

Adjustable bayonet thermocouple

For the plastics machinery industry, spring-loaded design

Model TC47-AB

WIKA data sheet TE 67.20

Applications

- Plastics and rubber industry
- Injection moulding machinery
- Extruders
- Heating element monitoring

Special features

- Application range up to 400 °C [752 °F]
- Insertion length and contact pressure can be adjusted through sliding bayonet cap
- Thermocouple cable standard with glass-fibre insulation and stainless steel braid
- Thermocouple type J or K in accordance with IEC 60584 or ASTM E230
- Tip construction: Tubular design



Adjustable bayonet thermocouple, spring-loaded design, model TC47-AB

Description

The model TC47-AB bayonet thermocouple is used for temperature measurement in the range from 0 ... 400 °C [32 ... 752 °F]. It is particularly suitable for those applications in which the metal probe tip is mounted directly into bored holes, e.g. in machine components or directly into the process, for any application without chemically aggressive media or abrasion.

The thermocouple is designed as a tube and wire construction. This design features a rigid construction to the metal probe tip; therefore it must not be bent. Within the tube, the connection cable extends almost to the probe tip. For that reason, tubular cable thermocouples can only be used up to the temperature specified for the cables.

Thanks to various diameters and manually adjustable fitting lengths, the model TC47-AB thermocouple can be used flexibly in different easily accessible locations. The spring-adjustable bayonet cap ensures a constant contact pressure for the probe tip in the bore hole when the thermocouple is correctly installed. The adjustable bayonet thermocouple is held in place with a bayonet adapter.

Sensor

Measuring element

As measuring elements, for the model TC47-AB, WIKA uses the following thermocouples:

- 1 x type J (Fe-CuNi)
- 1 x type K (Ni-CrNi)

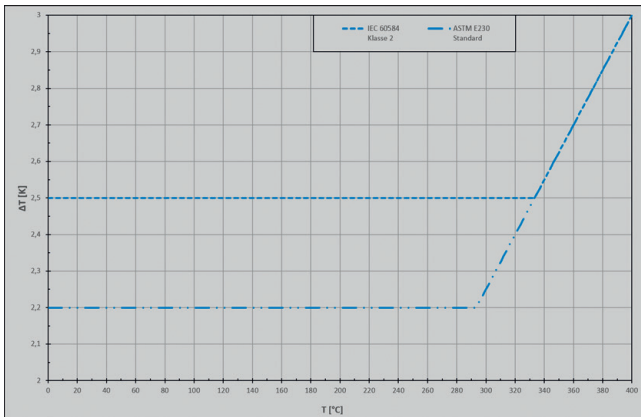
The accuracy class of the thermocouple corresponds to class 2 of the international standard IEC 60584. On request, the model TC47-AB thermocouples can also be delivered in a standard tolerance in accordance with ASTM E230. Since the values of the two standards differ only slightly, we recommend that you use thermocouples in accordance with IEC 60584.

For detailed specifications for thermocouples, see IEC 60584-1 or ASTM E230 and Technical information IN 00.23 at www.wika.com.

Tolerance value

For the tolerance value of thermocouples, a cold junction temperature of 0 °C has been taken as the basis.

Comparison IEC 60584 and ASTM E320



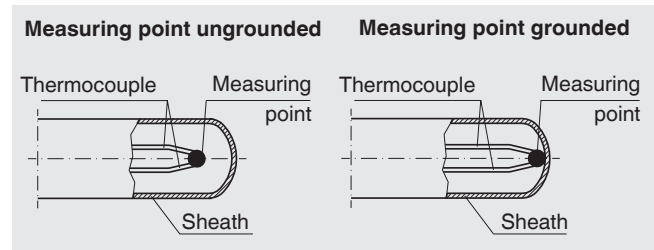
Probe tip

Design: Rigid tube, chamfered tip 120°
 Material: Stainless steel
 Diameter d: 6 mm
 Length A: 10 mm
 Other versions on request

For temperature measurement in a solid body, the diameter of the bore into which the probe is inserted, should be no more than 1 mm larger than the probe diameter.

Probe tip designs

The model TC47-AB has two different variants:



The thermocouple will be delivered as a single thermocouple with an ungrounded measuring point, unless explicitly specified otherwise.

Thermocouple cable

As an insulation material for the model TC47-AB thermocouple, WIKA uses glass fibre as standard. An additional braid from stainless steel offers an excellent protection for the cable against mechanical damage.

The individual wires correspond to the selected thermocouple. The cross-section is min. 0.22 mm² [24 AWG]

The thermocouple termination end can be supplied ready for connection or fitted with a thermocouple connector in a standard or miniature design as an option.

Colour coding of thermocouple cable

Thermocouple	Standard	Positive	Negative
Type J	IEC 60584	Black	White
	ASTM E230	Red	White
	DIN 43714 ¹⁾	Blue	Red
Type K	IEC 60584	Green	White
	ASTM E230	Red	Yellow

1) DIN 43714 is no longer valid. It has been replaced by IEC 60584. For type J thermocouples, however, WIKA continues to offer the colour coding in accordance with DIN 43714. The thermovoltage characteristic corresponds to type J of the current standard IEC 60584.

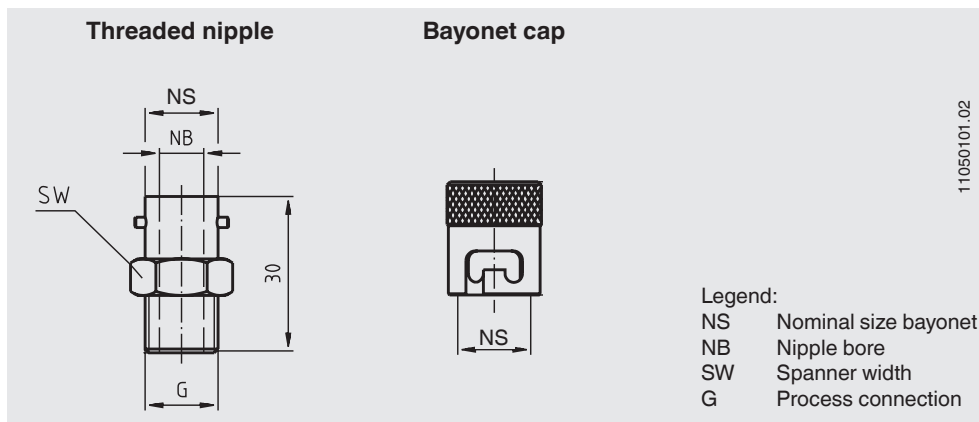
Process connection

The thermocouple is fixed with a bayonet cap on a matching screw-in bayonet connector.

Through setting the bayonet cap with the spring, the insertion length and the contact pressure can be matched to the application. The bayonet cap will always be delivered fitted with the spring.

The screw-in bayonet connector is not included in the standard scope of delivery. It can also be supplied fitted as an option.

For screw-in bayonet connectors and bayonet caps, various versions are available. The screw-in bayonet connector can also be ordered as a separate accessory or spare part.



Probe diameter	Process connection	Nominal size	Nipple bore	Spanner width	Order number Threaded nipple
		NS	Ø NB	SW	
6	M10 x 1	12	6.4	14	3120914
	M14 x 1.5	14	8.4	17	3366788
	G ¼ B	14	8.4	17	3118927
	G ⅜ B	14	8.4	17	3118901

Material: Brass, nickel-plated

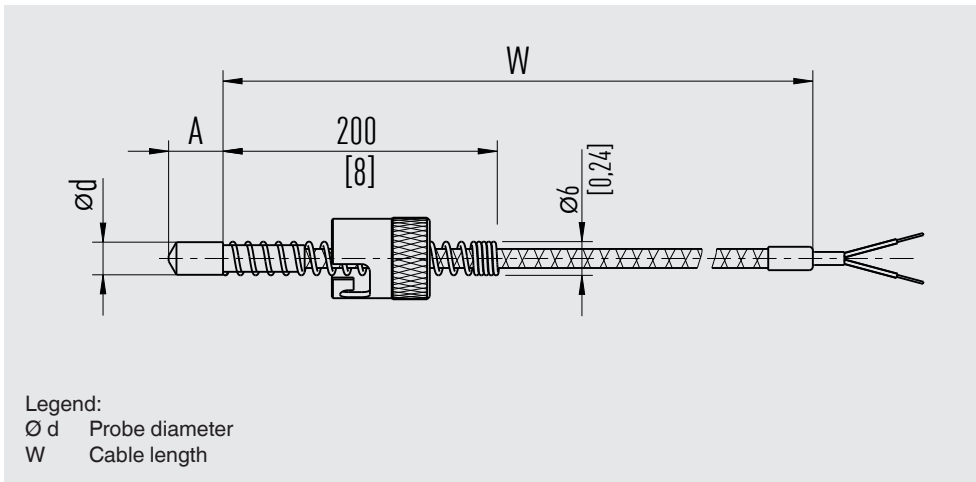
Electrical connection

The model TC47-AB is delivered as standard with bare wire ends.

Optionally, a thermocouple connector in standard or miniature design can be fitted.

The maximum permissible temperature at the plug is 85 °C.

Dimensions in mm



Ordering information

Model / Measuring element / Probe tip designs / Process connection / Electrical connection / Option

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The specifications given in this document represent the state of engineering at the time of publishing.
We reserve the right to make modifications to the specifications and materials.

WIKA data sheet TE 67.20 · 09/2021

Page 4 of 4

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