

Thermazone™ Fire-Resistant Wire



INTRODUCTION

Thermazone™ wires are designed for use in high-temperature and severe-environment applications such as engines, fire-detection circuits, fly-by-wire systems, and flight-critical circuits. Three wire options are offered: MIL-DTL-25038/1 (Thermazone I), MIL-DTL-25038/3 (Thermazone IIIK, IIIG), and BMS 13-55 (Boeing Material Spec).

Thermazone I, IIIK, and IIIG wires are ideal for critical-circuit applications where wires must operate in extremely harsh environments, under vibration, and with direct flame exposure. Their heavy-duty, non-asbestos construction offers excellent mechanical performance and abrasion resistance. Thermazone IIIG meets or exceeds Thermazone IIIK's performance due to the use of an innovative insulation which incorporates a PTFE coated fiberglass fluid barrier. The Thermazone IIIK is compatible with MIL-DTL-38999 connectors.

The BMS 13-55 Boeing Material Spec Firezone wire is intended for operation under short-term emergency conditions including exposure to flames with temperatures up to 1100 °C and in areas where exposure to thermal changes and corrosive fluids are normal.

KEY ADVANTAGES

- » Minimum operation of 15 minutes at 1100 °C
- » Meets MIL-DTL-25038 & BSS7324 Shake & Bake Test, as appropriate
- » Designed for use with MIL-DTL-38999 connectors
- » Non-asbestos construction



All MIL-DTL-25038 and BMS 13-55 wires pass the stringent "Shake & Bake" tests.

SHAKE & BAKE TEST

Insulation Resistance		
Specification	Minimum Requirement	Typical Result
MIL-DTL-25038	50 Ω	10k Ω
BMS 13-55	10k Ω	500k Ω

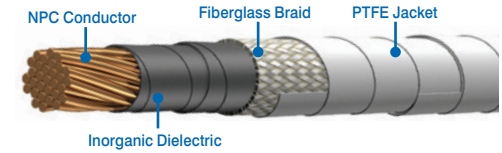
CABLE CONSTRUCTION

M25038/1 (Thermazone I) Wire

M25038 Part No.	Part Number	AWG	Stranding	Nominal Conductor Diameter	Nominal Insulation Diameter	Weight lbs/1000 ft (kg/1000M)	Maximum Resistance
M25038/1-12-*	12-FWIK-1925	12	19/25	0.090 (2.29)	0.175 (4.45)	35.0 (52.1)	2.78 (9.12)
M25038/3-14-*	14-FWIK-1927	14	19/27	0.072 (1.83)	0.16 (4.06)	25.0 (37.2)	4.32 (14.2)
M25038/3-16-*	16-FWIK-1929	16	19/29	0.056 (1.42)	0.137 (3.48)	19.0 (28.3)	6.66 (22.5)
M25038/3-18-*	18-FWIK-1930	18	19/30	0.050 (1.27)	0.127 (3.23)	15.0 (22.3)	8.50 (30.0)
M25038/3-20-*	20-FWIK-1932	20	19/32	0.040 (1.02)	0.117 (2.97)	12.0 (17.9)	15.3 (47.9)
M25038/3-22-*	22-FWIK-1934	22	19/34	0.031 (0.79)	0.108 (2.74)	10.0 (14.9)	23.7 (77.7)

*Color coded to MIL-STD-140

Construction Detail — Thermazone I



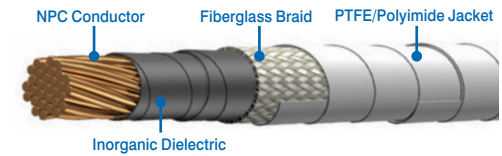
- Conductor** 27% nickel-plated copper
- Insulation** Composite inorganic dielectric
- Jacket** PTFE-coated fiberglass braid & finisher
- Identification** Surface printed per MIL-DTL-25038/1
- Colors** Color coded to MIL-STD-104
- Voltage Rating** 600 V
- Temperature Rating** -65 to 260 °C

M25038/3 (Thermazone IIIK and IIIG) Wire

M25038 Part No.	Part Number	AWG	Stranding	Nominal Conductor Diameter	Nominal Insulation Diameter	Weight lbs/1000 ft (kg/1000M)	Maximum Resistance
M25038/3-12-*	12-FWKK (FWGK)-1925	12	19/25	0.090 (2.29)	0.121 (3.07)	28.0 (41.7)	2.78 (9.12)
M25038/3-14-*	14-FWKK (FWGK)-1927	14	19/27	0.072 (1.83)	0.110 (2.79)	19.5 (29.0)	4.32 (14.2)
M25038/3-16-*	16-FWKK (FWGK)-1929	16	19/29	0.056 (1.42)	0.086 (2.18)	13.5 (20.1)	6.66 (22.5)
M25038/3-18-*	18-FWKK (FWGK)-1930	18	19/30	0.050 (1.27)	0.081 (2.06)	10.5 (15.6)	8.50 (30.0)
M25038/3-20-*	20-FWKK (FWGK)-1932	20	19/32	0.040 (1.02)	0.066 (1.68)	9.0 (13.4)	15.3 (47.9)
M25038/3-22-*	22-FWKK (FWGK)-1934	22	19/34	0.031 (0.79)	0.047 (1.19)	4.2 (6.2)	23.7 (77.7)

*Color coded to MIL-STD-140

Construction Detail — Thermazone IIIK, IIIG

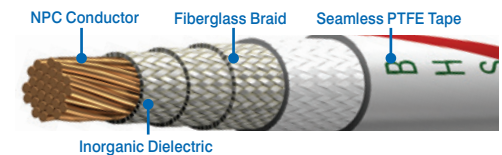


- Conductor** 12–18 AWG: 27% nickel-plated copper 20–22 AWG: 27% nickel-plated high-strength copper alloy
- Insulation** Inner: Inorganic dielectric
Thermazone IIIK Outer: PTFE/polyimide tape fluid barrier
Thermazone IIIG Outer: PTFE/-coated fiberglass fluid barrier
- Jacket** Fused high-performance PTFE tape (Also available with Seamless Wrap PTFE tape)
- Identification** Surface printed per MIL-DTL-25038/3
- Colors** Color coded to MIL-STD-104
- Voltage Rating** 600 V
- Temperature Rating** -65 to 260 °C

BMS 13-55 Wire

Boeing Part No.	Part Number	AWG	Stranding	Nominal Conductor Diameter	Nominal Insulation Diameter	Weight lbs/1000 ft (kg/1000M)	Maximum Resistance
BMS13-55T01 C01 G12	12-BF1-1925	12	19/25	0.088 (2.24)	0.132 (3.35)	26.0 (38.7)	2.78 (9.12)
BMS13-55T01 C01 G14	14-BF1-1927	14	19/27	0.07 (1.78)	0.113 (2.87)	18.10 (26.9)	4.32 (14.2)
BMS13-55T01 C01 G16	16-BF1-1929	16	19/29	0.055 (1.39)	0.099 (2.51)	12.8 (19.0)	6.86 (22.5)
BMS13-55T01 C01 G18	18-BF1-1930	18	19/30	0.049 (1.24)	0.094 (2.39)	10.8 (16.1)	9.14 (30.0)
BMS13-55T01 C01 G20	20-BF1-1932	20	19/32	0.039 (0.99)	0.083 (2.11)	7.76 (11.5)	14.57 (47.9)
BMS13-55T01 C01 G22	22-BF1-1934	22	19/34	0.031 (0.79)	0.076 (1.93)	5.86 (8.72)	23.7 (77.7)

Construction Detail—BMS 13-55



- Conductor** Nickel-plated copper
- Insulation** Impregnated inorganic fiber and PTFE coated glass braid
- Jacket** Seamless Wrap PTFE tape
- Identification** Surface printed per BMS 13-55
- Colors** Color coated per BMS 13-55
- Voltage Rating** 600 V
- Temperature Rating** -65 to 260 °C