

**DLLA163P2291+ Diesel Injector Nozzle Technical Info**

**SKU1: G1Z17A163P2291J**

**SKU2: G1X9LA163P2291**

**SKU3: G4X9A163P2291+/G1X9163P2291GB**



# Nozzle

Diesel  
common rail  
injector parts

CR parts

## **DLA163P2291+ Diesel Injector Nozzle Technical Info**

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## DLA163P2291+ Diesel Injector Nozzle Technical Info

### 1. DLA163P2291+ Diesel Injector Nozzle Introduction

Mechanical diesel injector nozzle works by controlling precision couplings (needle valve, needle valve body). The coupling of the nozzle is one of the three precision (Three precision coupling parts include plunger, plunger sleeve, needle valve, needle valve body, oil outlet valve, oil outlet valve seat) couplings of the traditional diesel engine.

Normally, The injector nozzle itself is a closed valve, The opening and closing of the valve is controlled by a valve needle moving up and down. When the ECU issues a fuel injection command, its voltage signal will cause current to flow through the coil in the fuel injector nozzle, generating a magnetic field to attract the valve needle, allowing the valve to open so that fuel can be sprayed out from the fuel injection hole.

The biggest advantage of injection fuel supply is that the control of fuel supply is very precise, so that the engine can have the correct air-fuel ratio in any state, not only to keep the engine running smoothly, but also the exhaust gas can meet the environmental protection regulations.

#### 1.1. DLA163P2291+ Diesel Injector Nozzle Basic Information

Title	Common Rail Diesel Injector Nozzle DLA163P2291+	Quality
Sku1	G1Z17A163P2291J	LIWEI
Sku2	G1X9LA163P2291	XINGMA
Sku3	G4X9A163P2291+/G1X9163P2291GB	XINGMA

#### 1.2. DLA163P2291+ Diesel Injector Nozzle Common Written Part Number

Injector Nozzle Order Number	Injector Nozzle Engraved Number
0433172291	DLA163P2291+

#### 1.3. DLA163P2291+ Diesel Injector Nozzle Application Information for Injectors

##### 1) DLA163P2291+ Diesel Injector Nozzle Application for Injectors Part Number

Injector Part Number	Injector Series	System Pressure	Re-manufactured Part Number	System Pressure
/	/	/	/	/

##### 2) DLA163P2291+ Diesel Injector Nozzle Car Model Matching Information

Injector Part Number	Car Number	OE Number	OE Number	OE Number
/	/	/	/	/



### 3) **DLLA163P2291+ Injector Nozzle Part Number Common Writing**

0433172291, DLLA163P2291+, 0 433 172 291, DLLA 163 P 2291+, 0433 172 291, DLLA163 P 2291+, 0433172 291, DLLA163P 2291+, 0 433 172291, DLLA163 P2291+, 0 433172291, DLLA 163P2291+, 0 433172 291, DLLA 163P 2291+

### 1.4. **DLLA163P2291+ Diesel Injector Nozzle Specifications and Dimensions Parameters**

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

**Injector Nozzle Barrel 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. **DLLA163P2291+ Injector Nozzle 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 full inspection, random inspection, and batch inspection three inspections. Different brands of test benches are used to test the same injector nozzle for a total of no less than three times for factory inspection, and the fuel injector 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 valve assembly meets the factory standards and use standards.

### 1.6. **DLLA163P2291+ Diesel Injector Nozzle Customized Service**

1) **Diesel Injector Nozzle Customized Service:** The quantity of customized item must meet the demands of OEM manufacturers' requirement for shell lettering ( such as logo, nozzle part number, date and series number), nozzle without lettering, nozzle tube, nozzle box etc.

## 2) Diesel Injector Nozzle Customized Items






	
Injector Nozzle Shell Lettering Content	Injector Nozzle Without lettering
	
Injector Nozzle Tube	Liwei Injector Nozzle Tube
	
Liwei Injector Nozzle Box	Xingma Injector Nozzle Box

## 3) Diesel Injector Nozzle Customized Service Quantity Requirements:

- The purchased of customized diesel injector nozzle **shell lettering or without lettering** are no less than **100 pieces**.
- The purchased of customized **injector nozzle tubes** are no less than **2000-3000 pieces**.
- The purchased of customized **injector nozzle boxes** are no less than **1000 pieces**.
- ⚠ **Customized products involve the need of specify logo, the OEM manufacturer needs to provide trademark authorization and the sample of logo image file.**
- ⚠ **Once the customized injector nozzle is sold, it can't be returned or exchanged if there is no quality problems.**

## 1.7. DLLA163P2291+ Diesel Injector Nozzle Packing List

### 1) Diesel Injector Nozzle Spare Parts List

No.	1	2
Image		
Name	Injector Nozzle Assy	Nozzle Tube
Description	Injector Nozzle Part Number <b>DLLA163P2291+</b>	Prevent Nozzle Rusting and Damaging from Collision
No.	3	4
Image		
Name	Nozzle Tube	Liwei Injector Nozzle Box
Description	Prevent Nozzle Rusting and Damaging from Collision	10 PCS/Box
No.	5	/
Image		/
Name	Xingma Injector Nozzle Box	/
Description	10 PCS/Box	/

- ▲ Minors are prohibited to use fuel injector nozzle assembly, nozzle packing box to avoid injury.
- ▲ Injector nozzle box is recyclable and can be reused.
- ▲ Injector nozzle barrels is non-degradable material, please dispose of it properly after use.



## 1.8. DLLA163P2291+ Diesel Injector Nozzle Warranty Instructions

### 1) Diesel Injector Nozzle Warranty Conditions and Instructions

- It is necessary to provide pictures, videos, or test reports detected by the injector nozzle inspection equipment when the injector nozzle is abnormal during use as evidence to feed back to the salesman.
- 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 **DLLA163P2291+** 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 **DLLA163P2291+** injector nozzle has performance problems during the warranty period (6-12 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 injector house has obvious scratches, it can only be repaired and it will be returned as it is if the product is confirmed to be fault-free.

### 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 system voltage exceeding approved voltage.
- 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.

## 1.9. DLLA163P2291+ Diesel Injector Nozzle Manufacturer

Diesel Injector Nozzle manufacturer: Shenzhen Shumatt Technology Co., Ltd

## 2. DLLA163P2291+ Diesel Injector Nozzle Technical Support

### 2.1. DLLA163P2291+ Diesel Injector Nozzle Installation Precautions

- 1) **Clean the injector nozzle in an ultrasonic cleaner for 3-5 minutes before installation, so as to make the stains, dust, rust-proof oil oxides**, paraffin base, naphthenic base, intermediate base, salt, lead naphthenate, zinc naphthenate, sodium petroleum sulfonate, barium petroleum sulfonate, calcium petroleum sulfonate, tallow diamine trioleate, rosinamine on the surface of the injector nozzle fall off.
- 2) Use compressed air to clean the cleaning fluid attached to the surface of the injector nozzle after cleaning, and clean it up to the standard of use.

## 2.2. DLLA163P2291+ Injector Nozzle Inspection.

- 1) Check whether there is deformation, cracking, thread damage, quenching, leakage and rust in the guide sleeve, spring, gasket and tight cap of the nozzle. The tight cap of the nozzle must be replaced after being disassembled for more than 5 times, as shown in the following.



- 2) Replace the tight cap of the nozzle and the copper gasket of the injector nozzle
  - 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
  - ⚠ Nozzle tight cap deformation, cracking, thread damage, quenching, leakage, will lead to black smoke vehicle cap, fuel injector damage.
  - ⚠ 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. DLLA163P2291+ Injector Nozzle Test Measurement

### 1) Nozzle opening pressure test

Test whether the opening pressure range of the nozzle is within the range specified in the injector maintenance manual (**to be verified**), if not within the normal range, adjust the nozzle spring to adjust the gasket

- ⚠ If the value is greater than normal, reduce the oil nozzle spring adjusting gasket; if the value is less than normal, increase the oil nozzle spring adjusting gasket.

### 2) Stroke Measurement of Nozzle Needle Valve

Use a measuring tool to measure whether the stroke of the nozzle needle valve is within the range (**15-45um**) specified in the injector maintenance manual. If not, adjust the stroke of the nozzle to adjust the gasket.





⚠ If the value is greater than normal, thicken the gasket for oil-nozzle needle valve lift adjustment; if the value is less than normal, reduce the gasket for oil-nozzle needle valve lift adjustment

## 2.4. DLLA163P2291+ Diesel Injector Nozzle Installation

### 1) Tightening torque of injector nozzle

The torque lever and tightening moment specified in the injector maintenance manual must be installed when the injector nozzle is installed. (50Nm)



⚠ The tightening torque of the nozzle cap must be installed in accordance with the tightening torque specified in the injector maintenance manual

## 2.5. DLLA163P2291+ Injector Nozzle Testing 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 8mm<sup>2</sup>/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 6mm<sup>3</sup>/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 reaches 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 2mm<sup>3</sup>/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 0.5mm<sup>3</sup>/HH when adjusting.



## 2.6. DLLA163P2291+ Injector Nozzle List of Tools Used During Measurement and Installation

<b>Image</b>		
<b>SKU</b>	CRT084	CRT220
<b>Description</b>	Torque wrench: 19-110nm 1/2 It is used to control tightening force and angle during installation	Fuel injector stroke measuring tool: is used to measure buffer stroke of fuel injector, armature stroke and remaining air gap
<b>Image</b>		
<b>SKU</b>	CRT079	/
<b>Description</b>	Micrometer: is used to measure gasket thickness	Ultrasonic cleaning machine: is used for cleaning fuel injector and parts
<b>Image</b>		/
<b>SKU</b>	CRT281	/
<b>Description</b>	Common rail injector test bench: check the injector working condition	/



## 2.7. DLLA163P2291+ Injector Nozzle Causes of Damage

- 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) Nozzle needle wear leads to oil hole blockage, insufficient fuel injection injector cannot work properly.
- ▲ Nozzle needle wear leads to oil hole blockage, insufficient fuel injection injector can't work properly.
- ▲ The wear of the nozzle leads to the increase of fuel quantity, resulting in black smoke of the vehicle, and the fuel injector can't work properly when it is serious.
- ▲ If the nozzle needle can't 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.
- ▲ The opening pressure of the nozzle decreases, and the oil quantity of the injector increases, leading to black smoke of the vehicle, and the injector can't work properly when it is serious.
- ▲ Oil-nozzle needle valve lift adjustment gasket wear oil-nozzle needle valve stroke becomes larger, the fuel injector oil quantity becomes larger, resulting in black smoke of vehicles, resulting in the fuel injector can't work properly when serious.
- ▲ The cracking of the nozzle cap is caused by high intensity work under high temperature.

## 2.8. DLLA163P2291+ Injector Nozzle Technical Support Obtaining Methods

- 1) Injector 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:** Visit [https://www.youtube.com/channel/UCByvYBx7VjV\\_mAfxh\\_Hu-aw](https://www.youtube.com/channel/UCByvYBx7VjV_mAfxh_Hu-aw) to get the technical videos, and can learn more information if you follow .

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

- 3) Injector 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 injector nozzle test data through TruckBook Parts EPC APP.

## 3. DLLA163P2291+ Diesel Injector Nozzle Purchase and Delivery.

### 3.1. DLLA163P2291+ Diesel Injector Nozzle Purchase Payment Methods

**Payment Methods:** T/T, PayPal, Alipay, WeChat

Please contact our salesmen for specific payment information.

### 3.2. DLLA163P2291+ Diesel Injector Nozzle Main Sales Market.

**Diesel Injector Nozzle Main Sales Markets:** Asia, Europe, North America, South America, Africa etc.

### 3.3. DLLA163P2291+ Diesel Injector Nozzle 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. DLLA163P2291+ Diesel Injector Nozzle Shipping Ways

**Destination in China 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. DLLA163P2291+ Diesel Injector Nozzle Lead Time

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

### 3.6. DLLA163P2291+ Diesel Injector Nozzle 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.

### 3.7. DLLA163P2291+ Diesel Injector Nozzle Packing

**Domestic express packaging:** Usually wrapped in waterproof scotch tape, such as picture No.2.



Pic No.2



**International express packaging:** Wrapped with waterproof yellow tape After wrapping the black protective film, such as picture No. 3.



Pic No.3

**Pallet Shipping:** Use fumigation free and recycling trays that meet export requirements, and use white wrapping protective film to wrap and bind with cable ties for the outside, such as picture No. 4,



Pic No.4

- ⚠ The products can be packaged according to customers' requirements.
- ⚠ The packing tray is made of plastic and can be recycled.
- ⚠ Transparent tape, yellow tape, black wrapping protective film, white wrapping protective film are non-degradable materials, please dispose of them properly.
- ⚠ Minors are prohibited from using transparent tape, yellow tape, black wrapping protective film, and white wrapping protective film to avoid personal injury.

#### 4. **DLA163P2291+ Diesel Injector Nozzle Storage Standard**

##### 1) **Choose a suitable storage place**

The warehouse and cargo yard where the injector nozzles are 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 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 nozzles must be protected from damage.

## 3) Keep the warehouse dry and preventing moisture

The relative humidity is usually below 70% for the injector nozzles placed in the room, and the corrosion of the 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 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 diesel injector nozzle must be rust-proof during secondary storage.

## 5. Company Information



### 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:** +852-67653519

**Telephone:** +86-755-23215133

**Email:** [ruby@shumatt.com](mailto:ruby@shumatt.com)

**Website:** [www.shumatt.net](http://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: [1.8. DLLA163P2291+ Diesel Injector Nozzle Warranty Instructions](#))

## 5.2. Contact Information

Name	WeChat/ WhatsApp	Email
Ruby	+86-13410541523	<a href="mailto:hison@shumatt.com">hison@shumatt.com</a>

## 6. Copyright Policy

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