

Thermocouples

THERMOCOUPLES

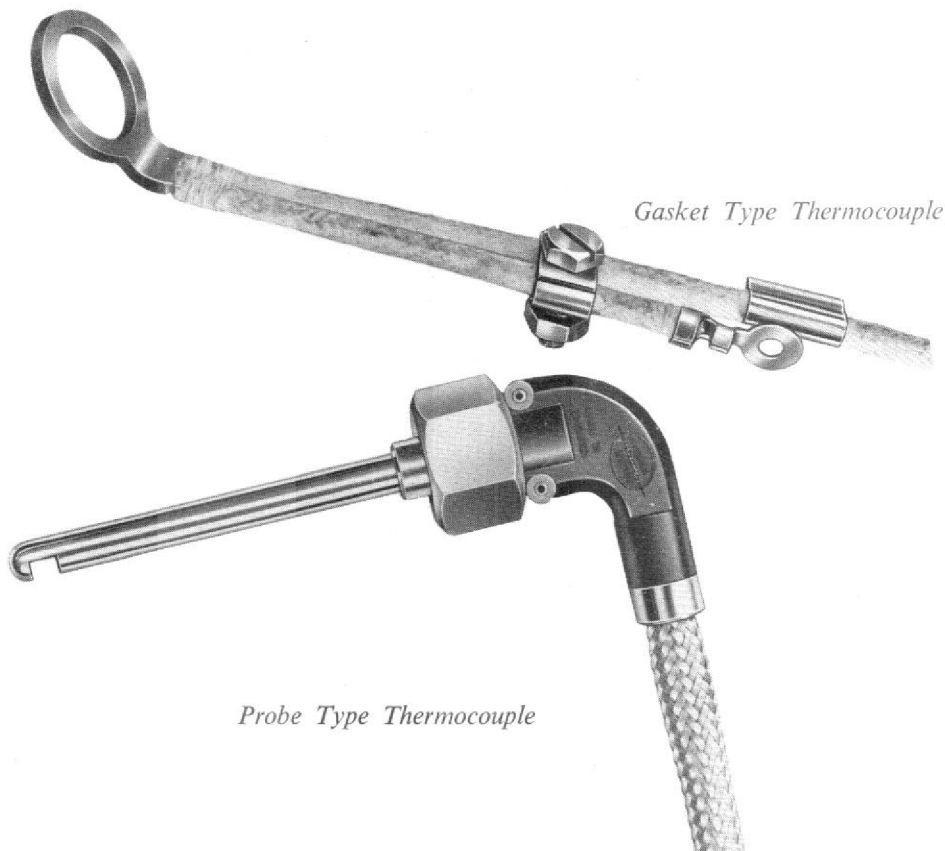
Briefly, the thermocouple operates on the thermo-electric principle, that is, when two dissimilar metals are joined in intimate contact at a point which is heated and are provided with a circuit of suitable leads, a current flows as a result of the difference in temperature between the "hot" and "cold" ends of the circuit. Copper and constantan are generally used up to 350°C ; for higher temperatures (up to $1,000^{\circ}\text{C}$) Nickel Chrome/Nickel Aluminium alloys are employed.

Thermocouples are manufactured in various shapes and sizes, these can be classed in the following groups:

Shoe, Gasket, Capsule and Probe Types

Generally the first three types are suitable for piston engines where they can be screwed down on to the cylinder heads or fitted under the sparking plugs.

The probe types which are of a later design are suitable for jet engines. One typical example is listed in the table overleaf. These thermocouples are normally designed to suit each particular engine. Enquiries are invited.



THERMOCOUPLES

SPEC'N	GASKET TYPE THERMOCOUPLES	F.D.
T30.1.23	Copper/Constantan. 18 mm gasket attached to lead. Length = 6 ft 6 in (1.98 m) + 10% -0. Resistance = 0.25 ohms + 0.01 ohm. No.4BA terminal tags	554
T30.7.26	Iron/Constantan. 18 mm gasket attached to lead. Length = 5.8125 in (148 mm) for the iron and 4.8125 in (122 mm) for constantan, special connectors	568
T30.1.27	Copper/Constantan. 18 mm gasket attached to lead. Length = 5.8125 in (148 mm) for copper and 4.8125 in (122 mm) for constantan, special connectors	571
T30.1.30	Identical to FD.571 with exception of terminations. One No.4BA terminal tag and one special connector	579
T30.7.85	Iron/Constantan. 18 mm gasket attached to lead. Length = 4.0625 in (103 mm) for the iron and 5.8125 in (148 mm) for constantan. Terminals as FD.579	580
T30.1.52	Copper Constantan. Length = 6 ft 6 in (1.98 m). Resistance = 0.25 ohm. 14 mm gasket	632
SPEC'N	BAYONET TYPE THERMOCOUPLES	F.D.
T32.93	Bayonet type thermocouple enclosed in tube. Length = 15 in (381 mm). Resistance = 0.25 ohm. Copper/Constantan	983
MODEL and FORM	SUB. SPEC. PROBE TYPE THERMOCOUPLES	F.D.
S468.2	11 Double thermocouple elements of Nickel/Chromium-Nickel/Aluminium contained in 1/4 in dia. tube (Elbow type). Length = 5 ft (1.524 m) including cable. Resistance = 2 ohms each	1222



SPEC'N	TYPE	SHOE TYPE THERMOCOUPLES	F.D.
T11.1.14	11A	Copper/Constantan. Resistance = 0.25 ohms \pm 0.01 ohm. Flat contact surface. Length = 6 ft 6 in (1.98 m) +10% - 0. No.4BA Tags fitted. No.4BA fixing for shoe. P.B. sleeving extends 6 ft (1.829 m) from shoe end	332
T12.1.17	12A	Similar to 11A but P.B.flex sleeving extends 1 ft 3.3/4 in (400 mm) from shoe end. No.4BA tags	332
T14.1.11	14A	Similar to 11A but conical contacting surface. No.2BA fixing, P.B. flex sleeving extends 1 ft 6 in (457 mm) from shoe end	334
T.14.1.48	18A	Copper/Constantan. Length = 6 ft 9 in (2.057 m) +10%.0. Resistance = 0.25 ohm	625

SPEC'N	TYPE	CAPSULE TYPE THERMOCOUPLES	F.D.
T33.1.96		Capsule .125 in (3 mm) dia. Lead length = 9 in (229 mm) Copper/Constantan. Resistance = 0.27 ohm	
T33.97		Capsule 3/32 in dia. Lead length = 9 in (229 mm). Copper/Constantan. Resistance = 0.57 ohm	



This file was downloaded
from the RTFM Library.

Link: www.scottbouch.com/rtfm

Please see site for usage terms,
and more aircraft documents.

**TELEBRIEF
CONNECTIONS**

E