

# Spark Plug Adaptor

## for Cylinder Pressure Sensor Type 6052B...

Type 6517B...

The Type 6517B... spark plug adaptor allows fitting of the Type 6052B... miniature pressure sensor in the cylinder head of petrol engines, without the need for an additional measuring bore. The sensor is basically mounted flush as with direct fitting.

- Measurement without indicating bore
- Sensor easily fitted
- Sensitivity of 20 pC/bar (with Type 6052B... sensor)

### Description

The eccentrically positioned electrode leaves enough room to fit a sensor. The Type 6052B... pressure sensor is screwed into the hexagon of the spark plug. This arrangement makes it easy to use a single sensor for several plugs. From about 4 000 1/min, the approximately 20 mm long passage connecting sensor and combustion chamber causes pipe resonance superimposed on the signal.

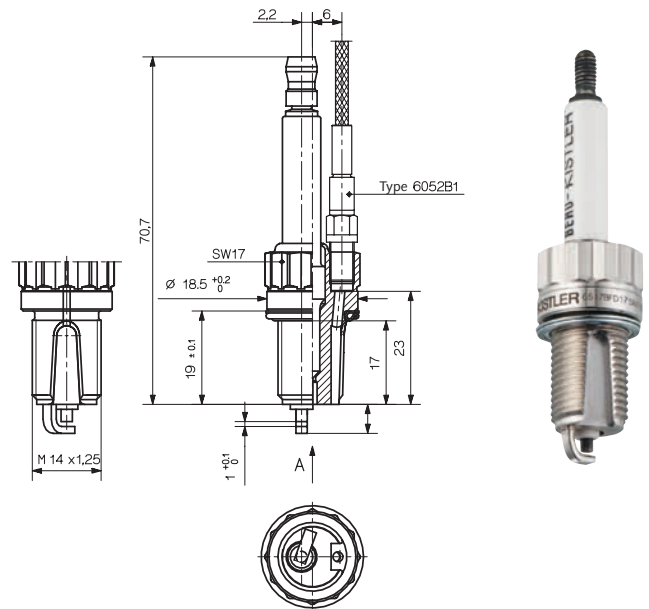
### Application

A measuring spark plug is used to measure cylinder pressure wherever the cost of adaptation for the sensor has to be kept to a minimum. One example is the tuning of engine electronics.

The Type 6517B... spark plug adaptor is preferred to the Type 6117B... measuring spark plug for low-speed applications requiring maximum sensor sensitivity and minimum thermal shock error. The easy interchangeability of the Type 6052B... sensor is also an advantage.

### Shape

- Bi-Hexagonal SW17
- Central electrode Cu/Ni
- Thread M14 x 1,25
- Ground electrode (normal) 1



### Technical Data

With Type 6052B... sensor fitted. The other data of the sensor, see data sheet for high pressure temperature sensor Typ 6052B... (000-016) remain unchanged.

Range	bar	0 ... 250
Overload	bar	300
Acceleration sensitivity		
axial	bar/g	0,0002
radial	bar/g	0,0005
Operating temperature range	°C	-50 ... 400
Torque setting for sensor	Nm	1,5
Torque setting for spark plug		
with flat seal, gray cast iron and aluminium	Nm	25
Torque setting for spark plug		
with tapered seat gray cast iron	Nm	25
aluminium	Nm	20
Sensitivity shift		
produced by tightening spark plug	20 ... 30 Nm	<0,5 %
Plug insulation resistance at room temperature (between central electrode and body at 1 000 V	MΩ	>100
Weight with sensor	g	42
Maximum ignition voltage	kV	<30

1 g = 9,80665 m · s<sup>-2</sup>; 1 m · s<sup>-2</sup> = 0,1019... g; 1 inch = 25,4 mm;  
1 Nm = 0,73756... lbft; 1 g = 0,03527... oz

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**Mounting (Fig. 1)**

The sensor is first screwed into the spark plug flush. Then the entire unit (including insulating extension connector and protective cartridge (item No. 3.315.042)) screwed into the spark plug bore with special Type 1300A19 spark plug wrench. A spark plug channel of only 21 mm in diameter is required.

To avoid electrical interference, the sensor cable should be connected as directly as possible, ie without extension, to the charge amplifier using the Type 1705 coupling.

The Type 1700B15 insulating extension connector and the protective cartridge (Item No. 3.315.042) must always be used for better electrical insulation. They also greatly improve the mechanical stability of the arrangement.

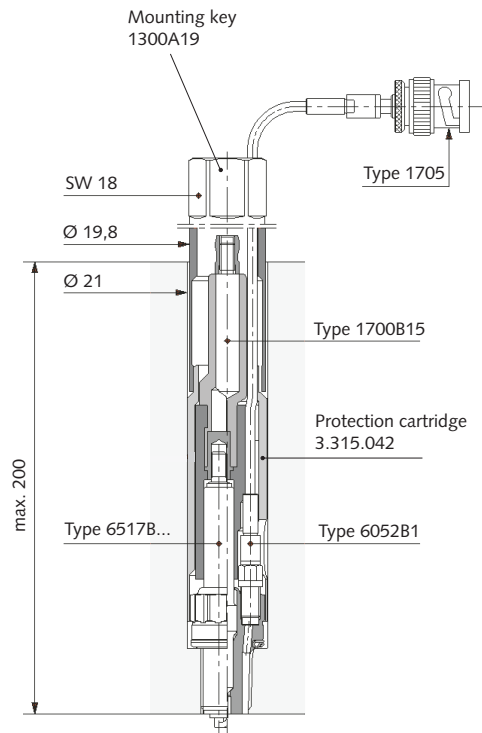


Fig. 1: Screwing spark plug into bore

**Heat Range (HR)**

The heat range defines the thermal conductivity of the plug. The Kistler measuring spark plugs are classified according to the BERU/BOSCH range:

NEW	10	9	8	7	6	5	4	3	09	08	07
OLD	100	125	150	175	200	225	250	275	325	350	375
	Hot		↔		medium			↔		Cold	

Since every manufacturer uses a different numbering system, a reference hand book has to be used to find the appropriate heat range.

The original heat range should be used if possible. A spark plug can be replaced by a colder spark plug, but never by a hotter one. A spark plug with a Heat Range of 6 can be replaced by one with a heat value of 5, but not the contrary.

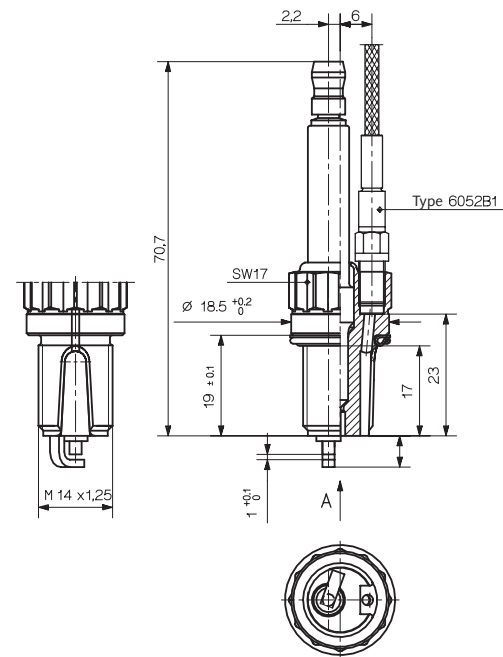
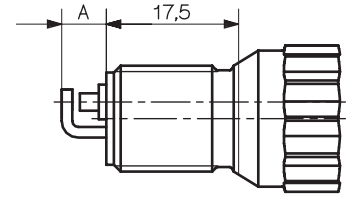
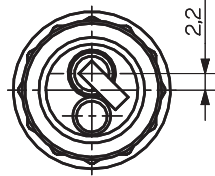


Fig. 2: Spark plug with flat seal

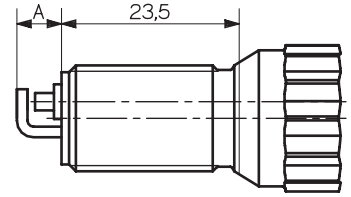
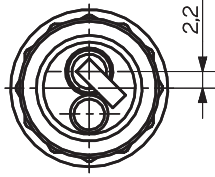
000-491e-02.04 (DB04.6517Be)

**Available Versions of the M14 x 1,25 Measuring Spark Plug**

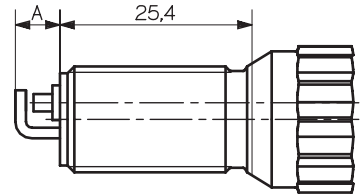
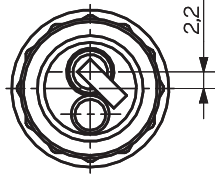
Type 6517B...	...CD15	...CD17
Thread length	17,5 mm	17,5 mm
Seal	tapered	tapered
Heat range	5	7
Spark position A	5,2	5,2
Electrode gap	0,8	0,8



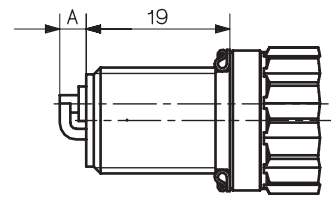
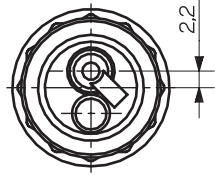
Type 6517B...	...CD23	...CD25	...CD26	...CD27
Thread length	23,5 mm	23,5 mm	23,5 mm	23,5 mm
Seal	tapered	tapered	tapered	tapered
Heat range	3	5	6	7
Spark position A	3,2	5,2	5,2	5,2
Electrode gap	0,8	0,8	0,8	0,8



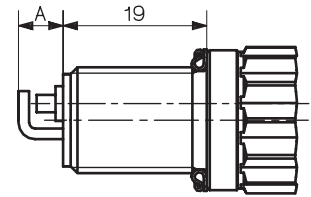
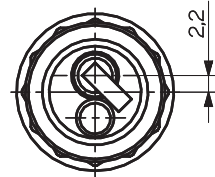
Type 6517B...	...CD36	...CD39
Thread length	25,4 mm	25,4 mm
Seal	tapered	tapered
Heat range	6	9
Spark position A	7,2	5,2
Electrode gap	1,1	0,8



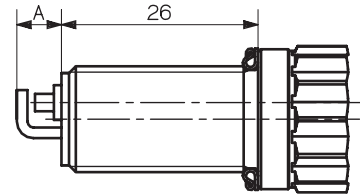
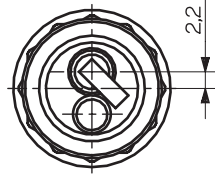
Type 6517B...	...F107
Thread length	19 mm
Seal	flat
Heat range	07
Spark position	2,5
Electrode gap	0,5



Type 6517B...	...FD13	...FD15	...FD16	...FD17
Thread length	19 mm	19 mm	19 mm	19 mm
Seal	flat	flat	flat	flat
Heat range	3	5	6	7
Spark position A	3,2	5,2	5,2	5,2
Electrode gap	0,8	0,8	0,8	0,8



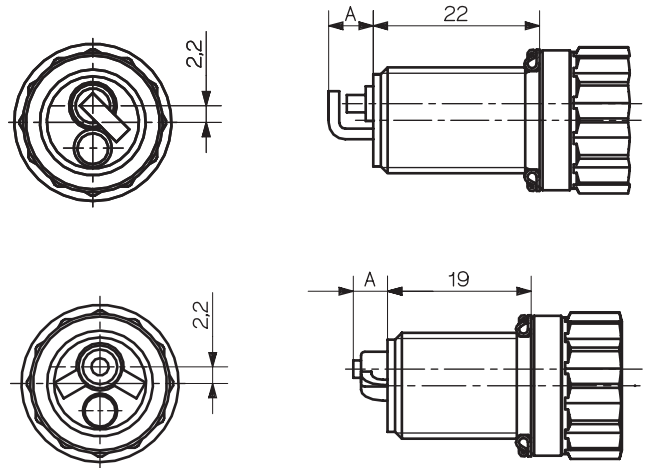
Type 6517B...	...FD25	...FD27
Thread length	26 mm	
Seal	flat	
Heat range	5	7
Spark position A	5,2	5,2
Electrode gap	0,8	0,8



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Type 6517B...	...FD47
Thread length	22 mm
Seal	flat
Heat range	7
Spark position	6,5
Electrode gap	1,1

Type 6517B...	...FG16
Thread length	19 mm
Seal	flat
Heat range	6
Spark position	3,5
Electrode gap	1,75



**Accessories**



1300A17

Fig. 3: Torque wrench for sensor Type 1300A17



1300A15

1300A11

Fig. 6: Torque wrench Type 1300A11

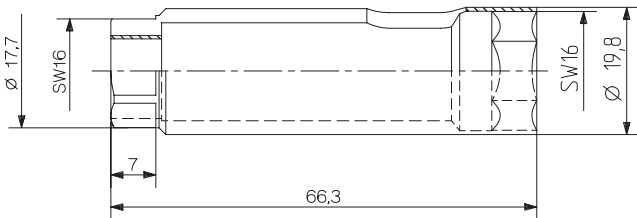
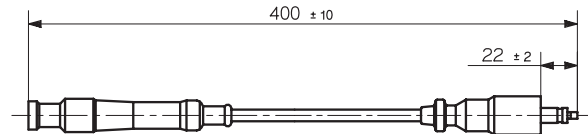
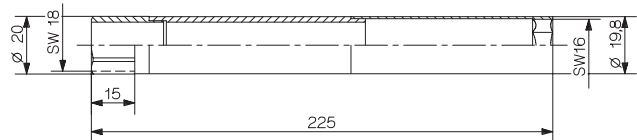


Fig. 4: Protection cartridge Art. No. 3.315.042



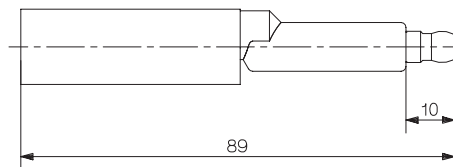
1500A49

Fig. 7: Ignition lead extension for measuring spark plug Type 1500A49



1300A19

Fig. 5: Mounting key for spark plug Type 1300A19



1700B15

Fig. 8: Insulating extension connector Type 1700B15

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### Accessories Included

- Insulating extension
- Protection cartridge

### Type

1700B15  
3.315.042

### Optional Accessories

- Quartz pressure sensor  
Type 6052B1
- Mounting key for sensor SW 5,5  
Type 1300A9
- Mounting key for spark plug  
Type 1300A19
- Torque wrench for spark plug  
Type 1300A11
- Hex fork for wrench SW18  
Type 1300A15
- Torque wrench for sensor  
with 1 ... 6 Nm  
Type 1300A17
- Finishing tool for bore  
Type 1300A79
- Grease for fitting insulating extension connector  
(highly insulating) for spark plug, 5 ml.  
Type 1067
- Ignition cable extension length 400 mm  
Type 1500A49
- Calibration adapter for Type 6517BCD...  
Type 6588A
- Calibration adapter for Type 6517BFD...  
Type 6587A
- Dummy sensor as Type 6052B...  
Type 6445
- Coupling, M4 neg. BNC pos.  
Type 1705

### Ordering Key

#### Seal

Flat	F
Tapered	C

#### Electrode

Overhead	D
Surface gap	G

#### Thread length

Seal flat	L = 19 mm	1
	L = 26 mm	2
	L = 22 mm	4
Seal tapered	L = 17,5 mm	1
	L = 23,5 mm	2
	L = 25,4 mm	3

#### Heat Range

375	07
275	3
225	5
200	6
175	7
125	9

Type 6517B

