HANA
High Quality We Always Dream

LPG & CNG PRODUCT CATALOGUE

PRO-ENVIRONMENT & NON-POLLUTION

Content

HANA, A company specializing in LPG & CNG vehicle system parts

HANA is a global company that professionally manufactures and exports the main equipment and system for LPG/CNG/LNG gas vehicle systems such as INJECTORS, REDUCERS, SOLENOID VALVES, etc.

Greeting

Setting new standards in quality & performance

It is **HANA** !

Since its foundation in 1998, HANA EMS, a company specializing in LPG & CNG vehicle system components, has grown into a global corporation through diversification and specialization of products based on its excellent technology. As a global leader in gas injectors today, HANA EMS produces alternative fuel solution that meets the demand of customers.

HANA's corporate philosophy is to realize customer satisfaction by offering products with the highest quality and high reliability at reasonable prices in the spirit of challenge, pioneering, and creativeness.

We have a full lineup of GAS automotive products such as INJECTOR, REDUCER, SOLENOID VALVE and so on. It designs and manufactures all products based on its technology, knowledge, accumulated experience and know-how and our products are applied to all the vehicles in the world. We are developing and producing the products in all processes from product planning to development and production with accurate and reliable ALL-IN-ONE solution and provide our customers with technological solutions and innovations.

HANA cooperates with leading global LPG & CNG system manufacturers. Under the slogan of 'HIGH QUALITY WE ALWAYS DREAM', HANA provides the best satisfaction and service to all customers through R&D on innovative technology and strict quality control aiming for quality first. With headquarters in Korea, we are expanding our brand position in the world through our network of partners in over 30 countries. We will do our best to realize customer value and profit with the best technology and quality.

Tae Ju – Kwon
President of HANA EMS Co., Ltd.

Quality

ECONOMIC **PRICE**, ECO-FRIENDLY **PRIZE**

HANA EMS provides reliable products and services based on its 20 years of accumulated experience, high technical expertise, and sincere and transparent management. Through the development and export of LPG & CNG system parts for clean energy use, we are making the environment-friendly and low-pollution future.

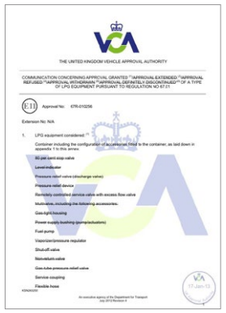
We operate our own R&D organization for the development of core technologies, and through this, we supply high quality products at reasonable prices and are credited as a trusting company and products from many of our customers. We have obtained international quality certification for all of our products such as ISO 9001, ISO 15500 quality certification, ECE 67R & 110R and certification approval for specific country meeting the increasingly strict automobile industry regulations. Through continuous technology development and process improvement, it tries to meet the global aftermarket and OEM requirements.

We have developed and implemented a complete production process for all of our products and equipment in order to construct optimal LPG & CNG system, and have been positioned as a "solution provider" for our customers by integrally designing and testing the entire system.

HANA EMS will do its best to continuously develop innovative products and continuously improve product quality in order to control effective pollutant emission and increase energy efficiency. We will make customer's impression by creating value through the best service.

ISO 9001

ISO 15500



ECE -67R

ECE-110R

Certificate of
the R&D Department

Certificate of
Company-Specific
Approved Exporter [FTA]

Certificate of Patent

ECE-10R

Injector for LPG&CNG

HANA H2001

available H2000 & H2003 with various connector types

- Noiseless
- Outstanding durability
- Excellent heat resistance

HANA H2001 is a high-quality Top Feed Type injector for passenger cars.
For an easy installation, you can either use a single-type and rail-type injector (2, 3 & 4 cylinder aluminum or plastic rails). It has excellent advantages in terms of low noise level, heat resistance, and control of flow rate with the use of calibration nozzles (B, C & D type). We guarantee the best performance and reliability for constant flow rate maintenance according to continuous use.

Description

- Top feed type
- Compact stainless-steel casing
- AMP superseal 2-way Connector [AMP 282104-1]
- BLUE (1.3Ω, AA type) & GOLD (Standard A type)
- Flow rate control by calibration nozzles with GOLD injector
- Available with Single & Rail Mount (2, 3 & 4 cylinder rails)
- Approvals for Temperature to -40°C

Certification

- E4-67R-010213
- E8-110R-004686
- E9-10R-041348

Technical Specification

Item		Top Feed Type		
Voltage		DC 12V		
Coil Resistance(Ω)		1.3Ω	1.9Ω	3Ω
Opening Time		2.1ms	2.16ms	2.64ms
Closing Time		1.2ms		
Flow Rate L/min (Full)	AA-Type	130	-	
	A-Type	120	120	
	B-Type	90	90	
	C-Type	75	75	
	D-Type	65	65	
Control current (peak & hold)		4A / 2A		
Operation Pressure (gauge)		1.2 bar		
Max. Open Pressure		3.5 bar		3 bar
Operating Temperature		-40 °C ~ 120°C		
Engine size		3, 4 cylinder		
Operating Gas		LPG / CNG / LNG		
Size		Φ12 / Φ16		

Single type

H2001 [AMP 282104-1]

H2000 [KET MG640543-5]

H2003 [Sumitomo 6189-0553]

Injector for LPG&CNG

HANA H2005

Separable Top Feed Type injector for passenger cars

Rail type

Hose type

- Internal parts replaceable
- Cleaning available
- Realization of Zero defects

HANA H2005 is HANA's latest injector.
Our New H2005 Injector is one of the few separable injectors on the market that can be freely detach on the lower nipple parts. In the event of a defect, it is possible to quickly respond by replacing the internal injector parts and thorough cleaning, thereby prolonging the lifespan of the Injector. This achieves a zero-defect rate. It has been developed and tested to ensure high performance and precise fuel supply, and we guarantee the best performance and reliability including features such as low noise level, heat resistance and durability.

Description

- Top feed type
- Compact stainless-steel casing
- AMP superseal 2-way Connector [AMP 282104-1]
- BLUE (1.3Ω, AA type) & GOLD (Standard A type)
- Flow rate control by calibration nozzles with GOLD injector
- Available with Single & Rail Mount (2, 3 & 4 cylinder rails)
- Approvals for Temperature to -40°C

Certification

- E9-67R-011045
- E9-110R-021129

Technical Specification

Item		Top Feed Type		
Voltage		DC 12V		
Coil Resistance(Ω)		1.3Ω	1.9Ω	3Ω
Opening Time		2.1ms	2.16ms	2.64ms
Closing Time		1.2ms		
Flow Rate L/min (Full)	AA-Type	130	-	
	A-Type	120	120	
	B-Type	90	90	
	C-Type	75	75	
	D-Type	65	65	
Control current (peak & hold)		4A / 2A		
Operation Pressure (gauge)		1.2 bar		
Max. Open Pressure		3.5 bar		3 bar
Operating Temperature		-40 °C ~ 120°C		
Engine size		3, 4 cylinder		
Operating Gas		LPG / CNG / LNG		
Size		Φ12 / Φ16		

Metal rail assembly

Plastic rail assembly

Injector rail for LPG&CNG

HANA H2002

3 & 4 Cylinder Side Feed type injector rail for passenger cars

- Noiseless
- Excellent heat resistance
- Compact Integrated rail

HANA H2002 is a 3 & 4 Cylinder Side Feed type injector rail.
Accurate fuel injection and engine responsiveness are ensured based on reliable H2001 injector technology. It is a small size integrated rail that is easy to mount on the vehicle without additional accessories. It has two types of BLUE (1.3Ω, AA type) and GOLD (1.9Ω, A type) according to flow rate and GOLD type injector can be controlled with various flow characteristics by using calibration nozzle (B, C & D type).

Description

- Side feed type
- AMP superseal 2-way Connector [AMP 282104-1]
- BLUE (1.3Ω, AA type) & GOLD (1.9Ω, A type)
- Flow rate control by calibration nozzles with GOLD injector
- Available with Rail Mount (3 & 4 cylinder rails)
- Approvals for Temperature to -40°C

Certification

- E11-67R-010256
- E11-110R-000516

Technical Specification

Item		Side Feed Type	
Voltage		DC 12V	
Coil Resistance (Ω)		1.3Ω	1.9Ω
Opening Time		2.38ms	2.48ms
Closing Time		1.2ms	
Flow Rate L/min (Full)	AA-Type	130	-
	A-Type	-	120
	B-Type	-	90
	C-Type	-	75
	D-Type	-	65
Control current (peak & hold)		4A / 2A	
Operation Pressure (gauge)		1.2 bar	
Max. Open Pressure		2.5 bar	
Operating Temperature		-40 °C ~ 120°C	
Engine size		3, 4 cylinder	
Operating Gas		LPG / CNG / LNG	
Size		Φ12	

H2002 3cyl

H2002 4cyl

Injector for LPG&CNG

HANA H2100

High-Flow Top Feed type injector for Van & Heavy-Duty Trucks

Rail type

Hose type

- Short injector opening & closing times
- Certified flow controllability
- Wide stability range

HANA H2100 is an injector with a high flow rate specification.
It is a high flow (327-473L) injector suitable for high-power engines or medium or heavy duty truck engines over 3,000 cc. The H2100 injector can be supplied only with GOLD (nozzle mountable) type and is designed for 12V and 24V to provide a variety of operating pressures and flow rates as voltage characteristics are adjusted. Internal design improvements have resulted in '1.2ms' short injector opening and closing times, with excellent flow controllability and a wide stability range.

Description

- Top feed type
- KET Existing Connector [KET MG640543-5]
- GOLD (Standard A type)
- Flow rate control by calibrating nozzles (B, C type nozzle)
- Available with Single & Rail Mount (3, 4 cylinder aluminum rails)
- Approvals for Temperature to -20°C

Certification

- E11-67R-010251
- E11-110R-000501

Technical Specification

Item		Top Feed Type	
Voltage		DC 12V	DC 24V
Coil Resistance(Ω)		1.4Ω	
Opening Time		2.92ms	1.2ms
Closing Time		1.2ms	
Flow Rate L/min (Full)	AA-Type	-	-
	A-Type	175	327 ~ 473
	B-Type	150	278 ~ 410
	C-Type	-	215 ~ 328
	D-Type	-	-
Control current (peak & hold)		5.5A / 2.5A	7.5A / 2.5A
Operation Pressure (gauge)		1.2 bar	5 bar ~ 8 bar
Max. Open Pressure		6 bar	12 bar
Operating Temperature		-20 °C ~ 120°C	
Engine size		3, 4 cylinder	
Operating Gas		LPG / CNG / LNG	
Inlet Size		Φ12 / Φ16	

H2100 3cyl & 4cyl

Injector for LPG&CNG

HANA H2200

Highest-Flow Side Feed type injector for Heavy Trucks & OEM applications

E type

L type

HANA H2200 is the highest-flow side feed type injector.
It has the highest flow rate (369-850L) among the existing LPG & CNG injectors and is specially designed for heavy-duty truck engines to provide special solutions. We have successfully tested the durability and reliability of the engine and the actual vehicle through OEM development with China FAW Group. It is designed for 24V and 28V, while the nozzle mountable E-type is available with 24V (A, B & C type), and the L-type is available only with 24V (A type) and 28V (AA type).

Description

- Side feed type
- KET Existing Connector [KET MG640543-5]
- E-type (24V) & L-type (24V, A type & 28V, AA type)
- Flow rate control by calibration nozzles with E-type injector
- Available with Rail Mount (3 & 4 cylinder aluminum rails)
- Approvals for Temperature to -40°C

Certification

- E11-110R-000143

Technical Specification

Item		Side Feed Type	
Voltage		DC 24V	DC 28V
Coil Resistance (Ω)		0.9Ω	
Opening Time		1.4ms	
Closing Time		1.4ms	
Flow Rate L/min (Full)	AA-Type	-	667
	A-Type	369 ~850	-
	B-Type	191 ~ 512	-
	C-Type	164 ~424	-
	D-Type	-	-
Control current	Peak & hold	7.5A / 2.5A	8.5A / 2.5A
Operation Pressure (gauge)		3 bar ~ 9 bar	6 bar
Max. Open Pressure		12 bar	9 bar
Operating Temperature		-40 °C ~ 120°C	
Engine size		6 cylinder	
Operating Gas		LPG / CNG / LNG	
Inlet Size		PT 3/8	

H2002 4cyl

HANA LPG&CNG INJECTOR

H2000	H2001	H2002	H2003	H2005	H2100	H2200
						
KET Connector [KET MG640543-5]	AMP Connector [AMP 282104-1]	AMP Connector [AMP 282104-1]	Keihin Connector [Sumitomo 6189-0553]	AMP Connector [AMP 282104-1]	KET Connector [KET MG640543-5]	KET Connector [KET MG640543-5]
Injector for Passenger cars					Injector for Medium & Heavy-duty trucks	

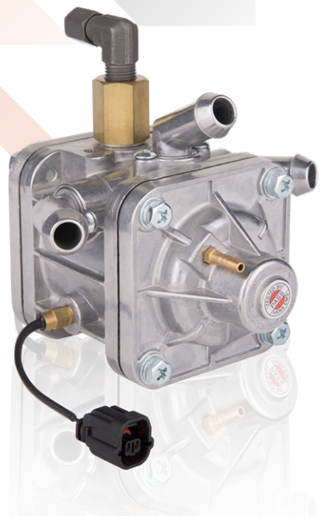
TECHNICAL SPECIFICATION

			H2000, H2001, H2003, H2005			H2002		H2100		H2200	
Type			Top - Feed			Side - Feed		Top - Feed		Side - Feed	
Voltage			DC 12V			DC 12V		DC 12V	DC 24V	DC 24V	DC 28V
Resistance (Ω)			1.3Ω	1.9Ω	3Ω	1.3Ω	1.9Ω	1.4Ω		0.9Ω	
Opening Time			2.1ms	2.16ms	2.64ms	2.38ms	2.48ms	2.92ms	1.2ms	1.4ms	
Closing Time			1.2ms			1.2ms		1.2ms		1.4ms	
Flow Rate L/min (Full)	AA-Type	Blue	130	-		130	-	-	-	-	667
	A-Type	Gold	120			-	120	175	327 ~ 473	369 ~850	-
	B-Type	Red	90			-	90	150	278 ~ 410	191 ~ 512	-
	C-Type	Black	75			-	75	-	215 ~ 328	164 ~424	-
	D-Type	Violet	65			-	65	-	-	-	-
Control current	peak & hold		4A / 2A			4A / 2A		5.5A / 2.5A	7.5A / 2.5A	7.5A / 2.5A	8.5A / 2.5A
Operation Pressure (gauge)			1.2 bar			1.2 bar		1.2 bar	5 bar ~ 8 bar	3 bar ~ 9 bar	6 bar
Max. Open Pressure			3.5 bar		3 bar	2.5bar		6 bar	12 bar	12 bar	9 bar
Operating Temperature			-40 °C ~ 120°C			-40 °C ~ 120°C		-20 °C ~ 120°C		-40 °C ~ 120°C	
Engine size			3, 4 cylinder			3, 4 cylinder		3, 4 cylinder		6 cylinder	
Operating Gas			LPG / CNG / LNG								
Rail Inlet Size			Φ12 / Φ16			Φ12		Φ12 / Φ16		PT 3/8	

Reducer for CNG

HANA H6009

High quality CNG reducer designed for Sequential Injection systems



HANA H6009 is a Dual stage CNG vacuum system reducer.
It is approved in accordance with the European Regulation ECE R110 and can be easily installed in all vehicles allowing flow control and decompression and is suitable for all climatic conditions. It has a water circulation system to decompress the high pressure of 250bar introduced into the inlet end to 1.2 ~ 6.5bar and supply latent heat due to sudden pressure drop.

Description

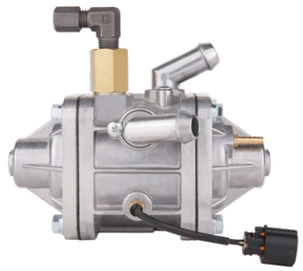
- Two stages reducer for CNG vacuum systems
- Compact Design

Technical Specification

Type of reducer	CNG Regulator	
Body	Die-casting aluminum	
Weight	1.41 kg	
Dimension	160*84*84 (mm)	
Working pressure 1st stage	5bar ~ 7bar	14.5bar ~ 16bar
Working pressure 2st stage	1.2bar~1.8bar	5bar ~ 6.5bar
Input pressure	250bar	
Power Supply	12V d.c. / 24V d.c.	
Heating	liquid of circuit of the engine cooling	
Gas inlet	ø6 (mm)	
Gas outlet	ø12 / ø16 (mm)	
Vacuum nipple	ø5 (mm)	
Water nipple	ø12 / ø16 (mm)	
Temperature	-20℃ ~ 120℃	
Certification	E8-110R-005020	

Certification

- E11-110R-005020



Solenold valave for CNG

HANA H6101

CNG High pressure automatic solenoid valve

HANA H6101 CNG High Pressure Solenoid Valve is a device installed between the fuel tank and the reducer and is used to cut off CNG fuel quickly. It is approved in accordance with the European Regulation ECE R110, manufactured using high quality brass material and is corrosion resistant. The maximum working pressure is 250 bar.

Description

- CNG high pressure cut-off valve
- Brass body with excellent corrosion resistance
- Certified with the ECE R110
- Max. working pressure 25 MPa

Technical Specification

Max. Operating Pressure	250 Kg/cm²
Rated Operation Voltage	DC 12V / DC 24V
Operation Voltage	DC 6.5~16V / DC 17 ~26V
Connector type	AMP 282104-1
Gas Inlet	ø6 (mm)
Gas Outlet	ø6 (mm)

Certification

- E11-110R-000148

HANA H6009-1

Equipped with High pressure Automatic Solenoid valve

HANA H6009-2

with High pressure Automatic Solenoid valve combined with pressure gauge

HANA H6009-3

with High pressure Automatic Solenoid valve combined with pressure sensor

Other

HANA CNG Parts

Gas Filter

The HANA Gas filter is a lightweight, rigid structure designed to protect critical engine parts from contaminants in LPG & CNG fuels. Filter cartridges ensure effective filtration of fine particles containing impurities and are compactly sized for convenient placemen

Technical Specification

Temperature range	-30 ~ 130℃
Pressure	2.5 bar
Flow rate	500ℓ/min
Filter	40~50㎛
Dimension	125*50*50 (mm)
Weight	276g

Filling Unit H6102

HANA H6102 is the filling unit used to charge the CNG fuel.
Its function is similar to LPG System's One Touch Valve

Technical Specification

Max Pressure	300 Kg/cm²
Working Pressure	220 Kg/cm²
Operating gas	CNG
Weight	636g

Pressure Gauge

The pressure gauge is used to measure the pressure inside the gas tank and connecting pipeline of an automobile. It converts the measured gas pressure into an electrical signal, sends it to the ECU, and shows the remaining amount of gas.

Technical Specification

Max Pressure	350 Kg/cm²
Input Voltage	DC 5V
Connection	PT 3/4

Reducer for LPG

HANA H6006

High quality LPG reducer designed for Sequential Injection systems

HANA H6006 is a Single stage LPG system reducer.
It is approved in accordance with the European Regulation ECE R67 and can be easily installed in all vehicles allowing flow control and decompression and is suitable for all climatic conditions. It has a water circulation system to decompress the high pressure of 16bar introduced into the inlet end to 1.2 ~ 6.5bar and supply latent heat due to sudden pressure drop.

Description

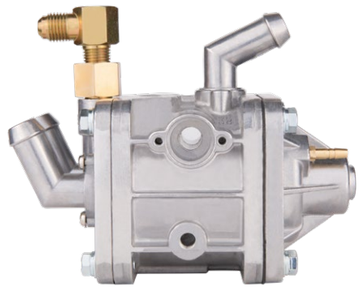
- Single stage reducer for LPG vacuum systems
- Compact Design

Technical Specification

Type of reducer	LPG Regulator (Injection type)
Body	Die-casting aluminum
Weight	1.4 kg
Dimension	120*84*84 (mm)
Working pressure	1.2 ~ 1.6 bar
Input pressure	7 bar
Power Supply	12V d.c
Heating	liquid of circuit of the engine cooling
Gas inlet	ø6 (mm)
Gas outlet	ø12 / ø16 (mm)
Vacuum nipple	ø5 (mm)
Water nipple	ø12 / ø16 (mm)
Engine power	up to 254 (kw)
Temperature	-20℃ ~ 120℃
Certification	E11-R67-010254

Certification

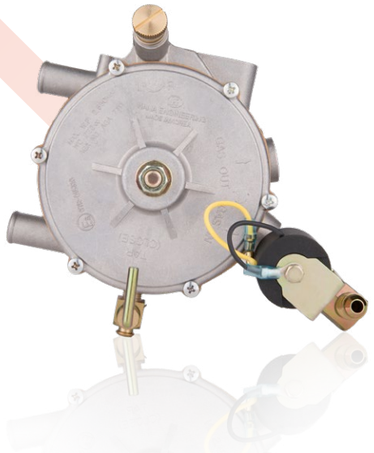
- E11-67R-010254



Reducer for LPG

HANA H6001

High quality LPG Mixer-type reducer equipped with Solenoid valve



HANA H6001 is a Dual stage LPG system Reducer equipped with a Single Sol. Valve.
It is approved in accordance with the European Regulation ECE R67 and can be easily installed in all vehicles, allowing flow control and decompression and is suitable for all climatic conditions. It has a water circulation system to decompress the high pressure of 16bar introduced into the inlet end to 1.2 ~ 6.5bar and supply latent heat due to sudden pressure drop.

Description

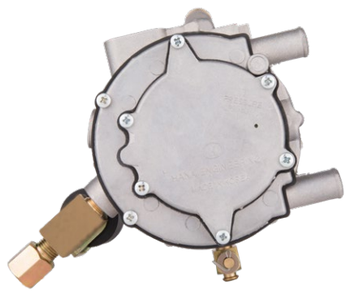
- Two stages reducer for LPG vacuum systems
- Compact Design

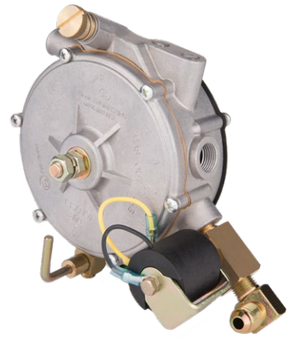
Technical Specification

Type of reducer	LPG Regulator (Mixer type)
Body	Die-casting aluminum
Weight	1.4 kg
1st Pressure	0.20Kg/㎠±0.01
1st valve seat	Φ4.70 (mm)
2nd valve seat	800~3600cc
Input size	Φ6 (mm)
Output size	Φ13.5 (mm)
Water size	Φ12.0 (mm)
2nd lock valve	Voltage: DC 12V Min Voltage: DC 7V
Certification	E8-67R-015316-00

Certification

- E8-67R-015316





Solenoid valve for LPG

HANA H1400

LPG Single solenoid valve

HANA H1400 LPG Single Solenoid Valve is a device installed between the fuel tank and the reducer and is used to cut off LPG fuel quickly. The use of high-quality materials ensures a high level of robustness against physical damage and its compact size makes it easy to install. The maximum working pressure is 25 bar.

Description

- LPG cut-off valve
- Brass body with excellent corrosion resistance
- Max. working pressure 2.5 MPa

Technical Specification

Max. Operating Pressure	25 Kg/cm²
Rated Operation Voltage	DC 12V
Operation Voltage	DC 6.5~16V
Weight	0.5 kg

Certification

- 11-110R-000148

Solenoid valve for LPG

HANA H1200

LPG Duty solenoid valve

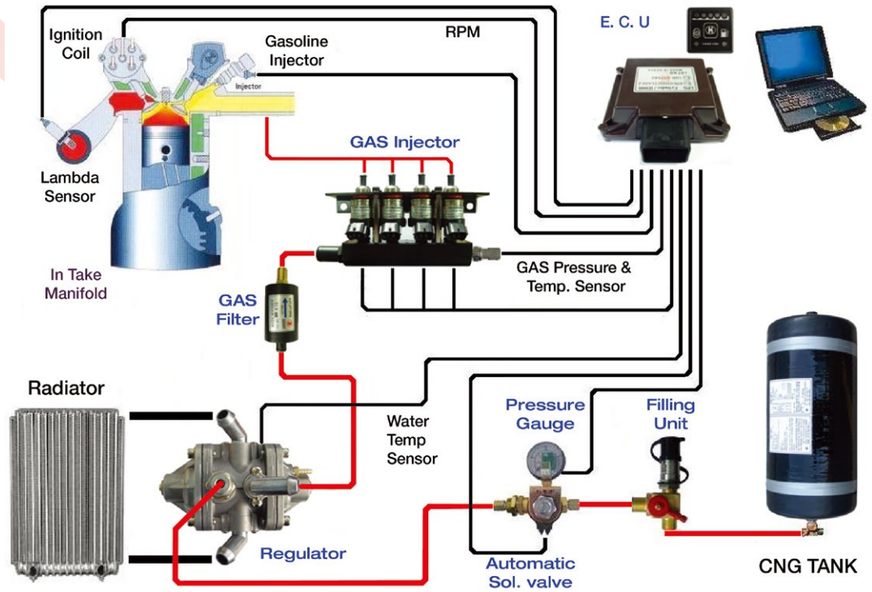
HANA H1200 LPG Duty Solenoid Valve is a device used in mixer systems. The LPG fuel volume is regulated by the ECU control for air-fuel ratio control

Technical Specification

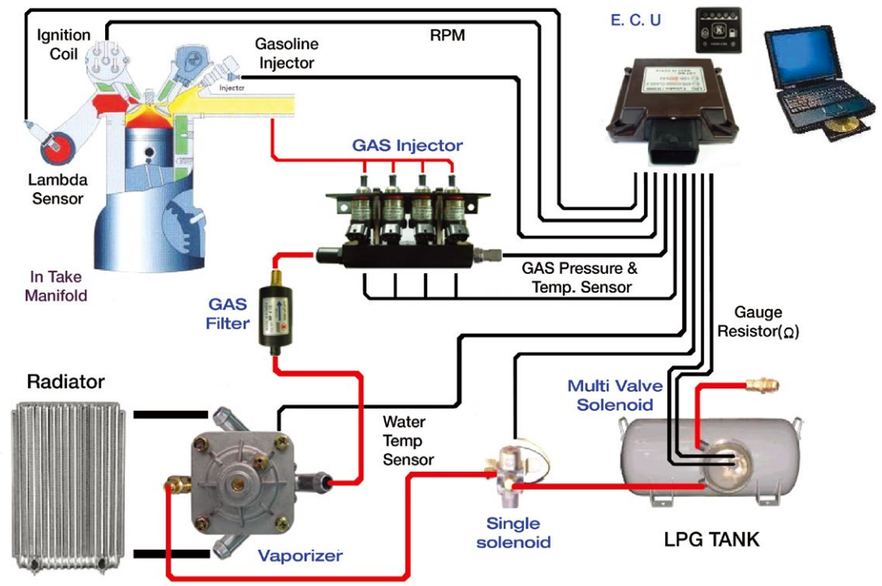
Max. flow rate	180 L/min
Rated Operation Voltage	DC 12V
Operation Voltage	DC 6.5~16V
Weight	0.2 kg

HANA LPG&CNG Injection System Maps

CNG Injection System



LPG Injection System



GLOBAL NETWORK

With headquarters in Korea, we are expanding our brand position in the world through our network of authorized partners in over 30 countries. As a one of the best global leader in LPG&CNG autogas system components, we will do our best to realize customer value and profit with the best technology and quality.

CONTACT US

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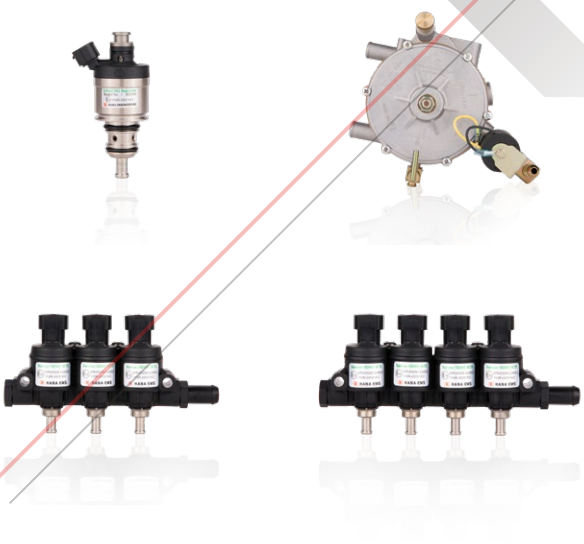

HANA

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