	PIPE	PLATE
Process	Seamless Pipe Spinning	Deep Drawing Ironing
Usage	NGV Fuel Tank, Industrial	NGV Fuel Tank
Specification	- Outer Diameter: Ø232~406mm - Volume: 20~200Liter - Pressure: 200~300Bar	- Outer Diameter : Ø232~406mm - Volume : 20~200Liter - Pressure : 200~300Bar
Feature	Cost Effective	Weight Effective

## Type-1 Cylinder

CNGType-1 cylinder for Natural Gas Vehicle is made from seamless pipe or high tensile strength steel with reasonable price and mainly used for long term filling on vehicle to contain CNG fuel.

# How to Assure Our Quality















Quality Management System Approval

- NK & ENK Quality Management System has been certified according to ISO 9001 / 2000, TS16949.
- > Appropriate approvals for manufactured products have been acquired from Authorized Inspection Agencies, certificates according to US-DOT, ISO, ANSI / NGV2, ECE-R-110 and the other special authorities.

Design Criteria

Cylinders are designed to satisfy international code & standards including ISO, DOT, BV, DNV, TPED, GL, RINA, CCS, NK, KR, CSI etc.



### Type-1 Cylinder Cascade



# Super Lighter Type-1 Cylinder

The weight to volume ratio of super-light Type-1 Cylinder is 25% much lighter than ordinary Type-1 Cylinder.

Upgraded steel strength with 1100MPa up to 17% makes super-light Type-1 Cylinder lighter and provides better quality and reliability than typical Type-2 Cylinder.

# **Product Specification**

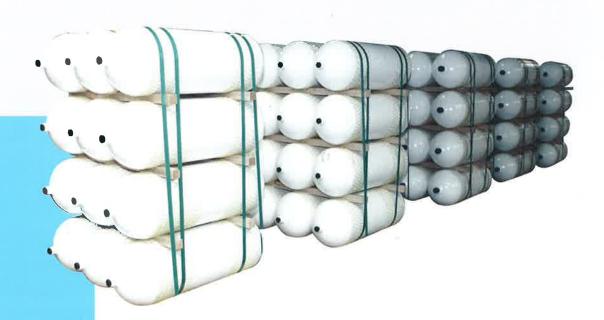
# COMPRESSED NATURAL GAS CYLINDER

# Type-1 Cylinder

CNG Type-1 cylinder for Natural Gas Vehicle is made from seamless pipe or high tensile strength steel with reasonable price and mainly used for long term filling on vehicle to contain CNG fuel.

	MODEL	Max. Filling Pressure		Out Diameter		Length	
	Liter	psig	bar	inch	mm	inch	mm
1	50L	2900	200	9.1	232	57.6	1465
2	60L	2900	200	12.7	323	38.1	970
3	65L	2900	200	14	356	35.4	900
4	70L	2900	200	14	356	36.4	925
5	90L	2900	200	14	356	47.2	1200
6	90L	2900	200	16	406	36	915
7	100L	2900	200	14	356	51.2	1300
8	100L	2900	200	16	406	39.3	1000
9	130L	2900	200	16	406	51.1	1300
10	145L	2900	200	14	356	69.3	1760

<sup>\*</sup> Please contact sales team for further specs.



### Type-1 Cylinder Cascade



# Super Lighter Type-1 Cylinder

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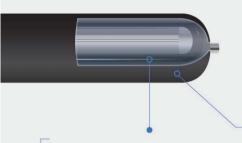
Upgraded steel strength with 1100MPa up to 17% makes super-light Type-1 Cylinder lighter and provides better quality and reliability than typical Type-2 Cylinder.

## Type-2 Composite Cylinder

CNG cylinder with lighter weight & energy economy provides consistence in appearance and in performance by hoop-wrapped steel liner with glass fiber.



## Type-3 Composite Cylinder



Lighter & stronger Type-3 Cylinder consists of the composite of thin wall Aluminum or steel liner with fully wrapped high strength carbon fiber.

- ENK Type-3 cylinder design is optimized for passenger car.
- Much lighter than other type cylinder in the market.

Seamless Thin Wall Aluminum Liner



High Strength Carbon Fiber Fully Wrapped with Toughened Epoxy



## Tube trailer & y-ton

## **Gas Logistics**

Jumbo Cylinder is the best solution to transport large volumes of gas to the areas where there is no infrastructure of gas supply. As it can store high pressure gas up to 250 bar, large quantities of gas can be stored and transported by combining or assembling these multiple cylinders into one module. It is also applicable for CNG carrier / ship, IMDG transportation, ASME storage Cylinder, Y-Ton, high pressure vessel for off-shore and aerospace.



# PLANT ENGINEERING

for Cylinder Manufacturing Factory



ENK has the proven record for several plant engineering turn-key projects focusing on the solution of Gas Cylinder Manufacturing Facilities and test facilities for Deep Drawing & Ironing as well as Seamless pipe and Billet process. ENK also provides the engineering techniques including facilities for cylinder retesting center, CNG mother / daughter station, Tube Trailer assembly shop and Conversion Kit over 30 years experience and know-how.

ENK can provide not only flexible customized engineering techniques and solutions to our customers but also joint-operation for plants or facilities after their completion.





# HIGH PRESSURE CYLINDER

for Industrial Applications & Fire Fighting

# Specification

> Outer Diameter : Ø124~280mm

Volume: 3.34~95LiterPressure: 147~300Bar

# RAW MATERIAL SUPPLY



	MODEL		DOT/TC Max. Filling Pressure		UN/ISO Max. Filling Pressure		Out Diameter	
	11(3) m	Carl III Same	11111	bar	psig	bar	inch	mm
1	8.2L	40cf	2015	139	2235	154	7	178
2	10.82L	55cf	2015	139	2235	154	7	178
3	15.74L	80cf	2015	139	2235	154	7	178
4	21.6L	125cf	2265	156	2524	174	7	178
5	27L	150cf	2015	139	2235	154	7.4	188
6	43.3L	250cf	2265	156	2524	174	9.1	232
7	49L	300cf	2400	166	2668	184	9.1	232

<sup>\*</sup> Please contact sales team for further specs.

# for Cylinder Manufacturing Factory



ENK has the proven record for several plant engineering turn-key projects focusing on the solution of Gas Cylinder Manufacturing Facilities and test facilities for Deep Drawing & Ironing as well as Seamless pipe and Billet process. ENK also provides the engineering techniques including facilities for cylinder retesting center, CNG mother / daughter station, Tube Trailer assembly shop and Conversion Kit over 30 years experience and know-how.

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