

# Ignition Coil P50



- ▶ Max. 35 kV
- ▶ Min. 50 mJ
- ▶ Max. 3.0 kV/μs
- ▶ Max. 10,000 1/min
- ▶ High voltage contacting via high voltage wire and spark plug connector possible

The single fire coil P50 is a low cost concept designed for direct mounting to the cylinder head. A high voltage ignition wire can optionally be connected to the secondary output terminal.

The coil P50 requires an ECU with internal ignition power stages for each single fire coil.

The coil P50-M is specifically for motorsport applications. This coil is operable in higher vibration environments.

## Application

Spark energy	≥ 50 mJ
Primary current	≤ 8.5 A
Operating temperature range at outer core	-20 to 140°C
Storage temperature range	-40 to 100°C
Max. vibration	≤ 400 m/s <sup>2</sup> at 5 to 2,000 Hz

## Technical Specifications

### Mechanical Data

Weight	223 g
Mounting	Pluggable
Spark plug connector	-

### Electrical Data

Primary resistance with wire	370 mOhm
Secondary resistance	Incapable of measurement
High voltage rise time	≤ 3.0 kV/μs
Max. high voltage at 1 MOhm    10 pF	≤ 35 kV
Spark current	≤ 92 mA

Spark duration at 1 kV    1 MOhm	≤ 1.15 ms
Noise suppression	With spark plug connector
Suppression diode / EFU	Integrated

### Characteristic

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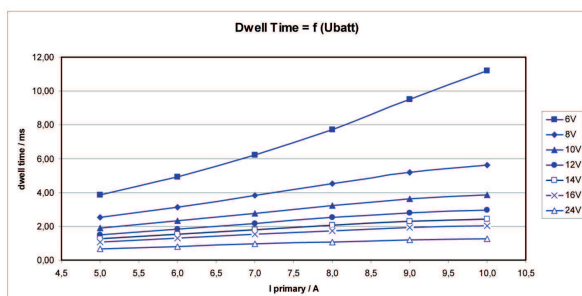
### Connectors and Wires

Connector	Bosch Compact
Mating connector 3-pole Compact	D261.205.335-01
Pin 1	ECU ignition power stage
Pin 2	Engine GND
Pin 3	U <sub>batt</sub>
Various motorsport and automotive connectors are available on request.	
For spark plugs	Ceramic diameter d=10 mm

### Characteristic dwell times [ms]

U <sub>batt</sub>	I <sub>primary</sub>					
	5.0 A	6.0 A	7.0 A	8.0 A	9.0 A	10 A
6V	3.84	4.93	6.2	7.7	9.5	11.2
8V	2.54	3.14	3.81	4.51	5.17	5.61
10V	1.9	2.33	2.76	3.21	3.62	3.87
12V	1.51	1.84	2.17	2.51	2.8	2.97
14V	1.26	1.52	1.79	2.06	2.29	2.42
16V	1.07	1.3	1.53	1.74	1.93	2.04
18V	0.94	1.13	1.32	1.51	1.67	1.77
24V	0.68	0.81	0.95	1.08	1.19	1.26
30V	0.53	0.63	0.74	0.84	0.93	0.98

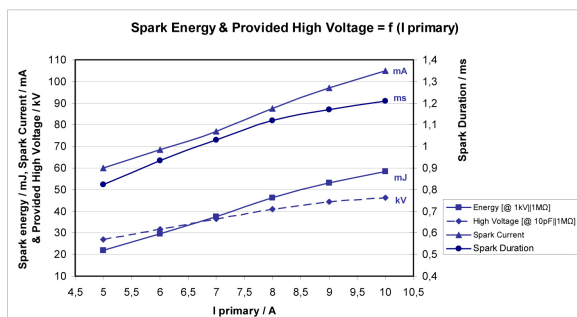
Measured values are without loom resistance. Loom resistance must be less than the primary resistance. The needed dwell time is to be verified through current measurement



Dwell time

### Spark energy and provided high voltage

I prim.	Spark energy	-duration	-current	Hi voltage
5 A	22 mJ	0.82 ms	60 mA	26.8 kV
6 A	29.7 mJ	0.93 ms	68.5 mA	31.6 kV
7 A	37.5 mJ	1.03 ms	77 mA	36.4 kV
8 A	46.3 mJ	1.12 ms	87.5 mA	40.9 kV
9 A	53 mJ	1.17 ms	97 mA	44.4 kV
10 A	58.4 mJ	1.21 ms	105 mA	46.3 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.

The coil P50 has no integrated transistor and requires an ECU with internal ignition power stages, e.g. IGBT IRG4BC40S or BIP. For technical reasons the values of the coils may vary.

Please regard the specified limit values.

Usage above I<sub>prim</sub> > 8.5 A or 35 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.

## Ordering Information

### Ignition Coil P50

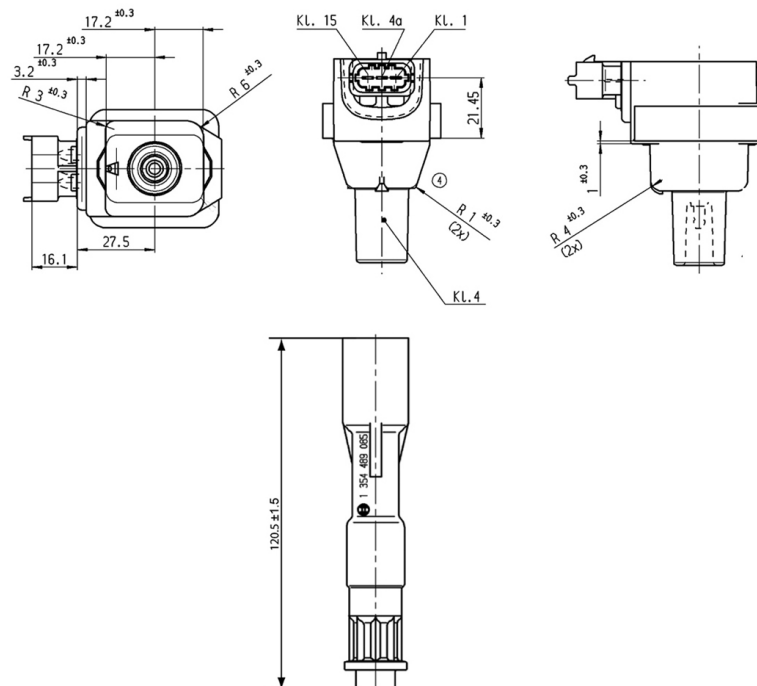
Order number **0221.504.001**

### Accessories

#### Accessory spark plug connector

Order number **1354.489.085**

## Dimensions



See Offer Drawing for further information

### Represented by:

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