

INCH-POUND

MIL-DTL-49285/5B
w/AMENDMENT 1
18 November 2021
SUPERSEDING
MIL-DTL-49285/5B
2 March 2018

DETAIL SPECIFICATION SHEET

CABLE, SPECIAL PURPOSE, ELECTRICAL, NINETEEN INDIVIDUALLY SHIELDED
PAIRS OF 22 (7 X 30) AWG

Inactive for new design after 16 June 1997.

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-49285.

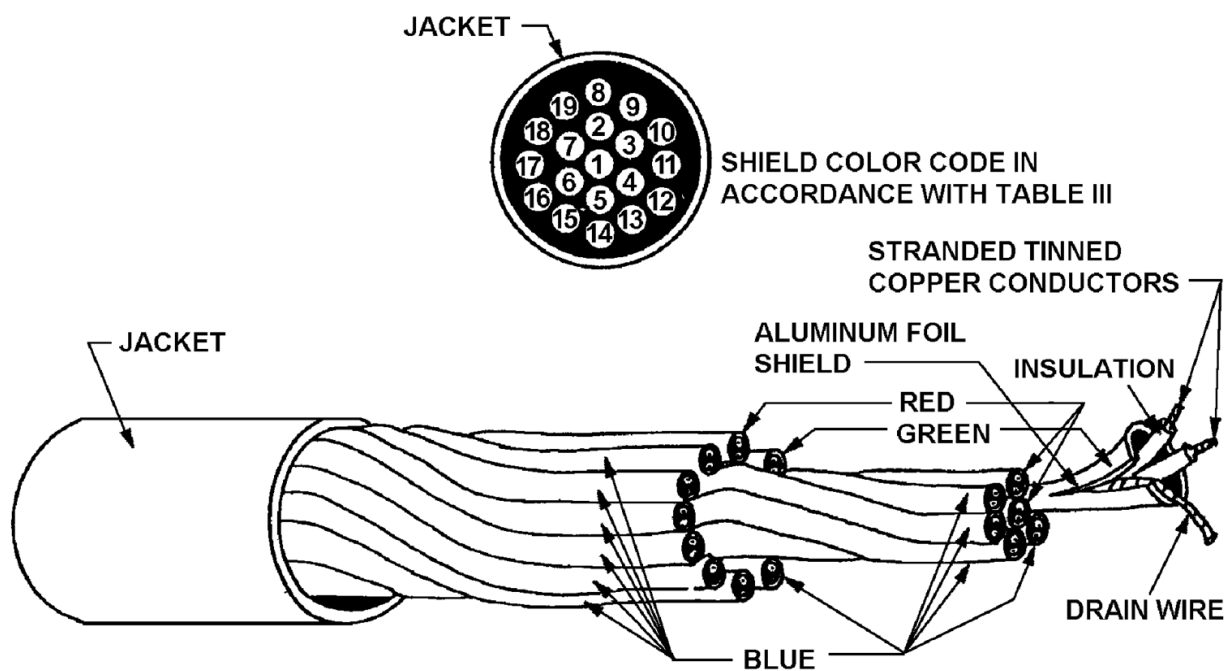


FIGURE 1. Cable illustration.

Engineering information: See table I.



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Note: Not recommended for shipboard or aerospace applications due to toxic smoke release in the event of a fire. PVC is not recommended in other applications (i.e. confined spaces, low ventilation) where there is the potential for human smoke exposure in a fire.

TABLE I. Description, electrical.

Electrical characteristics	Requirements
Nominal capacitance between conductors	30 pF/ft (picofarads/foot)
Nominal capacitance between the conductor and the shield with one conductor tied to the shield	55 pF/ft
Continuous working voltage	300 V _{rms} maximum between conductors
Nominal capacitance between adjacent shields	150 pF/ft
Continuous working voltage between adjacent shields	50 volts maximum
Shield dc resistance	14 ohms/1,000 feet maximum

TABLE II. Description, physical.

Components	Construction details
Number of pairs	Nineteen individually shielded
Conductor type and wire size	Stranded tinned copper 22 AWG
Conductor stranding	7 X 30 AWG
Conductor insulation	Polypropylene
Conductor insulation thickness	0.010 inch nominal thickness
Drain wire type and size	Stranded tinned copper 22 AWG
Drain wire stranding	16 X 34 AWG
Jacket material	Polyvinyl chloride
Jacket thickness	0.050 inch
Finished cable diameter	0.665 inch maximum outside diameter
Cable style (UL)	2493
Tensile strength (jacket)	2,000 pounds per square inch minimum
Elongation (jacket)	150 percent minimum
Overall cabling lay length	1.3 twists per foot $\pm$ 10 percent

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Cabled pair orientation: The position of the red and green pair shield shall determine the rotation direction for pair location (see figure 1).

TABLE III. Shield color code.

Pair numbers	Shield color
<u>Center core</u>	
1 st pair	Red
<u>Inner layer</u>	
2 nd pair	Red
3 rd pair	Green
4 th pair	Blue – 1
5 th pair	Blue – 2
6 th pair	Blue – 3
7 th pair	Blue – 4
<u>Outer layer</u>	
8 th pair	Red
9 th pair	Green
10 th pair	Blue – 1
11 th pair	Blue – 2
12 th pair	Blue – 3
13 th pair	Blue – 4
14 th pair	Blue – 5
15 th pair	Blue – 6
16 th pair	Blue – 7
17 th pair	Blue – 8
18 th pair	Blue – 9
19 th pair	Blue – 10

REQUIREMENTS:

Design and construction: See tables II and III.

Shield location and orientation. The polyester aluminum shield is to be located on the outer circumference of the pair, with the aluminum foil side inward. Insulation on the exterior of the shield is to be complete with no aluminum available for contact.

Drain wire location. The drain wire is to be spirally located beneath the shield with the insulated conductors. It is to be in continuous contact with the aluminum surface of the foil shield throughout the cable.

Cable temperature rating. The cable temperature rating shall be -20 °C to +80 °C.

Flammability. Insulation flammability testing shall be performed in accordance with the VW-1 flame test method of UL 2556.

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Shield integrity test.*

<u>Frequency</u>	<u>Response</u>
100 kHz	115 dB or more below reference
500 kHz	107 dB or more below reference
1 MHz	101 dB or more below reference
5 MHz	87 dB or more below reference
10 MHz	81 dB or more below reference
15 MHz	77 dB or more below reference
20 MHz	73 dB or more below reference
25 MHz	69 dB or more below reference
30 MHz	65 dB or more below reference
100 MHz	45 dB or more below reference

* Any two readings may deviate to a value of 0.9 times the stated limits.

Fixture resonance will occur between 40 and 70 MHz.

Crosstalk test limits. All values are minimums.

<u>Frequency (kHz)</u>	<u>Near end crosstalk (dB)</u>	<u>Far end crosstalk (dB)</u>
40	57	57
70	54	53
100	52	51
1,000	53	51

Insulation resistance between shields: 100 megohms-1,000 feet minimum.

Durometer hardness. The cable jacket shall have a "Shore A" hardness of 82 ± 5 .

Part or Identifying Number (PIN). The PIN shall be M49285/05.

Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Referenced documents. In addition to MIL-DTL-49285, this document references the following: UL 2556.

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CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – SH
Air Force – 85
DLA - CC

Preparing activity:
DLA - CC

Review activities:
Army – MI

(Project 6145-2021-039)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. You should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.