



Ultra-Vanshield[®]

RFI/EMI dual elastomer shielding gaskets



welcome

We are proud to introduce you to the innovative concept of Dual-Elastomer conductive RFI/EMI gaskets – they are the result of years of research and application development.

Ultra-Vanshield® Dual-Elastomer gaskets represent a significant step beyond the traditional bounds of other products found in the RFI/EMI compliance marketplace. They offer a unique opportunity to enhance your products, providing more value for your customers.

To further support your requirements, our people maintain a solid commitment to service – whether it be product, pricing, delivery, or general information. We are attuned to getting you results in a personable, timely manner and to making your own issues our own issues. In this way, long lasting relationships have been built with our customers. Our sales staff are degreed engineers, and have an ability to help in all areas, including design, product enhancements, and cost savings – working with you always to serve your needs.

Original equipment manufacturers and fabricators will find a complete line of RFI/EMI shielding gaskets from our standard catalog which includes our ability to manufacture their own custom designs. With extensive experience in customs manufacturing, our engineering group will assist in full scale sealing design if required. Additionally we offer a complete line of extruded elastomers, injection and compression molded elastomeric articles, LIM silicone, seals, O-rings, gaskets and weather stripping. Co- and multiple-extrusions are available based on your custom designs. We specialize in extraordinary requirements.

Our manufacturing capabilities are full service in the silicones and high performance elastomers arena, and are fundamental in our compounding of raw silicone and elastomer materials. Each application is designed for your specific requirement, whether it be heat resistance, chemical compatibility, physical properties such as resiliency, tensile strength, durometer, etc., or cost effectiveness. Extrusions and moldings are processed to exacting tolerances. The end result of our tightly controlled manufacturing systems is top quality standard and custom elastomeric products delivered in a timely fashion, to your specifications, clean, and neatly packaged. Our quality department is customer oriented and discerning to the highest order,

Our technical staff are trained problem solvers, so, send us your toughest issue, and let us take your RFI/EMI sealing worries off of your desktop!

Our investigation and research has resulted in several new product developments. The Microbridge® gasket is the newest offering, utilizing new technology of placing extremely thin conductive traces through a traditional elastomeric extruded strip, D-bulb, or T-wiper. The benefit of this unique technology is that an EMI shield of high shielding effectiveness is coupled with increased galvanic stability, easier compressibility, and cost effectiveness. The precious metal traces are so thin that these gaskets can be competitive with all technologies on the market today! The traces can be “tuned” or placed so as to utilize slot length phenomena to attenuate EMI noise. If necessary, the gasket can have single, dual and even multiple traces throughout its cross-section. The possibilities for customization are almost endless!

You will also find a full line of Ultra-Vanshield® style EPDM dual elastomer tubings with a thin silver-filled EPDM outer layer. The benefits are many, with the nuclear-biological-chemical resistance and absence of silicone outgassing being foremost. Additionally, several process improvements have been made to our standard line of Ultra-Vanshield® coatings, offering a very abrasion resistant, high shielding effectiveness, and cosmetically attractive series of formulations referred to as pewter silver-laden silicone. Lastly, we have included “quick-start” PSA with an extended liner edge to ease installation, and also a series of rigid carrier PSA's to enable quicker, easier, more user-friendly installation.

Our focus is on your changing needs.

Your inquiries are welcome.



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product assortment

Standard shapes, sizes and options for a wide variety of attachment alternatives and compression requirements. Special purpose high performance EPDM shielding gaskets on page 11.

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MATERIAL COMPOUND DESIGNATION			
VC3240	VC3260	VC3280	VC3300
-03	-04	-05	-08
AgAl in	AgNi in	Ag Glass in	Pure Ni in

material properties

Specific electrical and mechanical ordering alternatives using various inner core materials and outer conductive jackets.

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installation guidelines

Simple guidelines to assure proper fit and long-term effectiveness. Sizing, compression ranges, attachments and RFI shielding effectiveness are covered.

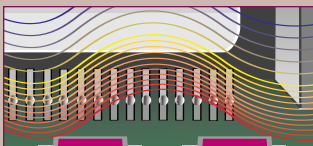
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Part# 1020-01-D50-BL
ORDER FROM CATALOG
OUTER LAYER
Silver (Ag)
Plated Copper (Ag/Cu)

ordering guidelines

Ordering instructions including outer conductive jacket and inner core alternatives.

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Van-Therm® heat conducting elastomer

Thermal management material conformable to most interface surfaces in standard and custom profiles

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customs and prototypes

Extrusions, O-rings, moldings, spliced parts, die-cuts, assemblies and prototyping. Quick turnaround tooling and sample preparation.

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

The challenge for the RFI/EMI industry has been to create a highly conductive shielding gasket that maintains its mechanical integrity long-term. Dual Elastomer ULTRA-VANSHIELD® is definitively the unique solution to this problem.

Each style incorporates design features not commonly found in other forms of shielding gaskets. Some of the more important advantages to consider are:

- Continuously extruded high-strength silicone rubber core
- Co-extruded highly conductive metal-filled silicone outer layer
- Extremely high shielding effectiveness
- Environmental sealing
- No compression set
- Low compression force
- Extreme environment and abrasion-resistant options
- Simple installation options

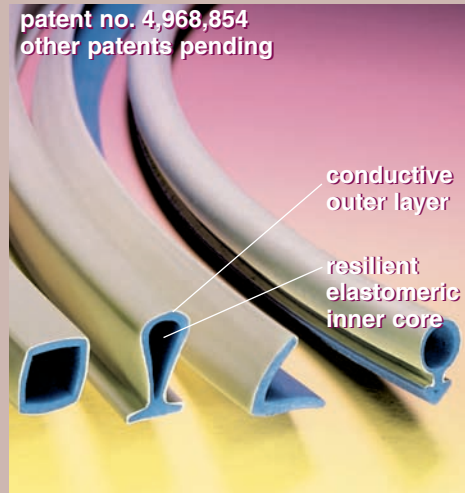


Figure 1. Typical Dual Elastomer gaskets

Silver-filled elastomers have long been used for shielding against electromagnetic interference and radio frequency signals. Silver was chosen since it is an excellent conductor and is one of the few materials that can be put into a rubber matrix while retaining its conductivity.

However, standard silver-filled elastomers have intrinsic problems. Typically, the percentage of silver in the elastomer is extraordinarily high – as much as 70% by weight. At these concentrations, the elastomer matrix loses most of its desirable physical attributes.

The result is neither the desired metallic nor elastomeric properties, but rather a compromise between both. For this reason, conventional silver-filled elastomers have poor physical properties; i.e. low tear resistance and tensile strength along with inordinately high compression forces.

comparison to other designs

ULTRA-VANSHIELD® DUAL ELASTOMERS offer the optimum combination of metallic conductivity and elastomeric performance.

- **Resilient inner core remains free of metal fillers**, resulting in optimum compression and aging properties.
- **Silver conductive material is only present in the outer thin membrane**, resulting in excellent conductive properties.
- **Thin silver layer permits reduction of costly silver content** required.
- **Attenuation performance is not degraded** under full compression as with solid-filled elastomers.
- **Very low compression force** and resistance to deformation.
- **Manufacturing flexibility** and quick turnaround of custom designs. Viable short run alternative.
- **Easy termination.** No requirements for end treatment.
- **Available with a variety of optional conductive metals.** See related information on pages 12, 13 and 15.

Meshes have very high compression forces and poor compression set properties along with a limited range of deflection. Environmental sealing of the tandem designs increases the compression forces and is often an unsatisfactory compromise. High frequency performance varies widely. Terminated ends can allow escape of loose slivers.

Standard filled elastomers have poor mechanical properties due to the presence of metal fillers throughout.

Common limitations include very high compression forces, undesirable compression set, brittleness, poor aging characteristics and high cost. Some designs lose attenuation properties beyond 50% compression of relaxed height.

Beryllium copper gaskets are expensive and require even more added expense for platings to protect from corrosion. In addition, they lack good environmental sealing options.

Clad foams have low attenuation, a limited range of compression, poor compression set properties, and designs are limited due to the manufacturing process and the conductive materials available for the cladding.

GASKET TYPE	ATTENUATION UP TO 1GHz	COMPRESSION			COST
		FORCE (lbs./in. deflection)	SET (% free height)	RANGE (% free height)	
ULTRA-VANSHIELD	110dB	Low	None	80-90%	Moderate
Mesh	60-100dB	High	12-20%	40-60%	Moderate
Filled Elastomers	90-100dB	High	7-15%	40-60%	High
Beryllium Copper	100dB	Medium	1-2%	85-90%	High
Clad Foam	60-80dB	Low	15-20%	70-80%	Moderate

Table 1. Comparison of common RFI/EMI gasket types

Other gasket designs, while having certain acceptable application-specific features, tend to be limited in a general purpose sense. Specifically, some of the common types lack many of the intrinsic features necessary for effective long-term shielding.

Ultra-Vanshield® applications

APPLICATIONS

RFI/EMI Shielding
Grounding
Electrostatic Discharge (ESD)
Electromagnetic Pulse (EMP)

TYPICAL EQUIPMENT

Computers
Data Processing
Telecommunications
Instrumentation
Medical Diagnostics
Industrial Controls
Office Products
Automotive



ELECTRONIC ENCLOSURE USES

Seams
Doors
Back Panel I/O's
Removable Panels
Bezels
Control Openings
Vents

PRODUCT FORMS

Gaskets
Seals
O-Rings
Grounding Pads
Die-cuts
I/O Interface Gaskets

long-term effectiveness

The elastomeric material greatly resists change due to heat exposure. In fact, it is formulated to function optimally at temperatures from -100°F up to +480°F (-75°C to +250°C), making it ideal for applications in the automotive industry and in other high temperature situations. ULTRA-VANSHIELD® components are formulated for flammability resistance which meets ASTM Specification D4205-93, subsection 15.6, horizontal burn (HB). Additionally, ULTRA-VANSHIELD® materials can be formulated to meet ASTM D4205-93, subsection 15.6 for vertical flame resistance specification (V-0).

Endurance tests of ULTRA-VANSHIELD® dual elastomer gaskets through 25,000 cycles of repeated compressions indicate no change in volume resistivity and no measurable compression set (Table 2). Accelerated aging tests provide similar results with almost no change in volume resistivity (Table 2).

TEST DESCRIPTION	MEASUREMENT	RESULT
Elevated Temperature Volume resistivity performance at 80% relative humidity	Immediate	0.001 ohm-cm
	70 hrs @ 437°F	0.0025 ohm-cm
	70 hrs @ 212°F	0.001 ohm-cm
	70 hrs @ 100°F	0.002 ohm-cm
Endurance Resistance To Relaxation Repetitive compressions, 10/minute, 25,000 cycles, 0% to 25% compression, Instron Physical Tester	Volume Resistivity	No change
	Surface Resistivity	No change
	Relaxed Height	No compression set

Table 2. Long-term performance characteristics

Dual elastomer extrusions can be made in a wide range of cross-section profiles. Flexibility in geometry is an important concept for a designer to consider. A variety of profiles are now available and almost any shape can be tooled.

Simple means of mounting ULTRA-VANSHIELD® gaskets include metal C-clips, rivets or pressure sensitive adhesive tape. The conventional tape used is a non-conductive pressure sensitive adhesive which adheres well to rubber, metal or plastic. Conductive adhesive tapes are also available.

Another alternative is a press-fit mounting into a groove. One such gasket is used in the telecommunications industry as shielding for cellular telephones. The overall diameter is in the range of 1 to 2 mm while still retaining all conductive and mechanical properties of larger gaskets.

ULTRA-VANSHIELD® standard silicone-based materials easily lend themselves to optional formulations which are application-specific; such as, higher flame retardancy and low compression/deflection characteristics.

See page 14 for installation attachment methods and optional configurations.

performance specifications

The full potential of dual elastomer gasket technology is now being realized. Shielding effectiveness with an attenuation of 110dB in the frequency range of 30 MHz to 1GHz is attainable (MIL SPEC G-83528, para 4.6.12) (Figure 2).

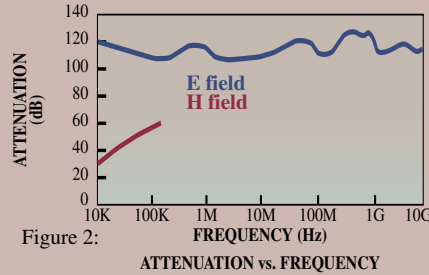


Figure 2:

Any design used to block the RF signal between its source and a receiver is an electromagnetic interference (EMI) shield. The measure of this ability to attenuate RF is shielding effectiveness (SE), which is expressed in decibels, (dB), the ratio of field strength on one side of the shield to the other side. Figure 4 shows the relationship between shielding effectiveness (in dB), the attenuation, and attenuation percentage.

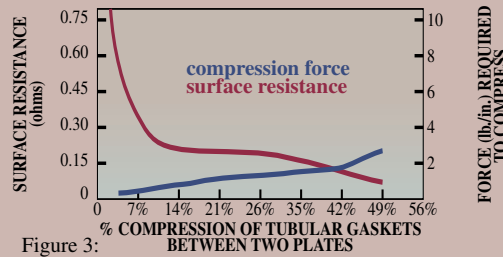


Figure 3:

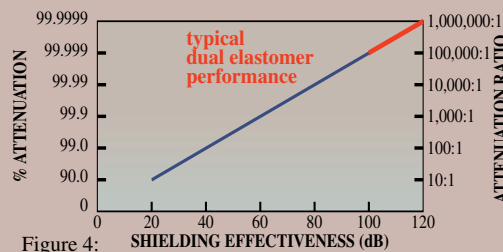


Figure 4:

ULTRA-VANSHIELD® dual elastomer gaskets typically exceed 110dB shielding effectiveness regardless of shape, size or compressed state beyond 10% of relaxed height. The silicone rubber foundation is most resistive to permanent deformation, contaminant's and other environmental influences.

The accelerated aging data on page 3, table 2, exhibits very high performance results at elevated temperatures and repeated compressions over extended time periods. The same continued performance under most application conditions can be expected. Due to the pliable properties of the unfilled elastomer core, these extrusions promise to have the best possible aging and long-term shielding properties (Figures 3 & 4).

minimizing the effects of enclosure openings

Anywhere high speed electronics are present, their operating frequencies usually must be controlled within specified government designated regulations. The radio frequencies emitted can interfere with other nearby electronic equipment as unwanted RFI/EMI, radio frequency interference / electromagnetic interference



Figure 5: TYPICAL ELECTRONIC ENCLOSURE INSTALLATION BETWEEN MATING PANELS

A proper gasket installation effectively reduces the slot length. Low compression force is very desirable to facilitate easy closing of mating surfaces.

When a solid enclosure is not practical, due to the need for access panels, controls, doors, vents or seams, RFI shielding gaskets are used to maintain electrical contact between mating surfaces. See figure 5.

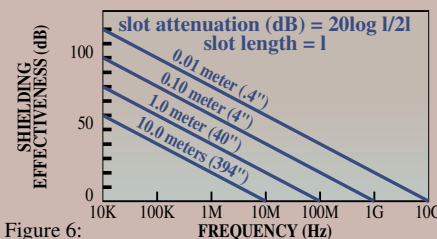


Figure 6:

The shielding effectiveness of an enclosure is a function of the wavelength of the frequencies involved versus the length of the longest openings. See figure 6.

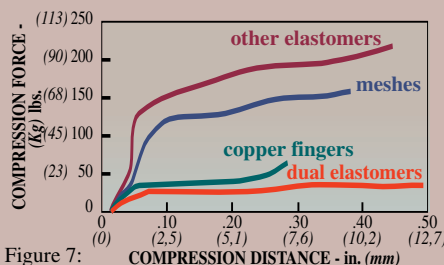


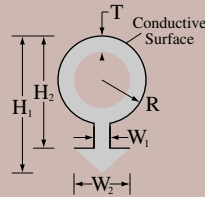
Figure 7:

Correct installation of the dual elastomer gasket between mating surfaces of an enclosure slot assures continuous electrical coupling along its axis, and long-term shielding effectiveness.

Effectively, the shielding gasket is a connector of one mating surface to another. This permits the electronic enclosure to respond as one continuous absorber of the undesirable high frequency energy by limiting the passage of these radio waves.

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

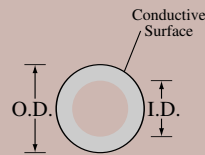
tube dart



The dart segment press-fits into a slot allowing the tubular shaped contact bulb to incur heavy side-loads when contact with mating surfaces is in a shear direction. To determine correct slot dimension for mounting, add .006"-.012" (0,15-0,30 mm) to W₁ dimension.

PART NUMBER*	H ₁	H ₂	W ₁	W ₂	R	T
1020	.236 5,99	.177 4,50	.059 1,50	.141 3,58	.059 1,50	.020 0,51
1050	.308 7,82	.234 5,94	.062 1,57	.142 3,61	.088 2,23	.032 0,81
1100	.437 11,10	.350 8,89	.071 1,80	.172 4,37	.138 3,50	.035 0,89
1200	.590 14,94	.500 12,70	.081 2,06	.224 5,69	.210 5,33	.045 1,14
1250	.625 15,90	.500 12,70	.093 2,36	.234 5,94	.219 5,56	.035 0,89

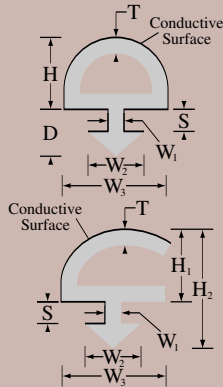
tube



For groove mounting. Installs easily by pressing into position. Recommended mounting groove width should be 10% less than the O.D. dimension for mechanical press fit.

PART NUMBER*	O.D.	I.D.	PART NUMBER*	O.D.	I.D.
2050	.030	0,76	n/a	n/a	n/a
2100	.040	1,02	.020	0,51	
2110 - NH	.040	1,02	n/a	n/a	
2125	.045	1,14	.022	0,56	
2130	.053	1,35	.016	0,41	
2140	.053	1,35	.020	0,51	
2150	.062	1,57	.025	0,64	
2155	.071	1,80	.028	0,71	
2157	.073	1,85	.044	1,12	
2170	.078	1,98	.028	0,71	
2185	.090	2,29	.039	0,99	
2200	.098	2,49	.039	1,00	
2210	.103	2,62	.044	1,12	
2220	.110	2,80	.040	1,01	
2250	.125	3,18	.062	1,57	
2251	.125	3,18	.078	1,98	
2300	.156	3,96	.093	2,36	
2350	.187	4,75	.109	2,77	
2375	.201	5,11	.125	3,18	
2400	.219	5,56	.141	3,58	
2450	.250	6,35	.172	4,37	
2500	.312	7,92	.219	5,56	
2550	.375	9,53	.266	6,76	
2600	.438	11,10	.313	7,95	
2610	.438	11,10	.252	6,40	
2650	.500	12,70	.359	9,12	
2700	.625	15,90	.484	12,30	

D-shape dart

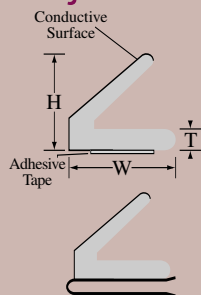


The dart segment press-fits into a slot. This allows the D-SHAPE contact bulb to incur heavy side-loads when contact with a mating surface is in a shear direction while maximizing the contact area. To determine the correct slot dimensions for mounting add .006" - .012" (0,15-0,30 mm) to W₁ dimension.

PART NUMBER*	H	D	S	T	W ₁	W ₂	W ₃							
3020	.323	8,20	.235	5,97	.065	1,65	.053	1,35	.143	3,63	.270	6,90	.500	12,7
3060	.500	12,70	.328	8,33	.078	1,98	.062	1,58	.093	2,36	.093	2,36	.625	15,9

PART NUMBER*	H ₁	H ₂	W ₁	W ₂	W ₃	T	S							
3125	.125	3,18	.250	6,35	.059	1,50	.141	3,58	.250	6,35	.024	0,61	.062	1,57
3312	.312	7,92	.500	12,70	.078	1,98	.203	5,16	.500	12,70	.032	0,81	.078	1,98
3406	.406	10,30	.625	15,90	.083	2,11	.236	5,99	.625	15,90	.036	0,91	.083	2,11

angle-fold



Optional Clip. See Ultra-Vanshield Clip on Page 7 for dimensions

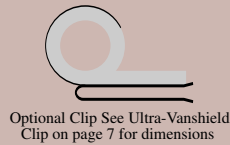
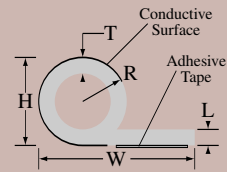
Allows the lowest compression force while maintaining excellent electrical contact with mating surfaces. Groove mounting or pressure sensitive adhesive. Available only in straight lengths.

PART NUMBER*	H		W		T	
4125	.125	3,18	.250	6,35	.031	0,79
4188	.188	4,78	.250	6,35	.040	0,98
4250	.250	6,35	.312	7,92	.043	1,09
4312	.312	7,92	.344	8,74	.055	1,40
4406	.406	10,30	.437	11,10	.062	1,58
4630	.650	16,51	.625	15,88	.080	2,03

* For ordering options, add the suffix nomenclature shown on page 15.
Recommended compression range is 10%-30% of relaxed height and no more than 50%.
All dimensions in inches *millimeters*

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

P-shape

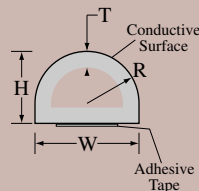


Wide lower contact surface assures stable mounting. Installation options include groove mount, clip-strip or standard pressure sensitive adhesive. Reliable electrical contact at all force angles.

PART NUMBER*	H		W		L		R		T	
5000	.040	1,02	.250	6,35	.028	0,71	.020	0,51	.015	0,38
5010	.062	1,57	.250	6,35	.032	0,81	.031	0,79	.016	0,41
5070	.078	1,98	.250	6,35	.036	0,91	.039	0,99	.016	0,41
5080	.088	2,24	.250	6,35	.036	0,91	.044	1,12	.016	0,41
5090	.098	2,49	.250	6,35	.038	0,97	.049	1,24	.016	0,41
5100	.125	3,17	.250	6,35	.040	1,02	.062	1,57	.023	0,58
5150	.125	3,17	.375	9,53	.040	1,02	.062	1,57	.023	0,58
5200	.187	4,75	.375	9,53	.040	1,02	.094	2,39	.028	0,71
5300	.250	6,35	.500	12,70	.050	1,27	.125	3,17	.029	0,74
5500	.375	9,53	.625	15,90	.055	1,40	.188	4,78	.040	1,02
5510	.393	9,96	.750	19,10	.045	1,14	.197	5,00	.040	1,02
5600*	.438	11,10	.750	19,10	.060	1,52	.219	5,56	.045	1,14
5700*	.500	12,70	.875	22,20	.065	1,65	.250	6,35	.050	1,27

* Available in straight lengths only.

D-shape

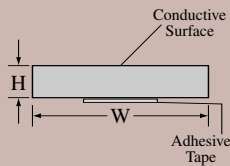


Popular D-SHAPE cross-references to other mesh, elastomer, and copper strips as exact replacement. Pressure sensitive adhesive mounting or standard groove mounting is recommended.

PART NUMBER*	H		W		R		T	
6050	.032	0,81	.030	0,73	.015	0,38	.012	0,30
6062	.062	1,57	.156	3,96	.102	2,59	.016	0,41
6100	.062	1,57	.058	1,47	.031	0,78	.012	0,30
6106	.106	2,70	.250	6,35	.125	3,18	.017	0,43
6190	.098	2,49	.098	2,49	.049	1,24	.020	0,51
6200	.125	3,17	.109	2,77	.055	1,40	.024	0,61
6210	.146	3,71	.146	3,71	.073	1,85	.016	0,41
6300	.187	4,75	.172	4,37	.094	2,39	.030	0,76
6370	.240	6,1	.460	11,68	.230	5,84	.040	1,02
6400	.250	6,35	.234	5,94	.125	3,17	.037	0,94
6425	.250	6,35	.375	9,53	.188	4,77	.037	0,94
6500	.312	7,92	.297	7,54	.156	3,96	.034	0,86
6600*	.375	9,53	.359	9,12	.187	4,75	.040	1,02
6700*	.437	11,10	.422	10,70	.218	5,54	.040	1,02

* Available in straight lengths only.

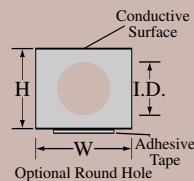
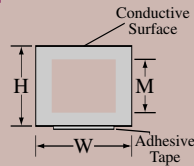
rectangle



Especially useful when a small dynamic range of compression or a low profile is necessary. Easy installation by groove mounting or pressure sensitive adhesive.

PART NUMBER*	H	W	PART NUMBER*	H	W				
7000	.125	3,18	1,00	25,40	7472	.030	0,76	.472	12,00
7030	.030	0,76	.827	21,00	7500	.062	1,57	.500	12,70
7062	.040	1,02	.062	1,57	7550	.015	0,38	.500	12,70
7080	.080	2,03	1,00	25,40	7750	.074	1,88	.750	19,10
7125	.040	1,02	.125	3,18	7870	.070	1,78	.827	21,00
7250	.062	1,57	.250	6,35	7871	.093	2,36	.827	21,00
7375	.062	1,57	.375	9,53	7875	.090	2,29	.875	22,23

square



Provides the largest contact surfaces at even the slightest compression. Easy groove mount or pressure sensitive adhesive installation.

PART NUMBER*	H		W		M	
8250	.250	6,35	.250	6,35	.150	3,81
8375	.375	9,53	.375	9,53	.250	6,35

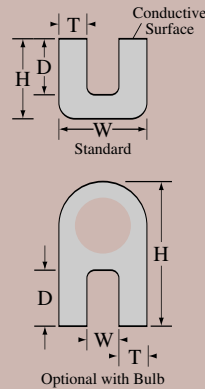
PART NUMBER*	H		W		I.D.	
8062	.060	1,52	.060	1,52	.031	0,79
8125	.125	3,17	.125	3,17	.078	1,98
8130	.130	3,30	.200	5,08	.090	2,29
8134	.134	3,40	.134	3,40	.078	2,00
8251	.250	6,35	.250	6,35	.156	3,96
8376	.375	9,53	.375	9,53	.281	7,14
8380	.250	6,35	.375	9,53	.201	5,11
8453	.453	11,50	.413	10,50	.323	8,20
8454	.453	11,50	.454	11,53	.323	8,20

* For ordering options, add the suffix nomenclature shown on page 15.

Recommended compression range is 10%-30% of relaxed height and no more than 50%. All dimensions in inches *millimeters*

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

U-channel

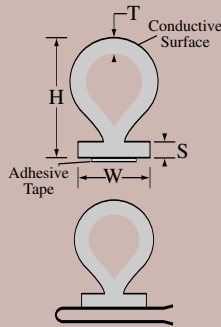


Permits opposing contact surface to enter the U-channel opening while making three points of contact. For edge mount applications.

PART NUMBER*	H		W		D		T		Panel Mounting Width (Range)	
9118	.122	3.10	.096	2.45	.083	2.10	.030	0.77	.040-.048	1.00-1.22
9156	.156	3.96	.156	3.96	.110	2.79	.040	1.02	.080-.097	2.03-2.46
9250	.250	6.35	.250	6.35	.188	4.78	.062	1.57	.130-.150	3.30-3.81
9375	.375	9.53	.375	9.53	.297	1.54	.078	1.98	.224-.244	5.69-6.20

PART NUMBER*	H		W		D		T		Panel Mounting Width (Range)	
14093	.113	2,87	.043	1,09	.068	1,73	.014	0,36	.025-.050	0,64-1,27
14125	.125	3,18	.032	0,81	.063	1,60	.015	0,38	.034-.040	0,86-1,02
14187	.187	4,75	.047	1,19	.094	2,39	.020	0,51	.056-.068	1,42-1,73
14250	.250	6,35	.062	1,57	.125	3,18	.027	0,69	.074-.089	1,88-2,26

bulb

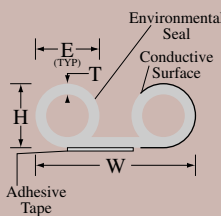


Optional Clip. See Ultra-Vanshield Clip below for dimensions

Exhibits a very high ratio of dynamic compression range to mounting surface area. Particularly effective when the contact engagement angle is not perpendicular to the gasket's vertical axis or when great variation in the distance between parallel mating surfaces exists. Also excellent for channel mounting.

PART NUMBER*	H		W		S		T	
10125	.125	3,18	.118	2,99	.039	0,99	.030	0,76
10250	.250	6,35	.234	5,94	.055	1,40	.039	1,00
10500	.472	11,90	.469	11,90	.062	1,58	.062	1,57
10550	.500	12,70	.500	12,70	.062	1,58	.042	1,07

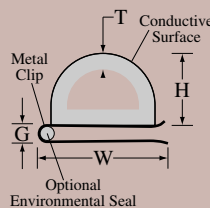
environmental seal double bulb



Same general features as the P-SHAPE gasket with the addition of a tandem environmental seal to assure protection from moisture and contaminant's. Groove mounting or standard pressure sensitive adhesive mounting.

PART NUMBER*	H	W	E	T				
12062	.062	1,57	.188	4,78	.062	1,57	.024	0,61
12125	.125	3,18	.312	7,92	.125	3,18	.031	0,79
12250	.250	6,36	.625	15,80	.250	6,36	.039	0,98
12375	.375	9,53	.875	22,20	.375	9,53	.042	1,07

ultra-vanshield® clip



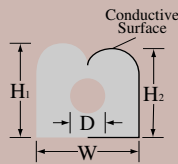
The conductive rubber D-shaped component is permanently bonded, mechanically, chemically, or both, to a stainless steel clip for easy clip-mounting. Available in standard 6'-0" (1.83 m) lengths or optional cut lengths.

PART NUMBER*	W		H		G		T	
85001	.500	12,70	.394	10,00	.070	1,78	.047	1,19
85002	.500	12,70	.290	7,37	.040	1,02	.047	1,19
85003	.500	12,70	.240	6,10	.030	0,51	.047	1,19
85004	.500	12,70	.240	6,10	.070	1,78	.047	1,19
85010	.250	6,35	.312	7,92	.070	1,78	.040	1,02

* For ordering options, add the suffix nomenclature shown on page 15.
Recommended compression range is 10%-30% of relaxed height and no more than 50%.
All dimensions in inches *millimeters*

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

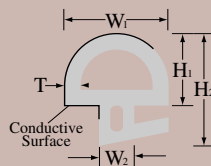
environmental seal double-D



Two symmetrical contact bulbs - one with a conductive outer layer to make contact between the mating surfaces. The other is a dedicated environmental seal, normally installed with the environmental segment closest to the source of outside influences. For groove mount or pressure sensitive adhesive mounting.

PART NUMBER*	H ₁	H ₂	W	D
16078	.084 <i>2,13</i>	.078 <i>1,98</i>	.078 <i>1,98</i>	.036 <i>0,91</i>
16114	.130 <i>3,30</i>	.125 <i>3,18</i>	.114 <i>2,90</i>	.046 <i>1,17</i>
16118	.159 <i>4,04</i>	.157 <i>3,99</i>	.118 <i>3,00</i>	.071 <i>1,80</i>
16134	.157 <i>3,99</i>	.152 <i>3,86</i>	.134 <i>3,40</i>	.091 <i>2,31</i>
16140	.143 <i>3,63</i>	.140 <i>3,56</i>	.126 <i>3,20</i>	.081 <i>2,06</i>
16187	.193 <i>4,90</i>	.187 <i>4,75</i>	.203 <i>5,16</i>	.093 <i>2,36</i>
16250	.256 <i>6,50</i>	.248 <i>6,30</i>	.250 <i>6,35</i>	.110 <i>2,79</i>
16375	.380 <i>9,65</i>	.372 <i>9,45</i>	.375 <i>9,53</i>	.188 <i>4,78</i>

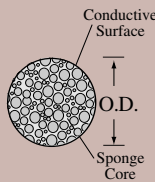
G-bulb



Special lower hook section slips through appropriate slot size for a quick and easy installation. Can also be notched intermittently along the hook side for easy installation in intermittent grooves.

PART NUMBER*	H ₁	H ₂	W ₁	W ₂	T
17250	.250 <i>6,35</i>	.312 <i>7,92</i>	.312 <i>7,92</i>	.078 <i>1,98</i>	.036 <i>0,91</i>
17312	.312 <i>7,92</i>	.406 <i>10,31</i>	.375 <i>9,53</i>	.085 <i>2,16</i>	.040 <i>1,02</i>
17406	.406 <i>10,31</i>	.591 <i>15,01</i>	.500 <i>12,70</i>	.100 <i>2,54</i>	.050 <i>1,27</i>

sponge-filled



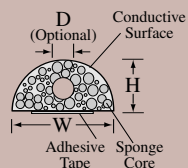
Most of the hollow shapes shown in the Dual Elastomer ULTRA-VANSHIELD® assortment of profiles are available with a resilient, compression set resistant silicone sponge rubber core, permitting thinner wall sections and even lower compression forces.

The sponge rubber is co-extruded simultaneously with the formation of the DUAL ELASTOMER profile. This creates a completely unitized structure which will not deteriorate with repeated compressions.

To order any of the profiles with this option, add an "SPG" suffix to the appropriate part number by following the instructions on page 14. For example, part number 2200-01-D50-GRA-NPS-SPL-1200 becomes 2200-01-SPG-GRA-NPS-SPL-1200.

Standard stock items are available in the Tube and D-shape as follows.

tube



PART NUMBER*	O.D.
2200	.098 <i>2,49</i>
2250	.125 <i>3,18</i>
2350	.187 <i>4,75</i>
2450	.250 <i>6,35</i>
2550	.375 <i>9,53</i>
2650	.500 <i>12,70</i>

D-shape

PART NUMBER*	H	W	D
6078	.078 <i>1,98</i>	.062 <i>4,75</i>	N/A <i>N/A</i>
6125	.125 <i>3,18</i>	.093 <i>6,35</i>	N/A <i>N/A</i>
6130	.130 <i>3,30</i>	.200 <i>5,08</i>	.050 <i>1,27</i>
6139	.140 <i>3,56</i>	.220 <i>5,59</i>	N/A <i>N/A</i>
6140	.140 <i>3,56</i>	.170 <i>4,32</i>	.031 <i>0,79</i>
6145	.146 <i>3,70</i>	.250 <i>6,35</i>	N/A <i>N/A</i>
6146	.140 <i>3,56</i>	.130 <i>3,30</i>	N/A <i>N/A</i>
6150	.150 <i>3,81</i>	.420 <i>10,67</i>	N/A <i>N/A</i>
6156	.156 <i>3,96</i>	.109 <i>6,35</i>	N/A <i>N/A</i>
6190	.098 <i>2,49</i>	.098 <i>2,49</i>	N/A <i>N/A</i>
6250	.250 <i>6,35</i>	.125 <i>9,53</i>	N/A <i>N/A</i>
6312	.312 <i>7,92</i>	.141 <i>10,72</i>	N/A <i>N/A</i>

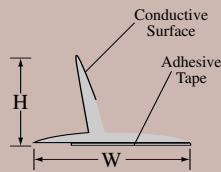
* For ordering options, add the suffix nomenclature shown on page 15.

Recommended compression range is 10%-30% of relaxed height and no more than 50%.

All dimensions in inches *millimeters*

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

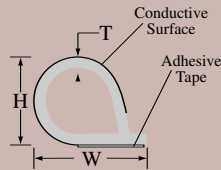
T-wiper



Functions through a very large deflection range with absolute minimum compression force. Excellent for large gaps and where mating surfaces vary along their length. Pressure sensitive adhesive tape installation; precision alignment to mounting surface due to high degree of longitudinal rigidity.

PART NUMBER*	H		W		T	
18114	.078	1,98	.312	7,92	.015	0,38
18140	.140	3,56	.260	6,60	.020	0,51
18197	.197	5,00	.260	6,60	.020	0,51
18250	.250	6,35	.312	7,92	.015	0,38
18375	.375	9,53	.437	11,10	.025	0,64

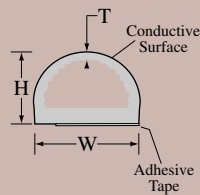
tadpole, high aspect ratio P-bulb



The center of pressure is located at a focal point where both the conductive outer layer and the pressure sensitive mounting tape receive full compression force when deflected. This assures optimum electrical contact and mounting adhesion without either breaking away during extreme deflection angles.

PART NUMBER*	H		W		T	
5125	.062	1,57	.187	4,75	.022	0,56
5225	.125	3,18	.250	6,35	.026	0,66
5325	.250	6,35	.397	10,08	.030	0,76
5425	.325	9,53	.468	11,89	.044	1,18

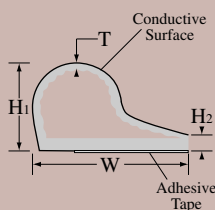
fluted-wall D-bulbs



Interior serrations permit very low compression force, even lower than standard hollow profile's norm. Very stable under bidirectional shear forces. Simple pressure sensitive adhesive tape installation.

PART NUMBER*	H		W		T	
6078	.078	1,98	.187	4,75	.024	0,61
6125	.125	3,18	.250	6,35	.026	0,66
6156	.156	3,96	.250	6,35	.028	0,71
6250	.250	6,35	.375	9,53	.031	0,79
6312	.312	7,92	.422	10,72	.031	0,79
6375	.325	9,53	.500	12,70	.034	0,86
6437	.437	11,10	.625	15,88	.038	0,96

fluted-wall cove shape



An asymmetrical P-shaped profile with interior serrations allows a very stable, large footprint to resist shear forces while offering extremely low compression force due to the hollow profile and the interior serrated top portion. Pressure sensitive adhesive tape installation.

PART NUMBER*	H ₁		W		T		H ₂	
20156	.156	3,96	.312	7,92	.024	0,61	.062	1,57
20302	.302	7,67	.396	10,06	.031	0,79	.103	2,62
20320	.320	8,13	.422	10,72	.031	0,79	.105	2,67

* For ordering options, add the suffix nomenclature shown on page 15.
Recommended compression range is 10%-30% of relaxed height and no more than 50%.
All dimensions in inches *millimeters*

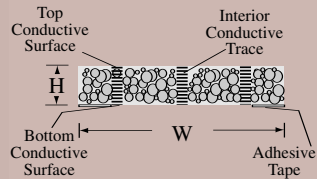
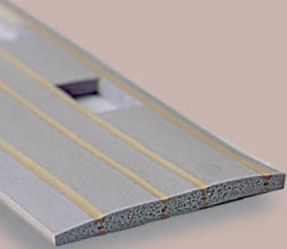
Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

Microbridge® is the ultimate construction design utilizing new technology which creates a microscopic conductive bridge through the body of an elastomeric extruded gasket. The conductive element traces a path, by putting the conductor only where it is needed through the interior of the silicone rubber core, yielding very significant cost-effective savings of the conductive material. This leaves the outside face of the mounting surface side with as much adhesion-active area as possible and improved galvanic corrosion resistance with low compression/deflection forces. Excellent for I/O backplanes and all general RFI/EMI shielding applications.

Available in most profiles in this catalog and many custom configurations. Be creative and utilize our design staff to help optimize your specific application.

Standard tooled profiles are shown below; strips, D-bulbs and T-wiper styles. Custom layouts of the conductive traces and die-cutting are easily arranged (see also custom die-cuts below).

microbridge® strips

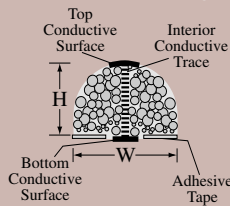


The strip configuration at left is a closed cell sponge core with periodic vertical conductive silver traces which can be positioned at various integrals along the strip width with an exposed conductive pad on both top and bottom strip surfaces. Excellent for I/O panels with die-cut openings (see custom die-cuts below).

PART NUMBER	H	W
37-050	.078	1,98 .500 12,70
37-075	.078	1,98 .750 19,1
37-100	.093	2,36 1.000 25.4

PART NUMBER	H	W
37-150	.125	3,18 1.500 38,1
37-200	.125	3,18 2.000 50,8
Customs	Consult Customer Service	

microbridge® D-bulbs

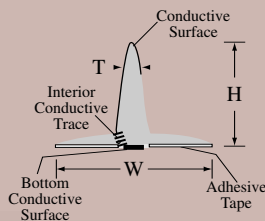
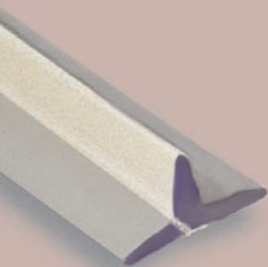


The D-bulb configuration at left is a closed cell sponge core with an interior vertical conductive silver silicone trace terminated at an exterior conductive pad on both top and bottom surfaces.

PART NUMBER	H	W
36-200	.125	3,18 .183 4,75
36-300	.187	4,75 .250 6,35
36-400	.250	6,35 .375 9,53

PART NUMBER	H	W
36-500	.312	7,92 .437 11,10
36-600	.375	9,53 .500 12,70
Customs	Consult Customer Service	

microbridge® T-wiper



The T-wiper configuration at left is a dense elastomer core with an interior vertical conductive silver silicone trace terminated at an exterior conductive pad on both top and bottom surfaces. The design maximizes the active surface for pressure sensitive adhesive tape mounting.

PART NUMBER	H		W		T	
38-125	.125	3,18	.312	7,92	.020	0,51
38-197	.197	5,00	.400	10,6	.023	0,58
38-250	.250	6,35	.400	10,6	.025	0,64
Customs	Consult Customer Service					

microbridge® custom die-cuts, I/O panels

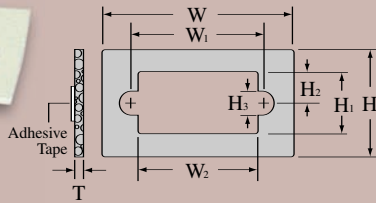


The versatility of the new **Microbridge®** technology permits an almost unlimited variety of custom modifications. From a simple sheet or strip configuration, die-cut conductive gaskets for I/O panels and similar applications are quickly and easily manufactured. Hand cut prototypes and short runs are practical with cost-effective minimal tooling.

Microbridge® die-cut I/O panel gasket

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

D subminiature connectors



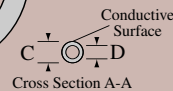
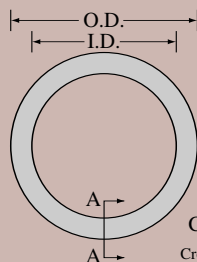
Low compression-set silicone sponge core D connector shields for grounding and shielding of D subminiature connectors. Fits commonly used 9 pin through 50 pin layouts. Rear or front mount versatility. Adhesive mounting strips aid assembly. Custom shapes and designs available on a quick turnaround basis.

Part No. Code **7730 - XX - 030 - 9**

no. of pins
thickness
conductive outer layer options, see pg.15
part number

PART NUMBER*	W	W ₁	W ₂	H	H ₁	H ₂	H ₃	T
7730-XX-030-9	1.41 <i>35,8</i>	.98 <i>24,9</i>	.78 <i>19,8</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.030 <i>0,76</i>
7760-XX-060-9	1.41 <i>35,8</i>	.98 <i>24,9</i>	.78 <i>19,8</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.060 <i>1,52</i>
7730-XX-030-15	1.74 <i>44,2</i>	1.31 <i>33,3</i>	1.11 <i>28,2</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.030 <i>0,76</i>
7760-XX-060-15	1.74 <i>44,2</i>	1.31 <i>33,3</i>	1.11 <i>28,2</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.060 <i>1,52</i>
7730-XX-030-25	2.26 <i>57,9</i>	1.85 <i>47,0</i>	1.65 <i>41,9</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.030 <i>0,76</i>
7760-XX-060-25	2.26 <i>57,9</i>	1.85 <i>47,0</i>	1.65 <i>41,9</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.060 <i>1,52</i>
7730-XX-030-37	2.93 <i>74,4</i>	2.50 <i>63,5</i>	2.29 <i>58,2</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.030 <i>0,76</i>
7760-XX-060-37	2.93 <i>74,4</i>	2.50 <i>63,5</i>	2.29 <i>58,2</i>	.75 <i>19,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.13 <i>3,2</i>	.060 <i>1,52</i>
7830-XX-030-50	2.84 <i>72,1</i>	2.41 <i>61,2</i>	2.11 <i>53,6</i>	.83 <i>21,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.24 <i>6,1</i>	.030 <i>0,76</i>
7870-XX-070-50	2.84 <i>72,1</i>	2.41 <i>61,2</i>	2.11 <i>53,6</i>	.83 <i>21,1</i>	.44 <i>11,2</i>	.22 <i>5,6</i>	.24 <i>6,1</i>	.070 <i>1,78</i>

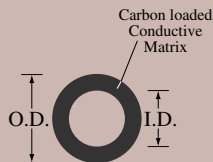
O-rings



Conductive jointed rings made from the tube profiles shown above and on page 5. O.D. and I.D. cross section profile dimensions are the same as shown for the tube styles.

To specify the exact dimensions and part number nomenclature for your application, please contact Customer Service.

semi-conductive carbon-loaded tubes & profiles

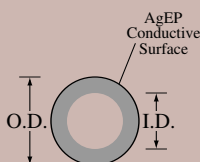


For economy applications; i.e., small aperture RFI/EMI gaskets and ESD grounding. Standard material options are shown below and other materials are available. Any profile in this catalog, or your proprietary design, may be ordered.

Carbon Loaded Materials Available	Volume Resistivity Ω-cm
Carbon/EPDM	10
Carbon/Nitrile	20
Carbon/Hydrin	1
Carbon/Fluorocarbon	50
Carbon/Silicone	1-10
Carbon/Silicone Sponge	20

For specific ordering nomenclature, consult Customer Service.

special purpose high performance EPDM tubes



Ethylene-Propylene-Diene-Monomer, EPDM, materials have long been proven in their excellence for demanding applications; i.e., resistance to aging, weathering, ozone, water, steam and chemicals including acids, alkalis and oxygenated solvents—overall it is the material of choice for various outdoor environments. Now, combined with the Ultra-Vanshield® coextrusion process, an even higher level of performance for RFI-EMI shielding is available. Construction consists of a versatile EPDM core covered with a conductive Silver/EPDM (AgEP) outer jacket. The combined result—abrasion resistance, silicone outgassing eliminated, even Phosgene gas does not deteriorate performance characteristics.

Meets military NBC (Nuclear, Biological and Chemical) specifications.

PART NUMBER*	O.D.	I.D.	PART NUMBER*	O.D.	I.D.	PART NUMBER*	O.D.	I.D.
2050-12	.030 <i>0,76</i>	n/a <i>n/a</i>	2170-12	.078 <i>1,98</i>	.028 <i>0,71</i>	2450-12	.250 <i>6,35</i>	.172 <i>4,37</i>
2100-12	.040 <i>1,02</i>	.020 <i>0,51</i>	2200-12	.098 <i>2,49</i>	.039 <i>1,00</i>	2500-12	.312 <i>7,92</i>	.219 <i>5,56</i>
2110-12	.040 <i>1,02</i>	n/a <i>n/a</i>	2210-12	.103 <i>2,62</i>	.044 <i>1,12</i>	2550-12	.375 <i>9,53</i>	.266 <i>6,76</i>
2125-12	.045 <i>1,14</i>	.022 <i>0,56</i>	2251-12	.125 <i>3,18</i>	.078 <i>1,98</i>	2600-12	.438 <i>11,10</i>	.313 <i>7,95</i>
2140-12	.053 <i>1,35</i>	.020 <i>0,51</i>	2300-12	.156 <i>3,96</i>	.093 <i>2,36</i>	2610-12	.438 <i>11,10</i>	.252 <i>6,40</i>
2150-12	.062 <i>1,57</i>	.025 <i>0,64</i>	2350-12	.187 <i>4,75</i>	.109 <i>2,77</i>	2650-12	.500 <i>12,70</i>	.359 <i>9,12</i>
2155-12	.071 <i>1,80</i>	.028 <i>0,71</i>	2375-12	.201 <i>5,11</i>	.125 <i>3,18</i>	2700-12	.625 <i>15,90</i>	.484 <i>12,30</i>
2157-12	.073 <i>1,85</i>	.044 <i>1,12</i>	2400-12	.219 <i>5,56</i>	.141 <i>3,58</i>			

* For ordering options, add the suffix nomenclature shown on page 15.

Recommended compression range is 10%-30% of relaxed height and no more than 50%.

All dimensions in inches *millimeters*

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

MATERIAL PROPERTIES

Each Ultra-Vanshield® shielding gasket profile shown in the preceeding product section is available with a wide selection of conductive outer jacket choices. To construct a discrete part number for your application, add one of the suffixes shown below after the part number, as described on page 15; for example, part number 1020, found on catalog page 5, with a standard Silver outer jacket is designated as part number 1020-01.

DESCRIPTION	TEST SPECIFICATION	MATERIAL COMPOUND DESIGNATION						
		VC3200	VC3220	VC3240	VC3260	VC3280	VC3300	VC3600
Suffix (see "ordering" on page 15)	Vanguard	-01	-02	-03	-04	-05	-08	-09
Conductive Matrix (Outer Jacket Material)	Vanguard	Pure Ag in Silicone	AgCu in Silicone	AgAl in Silicone	AgNi in Silicone	Ag Glass in Silicone	Pure Ni in Silicone	Low Resis- tivity Carbon in Silicone
Elastomeric Support Matrix (Inner Core Material)	Vanguard	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone
Shielding Effectiveness (dB)	MIL-G-83528							
Frequency: 200 KHz-H-field	para. 4.6.12	65	65	60	65	55	65	50
100 KHz E-field		120	110	110	100	90	75	75
500 MHz E-field		120	110	100	100	90	100	75
2 GHz Plane wave		110	100	95	95	90	95	70
10 GHz Plane wave		110	100	90	95	90	110	65
Volume Resistivity (ohm-cm)	ASTM D991	.001	.003	.005	.006	.010	.050	.500
Surface Resistivity (ohm-Lin.in.)	V.P.C method V908	.150	.300	.400	.500	.750	2.00	10.0
Durometer (Shore A)	ASTM D2240	50	50	50	50	50	55	70
Tensile Strength (p.s.i.)	ASTM D412	1,500	1,500	1,500	1,500	1,500	1,500	1,200
Elongation (%)	ASTM D412	320	320	320	320	320	320	300
Tear Strength (p.p.i.)	ASTM D624	120	120	120	120	120	120	100
Compression Set (room temp.)	1,000 hrs.@72°F	0%	0%	0%	0%	0%	0%	0%
Compression Set (dry heat)	70 hrs.@300°F	12%	12%	12%	12%	12%	12%	10%
Life Test (vol. res. after heat aging)	1,000 hrs.@275°F then 48 hrs.@340°F	.004	.015	.018	.012	.027	.500	.650
Humidity Test (vol. res. after steady-state exposure to moisture)	MIL-STD-202F Method 103B test condition No. 4 240 hrs.@104°F 90-95%R.H.	.006	.020	.025	.021	.020	.400	.550

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

MATERIAL PROPERTIES

Each production batch of Ultra-Vanshield® elastomeric compound is lot controlled for the specific mechanical and electrical characteristics shown. All test data is analyzed and kept on file to assure product consistency within a lot, and from lot-to-lot.

DESCRIPTION	TEST SPECIFICATION	MATERIAL COMPOUND DESIGNATION						
		VC1851	VC3400	VC3450	VC3500	VC3205	VC3210	VC3650
Suffix (see "ordering" on page 15)	Vanguard	-10	-11	-12	-13	-15	-16	-17
Conductive Matrix (Outer Jacket Material)	Vanguard	Standard Carbon in Silicone	Pure Ag in Fluorosilicone	Pure Ag in EPDM	Pure Ag in Fluorocarbon	Abrasion-Resistant Ag in Silicone	Ag in Silicone, Darkened Color	AgAl in Silicone, Darkened Color
Elastomeric Support Matrix (Inner Core Material)	Vanguard	Silicone	Fluoro-Silicone	EPDM	Fluorocarbon	Silicone	Silicone	Silicone
Shielding Effectiveness (dB)	MIL-G-83528							
Frequency: 200 KHz-H-field	para. 4.6.12	30	65	50	55	65	65	65
100 KHz E-field		50	120	80	85	120	120	110
500 MHz E-field		55	120	80	80	120	120	110
2 GHz Plane wave		45	110	75	80	110	120	100
10 GHz Plane wave		40	105	70	75	110	110	90
Volume Resistivity (ohm-cm)	ASTM D991	4.00	.002	.050	.100	.002	.001	.005
Surface Resistivity (ohm-Lin.in.)	V.P.C method V908	60.0	.250	1.40	1.30	.200	.050	.400
Durometer (Shore A)	ASTM D2240	70	50	65	65	45	50	50
Tensile Strength (p.s.i.)	ASTM D412	875	1,200	950	1,800	1,300	1,500	1,500
Elongation (%)	ASTM D412	240	250	210	220	230	320	320
Tear Strength (p.p.i.)	ASTM D624	100	80	170	200	100	120	120
Compression Set (room temp.)	1,000 hrs.@72°F	0%	0%	4%	2%	0%	0%	0%
Compression Set (dry heat)	70 hrs.@300°F	10%	15%	20%	20%	10%	10%	10%
Life Test (vol. res. after heat aging)	1,000 hrs.@275°F then 48 hrs.@340°F	6.00	.005	.220	.190	.004	.002	.008
Humidity Test (vol. res. after steady-state exposure to moisture)	MIL-STD-202F Method 103B test condition No. 4 240 hrs.@104°F 90-95%R.H.	4.50	.005	.300	.200	.005	.004	.016

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

INSTALLATION

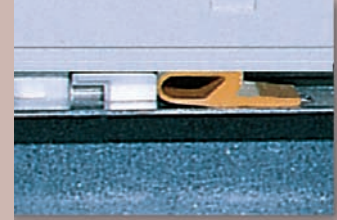


Electronic enclosure door shielding gasket

Ultra-Vanshield® RFI-EMI shielding gaskets are manufactured from the most versatile, long-life materials to provide the highest performing alternatives for the life of your product. To take full advantage of the inherent properties of these materials, a few simple guidelines should be followed for the continued, long-term effectiveness of both the mechanical and electrical properties.

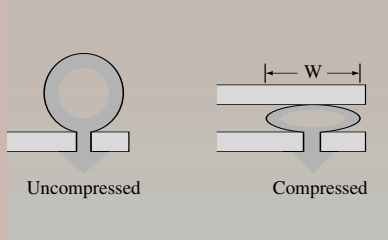


Conductive plastic enclosure seam



Electrostatic discharge (ESD)

1. DETERMINE PROPER SIZE AND SHAPE

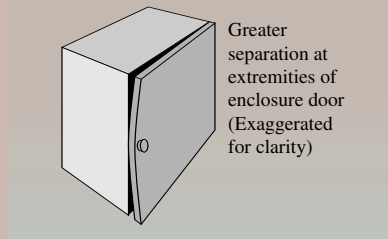


Uncompressed

Compressed

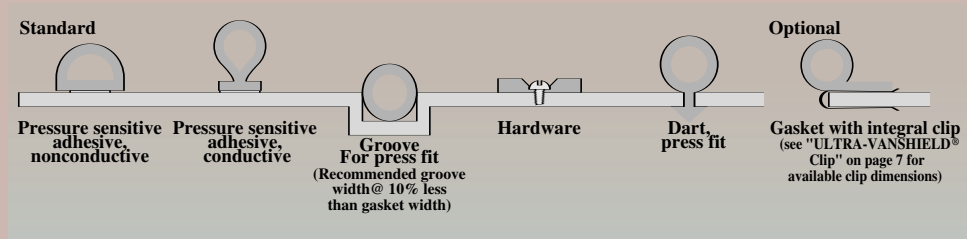
- .1 The gasket's "compressed configuration" is important to consider, regarding the width of the mounting area relative to the compressed width of the gasket.
- .2 Consider various profiles and sizes, and mechanical stability required; such as, when the gasket must resist shear forces.

2. COMPRESSION RANGE REQUIRED



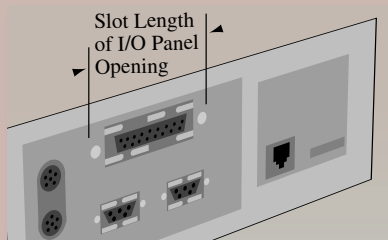
- .1 Ultra-Vanshield® gaskets require only a minimum of deflection to achieve full shielding effectiveness.
- .2 Conversely, since mating surfaces of an enclosure may vary in spacing along their length, consider the maximum separation distance to be connected by the gasket (see drawing at left).
- .3 The gasket's deflection should be between 10%-30% of its relaxed height, and not more than 50%. If too much compression is occurring, change to the next smaller size gasket.

3. ATTACHMENT METHODS



- .1 Ultra-Vanshield® gaskets offer the widest range of attachment alternatives. The most common methods are shown at left.

4. SHIELDING EFFECTIVENESS



- .1 Shielding effectiveness is determined by the largest gap opening in an enclosure seam or aperture. This is known as the "slot length".
- .2 As "slot length" decreases, shielding effectiveness increases.
- .3 Usually, the shielding gasket is continuous along the entire length of the opening. If a discontinuation is necessary; i.e., for hinges, locks, fasteners, etc., refer to page 4, figure 6, to calculate the expected shielding effectiveness according to the length of the discontinuation (or slot length).

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

ORDERING

STANDARD PRODUCTS

All shielding gaskets shown in this catalog are available with optional conductive outer layers and specific product treatments. To construct a discrete part number for your application, follow the guidelines below. Characteristic suffix descriptors are added to the desired part number found in the preceding product pages. Profile tolerances standard per RMA Class Sil A2. Closer tolerances available upon request.

Part# 1020-01-D50-BLU-NPS-SPL-1200

PART NUMBER FROM CATALOG

CONDUCTIVE OUTER LAYER

- 01 - Standard Silver (Ag)
- 02 - Silver Plated Copper (Ag/Cu)
- 03 - Silver Plated Aluminum (Ag/Al)
- 04 - Silver Plated Nickel (Ag/Ni)
- 05 - Silver Plated Glass Spheres (Ag/GL)
- 06 - Gold (Au)
- 07 - Copper (Cu)
- 08 - Nickel (Ni)
- 09 - Carbon, Low Resistivity (CL)
- 10 - Carbon, Standard (CS)
- 11 - Silver in Fluorosilicone (AgFK)
- 12 - Silver in EPDM (AgEP)
- 13 - Silver in Fluorocarbon (AgFC)
- 15 - Silver, Abrasion Resistant (AgX)
- 16 - Blackened Silver (Ag-Dk)
- 17 - Silver Aluminum (AgAl-Dk)
- 18 - Other

LENGTH

- Standard - 1,200 Inches
- Custom Length (in Inches)
- For O-rings - Length = Circumference

PACKAGING

- SPL - Spooled on a Reel
- CTL - Cut To Length
- COI - Coiled Loosely
- BND - O-Rings, bonded
- FRM - Mitre-spliced window frame
- SPEC - Special, Custom Finishing

MOUNTING TAPE OR CLIP

- NPS - No Pressure Sensitive Tape
- PSA - Pressure Sensitive Tape (min. width 0.1")
- EPSA - Extended Pressure Sensitive Tape **(see below)*
- CPS - Conductive Pressure Sensitive Tape
- ECPS - Extended Conductive Pressure Sensitive Tape **(see below)*
- DCPS - Double Coated Semi-Rigid Pressure Sensitive Tape for Stiffness Enhancement
- CLP - Mounted Clip
- SPEC - Special

CORE MATERIAL

- ORA - Orange (STD)
- GRA - Gray
- WHI - White
- BLU - Blue
- VIO - Violet
- BLA - Black
- RED - Red

DUROMETER

- D30 - 30 Shore A Durometer
- D50 - 50 Shore A Durometer (Standard)
- D75 - 75 Shore A Durometer
- FR - Flame Resistant, 60 duro. (Brown Only)
- SPG - Closed Cell Silicone Sponge
- LOG - Low outgassing silicone

*** optional "Quick-Start" easy removal extended adhesive liner (ECPS& EPSA above)**



An extended pressure sensitive adhesive protective liner option is now available on all Ultra-Vanshield® RFI-EMI shielding gaskets. The extra wide tear-away liner protrudes outboard of the gasket body for easy and fast removal during installation.

ENGINEERING TEST KIT

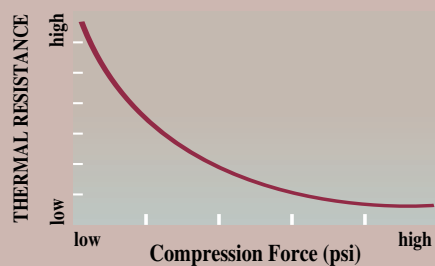
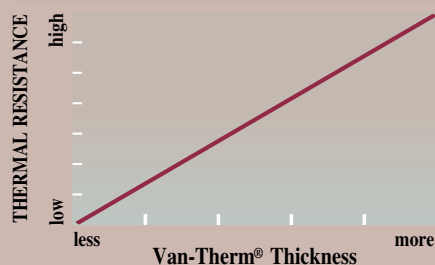
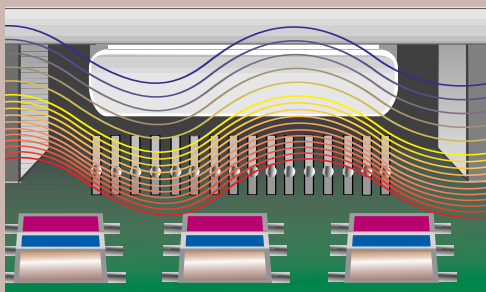
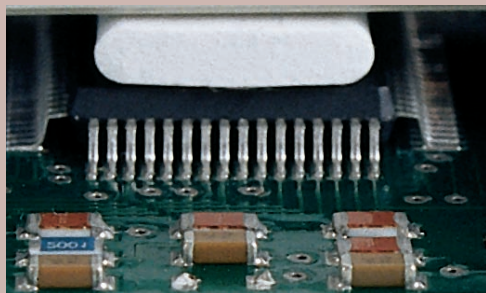


An EMC test lab kit which is capable of immediate problem mitigation from the generous supply of each style included. There are 32 feet each of nine distinct part numbers, representing the most common styles for electronic enclosure gap ranges from 0.020" to 0.300". Installation guidelines and further product information are included.



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www.vanguardproducts.com

Van-Therm® heat conducting elastomer



Van-Therm® is a highly efficient heat conducting interface material with wide application uses for electronic, electrical and electro-mechanical assemblies. Miniaturization and higher speed electronics demand efficient thermal management for reliable operation and long-term aging properties of all types of components. Space restrictions compound such considerations, and of course, cost containment is always a requirement.

Van-Therm®'s efficient thermal conductivity and conformability accommodate most component surfaces and substrates.

- Conforms to irregular surface depressions and protrusions for maximum surface contact, and therefore efficient thermal transfer.
- Material consistency permits high levels of heat extraction from heat generating components to heat sinks, thermal bridges and chassis members.
- Ideal durometer allows greater controllable compression squeeze enabling highest heat conduction per minimum cross sectional area of thickness. See charts at left.
- Available in strips, sheets and die-cuts for universal applications and specific standard or custom dimensions.
- Custom extruded profiles and shapes available.

PART NUMBER*	H		W	
70-124	.020	<i>0,51</i>	.125	<i>3,18</i>
70-125	.040	<i>1,02</i>	.125	<i>3,18</i>
70-250	.062	<i>1,57</i>	.250	<i>6,35</i>
70-315	.062	<i>1,57</i>	.250	<i>6,35</i>
70-501	.093	<i>2,36</i>	.500	<i>12,70</i>
70-502	.125	<i>3,18</i>	.500	<i>12,70</i>
70-000	.125	<i>3,18</i>	1.000	<i>25,40</i>
Customs	Please consult Customer Service			

SPECIFICATIONS AND PERFORMANCE

Characteristic	Measure	Value
Color	Visual	White
Thermal Conductivity	W/m-k	1.0
Dielectric Constant	1000 Hz	4.5
Continuous Use Temp.	°F	-100° to 400°F
Thermal Impedance @.187 thickness	C-in ² /W	2.5
Volume Resistivity	Ωcm	1.0 x 10 ¹⁴
Hardness	Shore A	30
Tensile	psi	500
Elongation	%	250
Dimensions Available	thickness width length	.020" min ; 1.00" max <i>0,51 to 25,4 mm</i> .060" min ; 3.00" max <i>1,52 to 76,2mm</i> .060" min ; 3.00" max <i>1,52 to 76,2mm</i>

All dimensions in inches *millimeters*

Ultra-Vanshield® RFI/EMI dual elastomer shielding gaskets

If you have special proprietary needs, this is the page for you.



custom O-rings & seals

Up to 120" (3 meters) I.D. in exacting tolerances. As small as .020" I.D. while still retaining resiliency and long-term effectiveness.

custom extrusions

Virtually any shape can be made. Let your imagination run wild! New tooling is easily and economically prepared.

custom splices

Spliced web gaskets in intricate layouts reduced to a simple cost-effective process through our splice design technology.

custom molded parts

Boots, grommets, elbows, bellows, valves, sheets and similar shapes.

custom assemblies

Set in place and bonded to polyester film or your mating components, mitred frames and special joints.

custom die-cuts

Standard gaskets notched or die-cut to fit irregular mounting surfaces, and in addition a variety of standard die-cut treatments are available from flat sheet stock.

prototypes

All items shown above in a wide range of materials. Fast turnaround on tooling.

www.vanguardproducts.com