

Glennair®



# Operation Semper Tan

*The Complete "Desert Tan" Solution*

United States ■ United Kingdom ■ Germany ■ France ■ Nordic ■ Italy ■ Spain ■ Japan

April 2011





# Operation Semper Tan

## Glenair: The Only Interconnect System Supplier to Offer Our Military Customer a Complete “Desert Tan” Solution

Glenair now offers a complete range of interconnect component materials suitable for use in military applications that require (or would prefer) FED-STD-33446 Desert Tan colored and conductive parts over other available colors such as CAD green or black. Materials and components successfully developed by Glenair now include cable jacketing, shrink boots, composite connectors and accessories, junction boxes, fabric cable braid, convoluted tubing, and more. The materials are intended for use on military vehicles, equipment trailers, soldier systems and other ground-based or ground-deployed applications.

### OPERATION SEMPER TAN (XD) PRODUCTS

- ◆ Harsh Environment Cable Jacketing and Overmolding
- ◆ High-Temperature Heat Shrink Boots and Transitions
- ◆ Composite Thermoplastic Connectors and Accessories
- ◆ Rugged Fabric Cable Overbraid
- ◆ Annular Convoluted Tubing
- ◆ Corrosion-Proof Composite Junction Boxes
- ◆ Injection-Molded Cable Assemblies





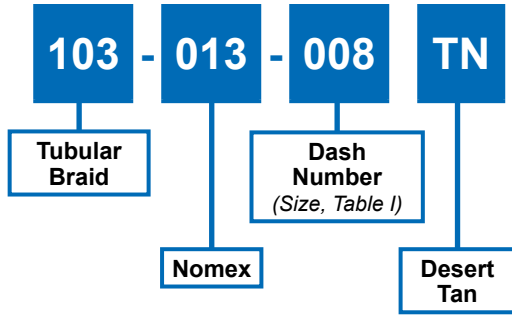


BRAKE  
NEUTRAL

WYCCSU

9905P303  
4287020021007  
ABC 58144

# Semper Tan Tubular Braid



**TABLE I**

Dash No.	Nominal I.D.	Wire Bundle Accomodation Range Ref.	
		Min.	Max.
004	.125 (3.2)	.090 (2.3)	.250 (6.4)
008	.250 (6.4)	.125 (3.2)	.375 (9.5)
012	.375 (9.5)	.312 (7.9)	.500 (12.7)
016	.500 (12.7)	.250 (6.4)	.750 (19.1)
024	.750 (19.1)	.500 (12.7)	1.250 (31.8)
040	1.250 (31.8)	.750 (19.1)	1.500 (38.1)

# Series 77 Full Nelson Desert Tan Shrink Boots

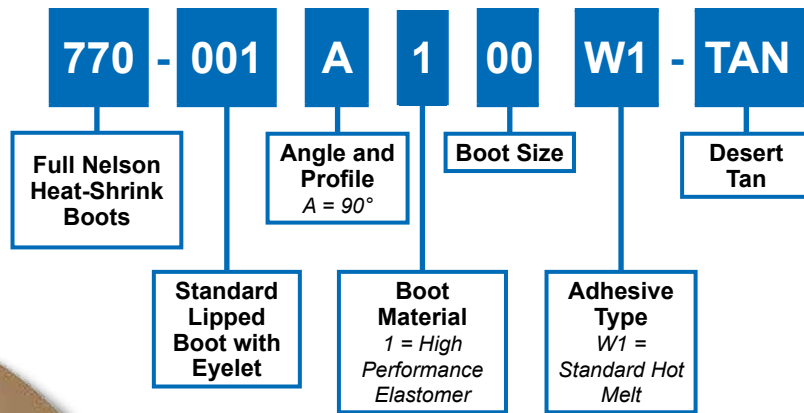
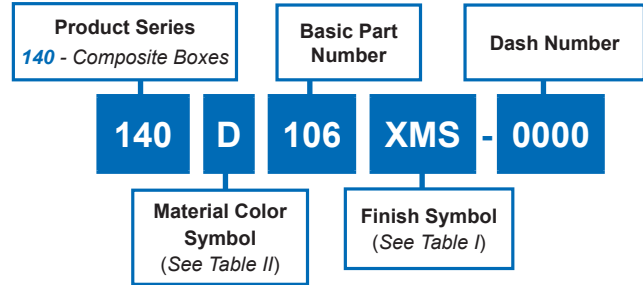


Table 1: Boot Size Selection Guide

Boot Size	Adapter Diameter				Min. Cable Diameter	
	Inches		Millimeters		In.	mm.
	Min	Max	Min	Max		
02	.350	.625	8.89	15.88	.175	4.45
03	.450	.850	11.43	21.59	.225	5.72
04	.575	1.000	14.61	25.40	.250	6.35
05	.750	1.200	19.05	30.48	.300	7.62
06	.950	1.350	24.13	34.29	.375	9.53
07	1.150	1.600	29.21	40.64	.425	10.80
08	1.600	2.000	40.60	50.80	.650	16.50
09	1.780	2.550	45.20	64.80	.700	17.80

# Semper Tan Composite Junction Boxes



**TABLE II: MATERIAL COLOR & FINISH OPTIONS**

Sym	Material & Color	Finish Options
B	Thermoplastic / Black	XO and XMS
D	Thermoplastic / Desert Tan	XO and XMS
G	Thermoplastic / Grey	XO and XMS
-	Thermoplastic / NA	XM, XW and XZN

TABLE I: FINISHES	
Symbol	Finish Description
XO	No Plating (Non-Conductive Finish)
XMS	Internal Surfaces - Electroless Nickel External Surfaces - See Table II
XM	All Surfaces – Electroless Nickel
XW	All Surfaces – Cadmium Olive Drab over Electroless Nickel
XZN	All Surfaces – Zinc Nickel/Black
XMT	2000 Hour Corrosion Resistant Ni-PTFE, Nickel-Fluorocarbon Polymer. 1000 Hour Grey™

# Semper Tan D38999 Series III Composite Protective Covers

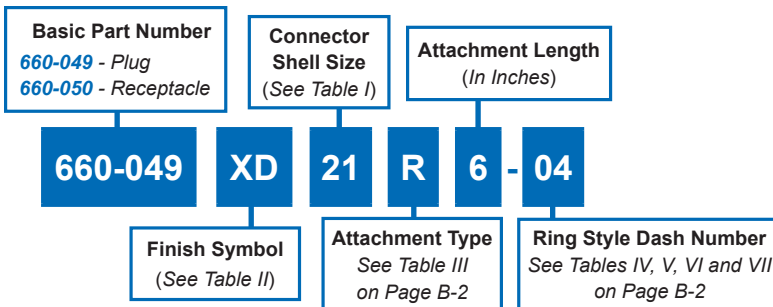
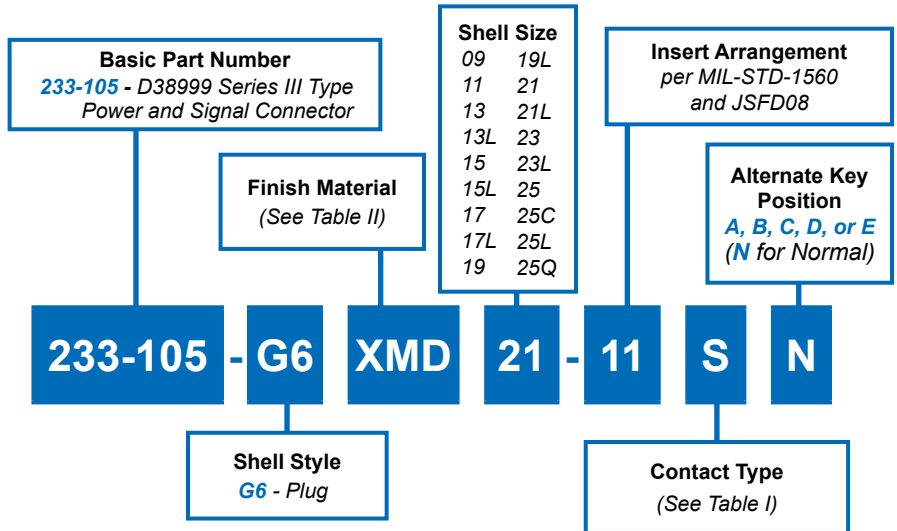


TABLE I: CONNECTOR SHELL SIZE ORDER NUMBER			
SHELL SIZE	A THREAD	B DIA MAX	C DIA MAX
09	.6250 -0.1P-0.3L-TS	.906 (23.0)	.906 (23.0)
11	.7500 -0.1P-0.3L-TS	1.024 (26.0)	1.102 (28.0)
13	.8750 -0.1P-0.3L-TS	1.220 (31.0)	1.220 (31.0)
15	1.0000 -0.1P-0.3L-TS	1.300 (33.0)	1.260 (32.0)
17	1.1875 -0.1P-0.3L-TS	1.457 (37.0)	1.457 (37.0)
19	1.2500 -0.1P-0.3L-TS	1.575 (40.0)	1.535 (39.0)
21	1.3750 -0.1P-0.3L-TS	1.732 (44.0)	1.654 (42.0)
23	1.5000 -0.1P-0.3L-TS	1.811 (46.0)	1.772 (45.0)
25	1.6250 -0.1P-0.3L-TS	1.969 (50.0)	1.929 (49.0)

TABLE II	
Symbol	Finish Description
XB	Black Color - No Plating (Non-Conductive Finish)
XD	Desert Tan Color - No Plating (Non-Conductive Finish)
XMD	Desert Tan Color - External Surfaces Electroless Nickel - Internal Surfaces
XM	2000 Hour Corrosion Resistant Electroless Nickel
XMT	2000 Hour Corrosion Resistant Ni-PTFE, Nickel-Fluorocarbon Polymer. 1000 Hour Grey™
XW	2000 Hour Corrosion Resistant Cadmium/Olive Drab over Electroless Nickel



# Semper Tan Composite Connectors



**TABLE III: SHELL SIZE**

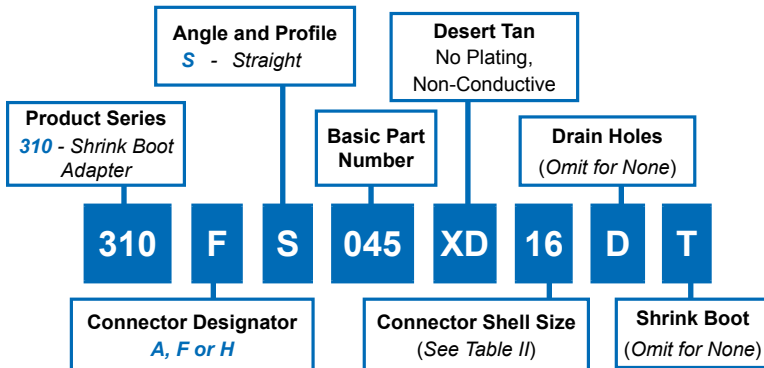
Shell Size Code	Shell Size	CC Max Dia	DD Max Dia	EE Thread
A	09	.811 (20.6)	.858 (21.8)	M12 x 1.0-6g 0.100R
B	11	.929 (23.6)	.984 (25.0)	M15 x 1.0-6g 0.100R
C	13	1.110 (28.2)	1.157 (29.4)	M18 x 1.0-6g 0.100R
D	15	1.232 (31.3)	1.280 (32.5)	M22 x 1.0-6g 0.100R
E	17	1.358 (34.5)	1.406 (35.7)	M25 x 1.0-6g 0.100R
F	19	1.469 (37.3)	1.516 (38.5)	M28 x 1.0-6g 0.100R
G	21	1.594 (40.5)	1.642 (41.7)	M31 x 1.0-6g 0.100R
H	23	1.720 (43.7)	1.768 (44.9)	M34 x 1.0-6g 0.100R
J	25	1.843 (46.8)	1.890 (48.0)	M37 x 1.0-6g 0.100R

**TABLE II: FINISH**

SYM	MATERIAL	CONDUCTIVE ELEMENTS
XMD	Desert Tan Composite	Electroless Nickel
XMTD	Desert Tan Composite	Ni-PTFE 1000 Hour Grey™
XWD	Desert Tan Composite	Cadmium O.D. Over Electroless Nickel

\*Consult Factory for Additional Plating Options

# Semper Tan Composite Shrink Boot Adapters



**TABLE II: SHELL SIZE**

Shell Size		E Max	F Max	Cable Entry Min.
A, F	H			
08	09	.533 (13.5)	.940 (23.9)	.250 (6.4)
10	11	.605 (15.4)	.940 (23.9)	.355 (9.0)
12	13	.774 (19.7)	.940 (23.9)	.491 (12.5)
14	15	.838 (21.3)	.940 (23.9)	.565 (14.4)
16	17	.963 (24.5)	.940 (23.9)	.690 (17.5)
18	19	1.042 (26.5)	.940 (23.9)	.769 (19.5)
20	21	1.217 (30.9)	.940 (23.9)	.894 (22.7)
22	23	1.355 (34.4)	.940 (23.9)	1.019 (25.9)
24	25	1.443 (36.7)	.940 (23.9)	1.134 (28.8)

# Semper Tan Overmolded Cables

Genair now offers high-performance cable jacketing and overmolding materials that provide outstanding, damper-proof environmental protection for cables and conduit used in harsh application environments. The materials are ideally suited for high-heat environments (up to 200° C continuous) and withstand all common forms of caustic chemicals and fuels per MIL STD 810F, Method 4. The material conforms to additional military performance requirements such as accelerated UV weathering per IEC 60068-2-5 and is halogen free and flame resistant per IEC 60614-1.



# Semper Tan EMI-RFI Shielded and Jacketed Metal-Core Conduit Assembly

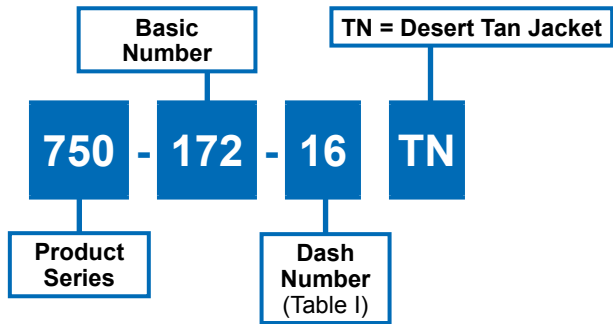
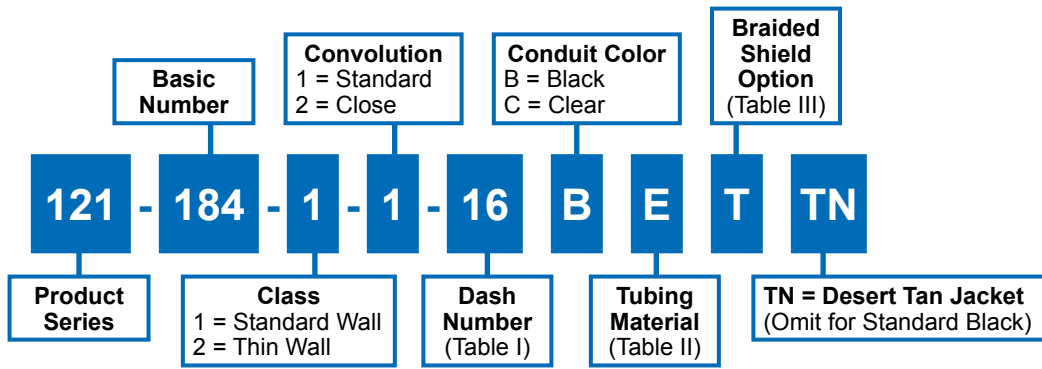


Table I		
Dash No	A Dia $\pm .015$ (0.4) $-.000$ (0.0)	B Dia $\pm .03$ (.8)
06	.187 (4.7)	.44 (11.2)
08	.250 (6.3)	.52 (13.2)
09	.281 (7.1)	.56 (14.2)
12	.375 (9.5)	.64 (16.3)
16	.500 (12.7)	.77 (19.6)
20	.625 (15.9)	.89 (22.6)
24	.750 (19.1)	1.03 (26.2)
32	1.000 (25.4)	1.28 (32.5)
40	1.250 (31.8)	1.65 (41.9)
48	1.500 (38.1)	1.88 (47.8)
64	2.000 (50.8)	2.40 (61.0)
80	2.500 (63.5)	2.86 (72.6)

# Semper Tan EMI/RFI Helical Tubing Assembly



Sym	Tubing Material
E	ETFE, Tefzel
F	FEP, Fluoropolymer
K	PEEK
P	PFA, Fluoropolymer

Sym	Braided Shield
B	Bronze
C	Stainless Steel
N	Nickel Copper
S	SnCuFe
T	Tin Copper

Dash No	Fractional Size Ref	A Inside Dia		B Dia Max
		Min	Max	
06	3/16	0.181 (4.6)	0.188 (4.8)	0.490 (0.5)
09	9/32	0.273 (6.9)	0.281 (7.1)	0.584 (0.6)
10	5/16	0.306 (7.8)	0.312 (7.9)	0.620 (0.6)
12	3/8	0.359 (9.1)	0.375 (9.5)	0.680 (0.7)
14	7/16	0.427 (10.8)	0.437 (11.1)	0.741 (0.7)
16	1/2	0.480 (12.2)	0.500 (12.7)	0.820 (0.8)
20	5/8	0.603 (15.3)	0.625 (15.9)	0.940 (0.9)
24	3/4	0.725 (18.4)	0.750 (19.1)	1.000 (1.0)
28	7/8	0.860 (21.8)	0.875 (22.2)	1.243 (1.2)
32	1	0.970 (24.6)	1.000 (25.4)	1.396 (1.4)
40	1 1/4	1.205 (30.6)	1.250 (31.8)	1.709 (1.7)
48	1 1/2	1.437 (36.5)	1.500 (38.1)	2.002 (2.0)
56	1 3/4	1.688 (42.9)	1.750 (44.5)	2.252 (2.3)
64	2	1.937 (49.2)	2.000 (50.8)	2.502 (2.5)



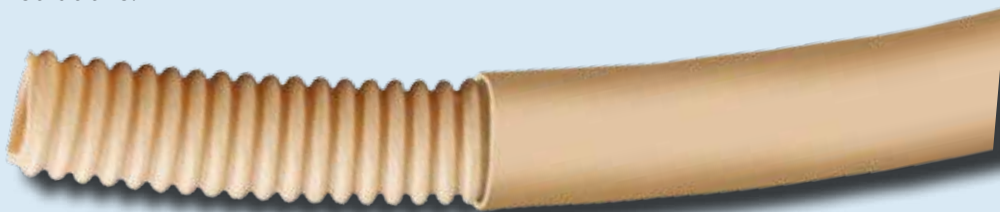
# **SEMPER TAN**

## **The Permanent FED-STD-33446 Desert Tan Solution**



### **Maintenance-Free Desert Tan Cables, Conduits, Junction Boxes and More**

The parts shown on these pages are just examples of the unlimited range of Desert Tan interconnect solutions supplied by Glenair. Please don't hesitate to ask the factory for guidance on converting virtually any interconnect component or system to Semper Tan—the permanent FED-STD-33446 Desert Tan solution that eliminates the costly labor of manually painting and maintaining standard cables, conduit assemblies, and junction boxes used in military applications. Recently, one of our customers requested a Semper Tan version of our popular high-temperature annular tubing (hylar or trade name Kynar). Glenair was able to produce the product shown below in just a few short weeks and it is now being used in a military vehicle application. Please consult the factory for this and other innovative Semper Tan solutions.



***Hylar (trade name  
Kynar) Semper Tan  
annular tubing***