



Fuel Injector

Technical Spec

ECOTRONS LLC

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Note: If you are not sure about any specific details,
please contact us at info@ecotrons.com.

Product: **Fuel Injector**

Type: **EFIJ- Series**

Comment: All data given in this document are nominal values and might
be subject of change at all time

Index	Page	Revision	Date	Note
1	----	First Edition	11.28.2013	V1.3
2	----	Second Edition	4.11.2014	V1.3.1
3	----	Third Edition	7.11.2014	V1.3.2
4	----	Fourth Edition	2.16.2017	V1.3.3

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1 Characteristic

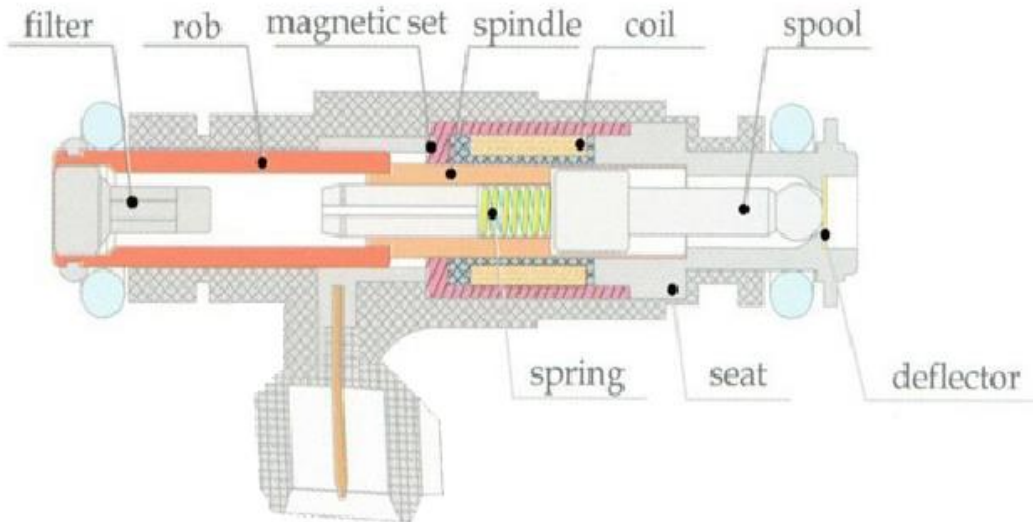
General

EFIJ- series fuel injectors are designed to inject the fuel into the intake manifold to achieve a homogeneous distribution of fuel in air flow as efficiently as possible. The injectors are used on EFI system usually.

1.1 Product structure



Injector consist the filter, electrical fittings, solenoid coil, the armature, needle valve, O-ring, seals and other components.



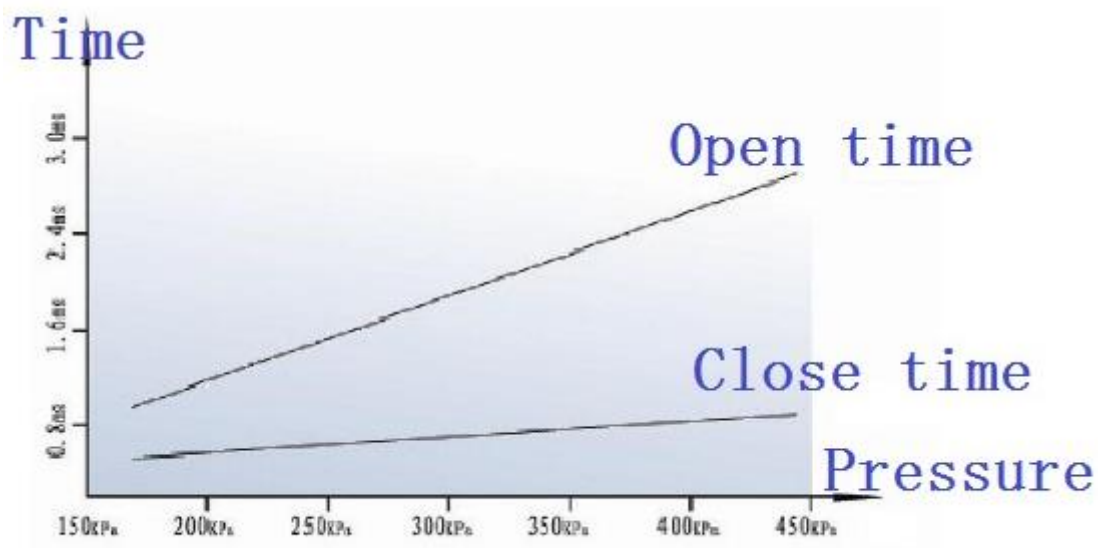
1.2 Basic parameter

type		EFIJ--1 single hole	EFIJ--3(triple hole)
General technical requirements	Working temperature	-30°C+120 °C	
	Storage temperature	-40 °C -+75 °C	
	Working voltage	12v-14v	
	Working fuel pressure	100Kpa-450kpa	
Open time		0.9ms(no-load),1ms(300Kpa load)	
Close time		0.65ms	
Difference between open and close time		≤2%(1000times operated at any linear pulse)	
The static flow		10g(300Kpa@ 10s fully open flow)	
Uniformity of the static and dynamic flow		< ±3%	
The offset of the spraying flow		< ±3%	
Dynamic flow linear error		< ±3%	
Working voltage requirements	The minimum voltage of working voltage	< 7v	
	The overload working voltage requirements	after24@60s: the offset of dynamic flow < ±4%	
Seal leakage		<0.3cc/min(400kpa)	
Atomized particle (50% SMD)		70	
The error of spraying angle		±3°	±5°

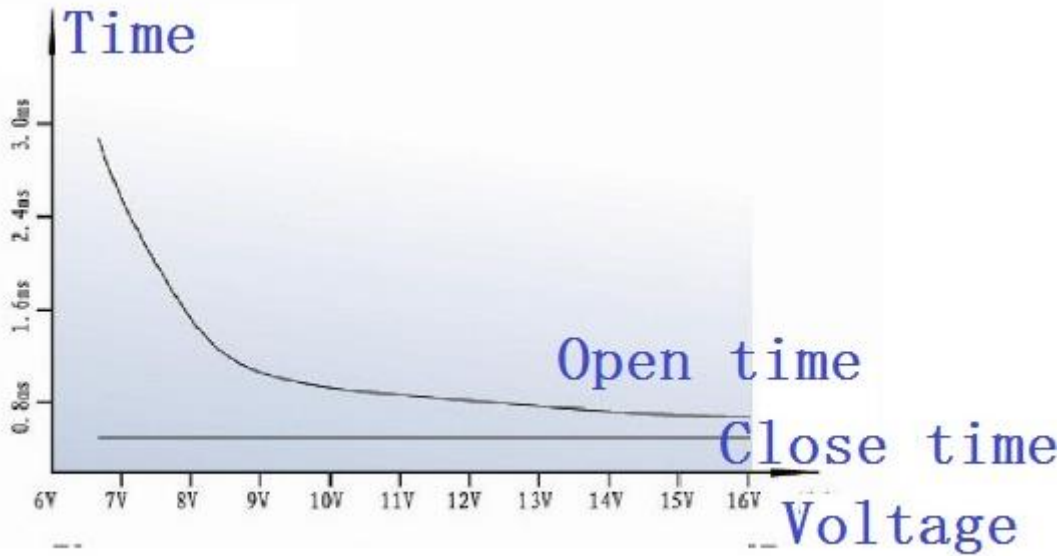
Low temperature test	Dynamic flow $< \pm 3\%$ Seal leakage $< 0.3\text{cc/min}(400\text{kpa})$
High temperature test	
Thermal shock test	
Physical performance test	
Durability test for 0.6billion	
Socket performance test of injectors	In accordance with QC/T417
Noise performance test of injectors	$< 70\text{db(A)}$
Salt performance test of injectors	No corrosion marks on the injectors Offset of dynamic flow $< \pm 3\%$,
Weight	30g

1.3 Nominal characteristic line

The line between fuel pressure and open time & closed time:



The line between voltage change and open time & closed time:



1.4 Performance characteristics

- 1) Opening and closing time is short
- 2) The offset of the spraying flow is small\
- 3) Dynamic flow linear is well
- 4) Atomized particle is well and small
- 5) The pulse width and the flow of large linear range

2 Applications

2.1 typical applications

EFIJ- series Injectors are widely used in all kinds of medium and small displacement motorcycle engine Fuel Injection System (EFI system).

2.2 Technical Specifications

item	parameter	TEST CONDITION
Pressure range	2~4.5bar	
Weight	30g	
Fuel input	Top-feed injector	
Operating temperature	-30~+120°C	
Permissible fuel	≤70°C	

temperatures		
Flow rate	30~248 g/min@3Bar	
Spray type	C (Conical Spray) or E (1-Spray)	
Driver current	1A	@12V
Fuel compatibility	gasoline /E85	
Coil resistance	12Ω~14.5Ω	
Power supply	10~16V	

2.3 EFIJ- series

item	EFIJ-1 -38	EFIJ-2 -60	EFIJ-2 -80	EFIJ-2 -128	EFIJ-4 -190	EFIJ -4 -248
Flow (g/min)	38	60	80	128	190	248
Holes	1	2	2	2	4	4
Atomization	E	C	C	C	C	C

Note: C (Conical Spray) or E (1-Spray)

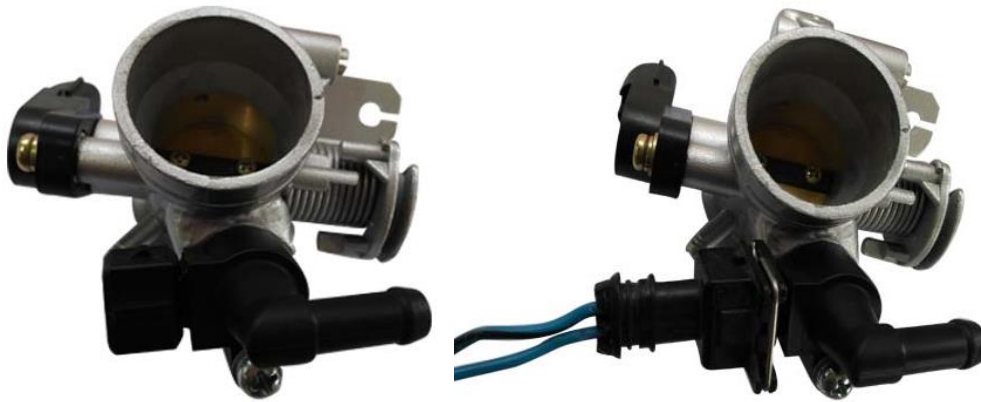
2.4 Applications with Ecotrons EFI system

There is a connector from ECU harness; you need connect it to the injector when you install the EFI system, plug the connector and tighten it.

**Fuel injector connector:****Control signal wire: Blue/Black wire****Power wire: Blue wire (12V DC)**

The control signal is from ECU, when the voltage of control wire is Low(0V), the injector will inject fuel, and when the control signal voltage is high(12V), the injector will be closed and not inject fuel.

3 Installation instructions**3.1 Install injector on throttle body**



Please install the fuel injector on the throttle body with a screw, and then plug the connector from ECU harness to injector.

3.2 Install injector on intake manifold

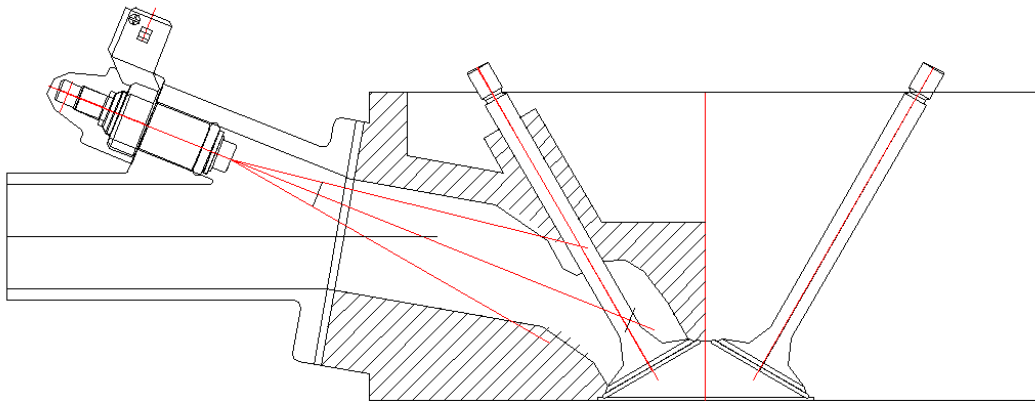
If you use custom intake manifold to install the fuel injector, the angle of installation is very important.

The injector atomization effect is good, 80% of the particles are concentrated in 15 degree taper angle, the length of inject is about 80mm.

Fuel injector is installed on intake manifold, can play a maximum effect, reduce emissions. Design the installation of the injector seat when must do atomization characteristics on the basis of injector possible; let the engine intake more mixture in the intake stroke.

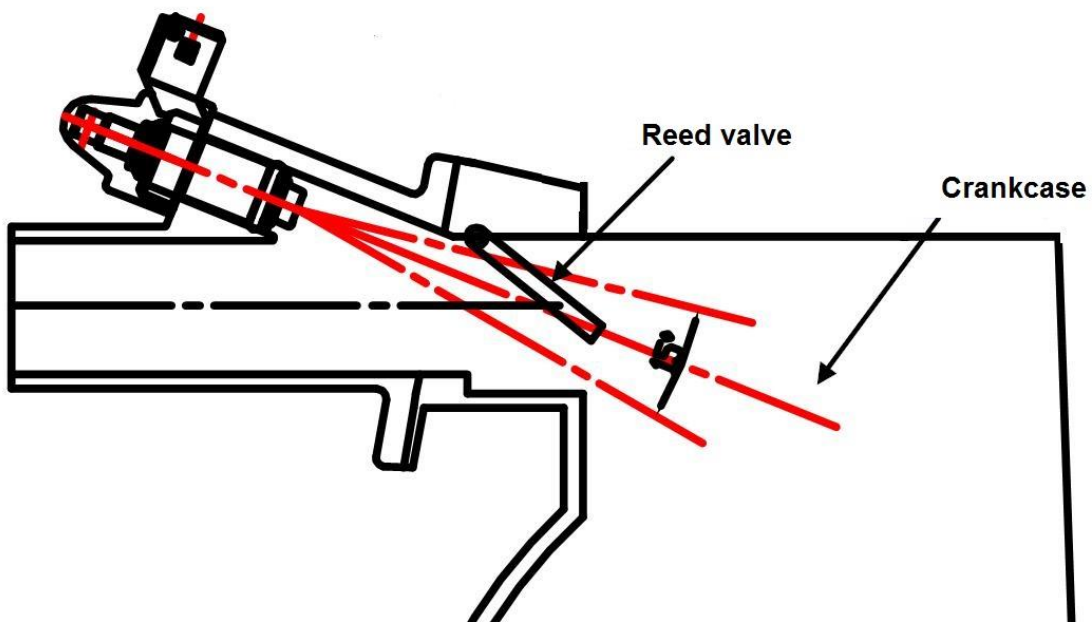
See below picture as reference:

For four-stroke engine:



Four stroke engine installation

Four two-stroke engine:



Two stroke engine installation

4 Diagnoses and aftermarket

A) If the fuel cap is broken or fuel leaking, please contact us to replace one new injector.

Note: if the fuel injector is leaking, please don't use it again for safe.

B) If there is control signal, but the fuel injector doesn't inject fuel, maybe the fuel injector is jammed; you also need to change a new injector.

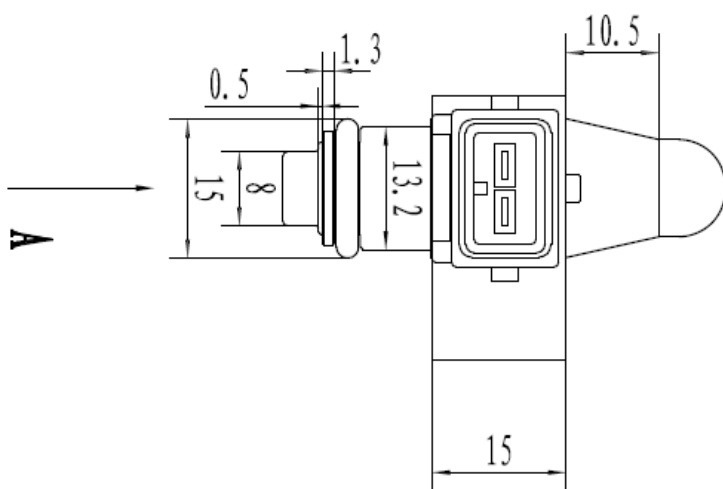
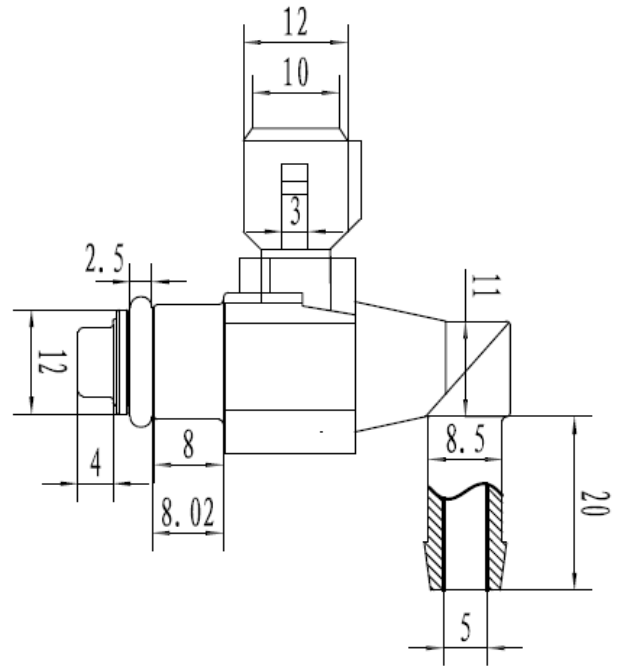
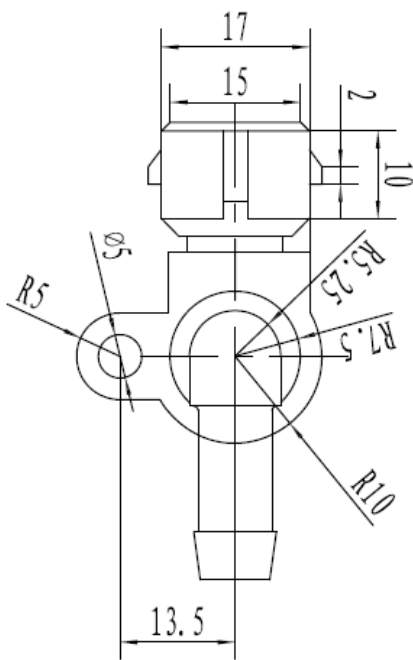
Checking method: remove the injector from the throttle body, and use another two wires, connect the two pins of injector to 12V battery directly, when fuel pump is running, see if injector injects fuel. The injector may be broken if there is no injection fuel from injector.

C) Disconnect the connector, and use the multi-meter to measure the injector resistance.

It the resistance is out of range $12 \pm 1 \text{ ohm}$, and the resistance is too large or small, you also need to change a new injector.

5 Appendix: Mechanical CAD Drawing

(Unit: mm)



VIEW A

