

H421 Injector Nozzle Technical File

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H421 Injector Nozzle Technical File

1. H421 Injector Nozzle's Introduction

1.1. H421 Injector Nozzle's Basic Information

Title	Common Rail H421 Injector Nozzle	Quality
SKU1	G6DJ1000H421PRD	China Made New
SKU2	G1X9000000H421	

1.2. H421 Injector Nozzle's Common Written Part Number

Injector Nozzle Order Number	Injector Nozzle Engraved Number
/	H421

1.3. H421 Injector Nozzle's Application Information

(1) H421 Injector Nozzle's Application for Injectors' Part Number

Injector Part Number	Replacement Injector Part Number	OEM	OEM
28388960	28602948	/	/

(2) H421 Injector Nozzle Part Number Common Writing

H421

1.4. H421 Injector Nozzle's Specifications and Dimensions Parameters

Injector Nozzle Size: 6 cm*1.5cm *1.5 cm

Injector Nozzle Tube Dimensions: 7 cm *2 cm *2 cm

Single Injector Nozzle Weight: 0.03kg

Injector Nozzle 10 PCS Per Box: 10 cm *8 cm *4cm

Injector Nozzle Weight 10 PCS Per Box : 0.3kg

Injector Nozzle Quality: China Made New Injector Nozzle

Injector Nozzle MOQ: 10 PCS

1.5. H421 Injector Nozzle's Quality Control

(1) Injector Nozzle Testing

All parts of the injector nozzle are subjected to precision testing, high temperature testing, low temperature testing, withstand pressure testing, leakage testing, durability testing, and various working conditions testing.

(2) Injector Nozzle Inspection

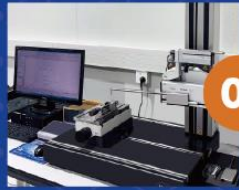
The factory inspection of the injector nozzle is undergone three inspections: full inspection, random inspection, and batch inspection. Different brands of test benches are used to test the same injector nozzle for more than three times for factory inspection, and the fuel injector nozzle installation testing environment are progressed in dust-free workshop.

(3) Injector Nozzle Installation

When matching the valve cap and valve steam, Shumatt strictly complies with the standard of valve cap and valve stem clearance technical indicators to ensure that each nozzle meets the factory standards and use standards.



QUALITY CONTROL BEFORE PACKING



01

Mahr profilometer, inspecting oil needle angle and roughness.



05

Double busbar measuring Instrument, inspecting the hole profile and taper of the nozzle after medium-hole grinding.



02

Mahr roundness measuring instrument, inspecting nozzle medium-hole cylindricity and oil needle outer - diameter cylindricity.



06

Flow detector, inspecting nozzle orifice flow.



03

Zygo white light acanner, inspecting the flatness of the large flat surface of the nozzle.



07

5-Parameter nozzle testing machine, inspecting various data of nozzle finished products, store if qualified.



04

Microscope, inspecting the nozzle seat surface and the pressure chamber dimensions.



08

All quality inspection procedures have been passed, awaiting packaging for delivery to the customer.

1.6. H421 Injector Nozzle's Detailed display

(1) Injector Nozzle Physical display

Front	Side	Top
		/
Side	Engraving (with a neutral or shumatt logo)	/

(2) Injector Nozzle Tube

Rectangular	Round	Customized

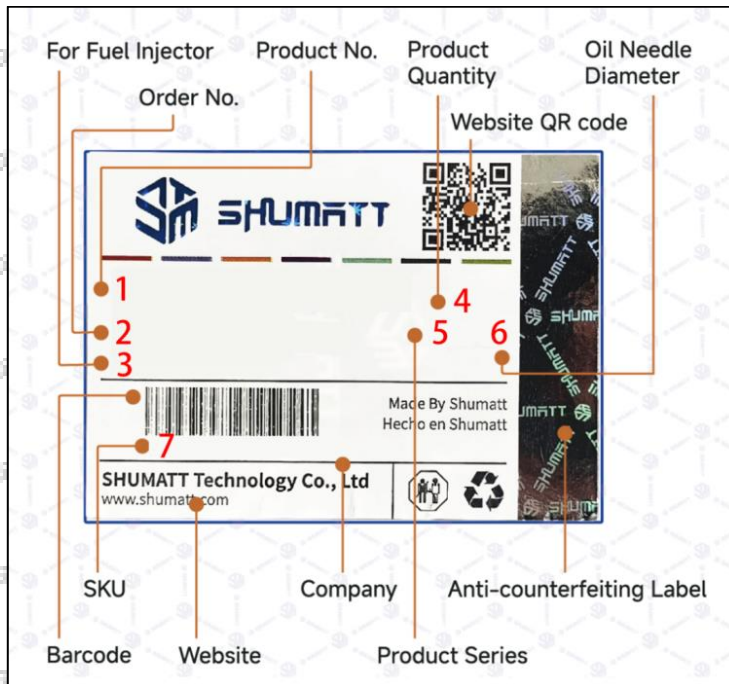
(3) Injector Nozzle Packaging Display

G6 SHUMATT Nozzle Packaging	Neutral Nozzle Packaging	XINGMA Nozzle Packaging
		/
LIWEI Nozzle Packaging	Customized Nozzle Packaging	/

Note: G6 SHUMATT nozzle packaging is preferred.

(4) Requirements for the printing format of injector nozzle labels:

Nozzle label content:



No.	Name	Specification
1	Nozzle engraving number	H421
2	Nozzle order number	/
3	Applicable fuel injectors	For: 28388960/28602948
4	Packaging quantity	12 PCS
5	Series	CR
6	Oil needle diameter	/
7	SKU	G6DJ1000H421PRD G1X9000000H421

(5) Injector Nozzle’s Customized Service Requirements:

Custom nozzle pins with or without engraving, minimum order quantity: 100 pieces.

Custom injector nozzle barrels, minimum order quantity: 2000–3000 pieces.

Custom nozzle packaging boxes, minimum order quantity: 1000 units.

For customized products with designated logos, the OEM manufacturer shall provide trademark authorization and official logo image files.

▲ Customized nozzles are non-returnable and non-exchangeable once sold if without quality defects.

1.7. H421 Injector Nozzle’s Warranty Instructions

(1) Injector Nozzle Warranty Conditions and Instructions

It is necessary to provide photos, videos, or test reports from fuel injector testing equipment as evidence to the sales staff when abnormalities occur during the use of the fuel injector nozzle.

Abnormal conditions are properly explained such as: 1.Smoke, 2. Engine shake, 3. Difficulty starting the engine, 4. Engine noise, 5. oil leakage etc.

(2) Injector Nozzle Warranty Coverage

Within 15 days after customer receives the H421 injector nozzle if there is a performance failure and the product has no appearance damage, customer can choose to replace it or repair it;

If the H421 injector nozzle has performance problems during the warranty period (3 months), and it is confirmed that it is product’s problems after testing, you can contact our salesmen to replace the same model or a reworked product with the same performance for free;

If the product is confirmed to be without fault, it will be returned as is.

(3) Injector Nozzle Out of Warranty Coverage

The warranty period has expired.

Injector nozzle failure caused by high temperature, high pressure, humidity, rain and snow, saline-alkali land, earthquake, and used in abnormal environment.

Injector nozzle damage caused by man-made reasons (throwing, strong magnetic field magnetization, set fire).

Injector nozzle failure or injector damage caused by non-injector design, technology, manufacturing, quality and other issues.

Injector nozzle failure due to system pressure exceeding system approved pressure.

Injector nozzle failure caused by impurities (water, lead, aluminum powder, iron powder, sulfide) in the system fuel exceeding the standard requirements.

Injector nozzle failure caused by not installing according to the tightening torque specified in the vehicle engine maintenance manual (the tightening torque is too large or too small).

Injector nozzle failure caused by not following the installation angle specified in the injector maintenance manual.

Injector nozzle failure caused by not following the cleaning requirements specified in the injector maintenance manual.

Injector nozzle failure caused by failure to replace consumable parts as specified in the injector maintenance manual.

1.8. H421 Injector Nozzle's Manufacturer

Injector nozzle's manufacturer: Shenzhen Shumatt Technology Co., Ltd

LABEL



SHUMATT ODM NOZZLE

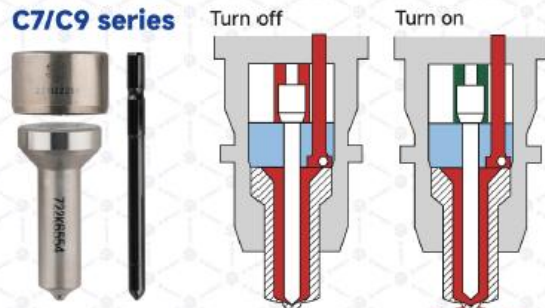
Support Packing Box and Label Customization



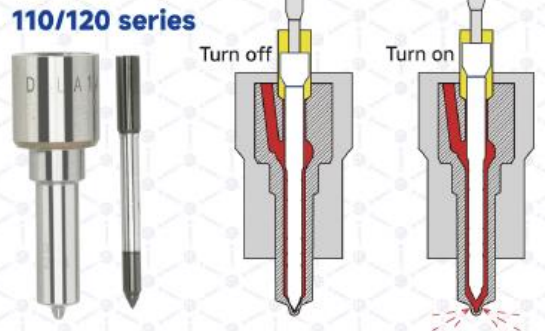
SCHEMATIC DIAGRAM

OF THE FUEL INJECTOR'S NOZZLE OPERATION

C7/C9 series



110/120 series



ABOUT US

With deep roots in the global automotive parts fuel market, Shumatt maintains sharp insights into market shifts, prioritizes global customer needs, and strives to provide premium products and services worldwide.

- 3 Workplaces
- 4 Factories
- Serving customers in 169 countries and regions
- Exhibition participation in 26+ countries and regions
- Field research to 69 countries and over 300 cities

2. H421 Injector Nozzle's Technical Support

2.1. H421 Injector Nozzle's Cleaning

(1) Before installation, the fuel injector nozzles should be cleaned in an ultrasonic cleaner for 3-5 minutes to remove stains, dust, powder, rust-preventive oil oxides, paraffin bases, naphthenic bases, intermediate bases, salts, lead naphthenate, zinc naphthenate, sodium petroleum sulfonate, barium petroleum sulfonate, calcium petroleum sulfonate, trioleic tallow diamine, and rosin amine from the nozzle surface.

(2) Use compressed air to remove the cleaning fluid adhering to the nozzle surface after cleaning, ensuring it meets the usage standards.

2.2. H421 Injector Nozzle's Inspection

(1) Check the nozzle guide sleeve, spring, washer, and tightening nut for deformation, cracks, thread damage, quenching defects, air leaks, and rust. The nozzle tightening nut must be replaced if it has been disassembled more than 5 times, as shown in the diagram below.



(2) Replace the nozzle tightening nut and the nozzle sealing copper gasket.
 (3) Check whether the gap between the nozzle needle and the nozzle shell is within the standard range and whether it reaches the standard for use.

- ⚠ All parts should be examined for wear under a microscope at least 20 times larger
- ⚠ Deformation, cracking, thread damage, quenching defects, or air leakage in the injector cap can cause black smoke from the vehicle and damage the injector.
- ⚠ Injector opening pressure greater than or less than the specified range may cause injector damage.
- ⚠ Failure to replace wearing parts in time during maintenance may lead to fuel injector damage.

2.3. Injector Test After Maintenance

(1) After installation, it needs to be tested on the test bench.



⚠ The correct injector type should be selected for testing.

(2) The test results need to be ensured that the following items are within the standard data range of the test stand.

LEAK TEST: Test whether sealing test is up to standard or not.

In this step, no injector collector should be installed at the nozzle during the test so as to observe whether the nozzle is dripping oil, meanwhile observe that all joints are no oil leaking.

The static oil return of the test should not exceed 8mm²/H, otherwise, you need to check whether the high-pressure sealing ring, valve assembly, and stroke parameters of the injector are within the standard range.

VL: Test whether full load oil (main injection, high speed) is up to standard or not

This step needs to be combined with vehicle driving conditions, such as power, fuel consumption and smoke as well as the maintenance of the engine, if there is situation of insufficient power, fuel consumption is high, thick black smoke and irregularly maintenance of the engine, the engine needs to be maintained according to the maintenance handbook at very first time.

Each of injector part needs to be adjusted and checked if there is any damage according to above situations to ensure the injector is normal. After make sure the injector works normal, you need to reduce the armature stroke if too much oil injection, and increase the armature stroke if too little oil injection.

The error of each injector should be controlled in 6mm³/HH when adjusting.

TL\EM: Test whether the torque point, emission point, exhaust limit, fuel supply reach standard or not

Through this test, it is detected that when the oil injection is too little, the engine's acceleration is slow, vice versa, when the oil injection is too much, the engine's acceleration will produce black smoke and the engine excessive exhaust emissions.

Injector nozzle spring force gasket, armature stroke, lift gasket and solenoid valve spring force gasket determine whether exhaust restriction and injector fuel supply reach standard

LL: Test if the idle fuel supply reached the standard

This test detects oil injection is too much will cause engine idle smoke, otherwise if the oil injection too little will cause engine idling easy to stall, or difficult to start.

The uneven of oil injection causes the unstable rotation speed of engine, making noise, and increase the engine swing in the acceleration process.

Each injector error should be controlled within 2mm³/HH when adjusting.

Idle speed fuel supply quantity mainly by adjusting the nozzle spring force gasket.

VE: Test whether the pre-injection meets the standard

This test detects when oil injection is too much will cause cylinder knocking while the engine is working and the exhaust emissions is not up to standard (smoke).

While when oil injection is too little will cause big noise while the engine is working, the engine is difficult to start, the engine weak acceleration, slow response of injector.

Each injector error should be controlled within 0.5mm³/HH when adjusting.

2.4. List of Tools Used During Measurement and Installation

Image			
SKU	CRT084	CRT220	CRT079
Description	Torque wrench: 07-110nm 1/2 used to control tightening force and Angle during installation	Fuel injector stroke measuring tool: used to measure buffer stroke of fuel injector, armature stroke and remaining air gap	Micrometer: used to measure gasket thickness
Image			/
SKU	/	CRT281	/
Description	Ultrasonic cleaning machine: used for cleaning fuel injector and parts	Common rail injector test equipment: check the injector working condition	/

2.5. Cause of Damage to H421 Injector Nozzle

- (1) Fuel injector nozzle failure caused by impurities (water, lead, aluminum powder, iron powder, sulfide) in fuel exceeding standard requirements.
- (2) The nozzle is normally worn due to long time working under high temperature.
- (3) Wear of the nozzle needle causes blockage of the oil hole, and insufficient fuel injection results in the injector failing to operate normally.

- ⚠ The wear of the nozzle orifice leads to the increase of fuel quantity, resulting in black smoke of the vehicle, and the fuel injector can not work properly when it is serious.
- ⚠ If the nozzle needle can not move smoothly, stuck may cause serious damage to the injector nozzle.
- ⚠ The rusting of the nozzle spring leads to spring fracture and black smoke from the vehicle.
- ⚠ Wear on the injector spring adjusting shim reduces the injector's opening pressure, causing the injector to pump more fuel, resulting in black smoke from the vehicle. In severe cases, this can lead to the injector malfunctioning.
- ⚠ Wear on the injector needle valve lift adjusting shim causes the injector needle valve stroke to increase, resulting in increased fuel injection volume and causing the vehicle to emit black smoke. In severe cases, this can lead to the injector malfunctioning.
- ⚠ The nozzle tip cracked due to prolonged high-temperature and high-intensity operation.

2.6. H421 Injector Nozzle Technical Support Obtaining Methods

- (1) Nozzle Technical File , visit <http://shumatt.com> to get the technical file
- (2) Injector Technical Videos

Facebook: Visit <https://www.facebook.com/hison.li> constantly follow can get more information.

YouTube: https://www.youtube.com/channel/UCByvYBx7VjV_mAfxh_Hu-aw to get the technical videos, constantly follow can get more information.

Shumatt: Visit <http://shumatt.com> to get the technical videos.

- (3) Nozzle Information Query Software TruckBook Parts EPC APP, Android/Apple App Store download and install, visit <http://shumatt.com> to get the download and installation tutorial
- (4) Search The nozzle test data through TruckBook Parts EPC APP.

3. H421 Injector Nozzle’s Purchase and Delivery

3.1. H421 Injector Nozzle’s Purchase Payment Terms

Payment Terms: T/T, PayPal, Alipay, WeChat

⚠ Please contact our salesmen for specific payment information.

3.2. H421 Injector Nozzle’s Main Sales Market.

Injector Nozzle’s Main Sales Markets: Asia, Europe, North America, South America, Africa etc.

3.3. H421 Injector Nozzle’s Declaration Requirements

Shumatt can assist customers to provide the following documents for import customs clearance: contract, invoice, packing list, bill of lading, insurance policy, certificate of origin, etc.

3.4. H421 Injector Nozzle’s Shipping Ways

Destination in China’s areas: SF Express, Debon Express, the corresponding logistics company can be provided according to customer requirements in special cases.

Destinations out of China’s areas: DHL, UPS, FedEx, TNT air, ocean or other shipping methods required by customers.

3.5. H421 Injector Nozzle’s Lead Time

Lead time: Send out within 3 – 7 working days after receiving payment (Except for special products and special cases) .

3.6. H421 Injector Nozzle’s Logistics Time for Destination Out of China’s Areas

DHL Logistics Time:

Country or Region of Departure	Hong Kong, China	Other Countries or Regions of Asia	Australia and New Zealand	Europe	America	Other Countries
China’s Mainland	7 Days	7 Days	8 Days	8 Days	8-12 Days	7-10 Days

UPS Logistics Time: Country or Region of Departure: China’s Mainland

Country of Destination	Estimated Arrival Time	Country of Destination	Estimated Arrival Time	Country of Destination	Estimated Arrival Time
Japan	3 Days	UK	5-7 Days	Egypt	5-7 Days
Turkey	5-7 Days	Singapore	3 Days	Switzerland	5-7 Days
Bahrain	5-7 Days	Latvia	7-10 Days	New Zealand	7-10 Days

Sri Lanka	5-7 Days	Thailand	3 Days	Austria	5-7 Days
Romania	5-7 Days	Vietnam	3-5 Days	Estonia	5-7 Days
Malaysia	3-5 Days	Israel	5-7 Days	Mexico	7-10 Days
France	5-7 Days	America	5-7 Days	United Arab Emirates	5-7 Days
Italy	5-7 Days	Netherlands	5-7 Days	Bengal	7-10 Days
Lebanon	5-7 Days	Philippine	3-5 Days	Greece	7-10 Days
South Korea	3 Days	Spain	5-7 Days	Myanmar	5-7 Days
Canada	5-7 Days	Germany	5-7 Days	Saudi Arabia	7-10 Days
Portugal	5-7 Days	Australia	5-7 Days	South Africa	7-10 Days
Denmark	5-7 Days	Belgium	5-7 Days	Ukraine	7-10 Days
India	7-10 Days	Qatar	7-10 Days	Poland	5-7 Days
Indonesia	3-5 Days	Morocco	7-10 Days	Pakistan	7-10 Days
Kuwait	7-10 Days				

▲ The logistics time is for reference only , subjects are according to the actual arrival.

4. H421 Injector Nozzle's Storage Standard

(1) Choose a suitable storage place

The warehouse and cargo yard where the fuel injector nozzle is stored should be kept clean and dry, and away from the factory buildings that generate harmful gases and dust; do not mix with acid, alkali, salt and other substances; the storage place should have a good drainage system; the cargo yard should be flattened with gravel or furnace ash etc. to enhance the water permeability of the surface layer to keep the reservoir area dry.

(2) Strict requirements of warehousing

Strict inspections should be carried out when the fuel injector nozzles are put into storage, the surface cleaning work should be done well to remove water traces, oil stains, ash and other dirt, remove the rust and do anti-rust treatment in time. Packaged injectors must be protected from damage.

(3) Keep the warehouse dry and preventing moisture

The relative humidity is usually below 70% for the fuel injector nozzles placed in the room, and the corrosion of the fuel injector nozzles is significantly reduced.

Injector nozzles must be stored in the warehouse, and they are forbidden to store in the same warehouse with commodities with high water content.

(4) Stack Properly

After the injector nozzle is exposed to rain, the corrosion rate will increase significantly. The purpose of sealing is to isolate the injector from rainwater and humid air, so the warehouse window should be checked in time to avoid rainwater entering the warehouse.

If the fuel injector nozzle package is damaged, it should be repaired or replaced; when the package is damp, the packaging material should be dried; if the original anti-corrosion and oil applied at the factory is found to be damaged or dried up, it should be cleaned and re-applied oil in time.

▲ It is forbidden to leave the injector nozzle exposed in the air for a long time.

▲ It is forbidden to store acid, alkali, salt and other substances together with the injector nozzle.

▲ The unpacked fuel injector nozzle must be rust-proof during secondary storage.

GOOD STOCK FOR QUICK SHIPPING
MORE COST-EFFECTIVE SOLUTION FOR DIESEL NOZZLE

- High quality control by automated production high precision equipment.
- More cost-effective solution.
- Good after sales warranty support.

Diesel Nozzle Warehouse

5. Company Information



- Office Locations
- Global Exhibitions

5.1. Company Introduction

Chinese Name: 深圳市舒马特科技有限公司
English Name: Shenzhen Shumatt Technology Co., Ltd
Mob Phone/WeChat: +86-13410541523
HK Telephone: +852-67653507
Telephone: +86-755-23215133
Email: ruby@shumatt.com
Website: www.shumatt.net

Shenzhen Office: 11-12, Floor 14, Building 13, Qinchengda Building, Exit A, Honglang North Subway Station, Bao'an District, Shenzhen, China's Mainland

Shenzhen Office: Room 428-430, Building B, Huafeng Zhigu Technology Industrial Park, Exit B, Fuyong Metro Station, Bao'an District, Shenzhen, China's Mainland

Hong Kong Office: Jianfa Street Industrial Zone, Tuen Mun, New Territories, Hong Kong, China

After-sales Service Address: Please contact our salesmen to obtain and provide the corresponding product maintenance reasons (Reference: [1.7. H421 Injector Nozzle's Warranty Instructions](#))

5.2. Sales-men's Contact Information

No.	Name	WeChat/ WhatsApp	Email	Facebook	YouTube
1	Ruby	+86-13410541523	ruby@shumatt.com	Hison Li	Hison Li
2	Ivy	+86-18025309821	sales@shumatt.com	Ivy Shumatt	Shumatt IVY
3	Rebecca	+86-18025349821	sales01@shumatt.com	Rebecca SHUMATT	SHUMATT Rebecca
4	Janny	+86-18028749821	sales02@shumatt.com	Janny shumatt	Janny Shumatt
5	Sam	+86-13316859821	Sales8@shumatt.com	Shumatt Sam	Sam Shumatt
6	Natalie	+86- 18938945856	sales15@shumatt.com	Shumatt Natalie	Lin Natalie
7	Ada	+86-1342286353	sales5@shumatt.com	Shumatt Ada	Ada Shumatt
8	Hison Li	+86-18318811871	web@shumatt.com	Hison Li	Hison Li
9	Mecca	+86-18938948618	sales11@shumatt.com	Shumatt Mecca	Shumatt Mecca
10	Eric	+86 18307033618	sales3@shumatt.com		
11	Wayne (Joaquín en español)	+86-13316959821	wayne@shumatt.com	shumattwayne	Wayne Shumatt
12	Sylvia	+86 18312499884	sales6@shumatt.com		

Visit <http://shumatt.com> to obtain the latest information of salesmen

PS: Shumatt's sales-men's emails are all end with **@shumatt.com**

6. Copyright Statement

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