



## MIL-DTL-27500 (NEMA WC27500) Cable Designation

All MIL-DTL-27500 cables are designated by a combination of digits and letters (not to exceed 16) which indicates the exact construction of each cable. Please note the following example of a MIL-DTL-27500 cable.

### Cable Description: M27500A 22 SB 3 T 23

(1) (2) (3) (4) (5) (6) (7)

**Classification:** The cable will be of the following types and will be furnished in the basic wire size, type, number of wires, and shield and jacket styles, as specified.

- Unjacketed: 2 to 15 color coded wires, spirally laid without an overall outer jacket.
- Jacketed: 2 to 15 color coded wires, spirally laid with an overall outer jacket.
- Shielded: A single wire, or 2 to 15 color coded wires spirally laid, with one or two overall shields.
- Shielded and Jacketed: A single wire, or 2 to 15 color coded wires spirally laid, with one or two shields and one or two jackets.

**Specification Number (1):** All cables will carry this prefix.

#### Identification Method (2):

When 85% minimum shield coverage is required:

- "-" designates the preferred identification method (white wire with colored stripes) using Table IIIA;
- "F" designates the preferred identification method (white wire with colored stripes) using Table IIIB;
- "A" designates optional identification method A (solid colored wires) using Table IIIA;
- "G" designates optional identification method A (solid colored wires) using Table IIIB;
- "B" designates optional identification method B using Table IIIC;
- "K" designates optional identification method C;
- "L" designates optional identification method D (see mil spec for band marking specification).

When 90% minimum shield coverage is required:

- "C" designates the preferred identification method (white wire with colored stripes) using Table IIIA;
- "H" designates the preferred identification method (white wire with colored stripes) using Table IIIB;
- "D" designates optional identification method A (solid colored wires) using Table IIIA;
- "J" designates optional identification method A (solid colored wires) using Table IIIB;
- "E" designates optional identification method B using Table IIIC;
- "M" designates optional identification method C;
- "N" designates optional identification method D (see mil spec for band marking specification).

**Conductor Size (3):** This position identifies the wire size. Wire size depends upon the basic wire specification (see 4).

**Basic Wire Specification (4):** The component wires are identified by a one or two letter code. A listing of the basic wire specifications can be found in Table I.

**Number of Conductors (5):** M27500 currently specifies from 1 to 15 conductors for shielded or shielded and jacketed cables, and from 2 to 15 for unshielded unjacketed or unshielded jacketed cables. Cables with 10 to 15 conductors are limited to 12 AWG and smaller.

**Shield (6):**The specific shield style and material are designated by a single letter code and are detailed in Table I A.

**Jacket (7):**Cable jacketing materials are specified by a two digit code and are detailed in Table I B.

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**Table I - Basic Wire Specifications**

A	MIL-DTL-5086/1 <sup>1</sup>	CA	MIL-DTL-22759/13	SP	MIL-DTL-22759/43	MF	MIL-DTL-81044/7
B	MIL-DTL-5086/2 <sup>1,2</sup>	CB	MIL-DTL-22759/14	SR	MIL-DTL-22759/44	MG	MIL-DTL-81044/8 <sup>2</sup>
C	MIL-DTL-5086/3 <sup>1,2</sup>	CC	MIL-DTL-22759/15	SS	MIL-DTL-22759/45	MH	MIL-DTL-81044/9
P	MIL-DTL-5086/4 <sup>1</sup>	TE	MIL-DTL-22759/16	ST	MIL-DTL-22759/46	MJ	MIL-DTL-81044/10
AA	MIL-DTL-5086/5 <sup>1</sup>	TF	MIL-DTL-22759/17	WB	MIL-DTL-22759/80 <sup>3</sup>	MK	MIL-DTL-81044/11 <sup>2</sup>
AB	MIL-DTL-5086/6 <sup>1</sup>	TG	MIL-DTL-22759/18	WC	MIL-DTL-22759/81 <sup>3</sup>	ML	MIL-DTL-81044/12
AD	MIL-DTL-5086/7 <sup>1</sup>	TH	MIL-DTL-22759/19	WE	MIL-DTL-22759/82 <sup>3</sup>	MM	MIL-DTL-81044/13
H	MIL-DTL-8777, MS 25471	TK	MIL-DTL-22759/20	WF	MIL-DTL-22759/83 <sup>3</sup>	MR	MIL-DTL-81381/7 <sup>3</sup>
F	MIL-DTL-8777, MS 27110	TL	MIL-DTL-22759/21	WG	MIL-DTL-22759/84 <sup>3</sup>	MS	MIL-DTL-81381/8 <sup>3</sup>
EA	MIL-DTL-22759/1	TM	MIL-DTL-22759/22	WH	MIL-DTL-22759/85 <sup>3</sup>	MT	MIL-DTL-81381/9 <sup>3</sup>
E	MIL-DTL-22759/2	TN	MIL-DTL-22759/23	WJ	MIL-DTL-22759/86 <sup>3</sup>	MV	MIL-DTL-81381/10 <sup>3</sup>
RA	MIL-DTL-22759/3	JB	MIL-DTL-22759/28	WK	MIL-DTL-22759/87 <sup>3</sup>	MW	MIL-DTL-81381/11 <sup>3</sup>
RB	MIL-DTL-22759/4	JC	MIL-DTL-22759/29	WL	MIL-DTL-22759/88 <sup>3</sup>	MY	MIL-DTL-81381/12 <sup>3</sup>
VA	MIL-DTL-22759/5	JD	MIL-DTL-22759/30	WM	MIL-DTL-22759/89 <sup>3</sup>	NA	MIL-DTL-81381/13 <sup>3</sup>
WA	MIL-DTL-22759/6	JE	MIL-DTL-22759/31	WN	MIL-DTL-22759/90 <sup>3</sup>	NB	MIL-DTL-81381/14 <sup>3</sup>
SA	MIL-DTL-22759/7	SB	MIL-DTL-22759/32	WP	MIL-DTL-22759/91 <sup>3</sup>	NE	MIL-DTL-81381/17 <sup>3</sup>
TA	MIL-DTL-22759/8	SC	MIL-DTL-22759/33	WR	MIL-DTL-22759/92 <sup>3</sup>	NF	MIL-DTL-81381/18 <sup>3</sup>
LE	MIL-DTL-22759/9	SD	MIL-DTL-22759/34	JA	MIL-DTL-25038/1	NG	MIL-DTL-81381/19 <sup>3</sup>
LH	MIL-DTL-22759/10	SE	MIL-DTL-22759/35	JF	MIL-DTL-25038/3	NH	MIL-DTL-81381/20 <sup>3</sup>
RC	MIL-DTL-22759/11	SM	MIL-DTL-22759/41	MD	MIL-DTL-81044/5 <sup>2</sup>	NK	MIL-DTL-81381/21 <sup>3</sup>
RE	MIL-DTL-22759/12	SN	MIL-DTL-22759/42	ME	MIL-DTL-81044/6	NL	MIL-DTL-81381/22 <sup>3</sup>

<sup>1</sup> Not for use in aerospace applications.

<sup>2</sup> Inactive for new design.

<sup>3</sup> Not for Naval Air Systems Command usage.

**Table I A - Shield Material**

Letter Code		Description	Maximum temperature limit for shield material	
Single Shield	Double Shield		°C	°F
U	---	No shield	N/A	N/A
T	V	Round, tin-coated copper	150	302
S	W	Round, silver-coated copper	200	392
N	Y	Round, nickel-coated copper	260	500
F	Z	Round, stainless steel	400	752
C	R	Round, heavy nickel-coated copper	400	752
M	K	Round, silver-coated high strength copper alloy	200	392
P	L	Round, nickel-coated high strength copper alloy	260	500
G	A	Flat, silver-coated copper	200	392
H	B	Flat, silver-coated high strength copper alloy	200	392
*	#	Flat, nickel-coated copper	260	500
J	D	Flat, tin-coated copper	150	302
E	X	Flat, nickel-coated high strength copper alloy	260	500
I	Q	Flat, nickel-chromium alloy	400	752

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**Table I B - Jacket Material and Color**

Numeric Code		Description	Temperature Limit for Jacket Material	
Single Jacket	Double Jacket		°C	°F
00	00	No jacket	N/A	N/A
01	51 <sup>1</sup>	Extruded white polyvinylchloride (PVC)	90	194
02 <sup>2</sup>	52 <sup>2</sup>	Extruded clear polyamide in accordance with ASTM-D-4066	105	221
03	53	White polyamide braid impregnated with clear polyamide finisher over a polyester tape	105	221
04	54	Polyester braid impregnated with high temperature finishers over polyester tape	150	302
05	55	Extruded clear fluorinated ethylene propylene (FEP)	200	392
06	56	Extruded or taped and heat sealed white polytetrafluoroethylene (PTFE)	260	500
07	57	White polytetrafluoroethylene (PTFE) treated glass braid impregnated and coated with polytetrafluoroethylene finisher over presintered polytetrafluoroethylene tape	260	500
08 <sup>3</sup>	58 <sup>3</sup>	Cross-linked white extruded polyvinylidene fluoride (PVDF ) <sup>2</sup>	150	302
09	59	Extruded white fluorinated ethylene propylene (FEP)	200	392
10 <sup>3</sup>	60 <sup>3</sup>	Extruded clear polyvinylidene fluoride (PVDF) <sup>2</sup>	125	257
11 <sup>4</sup>	61 <sup>4</sup>	Tape of natural polyimide combined with clear fluorinated ethylene propylene (FEP) wrapped and heat sealed with (FEP) outer surface	200	392
12 <sup>4</sup>	62 <sup>4</sup>	Tape of natural polyimide combined with fluorinated ethylene propylene (FEP) wrapped and heat sealed with polyimide outer surface	200	392
14	64	Extruded white ethylene-tetrafluoroethylene copolymer (ETFE)	150	302
15	65	Extruded clear ethylene-tetrafluoroethylene copolymer (ETFE)	150	302
16	66	Braid of aromatic polyamide with high temperature finisher over presintered polytetrafluoroethylene (PTFE) tape	200	392
17 <sup>5</sup>	67 <sup>5</sup>	Extruded white ethylene chlorotrifluoroethylene (ECTFE)	150	302
18 <sup>5</sup>	68 <sup>5</sup>	Extruded clear ethylene chlorotrifluoroethylene (ECTFE)	150	302
20	70	Extruded white perfluoroalkoxy (PFA)	260	500
21	71	Extruded clear perfluoroalkoxy (PFA)	260	500
22	72	Tape of polyimide combined with clear fluorinated ethylene propylene (FEP) wrapped and heat sealed with opaque polyimide outer surface	200	392
23	73	Extruded white cross-linked modified ethylene-tetrafluoroethylene copolymer (XLETFE)	200	392
24	74	Tape layer of white polytetrafluoroethylene (PTFE) wrapped over a tape layer of natural polyimide combined with FEP and heat sealed	200	392

<sup>1</sup> Polyvinylchloride (PVC) materials shall not be used for aerospace applications.

<sup>2</sup> Jacket material 02/52 is not to be used for cables having a diameter of 0.251 in (6.38 mm) or greater.

<sup>3</sup> Jacket materials 08, 10, 58, and 60 are not to be used for cables having a diameter of 0.401 in (10.19 mm) or greater.

<sup>4</sup> Not for Naval Air Systems Command usage.

<sup>5</sup> Inactive for new design.

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**Table II - Allowable Shield and Jacket Materials for Each Basic Type Wire**

Basic Wire Specification	Cable Type					
	Shielded		Jacketed		Shielded and Jacketed	
	Shield Material <sup>1</sup>	Jacket Material	Shield Material	Jacket Material	Shield Material <sup>1</sup>	Jacket Material
MIL-DTL-5086	T	00	Unshielded	01, 02, 03, 10	T	01, 02, 03, 10
MIL-DTL-8777	S	00	Unshielded	4	S	4
MIL-DTL-22759 slash sheets 1-12,20-23, 28-31	T, S, N	00	Unshielded	04, 05, 06, 07, 09, 14-18, 20, 21	T, S, N	04, 05, 06, 07, 09, 14-18, 20, 21
MIL-DTL-22759 slash sheets 13-19	T, S, N	00	Unshielded	04, 05, 09, 14-18, 20, 21	T, S, N	04, 05, 09, 14-18, 20, 21
MIL-DTL-22759 slash sheets 32-35, 41-46	T, S, N	00	Unshielded	04, 05, 08, 09, 14-18, 20, 21, 23, 24	T, S, N	04, 05, 08, 09, 14-18, 20, 21, 23, 24
MIL-DTL-22759 slash sheets 80-92	T, S, N	00	Unshielded	04, 05, 06, 07, 09, 11, 12, 14-18, 20, 21, 22, 24	T, S, N	04, 05, 06, 07, 09, 11, 12, 14-18, 20, 21, 22, 24
MIL-DTL-25038/1 & /3	F, C	00	Unshielded	06, 07	F, C	06, 07
MIL-DTL-81044	T,S	00	Unshielded	04, 08, 09, 14, 16, 23	T,S	04, 08, 09, 14, 16, 23
MIL-DTL-81381	T, S, N	00	Unshielded	05, 09, 11, 12, 22	T, S, N	05, 09, 11, 12, 22

See Table I A and Table I B for jacket material cross-reference.

<sup>1</sup> T = Tin, S = Silver, N = Nickel, F = Stainless steel, C = Heavy coated nickel

**Table III C - Color of Insulation for Identification of Wire Sizes in accordance with MIL-STD-686**

Wire Size	26 <sup>1</sup>	24	22	20	18	16	14	12	10	8	6	4	2	1	1/0	2/0
Insulation Color (solid)	Black	Blue	Green	Red	White <sup>2</sup>	Blue	Green	Yellow	Brown	Red	Blue	Yellow	Red	White	Blue	Green

<sup>1</sup> 26 AWG is inactive for new design.

<sup>2</sup> For MIL-DTL-81381 basic wire, the insulation color may be opaque dark yellow or unpigmented polyimide resin color.

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**Table III A - Circuit Identification Colors for Basic Wires in Cable**  
in accordance with MIL-DTL-22759, MIL-DTL-25038, MIL-DTL-81044, or MIL-DTL-81381

No. of Wires in Cable	Wire Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Basic (white)														
2	White <sup>1</sup>	Blue													
3	White <sup>1</sup>	Blue	Orange												
4	White <sup>1</sup>	Blue	Orange	Green											
5	White <sup>1</sup>	Blue	Orange	Green	Red										
6	White <sup>1</sup>	Blue	Orange	Green	Red	Black									
7	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>								
8	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet							
9	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet	Gray						
10	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet	Gray	Brown <sup>3</sup>					
11 <sup>4</sup>	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet	Gray	Brown <sup>3</sup>	Blue/Blue				
12 <sup>4</sup>	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet	Gray	Brown <sup>3</sup>	Blue/Blue	Orange/Orange			
13 <sup>4</sup>	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet	Gray	Brown <sup>3</sup>	Blue/Blue	Orange/Orange	Green/Green		
14 <sup>4</sup>	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet	Gray	Brown <sup>3</sup>	Blue/Blue	Orange/Orange	Green/Green	Red/Red	
15 <sup>4</sup>	White <sup>1</sup>	Blue	Orange	Green	Red	Black	Yellow <sup>2</sup>	Violet	Gray	Brown <sup>3</sup>	Blue/Blue	Orange/Orange	Green/Green	Red/Red	Black/Black

<sup>1</sup> Except where preferred color on basic wire specification sheet is not white.  
<sup>2</sup> Where basic wire is MIL-DTL-81381, a brown helical stripe shall be used.  
<sup>3</sup> Where basic wire is MIL-DTL-81381, a brown and white helical stripes shall be used.  
<sup>4</sup> For cables having more than 10 conductors, the wires shall be a white base identified by double color tracers as indicated.

**Table III B - Circuit Identification Colors for Basic Wires in Cable**  
in accordance with MIL-DTL-5086 <sup>1</sup>, MIL-DTL-8777, MIL-DTL-22759, MIL-DTL-25038, MIL-DTL-81044, or MIL-DTL-81381

No. of Wires in Cable	Identification Colors for Respective Wires in Cable
1	Basic (white)
2	Red, blue
3	Red, blue, yellow
4	Red, blue, yellow, green
5	Red, blue, yellow, green, basic
6	Red, blue, yellow, green, basic, black
7	Red, blue, yellow, green, basic, black, brown
8	Red, blue, yellow, green, basic, black, brown, orange
9	Red, blue, yellow, green, basic, black, brown, orange, violet
10	Red, blue, yellow, green, basic, black, brown, orange, violet, gray
11	Red, blue, yellow, green, basic, black, brown, orange, violet, gray, red/white <sup>2</sup>
12	Red, blue, yellow, green, basic, black, brown, orange, violet, gray, red/white <sup>2</sup> , blue/white <sup>2</sup>
13	Red, blue, yellow, green, basic, black, brown, orange, violet, gray, red/white <sup>2</sup> , blue/white <sup>2</sup> , yellow/white <sup>2</sup>
14	Red, blue, yellow, green, basic, black, brown, orange, violet, gray, red/white <sup>2</sup> , blue/white <sup>2</sup> , yellow/white <sup>2</sup> , green/white <sup>2</sup>
15	Red, blue, yellow, green, basic, black, brown, orange, violet, gray, red/white <sup>2</sup> , blue/white <sup>2</sup> , yellow/white <sup>2</sup> , green/white <sup>2</sup> , black/white

<sup>1</sup> Inactive for new design for MIL-DTL-5086.  
<sup>2</sup> Color designation indicates a solid color with stripe, e.g., red/white - solid red insulation with a white stripe.

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