

Single Fire Coil S19

www.bosch-motorsport.com



BOSCH
Invented for life



- ▶ Max. 30 kV
- ▶ Max. 34 mJ
- ▶ Max. 7.5 kV/μs
- ▶ Max. 20,000 1/min

This single fire coil was developed for the use in Formula 1 high performance engines. It is designed to mount directly on the spark plug.

This coil optionally provides an ionic current measurement.

The S19 has no integrated transistor and requires an ECU with internal ignition power stages.

The upper part (wire side) and the lower part (spark plug side) can be designed per customer specification. The main benefits of this high performance coil are its robustness in hard racing applications and high energy efficiency.

Application

Spark energy	≤ 34 mJ
Primary current	≤ 25 A
Operating temperature range at outer core	0 to 160°C
Storage temperature range	-40 to 100°C
Max. vibration	≤ 800 m/s ² at 5 to 2,500 Hz

Technical Specifications

Mechanical Data

Diameter	18.5 mm
Weight	100 g
Mounting	Pluggable / pressed

Electrical Data

Primary resistance with wire	200 mΩ
Secondary resistance	Incapable of measurement
High voltage rise time	≤ 7.5 kV/μs
Max. high voltage at 1 MΩ 10 pF	≤ 30 kV
Spark current	≤ 320 mA
Spark duration at 1 kV 1 MΩ	≤ 0.27 ms
Noise suppression	Inductive
Suppression diode / EFU	Integrated
Ionic current signal	Optional

Characteristic

Measured with power stage	IGBT IRG4BC40S (U _{ce} = 600 V)
---------------------------	--

Connectors and Wires

Connector	Open end
Mating connector	-
Pin 1	U _{batt} red
Pin 2	ECU power stage white
Pin 3	Engine GND black
Pin 4	Optional ionic current signal screen wire white

Various motorsport and automotive connectors are available on request.

Wire size	AWG 20/22
Wire length L	Max. 100 cm

Please specify the required wire length with your order.

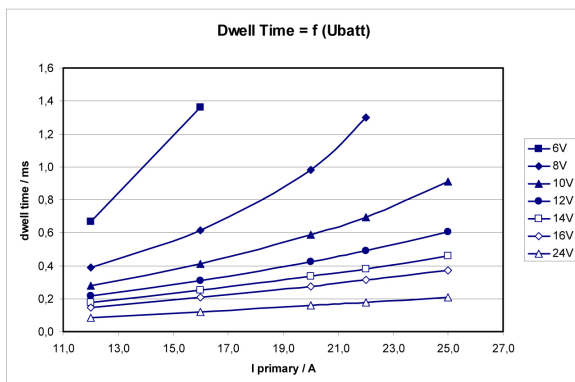
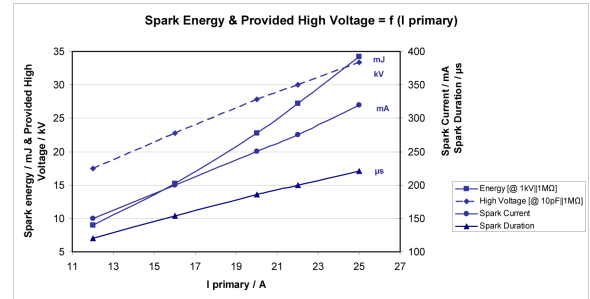
Characteristic dwell times [ms]

U _{batt}	I _{primary}				
	12A	16.0A	20.0A	22.0A	25.0A
6V	0.7	1.4			
8V	0.390	0.613	0.980	1.300	
10V	0.278	0.411	0.586	0.695	0.910
12V	0.216	0.310	0.426	0.491	0.606
14V	0.176	0.250	0.335	0.382	0.460
16V	0.148	0.208	0.276	0.313	0.371
24V	0.084	0.119	0.157	0.175	0.208
27V	0.077	0.107	0.139	0.155	0.180
30V	0.068	0.094	0.122	0.136	0.157

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

Spark energy and provided high voltage

I _{prim.}	Spark energy	-duration	-current	Hi voltage
12 A	9 mJ	120 μs	150 mA	17.5 kV
16 A	15.2 mJ	154 μs	200 mA	22.8 kV
20 A	22.8 mJ	186 μs	250 mA	27.8 kV
22 A	27.2 mJ	200 μs	275 mA	30 kV
25 A	34.2 mJ	221 μs	320 mA	33.4 kV



Dwell time
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 S22 has no integrated transistor and requires an ECU with internal ignition power stages, e.g. IGBT IRG4BC40S.

For technical reasons the values of the coils may vary.

Please regard the specified limit values.

Please find further application hints at our homepage.

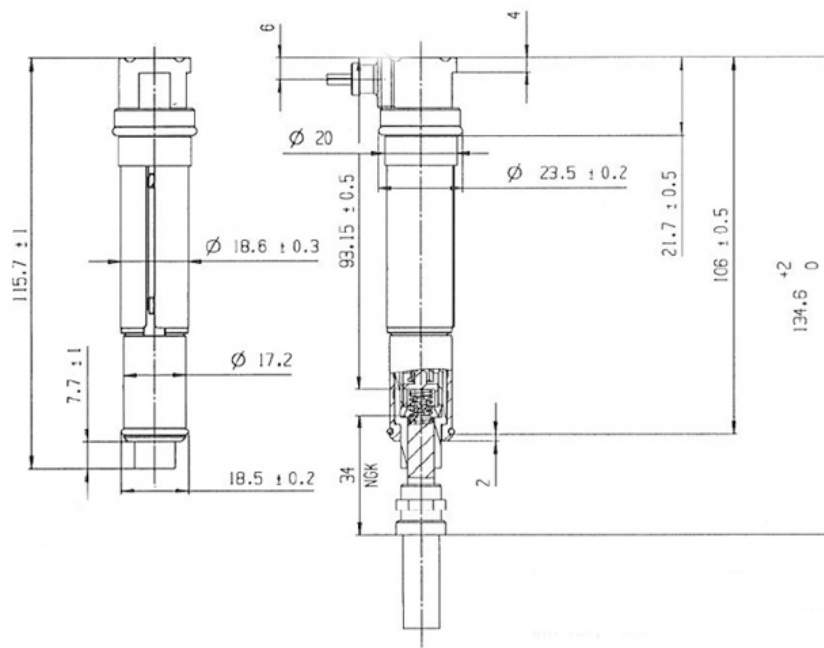
In case of ignition-caused malfunctions, please use screened sensor wires.

Ordering Information

Single Fire Coil S19

Order number **0 221 B00 113-01**

Dimensions



Represented by:

Europe:
 Bosch Engineering GmbH
 Motorsport
 Robert-Bosch-Allee 1
 74232 Abstatt
 Germany
 Tel.: +49 7062 911 79101
 Fax: +49 7062 911 79104
 motorsport@bosch.com
 www.bosch-motorsport.de

North and South America:
 Bosch Engineering North America
 Motorsports
 38000 Hills Tech Drive
 Farmington Hills, MI 48331-3417
 United States of America
 Tel.: +1 248 876 2977
 Fax: +1 248 876 7373
 motorsport@bosch.com
 www.bosch-motorsport.com

Asia-Pacific:
 Bosch Engineering Japan K.K.
 Motor Sport Department
 3-33-8 Tsuruya-cho, Kanagawa-ku, Yokohama-shi
 Kanagawa 221-0835
 Japan
 Tel.: +81 45 410 1650
 Fax: +81 45 410 1651
 motorsport@bosch.com
 www.bosch-motorsport.com