

# Ignition Coil C90i-WG



This single fire coil was developed for the use e.g. in GDI (turbocharged) high performance engines. It is designed to connect a high voltage wire on the coil. The main benefit of this high performance coil is its high energy capability.

## 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	≤ 250 m/s <sup>2</sup> at 50 to 2,000 Hz

## Technical Specifications

### Mechanical Data

Length	83 mm
Weight w/o wire	210 g
Mounting	screw fastening

### Electrical Data

Primary resistance	185 mOhm
Secondary resistance	Incapable of measurement
High voltage rise time	≤ 5.0 kV/μs
Max. high voltage	≤ 35 kV
Spark current	≤ 160 mA
Spark duration at 1 kV    1 MOhm	≤ 1.1 ms
Noise suppression	Inductive
Suppression diode / EFU	Internal

- ▶ Max. 35 kV
- ▶ Max. 90 mJ
- ▶ Especially developed for Turbo-GDI engines
- ▶ Max. 15,000 1/min
- ▶ Connection for high voltage wire

## Characteristic

Measured with power stage	IGBT IRG4BC40S (U <sub>ce</sub> =600 V)
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## Connectors and Wires

Connector primary side	On request
Mating connector primary side	On request
Pin 1	U <sub>batt</sub> red
Pin 2	ECU ignition power stage blue
Pin 3	Engine GND black
Wire length	100 cm
Wire size	AWG 20/22
30 kV grid connectors	See Accessories

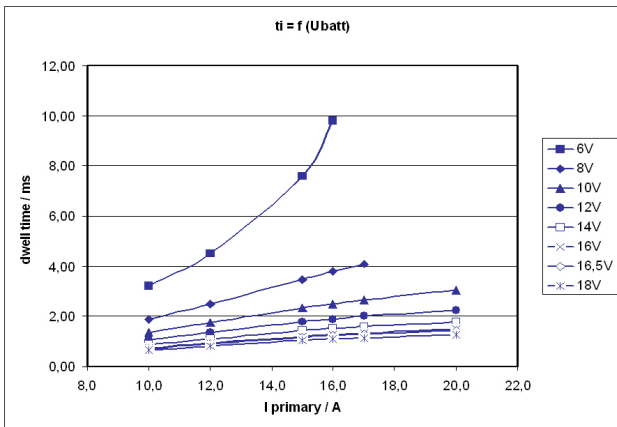
Various motorsport and automotive connectors are available on request.

Please specify the required wire length if you order the coil with a motorsport connector.

## Characteristic dwell times [ms]

U <sub>batt</sub>	I primary					
	10 A	12 A	15 A	16 A	17 A	20 A
<b>6 V</b>	3.2	4.5	7.6	9.8		
<b>8 V</b>	1.88	2.49	3.47	3.79	4.10	
<b>10 V</b>	1.35	1.76	2.34	2.51	2.67	3.05
<b>12 V</b>	1.06	1.35	1.77	1.89	2.00	2.24
<b>14 V</b>	0.87	1.11	1.43	1.52	1.60	1.79
<b>16 V</b>	0.74	0.93	1.20	1.28	1.34	1.49
<b>16.5 V</b>	0.71	0.90	1.15	1.23	1.29	1.43
<b>18 V</b>	0.64	0.81	1.03	1.10	1.15	1.27

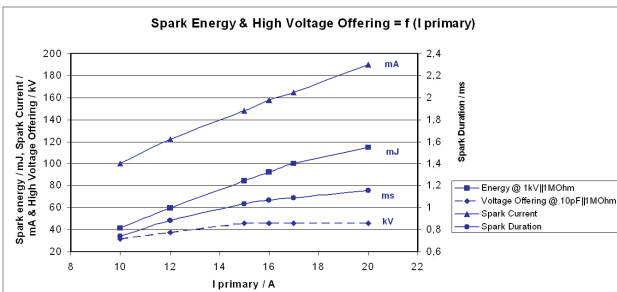
Measured values are without loom resistance. Loom resistance must be less than the primary resistance. The needed dwell time is to be verified through current measurement



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 (high voltage wire).

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 I<sub>prim</sub> = 16 A or 35 kV may reduce the lifetime.

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

**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.

**Ordering Information**

**Ignition Coil C90i-WG**  
Order number **F 02U V02 430-01**

**Accessories**

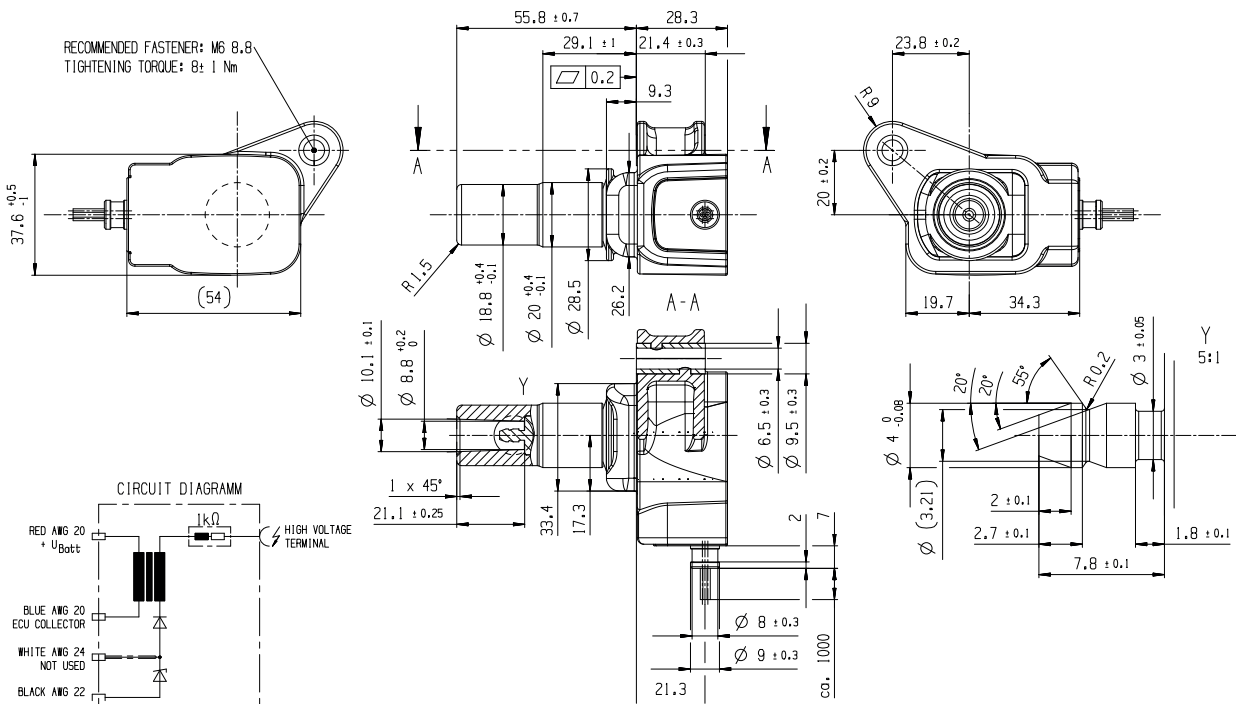
**High Voltage Connector straight**  
Please ask your local Bosch Service  
Order number **0 356 200 015**

**High Voltage Connector angled**  
Please ask your local Bosch Service  
Order number **0 356 250 035**

**M3 Connector inside (required for every HV Connector)**  
Please ask your local Bosch Service  
Order number **1 350 521 001**

**High Voltage Wire 50 m**  
Please ask your local Bosch Service  
Order number **5 956 563 015**

Dimensions



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