



**Technical Data (cont.)**

|                                      |     |                      |
|--------------------------------------|-----|----------------------|
| Dielectric strength                  | kV  | <35                  |
| Torque wrench setting for plug       | N·m | From table on page 2 |
| Capacitance of sensor with 1 m cable | pF  | 110                  |
| Weight                               | g   | 50                   |

**Application**

Cylinder pressure measurement with a spark plug is used where a separate measuring bore needs be avoided to minimize the cost of the sensor system. Flush mounting of the front of the sensor gives a high-quality signal free from pipe oscillation interference. A typical example is ECU engine mapping in standard or racing engines.

**Mounting**

The measuring spark plug is screwed into the spark plug bore with a mounting wrench Type 1300A4.

A bore 21 mm in diameter is necessary.

The diameter of the ceramic insulator is matched up by drawing an insulating sheath onto it. The reduction of the air gap between ceramic insulator and spark plug connector allows the

voltage to be supplied without interference for perfect ignition. To reduce electrical interference, the cable from the sensor to the charge amplifier should be kept as short as possible.

The insulating sheath 3.221.5... allows matching to the standard diameter of the ceramic insulator of 10,5 mm and mounting with the standard spark plug connector, or with an ignition rail.

**Note:** Use grease Type 1067 to connect the standard spark plug connector or mount the ignition rail. This ensures good insulation and makes removal more straightforward.

**Heat value**

The heat value is a measure of the thermal loading capacity of the spark plug.

Kistler measuring spark plugs are classified on the BERU/BOSCH scale:

|     |     |   |   |        |   |   |   |      |    |    |    |
|-----|-----|---|---|--------|---|---|---|------|----|----|----|
| NEW | 10  | 9 | 8 | 7      | 6 | 5 | 4 | 3    | 09 | 08 | 07 |
|     | Hot |   |   | Medium |   |   |   | Cold |    |    |    |

Since each manufacturer uses its own numbering system, cross comparison is only possible using a commercial reference book. See Kistler's engine brochure Doc. No. 100-460 for an overview.

Wherever possible, the original heat value should be used. A plug can always be replaced with a colder, but never with a hotter plug. For example, a plug with a heat value of 6 can be replaced with one with a heat value of 5, but not the other way round.

**Torque in N·m**

| Thread | Cylinder head material |             |
|--------|------------------------|-------------|
|        | Cast iron              | Light alloy |

| Flat seal |           |           |
|-----------|-----------|-----------|
| M14x1,25  | 20 ... 35 | 15 ... 30 |

| Conical seal |           |           |
|--------------|-----------|-----------|
| M14x1,25     | 15 ... 25 | 12 ... 20 |

Table 1: Mounting torque

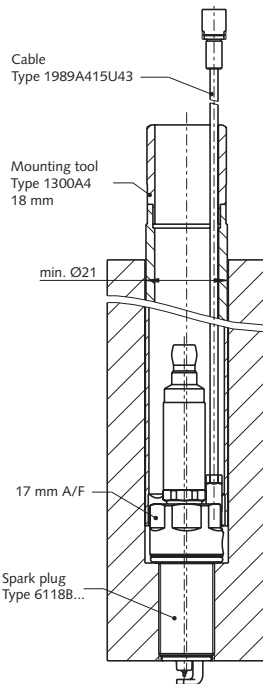


Fig. 1: Mounting measuring spark plug

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 Tel. +41 52 224 11 11, Fax +41 52 224 14 14, info@kistler.com, www.kistler.com  
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Available Versions of the M14x1,25 Measuring Spark Plug Type 6118B...

| Type                           | BCD25                    | BCD27                    | BCD27Q01                 | BF107Q01                 | BFD16                    | BFD16Q01                 | BFD18                    | BFD18Q01                 | BFD35                    | BFD35Q03                 |
|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Thread length L mm             | 25                       | 25                       | 17,5                     | 21,5                     | 19                       | 19                       | 19                       | 9,5                      | 26,5                     | 19                       |
| Seal                           | conical                  | conical                  | conical                  | flat                     | flat                     | flat                     | flat                     | flat                     | flat                     | flat                     |
| Heat value                     | 5                        | 7                        | 7                        | 07                       | 6                        | 6                        | 8                        | 8                        | 5                        | 5                        |
| Spark position S mm            | 4,2                      | 4,2                      | 4,2                      | 0,3                      | 3,55                     | 5,3                      | 2,8                      | 2,8                      | 3,9                      | 3,9                      |
| Max. depth A mm                | 6,3                      | 6,3                      | 6,3                      | 0,3                      | 5,65                     | 7,7                      | 4,8                      | 4,8                      | 6                        | 6                        |
| Plug gap G mm                  | 0,8                      | 0,8                      | 0,8                      | 1,2                      | 0,8                      | 1,1                      | 0,7                      | 0,7                      | 0,8                      | 0,8                      |
| Dia. of ceramic insulator D mm | 10,5 <sup>4)</sup> (7,7) | 10,5 <sup>2)</sup> (7,7) | 10,5 <sup>2)</sup> (7,7) | 10,5 <sup>1)</sup> (7,7) | 10,5 <sup>5)</sup> (7,7) | 10,5 <sup>5)</sup> (7,7) | 10,5 <sup>2)</sup> (7,7) | 10,5 <sup>2)</sup> (7,7) | 10,5 <sup>4)</sup> (7,7) | 10,5 <sup>4)</sup> (7,7) |
| Wrench size SW                 | 17                       | 17                       | 17                       | 17                       | 17                       | 17                       | 17                       | 17                       | 17                       | 17                       |

- 1) With insulating sheath Ø10,5 L = 14 mm 3.221.512
- 2) With insulating sheath Ø10,5 L = 16 mm 3.221.522
- 3) With insulating sheath Ø10,5 L = 20 mm 3.221.518
- 4) With insulating sheath Ø10,5 L = 22 mm 3.221.513
- 5) With insulating sheath Ø10,5 L = 24 mm 3.221.509

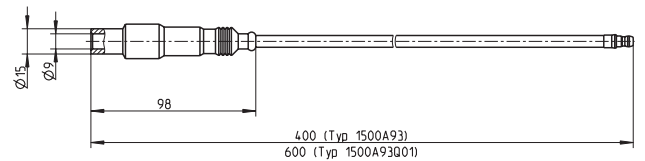


Fig. 4: Spark plug extension cable Types 1500A93 (L = 400 mm) and 1500A93Q01 (L = 600 mm)

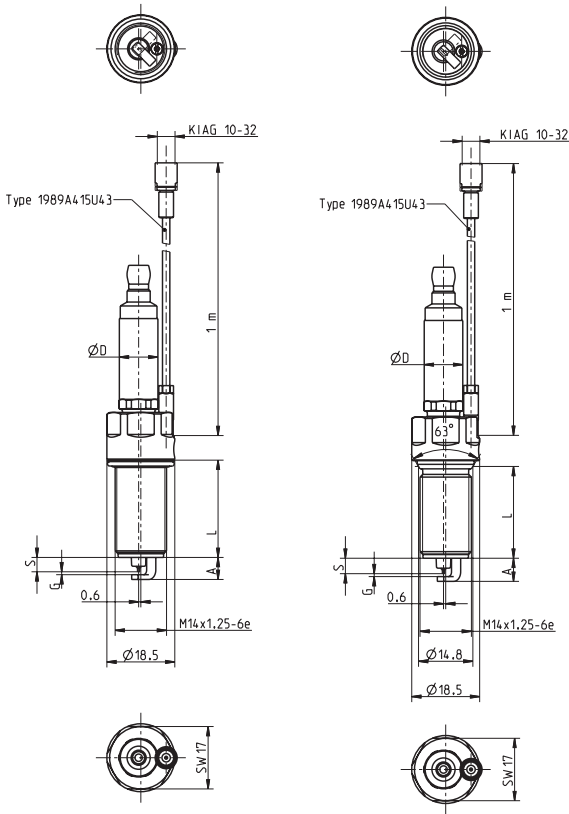


Fig. 2: Available types

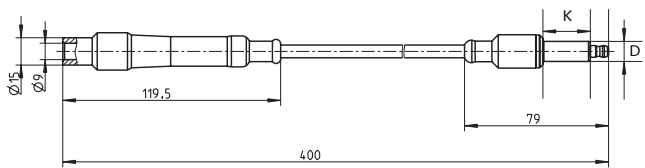


Fig. 5: Spark plug extension cable Type 1500A97 (L = 400 mm)

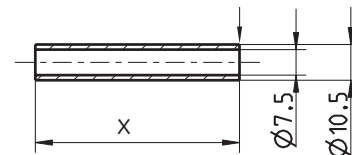


Fig. 6: Insulating sheath, see spare parts for lengths

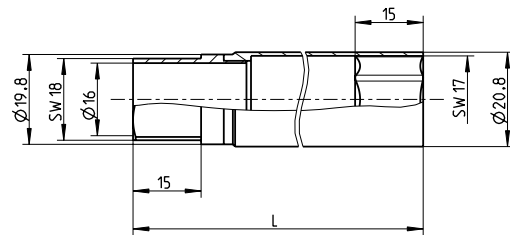


Fig. 7: Mounting wrench Type 1300A4... (see accessories)

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Fig. 3: Torque wrench Type 1300A11 with fork insert Type 1300A15

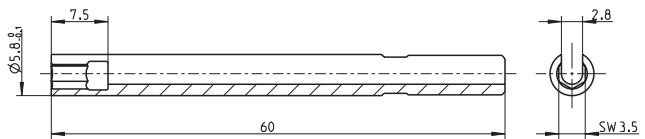


Fig. 8: Wrench for connecting cable Type 1300A125

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**Questions Involved in Choosing a Measuring Spark Plug**

Vehicle: \_\_\_\_\_ Make and model: \_\_\_\_\_

Type of engine: \_\_\_\_\_ Type of measuring spark plug: \_\_\_\_\_

**Original Spark Plug**

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_

Thread M: M \_\_\_\_ x \_\_\_\_ , \_\_\_\_ mm

Thread length L: \_\_\_\_ , \_\_\_\_ mm

Heat value: \_\_\_\_\_ Original \_\_\_\_\_ BOSCH/BERU

Spark position S: \_\_\_\_ , \_\_\_\_ mm

Max. depth A: \_\_\_\_ , \_\_\_\_ mm

Plug gap G: \_\_\_\_ , \_\_\_\_ mm

Diameter of ceramic insulator D: \_\_\_\_ , \_\_\_\_ mm

Insulator length K: \_\_\_\_ , \_\_\_\_ mm

Miscellaneous: \_\_\_\_\_

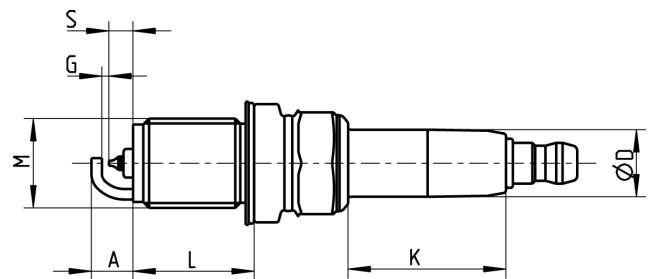


Fig. 9: Dimensions of spark plug Type 6118B...

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