Ignition Coil C90i-E10

- Max. 40 kV
- Min. 90 mJ
- Max. 5.0 kV/µs
- Max. 15,000 1/min
- Fits to spark plugs with a ceramic diameter of 10 mm

This single fire coil was developed for the use e.g. in GDI (turbocharged) high performance engines. It is designed for direct cylinder head mounting.
For this single fire coil the customer can define the length of the spark plug connector.
The main benefits of this high performance coil are its high energy capability and a very good provided high voltage.

Application

Spark energy	≥ 90 mJ
Primary current	≤ 16 A
Operating temperature range outer core	0 to 160°C
Storage temperature range	-40 to 100°C
Max. vibration	≤ 480 m/s^2 at 50 to 2,000 Hz

Technical Specifications

Mechanical Data

Length	114 to 225 mm, depending on customer requirements
Weight w/o wire	< 270 g
Mounting	Screw fastening
Fits to spark plugs with a ceramic diameter of 10 mm	

Electrical Data

Primary resistance	185 mOhm
Secondary resistance	Incapable of measurement
High voltage rise time	≤ 5.0 kV/µs
Max. high voltage at 1 MOhm || 10 pF	≤ 40 kV
Spark current	≤ 160 mA
Spark duration at 1 kV || 1 MOhm	≤ 1.1 ms
Noise suppression	Inductive and 1 kOhm resistance
Suppression diode / EFU	Internal

Characteristic

Measured with power stage	IGBT IRG4BC40S (Uce=600 V)

Connectors and Wires

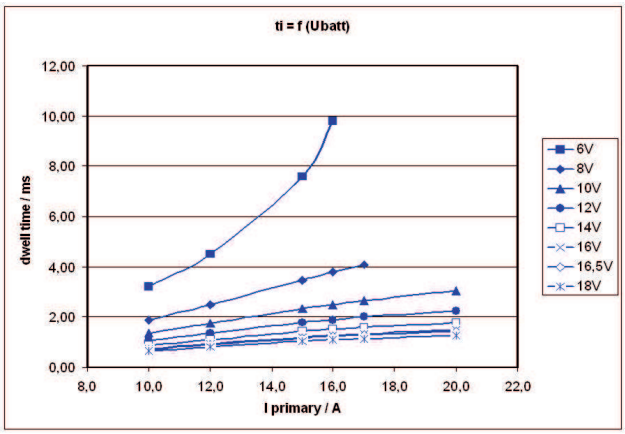
Connector	On request
Mating connector	On request
Pin 1	U_{batt} red
Pin 2	ECU ignition power stage blue
Pin 3	Engine GND black
Pin 4	White: Ionic current signal measurement preparation
Wire length	100 cm
Wire size	AWG 20/22
Various motorsport and automotive connectors are available on request.	
Please specify the required wire length and the length of the spark plug connector with your order	

Characteristic dwell times [ms]

U_{batt}	I primary					
	10 A	12 A	15 A	16 A	17 A	20 A
6 V	3.2	4.5	7.6	9.8		
8 V	1.88	2.49	3.47	3.79	4.10	
10 V	1.35	1.76	2.34	2.51	2.67	3.05

12 V	1.06	1.35	1.77	1.89	2.00	2.24
14 V	0.87	1.11	1.43	1.52	1.60	1.79
16 V	0.74	0.93	1.20	1.28	1.34	1.49
16.5 V	0.71	0.90	1.15	1.23	1.29	1.43
18 V	0.64	0.81	1.03	1.10	1.15	1.27

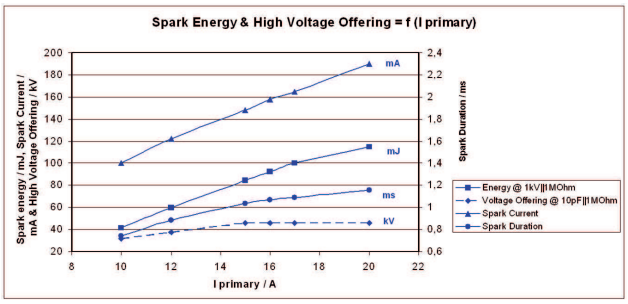
Measured values are without loom resistance. Loom resistance must be less than the primary resistance. The needed dwell time is to be verified through current measurement



Dwell time

Spark energy and provided high voltage

I prim.	Spark energy	-duration	-current	Hi voltage
10 A	41.4 mJ	0.74 ms	100 mA	31.6 kV
12 A	59.5 mJ	0.882 ms	122 mA	37.4 kV
15 A	84.4 mJ	1.034 ms	148 mA	45.7 kV
16 A	92.6 mJ	1.07 ms	158 mA	46 kV
17 A	100 mJ	1.09 ms	165 mA	46 kV
20 A	115 mJ	1.16 ms	190 mA	46 kV



Spark energy

Installation Notes

During mounting of the spark plug please pay attention that full clamping and proper contacts are made to ensure safe connection between coil and spark plug.

This coil is only for use with engine control units having an integrated ignition power stage, e.g. IGBT IRG4BC40S or BIP.

For technical reasons the values of the coils may vary.

Please regard the specified limit values (see “Electrical Data”).

Usage above Iprim = 16 A or 40 kV may reduce the lifetime.

Please find further application hints in the offer drawing at our homepage.

In case of ignition-caused malfunctions, please use screened sensor wires.

Design Note

We strongly recommend the design of the spark plug shaft has to ensure that there are no sharp edges in the shaft geometry due to design or machining. Only in compliance with this recommendation, a proper function can be ensured.

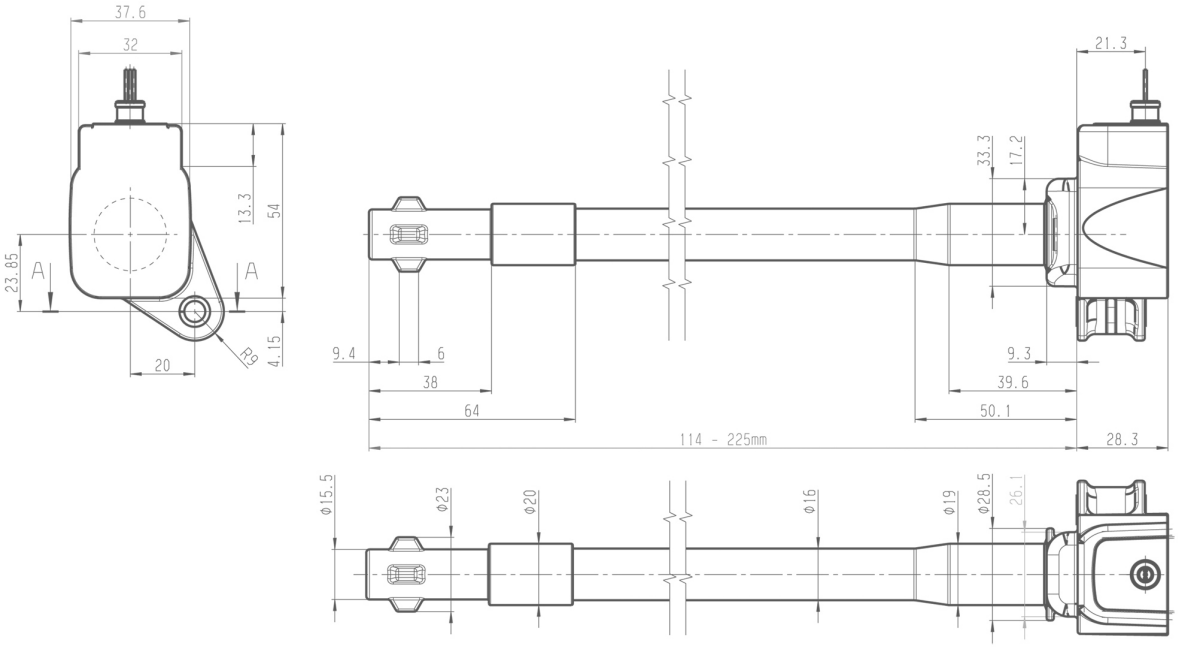
Legal Restrictions

Generally blocked are direct and indirect business involving high risk destinations, including Russia, Belarus, Cuba, Iran, North Korea, Syria, Libya, Afghanistan, and certain non-governmental controlled Ukrainian regions. This list may change as geopolitics evolve.

Ordering Information

Ignition Coil C90i-E10
Order number **depending on customer requirements**

Dimensions



See Offer Drawing for further information

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