

# Mesh Gaskets



Tech Etch manufactures knitted wire mesh, which can be used as economical gaskets for EMI shielding. All knitted mesh configurations are supplied on spools, coils or cut to length as individual gaskets with or without end seals. Standard profiles for a wide variety of applications are round, round with tail, double round with tail, half round (D) and rectangular.

Most profiles are available as all mesh and all are available with an elastomer core to enhance compression characteristics and increase the deflection range. Standard wire materials are monel, TCS (tin plated copper clad steel), stainless steel and aluminum. Consult the factory for other materials. Wire selection should take into account attenuation potential, mechanical characteristics, and corrosion resistance.

## Conductive Materials

**RoHS COMPLIANT**

### Monel

The most commonly used for good conductivity, corrosion resistance and good mechanical characteristics. Not recommended for applications contacting aluminum in harsh environments.

Monel Wire ..... Per QQ-N-281  
Class A, 0.0045 in. dia.

### TCS

Tin plated copper clad steel has similar characteristics to Monel, with improved shielding at lower frequencies but slightly lower corrosion resistance.

TCS Wire ..... ASTM-B-520  
0.0045 in. dia.

### Aluminum

Aluminum wire is normally used only when galvanic compatibility with aluminum housing is required.

Aluminum Wire ..... AMS 4182  
Alloy 5056, 0.005 in. dia.

### Stainless Steel

Stainless Steel is used typically when heat and corrosion resistance is required and high attenuation is not needed.

S/S Wire ..... AMS 5697  
Type 304, .0045 in. dia.

## Core Materials **RoHS COMPLIANT**

Core material comes standard with neoprene sponge. Neoprene solid, silicone (sponge and solid), and polyurethane foam are also available. Core materials should be selected for temperature, chemical resistance and mechanical characteristics.

See product sections for hollow elastomer core availability.

### Neoprene (Standard)

Neoprene rubber is an economical, general-purpose elastomer with good compression characteristics. It is available in solid and sponge and in hollow core cross sections.

Sponge ..... ASTM D6576 Type II  
Grade A (Formerly MIL-R 6130)  
Temperature Range: -31° to 100° C  
Condition: Medium

Solid ..... MIL-R 6855 Class II, Grade 40  
Temperature Range: -40° to 100° C

### Silicone (Special Order)

Silicone rubber is noted for its retention of flexibility, resilience and tensile strength over a wide temperature range. Silicone is generally more resistant to cleaning solvents than neoprene.

Sponge ..... AMS-3195  
Temperature Range: -75° to 205° C  
Condition: Medium

Solid ..... A-A 59588 Class II  
Grade 40 (Formerly ZZ-R-765)  
Temperature Range: -60° to 219° C

### Polyurethane Foam (Special Order)

Polyurethane Foam should be specified for light compression force applications. This material has good compression set characteristics and is available in rectangular and square solid cross sections.

Temperature Range: -40° to 121° C

## End Seal Material **RoHS COMPLIANT**

Cut to length gaskets are available with sealed ends to capture loose particles produced when the gaskets are cut.

End Seal ..... 3M 1357 Adhesive  
Dow Corning 3145RTV

## Shielding Performance

Maximum attenuation for all gaskets is achieved as compression force increases. Care must be taken with mesh gaskets to avoid compression set, which will occur when the gasket is compressed beyond 25% of the free height. The use of elastomer cores will extend the operating range. In applications where the gasket is permanently installed between two surfaces, compression set can be tolerated.

### EMI Shielding Performance

Material	H-Field 100kHz	E-Field 10MHz	P-Field 1GHz
BeCu	>110 dB	>110 dB	<110 dB
Monel	60 dB	>115 dB	95 dB
T.C.S.	80 dB	125 dB	100 dB
Aluminum	38 dB	100 dB	80 dB

## Materials Key

WIRE MESH MATERIALS KEY	
KNITTED WIRE MESH	
ELASTOMER	
ALUMINUM EXTRUSION	

## Mounting Methods

### Groove Mounting

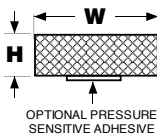
Die-castings can be designed for groove mounting to provide good retention and to control the amount of compression.

### Stick-On Mounting

All profiles except round can be mounted with double-sided pressure sensitive transfer tape for a fast, reliable installation. 3M F9469PC transfer tape may be used at ambient temperatures from -67°F to 300°F. Apply on clean, oil free surface, and allow a 24-hour cure time for maximum adhesion.

# 2000 Series Wire Mesh Mesh Core

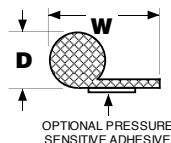
## Rectangular



H (in.)	W (in.)	Part Number
.062	.062	201T - YY0A - 0001
.062	.125	201T - YY0A - 0005
.062	.156	201T - YY0A - 0018
.062	.188	201T - YY0A - 0011
.062	.250	201T - YY0A - 0016
.093	.093	201T - YY0A - 0002
.093	.125	201T - YY0A - 0006
.093	.188	201T - YY0A - 0012
.093	.250	201T - YY0A - 0003
.125	.125	201T - YY0A - 0007
.125	.188	201T - YY0A - 0009
.125	.375	201T - YY0A - 0004
.125	.250	201T - YY0A - 0010
.125	.500	201T - YY0A - 0013
.156	.125	201T - YY0A - 0008
.188	.188	201T - YY0A - 0014
.188	.250	201T - YY0A - 0017
.188	.500	201T - YY0A - 0038
.250	.250	201T - YY0A - 0015
.375	.375	201T - YY0A - 0021
.500	.500	201T - YY0A - 0024

Tolerances: Height and Width  $\pm 0.031$  in.

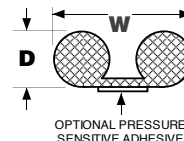
## Round With Tail



D (in.)	W (in.)	Part Number
.062	.375	203T - YY0A - 0040
.062	.500	203T - YY0A - 0041
.062	.625	203T - YY0A - 0042
.093	.500	203T - YY0A - 0043
.125	.375	203T - YY0A - 0044
.125	.500	203T - YY0A - 0045
.125	.625	203T - YY0A - 0046
.125	.750	203T - YY0A - 0047
.188	.500	203T - YY0A - 0048
.188	.625	203T - YY0A - 0049
.188	.750	203T - YY0A - 0050
.250	.500	203T - YY0A - 0051
.250	.625	203T - YY0A - 0052
.250	.750	203T - YY0A - 0053
.250	1.000	203T - YY0A - 0054

Tolerances: Diameter  $\pm 0.031$  in.  
Width  $\pm 0.031$  in.

## Double Round With Tail



D (in.)	W (in.)	Part Number
.062	.375	204T - YY0A - 0055
.062	.500	204T - YY0A - 0056
.062	.625	204T - YY0A - 0057
.093	.500	204T - YY0A - 0058
.125	.375	204T - YY0A - 0059
.125	.500	204T - YY0A - 0060
.125	.625	204T - YY0A - 0061
.125	.750	204T - YY0A - 0068
.188	.625	204T - YY0A - 0062
.188	.750	204T - YY0A - 0063
.188	1.000	204T - YY0A - 0064
.250	.625	204T - YY0A - 0065
.250	.750	204T - YY0A - 0066
.250	1.000	204T - YY0A - 0067

Tolerances: Diameter  $\pm 0.031$  in.  
Width  $\pm 0.031$  in.

## Round



D (in.)	Part Number
.062	202T - YY00 - 0026
.093	202T - YY00 - 0027
.125	202T - YY00 - 0028
.156	202T - YY00 - 0029
.188	202T - YY00 - 0030
.250	202T - YY00 - 0031
.313	202T - YY00 - 0032
.375	202T - YY00 - 0033
.500	202T - YY00 - 0034
.563	202T - YY00 - 0035
.625	202T - YY00 - 0036
.750	202T - YY00 - 0037
1.000	202T - YY00 - 0038

Tolerance: Diameter  $\pm 0.031$  in.

## How To Order

### 2000 Series - Knitted Wire Mesh-Mesh Core

Example: Part number 2032-2000-0045-8.75 is monel wire, cut to 8.75" with no end seal, no adhesive, round with tail configuration, and .125" diameter x .500" wide. **Unless standard, the sequential number is assigned by the factory.**

**2 0 X T - Y Y 0 A - X X X X - L L L L**

**2000  
SERIES**

**SEQUENTIAL  
(XXXX)**

**LENGTH  
(LL.LL")**

**ADHESIVE (A)**

0 No Adhesive  
1 Pressure Sensitive

**MESH CORE (0)**

**WIRE (YY)**

10 TCS 30 Aluminum  
20 Monel 40 Stainless Steel  
50 Other

**CONDITION (T)**

0 Continuous in Roll 3\*\* Joined Ring Cut To Length  
1\* Cut To Length With End Seal 5 Other  
2\* Cut To Length Without End Seal

\*Length in inches to be specified following the sequential number

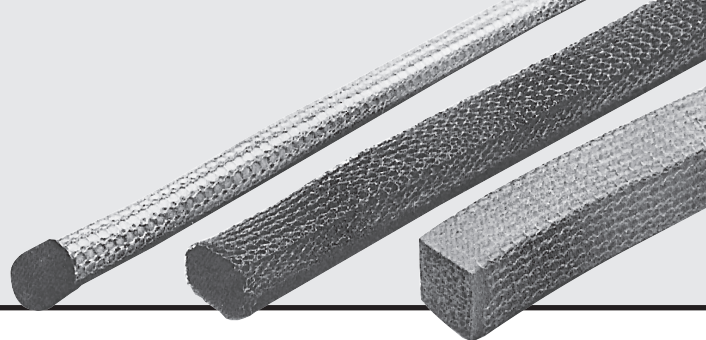
\*\*Circumference in inches to be specified following the sequential number

**CONFIGURATION (X)**

1 Rectangular 3 Round W/Tail  
2 Round 4 Double Round W/Tail

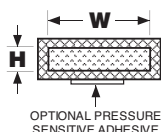
For material specifications and performance data see page 32.

# 2000 Series Wire Mesh Elastomer Core



**NOTE:** Standard cross-sectional dimensions given are those of the elastomer and due allowance must be made for mesh thickness.

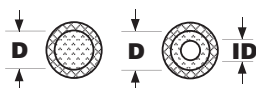
## Rectangular



H (in.)	W (in.)	Part Number
.062	.250	2X1T - YNZA - 0016
.093	.125	2X1T - YNZA - 0006
.125	.125	2X1T - YNZA - 0007
.125	.156	2X1T - YNZA - 0008
.125	.188	2X1T - YNZA - 0009
.125	.250	2X1T - YNZA - 0010
.188	.188	2X1T - YNZA - 0013
.188	.250	2X1T - YNZA - 0005
.250	.250	2X1T - YNZA - 0018
.250	.500	2X1T - YNZA - 0020
.375	.250	2X1T - YNZA - 0019
.375	.500	2X1T - YNZA - 0022
.375	.625	2X1T - YNZA - 0023
.500	.500	2X1T - YNZA - 0024
.750	.500	2X1T - YNZA - 0025

Tolerances for Elastomer: Up to .0375,  $\pm 0.031$  in.; over 0.375 to 0.750,  $\pm 0.062$  in.

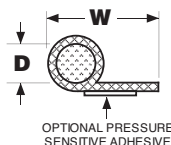
## Round



D (Core) (in.)	ID (Tube) (in.)	Part Number
.062	.032	2X2T - YNZO - 0026
.093		2X2T - YNZO - 0027
.125	.062	2X2T - YNZO - 0028
.156		2X2T - YNZO - 0029
.188	.125	2X2T - YNZO - 0030
.250	.170	2X2T - YNZO - 0031
.312	.188	2X2T - YNZO - 0032
.375	.250	2X2T - YNZO - 0033
.500	.375	2X2T - YNZO - 0035
.625	.437	2X2T - YNZO - 0036
.750		2X2T - YNZO - 0037

Tolerances for Elastomer: Up to 0.500 dia.,  $\pm 0.031$  in.; over 0.500 dia.,  $\pm 0.047$  in.

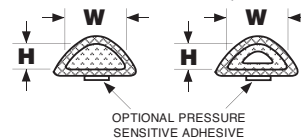
## Round With Tail



D (Core) (in.)	W (O/A) (in.)	Part Number
.125	.500	2X3T - YNZA - 0045
.125	.625	2X3T - YNZA - 0046
.125	.750	2X3T - YNZA - 0047
.188	.500	2X3T - YNZA - 0048
.188	.750	2X3T - YNZA - 0050
.188	1.250	2X3T - YNZA - 0055
.250	.500	2X3T - YNZA - 0051
.250	.625	2X3T - YNZA - 0052
.250	.750	2X3T - YNZA - 0053
.250	1.000	2X3T - YNZA - 0054

Tolerances for Width: Up to 1.00 in.,  $\pm 0.062$  in.; over 1.00 in.,  $\pm 0.12$  in.

## D



H (Core) (in.)	W (Core) (in.)	Part Number
.188	.250	2X6T - YNZA - 0010
.250	.375	2X6T - YNZA - 0020
.375	.500	2X6T - YNZA - 0030

Tolerances for Elastomer  $\pm 0.031$  in.

**Note:** Round With Tail also available as **Double Round With Tail** for Wire Mesh with elastomer core. Order as 2040-YNZA-XXXX. For Width (W) and Depth (D), use sequential numbers from Mesh Core Double Round With Tail on page 33.

## How To Order

### 2000 Series - Wire Mesh Elastomer Core

Example: Part number 2020-2060-0028 is a continuous roll of 0.125" diameter silicone tubing covered with two layers of monel mesh with no adhesive. **Unless standard, the sequential number is assigned by the factory.**

2000 SERIES	ADHESIVE (A)	ELASTOMER CORE (Z)	NUMBER OF COVERS (N)	WIRE (Y)	CONDITION (T)	CONFIGURATION (X)
2000	0 No Adhesive	1 Neoprene Sponge (Standard)	1 One 3 Three 5 Other	1 TCS 4 Stainless Steel	0 Continuous Roll 3** Joined Ring Cut To Length	1 Rectangular 3 Round W/Tail 6 D Shape
0	1 Pressure Sensitive		0 Two <sup>1</sup> 4 Four	2 Monel 5 Other	1* Cut To Length With End Seal 5 Other	2 Round 4 Double Round W/Tail
X				3 Aluminum	2* Cut To Length Without End Seal	
T					*Length in inches to be specified following the sequential number	
-					**Circumference in inches to be specified following the sequential number	
Y						
N						
Z						
A						
-						
X						
X						
X						
X						
-						
L						
L						
L						
L						

<sup>1</sup>Standard Wire Mesh, Also Includes Single Cover With Double-Density

For material specifications and performance data see page 32.

FOR SIZES NOT SHOWN, PLEASE ASK!



# 3000 Series Twinseal

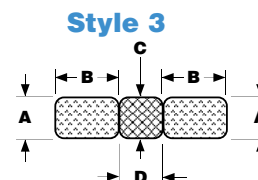
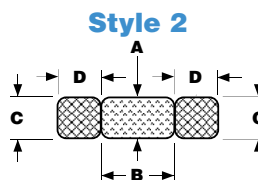
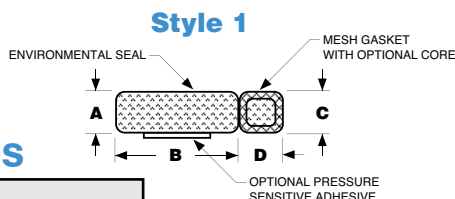


Twinseal gaskets provide an efficient environmental seal in addition to the shielding from the attached mesh gasket. The mesh gasket is typically supplied in a rectangular profile and is available in all the standard materials and configurations found on page 32. The environmental seal is available in either neoprene or silicone and can be produced with double-sided pressure sensitive tape for stick-on mounting or thru holes for fasteners. Picture frame configurations can be specified as a custom part with the environmental seal bonded at the corners.

## Design Guide for Custom Parts

1. Accurate steel rule dies are used for cutting the environmental seal. Accuracy of the finished part is influenced by the softness of the material.
2. Linear tolerances for sponge materials are  $\pm 0.031$  in. and  $\pm 0.016$  in. for solid per 6 in. run.
3. Position tolerances for hole locations are  $\pm 0.016$  in.
4. Minimum distance between any cutouts and environmental seal edge should be equal to the material thickness.
5. Minimum hole diameter should be equal to the material thickness.
6. Compression stops to prevent over compression of the gasket can be specified. Compression stops are available in sheet metal gauges. See Fig. 2 on page 42.
7. Environmental seal dimensions A and B and mesh gasket dimensions C and D must be included in the specification for custom parts.

## Standard Sizes



Dimensions (in.)				Part Number
A,C	B	D		
.062	.250	.125	30XE - YYZA - 0001	
.062	.375	.125	30XE - YYZA - 0002	
.062	.500	.125	30XE - YYZA - 0003	
.062	.625	.125	30XE - YYZA - 0004	
.093	.250	.125	30XE - YYZA - 0005	
.093	.375	.125	30XE - YYZA - 0006	
.093	.500	.125	30XE - YYZA - 0007	
.093	.625	.125	30XE - YYZA - 0031	
.093	.750	.125	30XE - YYZA - 0008	
.125	.125	.125	30XE - YYZA - 0009	
.125	.188	.188	30XE - YYZA - 0010	
.125	.250	.125	30XE - YYZA - 0011	
.125	.250	.250	30XE - YYZA - 0012	
.125	.375	.125	30XE - YYZA - 0013	
.125	.500	.125	30XE - YYZA - 0014	
.125	.500	.250	30XE - YYZA - 0015	
.125	.500	.500	30XE - YYZA - 0016	
.125	.625	.125	30XE - YYZA - 0017	
.125	.750	.125	30XE - YYZA - 0018	
.125	.875	.125	30XE - YYZA - 0032	
.188	.188	.125	30XE - YYZA - 0019	
.188	.250	.125	30XE - YYZA - 0020	
.188	.375	.125	30XE - YYZA - 0021	
.188	.375	.250	30XE - YYZA - 0022	
.188	.500	.125	30XE - YYZA - 0023	
.188	.625	.125	30XE - YYZA - 0033	
.188	.750	.250	30XE - YYZA - 0024	
.250	.250	.125	30XE - YYZA - 0025	
.250	.3125	.125	30XE - YYZA - 0035	
.250	.500	.125	30XE - YYZA - 0026	
.250	.625	.125	30XE - YYZA - 0034	
.250	.750	.125	30XE - YYZA - 0027	
.375	.250	.125	30XE - YYZA - 0028	
.375	.500	.250	30XE - YYZA - 0029	
.375	.750	.250	30XE - YYZA - 0030	

Tolerances: Elastomer:  $\pm 0.031$  in.  
Mesh  $\pm 0.031$  in.

## How To Order

### 3000 Series - Twinseal

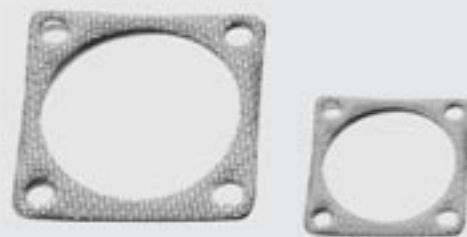
Example: Part number 3011-2011-0015 is monel mesh with neoprene sponge core, 0.125" x .500", bonded to Neoprene sponge with pressure sensitive adhesive. **Unless standard, the sequential number is assigned by the factory.**

3	0	X	E	-	Y	Y	Z	A	-	X	X	X	X
3000 SERIES					WIRE (YY)					SEQUENTIAL (XXXX)			
										ADHESIVE (A)			
										0 No Adhesive			
										1 Pressure Sensitive (Standard)			
										CORE (Z)			
										0 Mesh Core (Standard)			
										1 Neoprene Sponge			
										ENVIRONMENTAL SEAL (E)			
										1 Neoprene Sponge (Standard)			
										CONFIGURATION (X)			
										1 Single Elastomer - Style 1 (Standard)			
										2 Single Elastomer - Style 2			
										3 Double Elastomer - Style 3			
										4 Custom Part - (See pages 33 and 34 for mesh options)			

\* Unless otherwise specified, Hollow Core diameter is equal to "A" dimension. For material specifications and performance data refer to page 32.

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# Standard Connector & Waveguide Gaskets



Tech Etch offers a wide range of standard Connector and Wave Guide Gaskets in a variety of materials for the military and commercial markets. In addition to the standard gaskets, Tech-Etch offers custom designed Connector Gaskets using low cost photoetching and secondary forming to avoid expensive tooling for prototypes and moderate volumes.

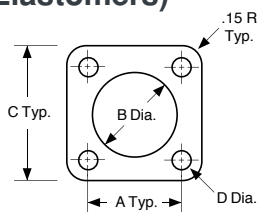
## Conductive Elastomers

A wide range of products is available in a variety of materials. The most common configurations are shown. For other configurations a detailed drawing and specifications are required. These gaskets are available in conductive particles in elastomer Series 1000, oriented wire in elastomer Series 4000, monel foil in elastomer Series 5000 and aluminum mesh in elastomer Series 5500. Material specifications and shielding performance may be found on page 32.

## CONNECTOR GASKETS

Connector gaskets are available from stock in a variety of materials and configurations. For details of the materials and shielding performance refer to the page indicated in the note below.

### AN Connector Gaskets (Conductive Elastomers)



Shell Size	A	B	C	D	Seq. Part No.
8	.594	.500	.875	.172	2008
10	.719	.625	1.000	.172	2010
12	.813	.750	1.094	.172	2012
14	.906	.875	1.188	.172	2014
16	.969	1.000	1.281	.172	2016
18	1.063	1.125	1.375	.203	2018
20	1.156	1.250	1.500	.203	2020
22	1.250	1.375	1.625	.203	2022
24	1.375	1.500	1.750	.203	2024
28	1.563	1.750	2.000	.203	2028
32	1.750	2.000	2.250	.219	2032
36	1.938	2.188	2.500	.219	2036
40	2.188	2.438	2.750	.219	2040
44	2.375	2.781	3.000	.219	2044
48	2.625	3.031	3.250	.219	2048

Consult factory or web site for availability of other sizes.

**Note:** AN Connector Gaskets and D-Connector Gaskets are available in the following materials:

**Series 1000** (conductive media on silicone elastomer) page 40.

**Series 4000** (oriented aluminum or monel wires in silicone elastomer) page 42.

**Series 5000** (expanded monel or aluminum foil in silicone elastomer) page 44.

**Series 5500** (woven aluminum wire mesh in silicone or neoprene elastomer) pg.45.

## Metalized Fabric

Standard D Connector Gaskets are described below and on page 37. Custom designed gaskets using metalized fabric wrapped around a polyurethane foam core are fabricated using low cost rule-dies. The conductive fabric is bonded to the core assuring self-termination on all exposed edges.

## Beryllium Copper / Stainless Steel

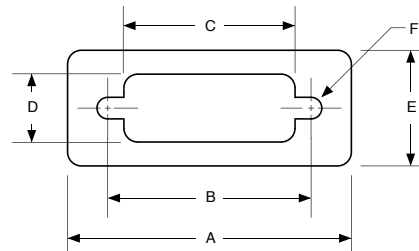
D Connector Shield Gaskets provide shielding for most 9 pin through 50 pin connectors. Independent finger design with a free height of .025 for maximum surface contact provides high attenuation values with low compression forces. They are available in beryllium copper and stainless steel and can be plated in any of the finishes listed on page 6. See page 3 for material specifications.

## D-Connector Gaskets

### (Conductive Elastomers & Metalized Fabric)

D-Connector gaskets provide shielding for most 9 pin through 50 pin connectors and are available from stock in a variety of materials. For details on Conductive Elastomer materials and shielding performance, refer to the page indicated in the note below. For details on Metalized Fabric 2640 Series standard gaskets, refer to page 30 for specifications and page 29 for ordering information.

Use this chart and drawing to determine the sequential number. Note: Standard 2600 Series Metalized Fabric gaskets have square corners and come with pressure sensitive tape. Consult factory for availability of other sizes.



No. Pins	A	B	C	D	E	F	Seq. Part No.
9	1.313	.98	.78	.44	.750	.07 R.	3009
15	1.641	1.31	1.11	.44	.750	.07 R.	3015
25	2.188	1.85	1.65	.44	.750	.07 R.	3025
37	2.829	2.50	2.29	.44	.750	.07 R.	3037
50	2.740	2.41	2.11	.55	.880	.07 R.	3050

## How To Order

### Elastomer AN & D-Connector Gaskets

For the Elastomer Series desired, refer to the appropriate page listed at the left to specify the material and thickness. The sequential number after the material codes completes the part number. Example: Part number 5072-2050-2012 is Monoshield .020 inches thick for shell size 12 connector.

### Metalized Fabric D-Connector Gaskets

Use the sequential number from the chart above to complete the part number on page 38. All standard Metalized Fabric D Connectors have Nickel over Copper Finish (1), Foam Core (1), and Pressure Sensitive Adhesive (1). Example: Part number 2640-1111-3015-040 is a 15 pin D Connector gasket.