

# Screened Multi-Core “LFH” Insulated and Sheathed Cable for Military Vessels

DEF61-12 Part 25 600V 85°C



## Application

Thin-wall, lightweight copper wire braid screened multi-core cables for power, lighting, control, communication and instrumentation circuits in HM surface ships and vessels. Incorporates LFH (Limited Fire Hazard) insulation and sheath for reduced levels of smoke and toxic fumes in the event of a fire. May be used in flexing or fixed applications and suitable for use where fuel, lubricating oils, hydraulic fluids and water are present.

## Specifications

- In accordance with DEF61-12 part 25.
- **Conductor:** Stranded Class 2 tinned copper conductors to BS EN 60228.
- **Insulation:** Thin-wall LFH (Limited Fire Hazard) insulation to DEF61-12 part 25.  
N.B. Cores shall meet the requirements of DEF61-12 part 18 for either category 1 wires.
- **Core Identification:**  
2 core - red, blue.  
3 core - red, blue, white.  
Above three core - Red and blue marker cores adjacent in each layer with remaining cores white.  
N.B. When a single core is used as a centre the colour shall be white. In addition, cables of four core and above will also be numbered, in a contrasting colour, the core colours remaining as detailed above.
- **Binder Tape:** p.e.t.p. tape minimum 20% overlap.
- **Braid:** Tinned copper wire braid (minimum filling factor 0.61).
- **Outer Sheath:** Black LFH (Limited Fire Hazard) outer sheath to DEF61-12 part 31. In addition, the outer sheath also displays the following characteristics:  
Minimum oxygen index: 30%.  
Maximum HCL emission @ 800°C: 0.5%.
- Flame retardant to DS 02-641.
- **Voltage Rating:** 600V rms/800V d.c. (between cores, or between cores and ships structure, or between cores and cable screen).
- **Temperature Rating:** 85°C maximum conductor operating temperature.  
N.B. Cables will also retain a degree of flexibility under weatherdeck conditions of -30°C.

# Screened Multi-Core “LFH” Insulated and Sheathed Cable for Military Vessels

DEF61-12 Part 25 600V 85°C

N.S.N. 6145-99-	Anixter Number A10DW-	Nominal Cond Area mm <sup>2</sup>	Nom Cond Stranding #/mm	Number of Cores	Insulation Thickness mm	Braid Wire Size mm	Minimum O/D mm	Maximum O/D mm	Approx Cable Weight kg/km
<b>DEF61-12 part 25 Table 10</b>									
891-9339	891-9339	0.2	19/0.12	2	0.2	0.1	4.3	6.0	33
891-9341	891-9341	0.2	19/0.12	3	0.2	0.1	4.5	6.2	37
891-9343	891-9343	0.2	19/0.12	4	0.2	0.12	4.8	6.5	45
891-9345	891-9345	0.2	19/0.12	7	0.2	0.12	5.4	7.1	60
891-9347	891-9347	0.2	19/0.12	14	0.2	0.12	7.1	9.0	100
891-9349	891-9349	0.2	19/0.12	19	0.2	0.12	7.5	9.6	121
891-9351	891-9351	0.2	19/0.12	24	0.2	0.12	8.6	11.0	146
<b>DEF61-12 part 25 Table 11</b>									
892-0086	892-0086	0.35	19/0.15	2	0.2	0.1	4.8	6.3	50
892-0047	892-0047	0.35	19/0.15	3	0.2	0.1	4.95	6.5	57
892-0048	892-0048	0.35	19/0.15	7	0.2	0.12	5.95	7.55	98
892-0049	892-0049	0.35	19/0.15	14	0.2	0.12	7.65	9.4	160
892-0050	892-0050	0.35	19/0.15	19	0.2	0.12	8.25	10.1	190
892-0051	892-0051	0.35	19/0.15	24	0.2	0.12	9.3	11.4	220
892-0052	892-0052	0.35	19/0.15	37	0.2	0.12	10.55	12.8	295
892-0087	892-0087	0.35	19/0.15	44	0.2	0.15	11.75	14.1	375
<b>DEF61-12 part 25 Table 12</b>									
891-9361	891-9361	0.6	19/0.20	2	0.2	0.12	5.2	6.8	54
891-9363	891-9363	0.6	19/0.20	3	0.2	0.12	5.4	7.0	61
891-9365	891-9365	0.6	19/0.20	4	0.2	0.12	5.9	7.4	73
891-9367	891-9367	0.6	19/0.20	7	0.2	0.12	6.7	8.5	102
891-9369	891-9369	0.6	19/0.20	14	0.2	0.12	8.7	10.9	175
891-9371	891-9371	0.6	19/0.20	24	0.2	0.12	10.9	13.3	273
<b>DEF61-12 part 25 Table 13</b>									
892-0053	892-0053	1.0	19/0.25	2	0.2	0.1	5.8	7.3	90
892-0054	892-0054	1.0	19/0.25	3	0.2	0.12	6.15	7.65	105
892-0055	892-0055	1.0	19/0.25	7	0.2	0.12	7.45	9.25	170
892-0056	892-0056	1.0	19/0.25	14	0.2	0.12	9.85	12.0	280

# Screened Multi-Core “LFH” Insulated and Sheathed Cable for Military Vessels

DEF61-12 Part 25 600V 85°C (continued)

N.S.N. 6145-99-	Anixter Number A10DW-	Nominal Cond Area mm <sup>2</sup>	Nom Cond Stranding #/mm	Number of Cores	Insulation Thickness mm	Braid Wire Size mm	Minimum O/D mm	Maximum O/D mm	Approx Cable Weight kg/km
<b>DEF61-12 part 25 Table 25</b>									
891-9420	891-9420	1.0	19/0.25	3*	0.2	0.12	6.15	7.65	85
<b>DEF61-12 part 25 Table 26</b>									
891-9422	891-9422	1.5	19/0.30	3*	0.2	0.12	6.5	8.2	98
<b>DEF61-12 part 25 Table 27</b>									
891-9424	891-9424	2.5	37/0.30	3*	0.25	0.12	8.0	9.6	146

\* These cables have special core colours; blue, brown, green/yellow.

Minimum Bending Radius: Flexing Applications 10D.  
Fixed Applications 4D.

Where D = overall diameter of the cable.

Continued overleaf...

# Technical Information

for DEF 61-12 Part 25 Cables

Conductor Size mm <sup>2</sup>	0.35	0.6	1.0	1.5	2.5
Nominal Conductor Stranding #/mm	19/0.15	19/0.2	19/0.25	19/0.3	37/0.3
Maximum d.c. Conductor Resistance @ 20°C Ω/km	60.0	33.1	21.1	14.5	7.6
Maximum a.c. Conductor Resistance @ 85°C Ω/km	75.3	41.6	26.5	18.2	9.54
Reactance @ 60Hz Ω/km	0.108	0.101	0.096	0.093	0.091
Nominal Mutual Capacitance:					
Un-screened and Collectively Screened Multicore Cables above 3 core	65	75	85	90	95
Individually Screened Multipair/triple Cable and 2/3 Core Collectively Screened	125	150	170	190	200

## CURRENT RATINGS

Conductor Size mm <sup>2</sup>	Current Rating *A
0.35	6.5
0.60	8.5
1.0	11
1.5	16
2.5	27

\* The ratings quoted are based on 40°C ambient air temperature and assume only one core carrying current. When more than one core carries current the following factors should be applied:

Number of cores loaded	2	3	4	7	14	18	30
Rating factor	0.825	0.73	0.66	0.54	0.39	0.36	0.28

Ambient air temp °C	35	40	45	50	55	60	65	70
Rating factor	1.05	1.0	0.94	0.88	0.82	0.75	0.67	0.58