

EUROFIGHTER GmbH	WIRE AND CABLE SELECTION	
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1 SCOPE

This document covers the selection of electrical wires and cables available to meet ambient and functional requirements.

The wires and cables are intended for general Airframe use, including panel and box wiring.

2 WIRE AND CABLE CLASSIFICATION INDEX

EFA Std Number	Part Number	Description
J61.010	JN1007	Wire, Electric, Single, Nickel Coated, 600V, 150°
J61.011	PAN6411	Wire, Electric, Single, Nickel Coated Copper 600°V 260°C
J61.012	PAN6417	Cables, Electrical Multi-core, Sheathed 600V, 260°C
J61.013	PAN6412	Cables, Electrical Single & Multi-core, Screened and Sheathed 600V, 260°C (for use on PO1 to PO4 a/c only)
J61.014	JN1018	Cables, Electrical Multi-core, Sheathed 600V, 150°C
J61.015	JN1019	Cables, Electrical Single & Multi-core, Screened and Sheathed 600V, 150°C
J61.016	JN1026	Cables, Electrical Single and Multi-core, Screened and Sheathed 600V, 260°C (for use on PO5 and Subsequent a/c)
J61.110	PAN6422	Cable, Coaxial
J61.221	JN1039	Wire, Electrical, Single, Nickel Coated Copper, 600V 260°C (050 to 680)
J61.310	PAN6429	Wire, Electric, Box & Panel Wiring, PTFE
J61.510	PAN6421	Cable, Electric, Data Bus 150°C
J61.512	JN1060	Cable, Electrical Data Bus 260°C
J61.516	PAN6420	Wire, Electrical Thermocouple
J61.517	JN1088	Cable, Special, Electrical, HF
J69.020	PAN6415	Fire resistant single-wire 250°C max. Ambient temperature, 1093°C for 5 minutes max (for use on PO1 and PO2 a/c for interim engine fit only.

NOTE: J69.020 covers non-standard items necessary for RB199 interim engine fit only on JP001 and JP002: This shall NOT be used in any other application on any other aircraft, Hence no further information is given in this standard.

See also J56.111 Wire Utilisation Criteria.

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2. SPECIFICATIONS

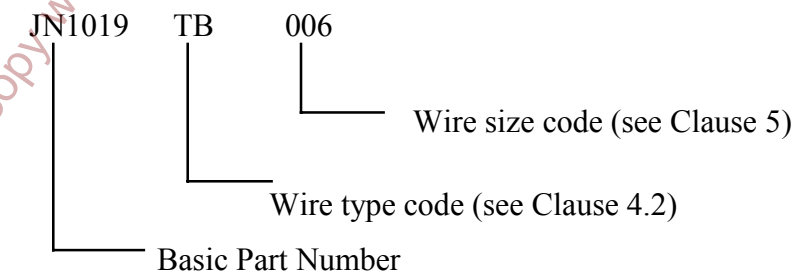
- 2.1 The electrical and physical features of the stated types of wires /cables shall conform to the following Specifications:

Wire/Cable Part Number.	Corresponding Specifications	
	Eurofighter	Other Specifications
JN1007	SPE-J-920-A-0061	EN2083 ASTM B355
PAN6411	Not Applicable	SP-P-99300-00-P Class A
PAN6417	Not Applicable	SP-P-99300-00-P Class A
PAN6412	Not Applicable	SP-P-99300-00-P Class A
JN1018	SPE-J-920-A-0061	
JN1019	SPE-J-920-A-0061	EN2083 ASTM B355
JN1026	J56.010	SP-P-99300-00-P Class A
PAN6422	Not Applicable	MIL-C-17D/BS.2316
JN1039	Not Applicable	ECM44/LN29865
PAN6429	Not Applicable	MIL-W-16878 TYPE E/BS.G210 TYPE B
PAN6421	Not Applicable	SP-P-99300-00-P SP-P-99301-00-P MIL-STD-1553B
JN1060	J61.512	SP-P-99300-00-P SP-P-99301-00-P MIL-STD-1553B
PAN6420	J61.516	SP-P-99300-00P
JN1088	J61.517	MIL-C-17 ASTM B-298

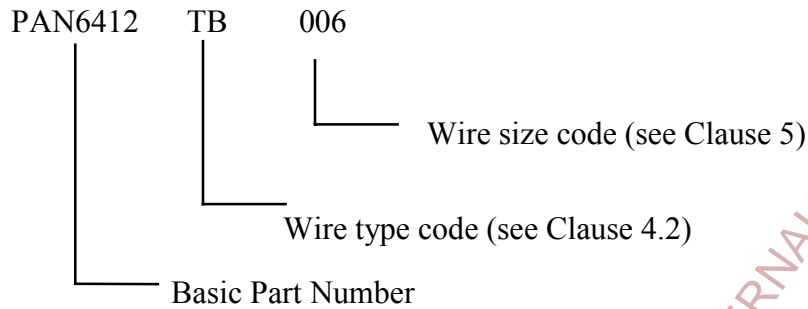
3. WIRE/CABLE TYPE IDENTIFICATION

3.1 WIRE/CABLE IDENTIFICATION

In the bill of material (BoM) and in any other technical documents each wire/cable shall be identified as in the following example:



i.e. a 2 core cable, size 0,597 mm² (AWG20) screened and sheathed according to J61.015.



i.e. A two core cable, size 0,597 mm² (AWG20) screened and sheathed according to 75.6412.

3.2 COLOUR

Unless otherwise specified, the 'normal' colour for the top coat of a single wire shall be WHITE, except for wire size code 004 (AWG22), which shall be ICE BLUE to assist identification between size codes 004 and 002 (AWG 20 and 24). Similarly, the jacket of single screened and sheathed cable, or multi-core unscreened/screened and sheathed cables shall be WHITE, except for those containing cores of size code 004 wire when the jacket also shall be ICE BLUE. No additional coding is required for the foregoing 'normal' colours.

4. WIRE TYPE CODES

4.1 SCOPE

The scope of this code is to define every wire type used on the aircraft with a two - letter code XX to be utilised in the 'wire data system' application, in the Bill of Material and in the other technical documents.

4.2 WIRE TYPE CODES

The definition of the wire type code letters has been derived from NSA 935000 (Electrical cable identification) with the inclusion of the code for all the new wire types selected for the EUROFIGHTER aircraft.

4.3 WIRE CODE SUMMARY TABLES

All possible wire codes are listed in Tables 1 to 24.

TABLE 1

600V, 150° C, Single, Nickel-Coated Copper sizes 0,208mm² (002) to 2,91 mm² (030) inclusive

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
CH	J61.010/JN1007	1	J61.010	SPE-J-920-A-0061	Unscreened

TABLE 2

600V, 150° C, Multi-Core, Overall Sheathed, Nickel Coated Copper sizes 0,208 mm² (002) to 2,91 mm² (030) inclusive

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
PC	J61.014/JN1018	2	J61.010	SPE-J-920-A-0061	Unscreened
QC		3			
RC		4			

TABLE 3

600V, 150° C, Single & Multi-Core, Screened, Overall Sheathed, Nickel Coated Copper sizes 0,208mm² (002) to 2,91 mm² (030) inclusive

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
SK	J61.015/JN1019	1	J61.010	SPE-J-920-A-0061	Screened
TB		2			
UJ		3			
VG		4			

TABLE 4

600V, 260° C, Single, Nickel Coated Copper sizes 0,208mm² (002) to 2,91 mm² (030) inclusive

Wire Type Code	EFA Std/Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
DP	J61.011/ PAN6411	1	J61.011	SP-P-99300-00P Class A	Unscreened

TABLE 5

600V, 260° C, Multi-Core, Overall Sheathed, Nickel Coated Copper sizes 0,208 mm² (002) to 2,91 mm² (030) inclusive

Wire Type Code	EFA Std/Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
PA	J61.012/ PAN6417	2	J61.011	SP-P-993300-00P Class A	Unscreened
QA		3			
RA		4			

TABLE 6

600V, 260° C, Single & Multi-Core, Screened, Overall Sheathed, Nickel Coated Copper sizes 0,208 mm² (002) to 2,91 mm² (030) inclusive

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
SP	J61.013/ PAN6412	1	J61.011	SP-P-99300-00P Class A	Screened
TP		2			
UP		3			
VP		4			
SV	J61.016/ JN1026	1		J56.010 and SP-P-99300-00P Class A	
PV		2			
QV		3			
RV		4			

TABLE 7

600V, 260° C wire type (size from 4.65 mm² to 66,80 mm²)

Wire Type Code	EFA Std/Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
DV	J61.211/JN1039	1	J61.211	ECM44	Unscreened

TABLE 8

Coaxial cable types

Wire Type Code	EFA Std/Part number	Number of Cores	Corresponding Mil and BS Number	Specification
XQ	J61.110/PAN6422	1	RG 316/U	MIL-C-17/113
XR		1	RG 400/U	MIL-C-17/128
XS		1	RG 225/U	MIL-C-17/86
XT		1	RG 178B/U	MIL-C-17/93C
XU		1	URM107	BS 2316
XW		1	URM108	BS 2316
XX		1	RG 302/U	MIL-C-17/110
XY		1	RG 179B/U	MIL-C-17/94
XZ		1	RG 180B/U	MIL-C-17/95C
XP		1	RG 280/U	MIL-C-17/107

TABLE 9

600V, 200° C, wire type (size from 0.220 mm² to 0.597 mm²)

Wire Type Code	EFA Std/Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
BE	J61.310/PAN6429	1	J61.310	MIL-W-16878 Type E or BS G210 type B	Unscreened

TABLE 10

Cable, special electric Data Bus System

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
ZA	J61.510/ PAN6421	2	J61.510	SP-P-99301-00P	Screened

TABLE 11

Thermocouple Wire Type

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
YR	J61.516/ PAN6420	2	J61.516	SP-P-99300-00P	Unscreened

TABLE 12

Cable, Electric Data Bus 260°

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
ZB	J61.512/ JN1060	2	J61.512	SP-P-99301-00P	Screened

TABLE 13

Cable, Special, Electrical, HF

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
WT WU	J61.517/ JN1088	1	J61.517	MIL-C-17 ASTM B-298	Screened

TABLE 14

Cable, Flying lead (all types)

The following table details wire codes for equipment fitted with flying leads. The following codes are applicable to ALL cable construction types. ie PTFE, FEP, XETFE etc. These cable types enable a common approach for EPCs for data input into the Eurofighter toolset. ie LCABLE

Wire types FC through to FK to be suffixed with size code on electrical circuit and wiring diagrams. (EG FC002 single core, unscreened, 24 AWG wiring.)

* There is no size code suffix on fibre optic flying lead wire type code FO

Wire Type Code	EFA Std/ Part Number	Number of Cores	Note
FC	N/A	1	unscreened
FD	N/A	1	screened
FE	N/A	2	unscreened
FF	N/A	2	screened
FG	N/A	3	unscreened
FH	N/A	3	screened
FJ	N/A	4	unscreened
FK	N/A	4	screened
FO *	N/A	1	Fibre optic flying lead

TABLE 15

Cable, RF microwave.

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
KA	J61.120/ JN1132	1	J61.120	SPE-J-991-B-0241	Low Loss Screened
KB					
KC					
KD					
KE					
KF					
KG					
KH					

TABLE 16

Cable, Fibre optic.

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std.	Specification	Note
LA	JN1008/ J61.610	N/A	J61.610	SP-J-402-E-1039	Optical fibre, Airframe
LB		N/A			Optical fibre, Equipment

TABLE 17

Cable, single and multi-core, screened and unscreened. For prototype use only.

Wire Type Code	EFA Std/ Part Number	Number of Cores	Wire EFA Std.	Specification	Note
A1	J61.020/ JN1087	1	J61.020	MIL-C-27500, MIL-W-22759/41, MIL-W-22759/42	For use on JP001 to JP007 pylons only
B2		2			
B3		3			
B4		4			
C1		1			
C2		2			
C3		3			
C4		4			

TABLE 18

Wire single-core, nickel-coated copper, 600v rms +150°C Tw high flexibility for special applications.

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std	Specification	Note
BQ	J61.021/ JN1114	1	J61.021	SPE-J-920-A-0087	For pylon use only

TABLE 19

Cable, multi-core, jacketed, nickel-coated copper, 600v rms +150°C Tw high flexibility for special applications.

Wire Type Code	EFA Std/Part Number	Number of Cores	Basic Wire EFA Std	Specification	Note
EA	J61.022/ JN1115	2	J61.022	SPE-J-920-A-0087	For pylon use only, Production Aircraft
EB		3			
EC		4			

TABLE 20

Cable, single and multi-core, screened, jacketed, nickel-coated copper, 600v rms +150°C Tw high flexibility for special applications.

Wire Type Code	EFA Std/Part Number	Number of Cores	Basic Wire EFA Std	Specification	Note
GA	J61.023/ JN1116	1	J61.023	SPE-J-920-A-0087	For pylon use only, Production Aircraft.
GB		2			
GC		3			
GD		4			

TABLE 21

Cable, multi-core, screened, unsheathed.

Wire Type Code	EFA Std/Part Number	Number of Cores	Basic Wire EFA Std	Specification	Note
GK	J61.026/ JN1142	1	J61.026	BSG210 type NBS	For avionic tray use only
GL		2			
GM		3			
GDN		4			

TABLE 22

Cable, special, multi-core, twisted, screened and overall sheathed, low noise.

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std	Specification	Note
TU	J61.410/ PAN6428	2	J61.410	Tygradure CD1401A	For EJ200 connection only

TABLE 23

Cable, data bus, double screened, jacketed, +260°C Tw, high flexibility for special applications.

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std	Specification	Note
FB	J61.513/ JN1111	2	J61.513	SPE-J-920-A-0097	For pylon use only

TABLE 24

Cable, data bus, double screened, jacketed, +260°C Tw, high flexibility for special applications.

Wire Type Code	EFA Std/ Part Number	Number of Cores	Basic Wire EFA Std	Specification	Note
TW	J61.520/ PAN6588	2	J61.520	SP-P-99301-00P	For use on Head Equipment Assembly (HEA) system only

5. WIRE SIZE CODE

The wire size will be coded with 3 significant digits referring to the wire size in mm² as follows:

Size Code	Wire size mm ² (for ref only)	Corresponding AWG (for ref only)
002	0,208	24
004	0,336	22
006	0,597	20
010	0,933	18
012	1,34	16
020	1,82	14
030	2,91	12
050	4,65	10
090	8,41	8
140	12,85	6
220	20,75	4
340	32,30	2
420	39,00	1
530	51,20	0
680	66,80	00

6. MINIMUM BEND RADIUS

Unless otherwise stated, all cables shall be so installed that the bend radius of any individual core is not less than ten times the outside diameter of that cable.