

Technical data (continuation)

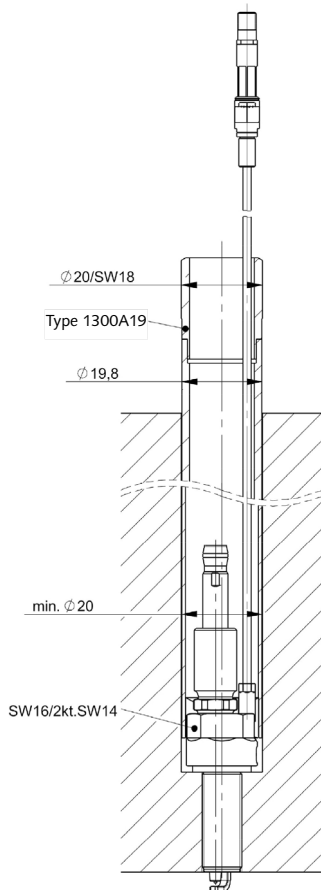
Dielectric strength (system at RT)	kV	>40
Measuring spark plug tightening torque	N·m	see table
Capacitance of sensor with 1 m cable	pF	110
Weight (without connector and cable)	g	approx. 50...

Application

Cylinder pressure measurement by means of the measuring spark plug is applicable when a separate measuring bore is not appropriate. The effort required for the installation of the measuring spark plug is minimal. A high signal quality is achieved without pipe oscillation due to the front-flush sensor installation. A typical example application would be in-vehicle measurement for vehicle benchmarking, where an engine measurement bore is difficult to implement.

Installation

The measuring spark plug is fitted into the existing spark plug bore using the mounting wrench (for assignment, see optio-



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Fig. 1: Installation with mounting tool Type 1300A19

nal accessories as well as Fig. 1 to 3). During installation, it is important that the signal cable does not become crushed or wedged. In order to mount the ignition coil or the spark plug terminal, the insulator must be assembled with a thin layer of mounting grease Type 1067. This ensures a good insulation performance and facilitates dismounting. The length of the spark plug terminal or the ignition coil must be checked and possibly reworked (silicone/rubber grommet). If the silicone or rubber grommet is too long, then the signal cable could be dislodged and damaged. Also it could cause misfiring during operation, as the connector is no longer correctly latched.

Cylinder head material

Cast iron	Light metal
10 ... 15 N·m	10 ... 12 N·m

Table 1: Installation torque

Heat value (HV)

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

Kistler measuring spark plugs are classified according to the BOSCH heat value:

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

Note that a different numbering system is used depending on the manufacturer of the original spark plug. Cross-comparisons should be carried out using a standard reference. The original heat value should be used whenever possible. If this is not possible, then a measuring spark plug can be used with a colder heat value (but not with a warmer value). For example, a spark plug with the heat value 6 can be replaced by a spark plug with the heat value 5, but not vice versa.

Maintenance

The electrode spacing should be checked regularly and readjusted if necessary. Kistler recommends an annual calibration from the first use of the measuring spark plug. You can find further information in the Instruction Manual or from your Kistler distributor.

Mounting examples

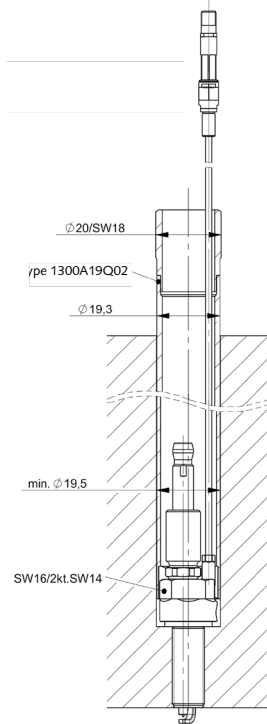


Fig. 2: Installation with mounting tool Type 1300A19Q02

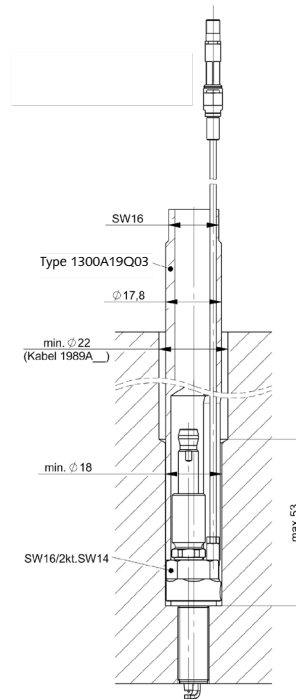


Fig. 3: Installation with mounting tool Type 1300A19Q03

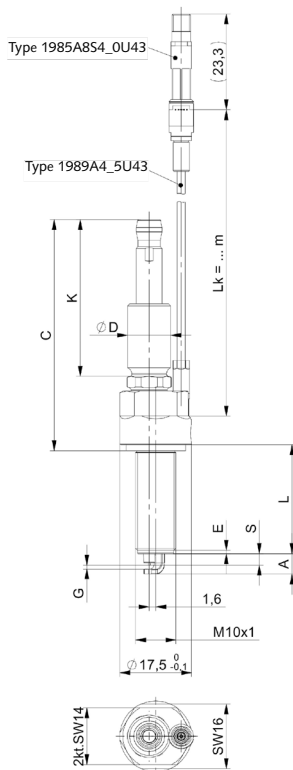


Fig. 4: Example of measuring spark plug with a flat seal



Fig. 5: Torque wrench Type 1300A11 and fork wrench insert Type 1300A15

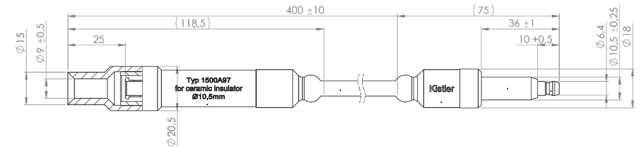


Fig. 6: Ignition cable extension Type 1500A97 (Ø = 10.6 mm)

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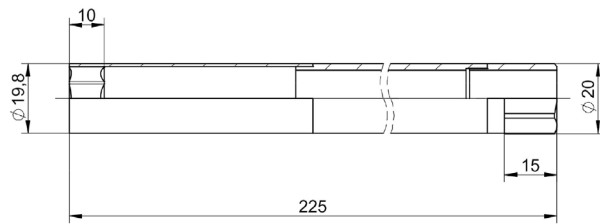


Fig. 7: Mounting tool Hex18/Hex16 Type 1300A19

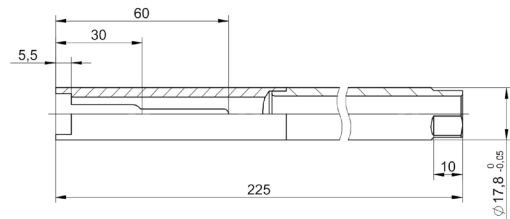


Fig. 9: Mounting tool Hex16/2-socket Hex14 Type 1300A19Q03

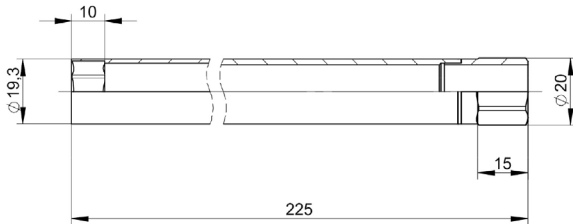


Fig. 8: Mounting tool Hex18/Hex16 Type 1300A19Q02

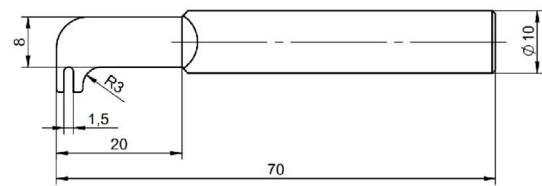


Fig. 10: Electrode spacing adjustment tool Type 1253A

Included accessories

- | | |
|--|------------------------------|
| • Coupling 10-32 neg. – BNC pos.
(for non-PiezoSmart version) | Type/Art. No.
1721 |
| • Insulation grease spark plug term.
(5 ml) | 1067 |
| • Copper seal | 1100A23 |

Accessories (optional)

- | | |
|------------------------------|--------------------------------|
| • Triax adapter – BNC pos. | Type/Art. No.
1704A4 |
| • FPM connecting cable | |
| – L = 1 m | 1989A415U43 |
| – L = 2 m | 1989A425U43 |
| – L = 3 m | 1989A435U43 |
| – with PiezoSmart L = 1 m* | 1985A8S411U43 |
| – with PiezoSmart L = 2 m* | 1985A8S421U43 |
| – with PiezoSmart L = 3 m* | 1985A8S431U43 |
| • PiezoSmart extension cable | |
| – L = 1 m | 1987B1 |
| – L = 2 m | 1987B2 |
| – L = 10 m | 1987B10 |

- Mounting wrench for spark plug (Hex16) 1300A19
- Mounting wrench for spark plug (Hex16) 1300A19Q02
- Mounting wrench for spark plug,
(Hex14) 2-socket 1300A19Q03
- Fork wrench for installation cable
Hex3.5 65007991
- Torque wrench for installation
measuring spark plug 1300A11
- Fork wrench insert Hex18 for torque
wrench Type 1300A11 1300A15
- Electrode spacing adjustment tool 1253A
- Ignition extension cable for
SAE connection and 10.5 mm ceramic
diameter 1500A97
- Adapter for pressure generator Type 6904
flat seal 6583AF

* with manufacturer's calibration, enter SN when ordering

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Ordering key

Type 6113C Q

Seal type

Flat seal	F
Conical seal	C

Heat value (Bosch)

	-3
	-4
	-5

Ceramics D = 9 mm Terminal SAE	A
Ceramics D = 9 mm Terminal CUP	B
Ceramics D = 10.5 mm Terminal SAE	C
Ceramics D = 10.5 mm Terminal CUP	D
Ceramics D = 7.7 mm Terminal SAE	E
Ceramics D = 7.7 mm Terminal CUP	F

Customized

Specification	01
	...

PiezoSmart

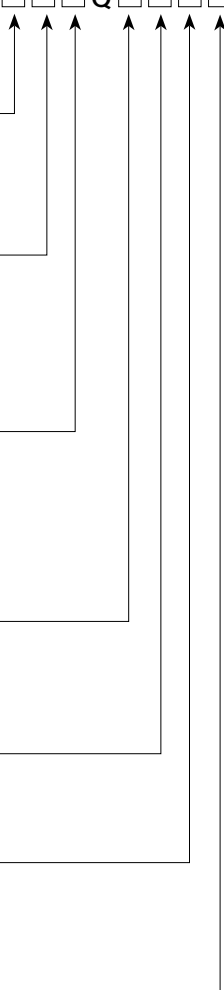
Without PiezoSmart (standard)	-
With PiezoSmart (standard)	S

Cable type

FPM	4
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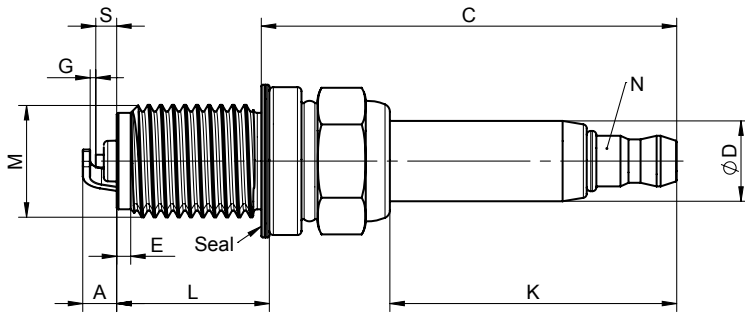
Cable length

1 m (standard)	-1
2 m (standard)	-2
3 m (standard)	-3



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Selecting a measuring spark plug



_____ Date

_____ Sales Center

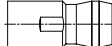

_____ Kistler Account Manager

_____ Customer

Questions regarding the engine

Brand/type			
Spark plug bore: Minimum diameter	mm	Shape:	straight bent
Fuel	Gasoline / E0 - E10	E85 / E100	CNG / LPG

Questions regarding the spark plug

Brand/type					
Thread	M	M	x	Thread length	L mm
Spark position	S		mm	Maximum depth	A mm
Electrode spacing	G		mm	Insulator diameter	D mm
Isolator length	K		mm	Length from seal	C mm
Thread retreat	E		mm	Heat value (Bosch/OEM)	
Cable length (indicate)	1 m	2 m	3 m	PiezoSmart (indicate):	Yes No
Ground electrode shape factor		none Roof electrode		Roof electrode with needle Side electrode(s)	
Seal type	SEAL	flat	conical		
Cable connection nut	N	SAE		CUP	
Defined ground electrode system (indexed mounting)		no (standard)		yes (please send OEM spark plug)	
Initial order amount		Piece			
Customer contact person				Signature	

Note

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