Prysmian Group

PRYSMIAN Draka

M27500 Cables

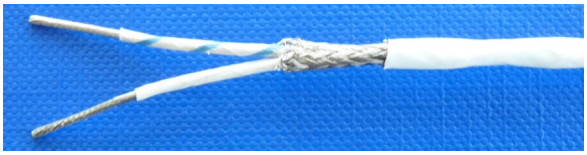
NEMA WC 27500

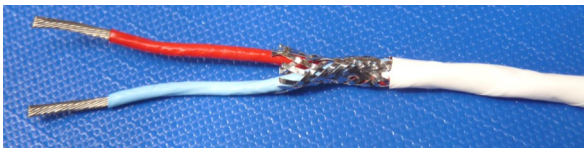
(MIL-DTL-27500)

CHARACTERISTICS:

Environmental:

- Operating temperature : -65°C to +150°C, +200°C or +260°C* (ambient temperature + current heating)
  * depending on the type of basic wires, shield or jacket requested.
  See table B and C for more information.
- Number of wires in cable: from 1 to 15 conductors for shielded and jacketed cables, and from 2 to 15 for unshielded unjacketed.





APPLICATIONS:

- Special purpose and power electrical cables designed for Aerospace, Commercial, Military applications and high performances vehicles.

STANDARDS/SPECIFICATONS:

- Cable specification:NEMA WC 27500
- Wires specification: AS22759/80 to /92 and AS22759/180 to /192

CABLE DESIGNATION:

M27500 - 22 WK 2 N 24

- 24 → Jacket material : See table D
- N → Shield style and material: See table C
- 2 → Number of wires in cable
- WK → Basic wire specification : See table B
- 22 → Conductor size
- - → Identification method of cable wire and coverage : See table A
- M27500 → Identification number

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Table A : Identification method of Cable Wire (with Shield Coverage)

Identification method of Cable Wire (with 85% shield coverage)	Identification method of Cable Wire (with 90% shield coverage)	Description
-	C	White wires with Spiral Stripes (color of the stripes in accordance with Table 3-1 of NEMA WC 27500 specification)
F	H	White wires with Spiral Stripes (color of the stripes in accordance with Table 3-2 of NEMA WC 27500 specification)
A	D	Solid color in accordance with Table 3-1 of NEMA WC 27500 specification
G	J	Solid color in accordance with Table 3-2 of NEMA WC 27500 specification
B	E	Solid color in accordance with Table 3-3 of NEMA WC 27500 specification and color bands (for identification of wire number in the cable. In accordance with Table 3-4 of NEMA WC 27500 specification)
K	M	Solid color in accordance with Table 3-3 of NEMA WC 27500 specification (Numbers are printed on the insulation for identification of wire number in the cable)
L	N	White wires (Numbers are printed on the insulation for identification of wire number in the cable)
P	R	White wires with Spiral Stripes (color of the stripes in accordance with Table 3-3 of NEMA WC 27500 specification) and color bands (for identification of wire number in the cable. In accordance with Table 3-4 of NEMA WC 27500 specification)
S	T	White wires and color bands (for identification of wire number in the cable. In accordance with Table 3-4 of NEMA WC 27500 specification)
U	V	Color codes specified by the procuring activity

Table B : Basic Wire Specification

Symbol	Basic wire Specification	Maximum Operating temperature
WB	AS22759/80	150°C
WC	AS22759/81	200°C
WE	AS22759/82	260°C
WF	AS22759/83	200°C
WG	AS22759/84	260°C
WH	AS22759/85	150°C
WJ	AS22759/86	200°C
WK	AS22759/87	260°C
WL	AS22759/88	150°C
WM	AS22759/89	200°C
WN	AS22759/90	260°C
WP	AS22759/91	200°C
WR	AS22759/92	260°C

Symbol	Basic wire Specification	Maximum Operating temperature
DB	AS22759/180	150°C
DC	AS22759/181	200°C
DE	AS22759/182	260°C
DF	AS22759/183	200°C
DG	AS22759/184	260°C
DH	AS22759/185	150°C
DJ	AS22759/186	200°C
DK	AS22759/187	260°C
DL	AS22759/188	150°C
DM	AS22759/189	200°C
DN	AS22759/190	260°C
DP	AS22759/191	200°C
DR	AS22759/192	260°C

Extracts of Tables 3-1, 3-2, 3-3 and 3-4 of NEMA WC 27500 for Identification Colors

Table 3-1 of NEMA WC 27500
Wire N°1 : White
Wire N°2 : Blue
Wire N°3 : Orange
Wire N°4 : Green
Wire N°5 : Red
Wire N°6 : Black
Wire N°7 : Yellow
Wire N°8 : Violet
Wire N°9 : Gray
Wire N°10 : Brown
Wire N°11 : Blue/Blue (1)
Wire N°12 : Orange/Orange (1)
Wire N°13 : Green/Green (1)
Wire N°14 : Red/Red (1)
Wire N°15 : Black/Black (1)

Note (1) : For cables having more than 10 wires, the wires shall be identified by double tracers. (Blue/Blue indicates a white wire with with double blue tracers)

Table 3-2 of NEMA WC 27500
Wire N°1 : Red (2)
Wire N°2 : Blue
Wire N°3 : Yellow
Wire N°4 : Green
Wire N°5 : Basic (White)
Wire N°6 : Black
Wire N°7 : Brown
Wire N°8 : Orange
Wire N°9 : Violet
Wire N°10 : Gray
Wire N°11 : Red/White
Wire N°12 : Blue/White
Wire N°13 : Yellow/White
Wire N°14 : Green/White
Wire N°15 : Black/White

Note (2) : For a single core cable, the color of the wire is Basic (White)

Table 3-3 of NEMA WC 27500	
Wire Size	Insulation Color (Solid)
26	Black
24	Blue
22	Green
20	Red
18	White (or purple) (3)
16	Blue
14	Green
12	Yellow
10	Brown
8	Red
6	Blue
4	Yellow
2	Red
1	White
0	Blue
00	Green

Note (3) : Violet may be used if specified in the purchase order

Table 3-4 of NEMA WC 27500			
Wire Number	Band Group Configuration		Number of Bands
1	No marking		None
2	■ ■	■ ■	2 Narrow
3	■ ■ ■	■ ■ ■	3 Narrow
4	■ ■ ■ ■	■ ■ ■ ■	4 Narrow
5	■ ■ ■ ■ ■	■ ■ ■ ■ ■	5 Narrow
6	■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	6 Narrow
7	■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	7 Narrow
8	▬ ■	▬ ■	1 Wide 1 Narrow
9	▬ ■ ■	▬ ■ ■	1 Wide 2 Narrow
10	▬ ■ ■ ■	▬ ■ ■ ■	1 Wide 3 Narrow
11	▬ ■ ■ ■ ■	▬ ■ ■ ■ ■	1 Wide 4 Narrow
12	▬ ■ ■ ■ ■ ■	▬ ■ ■ ■ ■ ■	1 Wide 5 Narrow
13	▬ ▬ ■	▬ ▬ ■	2 Wide 1 Narrow
14	▬ ▬ ■ ■	▬ ▬ ■ ■	2 Wide 2 Narrow
15	▬ ▬ ■ ■ ■	▬ ▬ ■ ■ ■	2 Wide 3 Narrow

Table C : Shield style and material

Symbol Single-Shield Style	Symbol Double-Shield Style	Description	Maximum Temperature Limit for Shield material (Information Only)
U	-	No shield	-
T	V	Tin-coated copper, round	150°C (302°F)
S	W	Silver-coated copper, round	200°C (392°F)
N	Y	Nickel-coated copper, round	260°C (500°F)
F	Z	Stainless Steel, round	400°C (752°F)
C	R	Nickel-coated Copper 27%, round	400°C (752°F)
M	K	Silver-coated high-strength copper alloy, round	200°C (392°F)
P	L	Nickel coated high-strength copper alloy, round	260°C (500°F)
G	A	Silver-coated copper, flat	200°C (392°F)
H	B	Silver-coated high strength copper alloy, flat	200°C (392°F)
NF (*)	ND (#)	Nickel-coated copper, flat	260°C (500°F)
J	D	Tin-coated copper, flat	150°C (302°C)
E	X	Nickel-coated high-strength copper alloy, flat	260°C (500°F)
I	Q	Nickel-chromium alloy, flat	400°C (752°F)
HS ($)	HD (+)	Heavy Silver-coated copper, round	200°C (392°F)

New symbols with 2 digits (NF, ND, HS and HD) have been created in NEMA WC 27500-2015 standard to replace the special digits which were in use (, #, $ and +)*

Table D : Jacket material

Single Jacket Symbol	Double Jacket Symbol	Jacket Material	Maximum Temperature Rating for Jacket Material (Information only)
00	00	No jacket	-
06	56	Extruded or taped and heat sealed White polytetrafluoroethylene (PTFE)	260°C (500°F)
11	61	Tape of natural polyimide combined with clear fluorinated ethylene propylene (FEP) wrapped and heat sealed with (FEP) outer surface.	200°C (392°F)
12	62	Tape of natural polyimide combined with fluorinated ethylene propylene (FEP) wrapped and heat-sealed with polyimide outer surface.	200°C (392°F)
22	72	Tape of polyimide combined with clear fluorinated ethylene propylene (FEP) wrapped and heat-sealed with opaque polyimide outer surface.	200°C (392°F)
24	74	Tape layer of White polytetrafluoroethylene (PTFE) wrapped over a tape layer of natural polyimide combined with fluoropolymer, heated and fused.	260°C (500°F)
25	75	Smooth Surface Tape layer of White polytetrafluoroethylene (PTFE) wrapped over a tape layer of natural polyimide combined with fluoropolymer, heated and fused.	260°C (500°F)