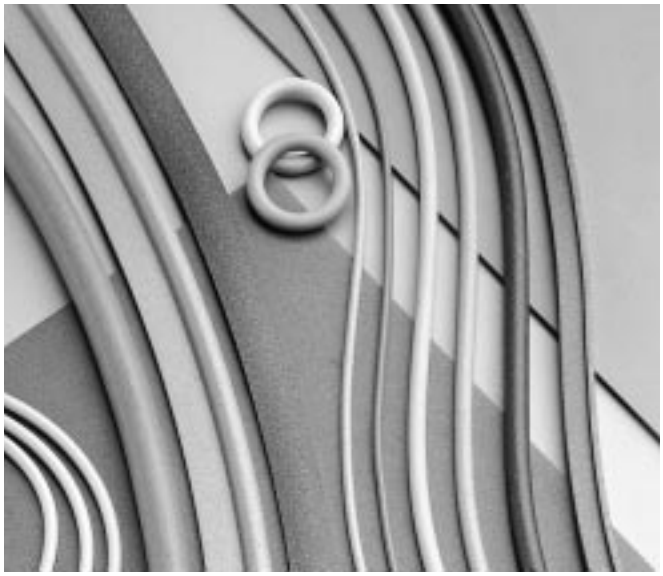


ElectroSeal™ Conductive Elastomer EMI Shielding

Laird Technologies electrically conductive elastomer products are ideal for both military and commercial applications requiring both environmental sealing and EMI shielding. Compounds can be supplied in molded or extruded shapes, sheet stock, custom extruded, or die-cut shapes to meet a wide variety of applications.

Our conductive extrusions offer a wide choice of profiles to fit a large range of applications. The cross-sections shown on the following pages are offered as standard. Custom dies can be built to accommodate your specific design.

- Available in a wide variety of conductive filler materials
- Shielding effectiveness up to 120 dB at 10 GHz

Sheet Material

Table 1 lists thicknesses and sizes for our molded sheet material, while Table 2, pages 14–16, shows the compounds available for all of our conductive silicone elastomers.

Table 1.

Thickness/Tolerance	10 X 10 Sheet	10 X 15 Sheet	15 X 20 Sheet	18 X 18 Sheet
0.020 ± 0.004 (0,5 ± 0,1)	8860-0020-100-XX	8860-0020-150-XX	8860-0020-300-XX	N/A
0.032 ± 0.005 (0,8 ± 0,1)	8860-0032-100-XX	8860-0032-150-XX	8860-0032-300-XX	8860-0032-324-XX
0.045 ± 0.005 (1,1 ± 0,1)	8860-0045-100-XX	8860-0045-150-XX	8860-0045-300-XX	8860-0045-324-XX
0.062 ± 0.007 (1,5 ± 0,2)	8860-0062-100-XX	8860-0062-150-XX	8860-0062-300-XX	8860-0062-324-XX
0.093 ± 0.010 (2,3 ± 0,3)	8860-0093-100-XX	8860-0093-150-XX	8860-0093-300-XX	8860-0093-324-XX
0.100 ± 0.010 (2,5 ± 0,3)	8860-0100-100-XX	8860-0100-150-XX	8860-0100-300-XX	8860-0100-324-XX
0.125 ± 0.010 (3,2 ± 0,3)	8860-0125-100-XX	8860-0125-150-XX	8860-0125-300-XX	8860-0125-324-XX

How to Specify EcE

Decide on molded sheet stock or extruded shapes. Select the desired configuration and dimensions from Table 1 (for sheet stock) or Figures 1–8 (for extruded shapes). Select the desired material from Table 2. Insert material number from Table 2, pages 14–16, in place of the letters XX in the Laird Technologies part number.

Example

1. From Figure 1, on page 18, for a rectangular strip measuring 0.500 in. (12,7 mm) x 0.075 in. (1,9 mm), part number is 8861-0130-XX.
2. From Table 2, on page 16, for silver-nickel filler, material number is 90.
3. Ordering part number is 8861-0130-90.*

Note: Rectangular and D-shaped extrusions can be supplied with pressure sensitive adhesive tape.

*If pressure sensitive adhesive is required, replace the fifth digit with a 9 (i.e. 8861-9130-90).

All dimensions shown are in inches (millimeters) unless otherwise specified.

Table 2. Electrically Conductive Elastomers Material Compounds

PARAMETER	TEST METHOD								
Filler		Ni/graphite	silver/ copper	silver/Al	silver	silver	silver/ nickel	silver/glass	carbon
Elastomer		silicone	silicone	silicone	silicone	silicone	silicone	silicone	silicone
EcE Name		EcE72	EcE80	EcE81	EcE82	EcE83	EcE84	EcE85	EcE87
Electrical Properties									
Volume Resistivity, Ω cm, max	MIL-DTL-83528C para 4.5.10	0.100	0.004	0.008	0.002	0.010	0.005	0.006	5.0
Shielding Eff, 10 GHz, dB, min	MIL-DTL-83528C para 4.5.12	100	120	100	120	80	100	100	30
Physical Properties									
Density, g/cm^3 (±0.25)	ASTM D792	2.30	3.40	2.00	3.50	1.80	4.00	1.90	1.30
Hardness, Shore A (±7)	ASTM D2240	75	65	65	65	45	75	65	75
Tensile Strength, psi, min	ASTM D412	280	200	200	300	150	200	200	700
Elongation	ASTM D412	150%	100-300%	100-300%	100-300%	50-250%	100-300%	100-300%	100-300%
Tear Strength, ppi, min	ASTM D624, die C	55	25	30	50	20	30	30	50
Compression Set, max	ASTM D395	30%	32%	32%	45%	35%	32%	30%	45%
Max Oper. Temp., °C	MIL-DTL-83528C para 4.5.15	160	125	160	160	160	125	160	160
Min. Oper. Temp., °C	ASTM D1329	-55	-55	-55	-55	-55	-55	-55	-55
Flame Retardance	UL 94	V-0		UL 94 HB (File No. E203 070					
Electrical Stability									
After Heat Aging, Ω cm, max	MIL-DTL-83528C para 4.5.15	-	0.010	0.010	0.010	0.015	0.010	0.015	7.0
After Break, Ω cm, max	MIL-DTL-83528C para 4.5.9	-	0.008	0.015	0.010	0.020	0.010	0.009	7.0
During Vibration, Ω cm, max	MIL-DTL-83528C para 4.5.13	-	0.006	0.012	0.010	0.015	0.010	0.009	N/A
After Exposure to EMP, Ω cm, max	MIL-DTL-83528C para 4.5.16	-	0.010	0.010	0.010	0.015	0.010	0.015	N/A
Compression / Deflection, %, min	ASTM D575	8	3.5	3.5	2.5	8.0	3.5	3.5	3.5
Fluid Immersion[1]	MIL-DTL-83528C para 4.5.17	-	NS	NS	NS	NS	NS	NS	NS
Manufacturing Processes									
molded sheet / diecut parts		X	X	X	X	X	X	X	X
molded shapes / O-rings		X	X	X	X	X	X	X	X
extruded profiles		X	X	X	X	X	X	X	
Color		gray	tan	tan	beige	beige	tan	tan	black
Mil-DTL-83528 Type		–	A	B	E	J	L	M	–

1 SUR indicates meets the immersion test requirements for 10 specified military/aerospace fluids
2 UL94 V-1
3 used only for low density low hardness
4 UL94 HB
5 corrosion resistant silver/Al filler

Table 2. Electrically Conductive Elastomers Material Compounds (continued)

PARAMETER	TEST METHOD						
Filler	Ni/ graphite	silver/ copper	nickel	N/A	carbon	Ni/ graphite	silver/Al
Elastomer	silicone	silicone	silicone	silicone	EPDM	EPDM	EPDM
EcE Name	EcE93	EcE94	EcE100	NCE220	EcE13	EcE95	EcE96
Electrical Properties							
Volume Resistivity, Ω cm, max	0.100	0.005	0.200	Non	30	0.100	0.010
Shielding Eff, 10 GHz, dB, min	100	120	–	Conductive	30	70	90
Physical Properties							
Density, g/cm^3 (±0.25)	1.90	3.60	4.00	1.20	1.20	2.20	2.20
Hardness, Shore A (±7)	55	85	75	70	80	80	80
Tensile Strength, psi, min	150	400	450	405	2000	200	200
Elongation	100-300%	100-300%	–	100-400%	100-400%	70-260%	70-260%
Tear Strength, ppi, min	30	40	50	–	100	60	60
Compression Set, max	30%	35%	–	–	30%	40%	50%
Max Oper. Temp., °C	160	125	160	150	125	125	160
Min. Oper. Temp., °C	-55	-45	-55	-50	-40	-40	-40
Flame Retardance	UL 94 HB (File No. E203 070			UL 94 HB (File No. E203 070			
Electrical Stability							
After Heat Aging, Ω cm, max	0.200	0.010	0.400	n/a	40	–	–
After Break, Ω cm, max	0.200	0.010	–	n/a	–	–	–
During Vibration, Ω cm, max	0.200	0.010	–	n/a	–	–	–
After Exposure to EMP, Ω cm, max	0.100	0.015	–	n/a	–	–	–
Compression / Deflection, %, min	8.0	2.5	–	–	3.0	3.0	3.0
Fluid Immersion[1]	NS	NS	NS	–	NS	NS	NS
Manufacturing Processes							
molded sheet / diecut parts	X	X	X	X	X	X	X
molded shapes / O-rings	X	X	X	X	X	X	X
extruded profiles	X	X	X	X		X	X
Color	black	tan	dk gray	blue	black	black	tan
Mil-DTL-83528 Type	–	K	–	–	–	–	–

Table 2. Electrically Conductive Elastomers Material Compounds (continued)

PARAMETER	TEST METHOD					
Filler	silver/ glass	silver/Al	silver/ copper	silver/Al	silver/ nickel	Ni/ graphite
Elastomer	fluorosilicone	fluorosilicone	fluorosilicone	fluorosilicone	fluorosilicone	fluorosilicone
EcE Name	EcE11	EcE50	EcE88	EcE89	EcE90	EcE92
Electrical Properties						
Volume Resistivity, Ω cm, max	0.010	0.012	0.010	0.012	0.005	0.100
Shielding Eff, 10 GHz, dB, min	90	95	110	100	100	100
Physical Properties						
Density, g/cm^3 (±0.25)	2.00	2.10	4.10	2.20	4.10	2.20
Hardness, Shore A (±7)	75	75	75	70	75	75
Tensile Strength, psi, min	200	200	180	180	300	150
Elongation	60-200%	60-260%	100-300%	60-260%	100-300%	60-250%
Tear Strength, ppi, min	30	35	30	30	50	40
Compression Set, max	30%	30%	35%	30%	25%	30%
Max Oper. Temp., °C	160	160	125	160	160	160
Min. Oper. Temp., °C	-50	-55	-55	-55	-50	-55
Flame Retardance	UL 94 HB (File No. E203 070					
Electrical Stability						
After Heat Aging, Ω cm, max	0.015	0.015	0.015	0.015	0.010	0.200
After Break, Ω cm, max	0.015	0.015	0.015	0.015	0.010	0.200
During Vibration, Ω cm, max	0.015	0.015	0.015	0.015	0.010	0.200
After Exposure to EMP, Ω cm, max	–	0.015	0.015	0.015	0.010	0.100
Compression / Deflection, %, min	3.0	3.0	3.5	3.5	3.0	5.0
Fluid Immersion[1]	SUR	SUR	SUR	SUR	SUR	SUR
Manufacturing Processes						
molded sheet / diecut parts	X	X	X	X	X	X
molded shapes / O-rings	X	X	X	X	X	X
extruded profiles	X	X	X	X	X	X
Color	tan	tan	tan	blue	tan	dk gray
Mil-DTL-83528 Type	–	–	C	D	–	–

Table 2. Electrically Conductive Elastomers Material Compounds (continued)

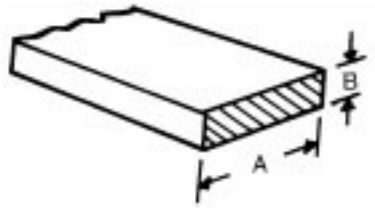
EcE Material Number			90	91	92	93	94	95	96	97	98	99
MIL-DTL-83528C MATERIAL TYPE							K			H	G	F
Elastomer Type: Silicone=SIL, Fluorosilicone=FSIL Fluorocarbon=FC, Thermoplastic Rubber=TPR Ethylene Propylene Diene Monomer=EPDM			FSIL	EPDM	FSIL	SIL	SIL	EPDM	EPDM	SIL	SIL	FSIL
Filler Material: Silver=Ag, Copper=Cu, Aluminum=Al Nickel=Ni, Glass=G, Inert Coated Aluminum=IA Nickel-coated Graphite=Ni/C, Carbon=C			Ag/Ni	Ag/Ni	Ni/C	Ni/C	Ag/Cu	Ni/C	Ag/Al	Ag	Ag/Cu with expanded metal foil	Ag
Color			Tan	Tan	Dark Gray	Black	Tan	Black	Tan	Tan	Tan	Beige
Electrical Properties	**Tol.**	**Test Method**										
Volume Resistivity (ohm-cm) (as supplied)	Max.	MIL-DTL-83528C (PARA 4.5.10)	0.005	0.010	0.100	0.100	0.005	0.150	0.010	0.005	0.007	0.002
Shielding Effectiveness (dB)	Min.	MIL-DTL-83528C										
200 KHz (H-Field)		(PARA 4.5.12) MIL-STD-285	75	60	50	50	70	50	50	70	70	70
100 MHz (E-Field)			110	110	100	100	120	80	100	120	120	120
500 MHz (E-Field)			110	100	100	100	120	70	100	120	120	120
2 GHz (Plane Wave)			105	100	100	100	120	70	90	120	120	110
10 GHz (Plane Wave)			100	100	100	100	120	70	90	120	120	110
Electrical Stability												
After Heat Aging (ohm-cm)	Max.	MIL-DTL-83528C (PARA 4.5.15)	0.010	N/A	0.[illegible]	[illegible]200	0.010	N/A	N/A	0.008	0.010	0.010
After Break (ohm-cm)	Max.	MIL-DTL-83528C (PARA 4.5.9)	0.010	0.050	0.200	0.200	[illegible]010	N/A	N/A	0.005	N/A	0.010
During Vibration	Max.	MIL-DTL-83528C	0.010	N/A	0.200	0.2[illegible]	0.010	N/A	N/A	0.006	0.010	0.010
After Vibration (ohm-cm)		(PARA 4.5.13)	0.005	N/A	0.100	0.100	0.00[illegible]	N/A	N/A	0.005	0.007	0.002
After Exposure to EMP (ohm-cm) (0.9 KAmp/inch of perimeter)	Min.	MIL-DTL-83528C (PARA 4.5.16)	0.010	N/A	0.100	0.100	[illegible]	N/A	N/A	0.008	0.010	0.010
Physical Properties												
Specific Gravity	± 0.25	ASTM D792	4.10	3.70	2.20	1.90	3.60	2.[illegible]	2.2[illegible]	3.70	4.30	4.10
Hardness (Shore A)	± 7	ASTM D2240	75	80	75	55	85	80	[illegible]	80	80	75
Tensile Strength (PSI)	Min.	ASTM D412	300	200	150	150	400	200	[illegible]	400	600	250
Elongation (%)	Min./Max.	ASTM D412	100/300	100/350	60/250	100/300	100/300	70/260	70/260	100[illegible]	20/NA	100/300
Tear Strength (PPI)	Min.	ASTM D624 (DIE C)	50	60	40	30	40	60	60	[illegible]	70	40
Compression Set (%)	Max.	ASTM D395	25	40	30	30	35	40	40	[illegible]	N/A	60
Upper Operating Temperature (°C)	Max.	ASTM D1329	160	125	160	160	125	125	160	160	125	160
Lower Operating Temperature (°C)	Min.		-50	-40	-55	-55	-45	-40	-40	-55	-45	-65
Compression/Deflection (%)	Min.	ASTM D575	3.0	3.0	5.0	8.0	2.5	3.0	3.0	2.5	2.5	3.5
Fluid Immersion[a]		MIL-DTL-83528C (PARA 4.6.17)	SUR	N/A	SUR	N/S	N/S	N/A	N/A	N/S	N/S	SUR
Recommended Application												
Molded Sheet/Die-Cut Parts			X	X	X	X	X	X	X	X	X[d]	X
Extruded Profiles			X		X	X	X	X[e]	X[e]	X		X
Metal/Elastomer Seals			X	X					X	X		X
O-Rings/Molded Shapes			X	X	X	X	X	X	X	X		X

Compounds not available in all profiles. Contact Application Engineering Department for assistance.

NOTES:
N/A = Not Applicable or Not Tested to Specification
N/S = Not Survivable
N/P= Not Possible
S = Survivable
a: Tested to specific fluids per MIL-DTL-83528C PARA 4.6.17
b: Needs special tooling for molded shapes and O-rings
c: Extruded profiles made from CP665X
d: Expanded copper foil reinforced available in 0.027 ± 0.005 inch sheet stock only

All dimensions shown are in inches (millimeters) unless otherwise specified.

Figure 1.
Rectangular Strips



Tolerances All Profiles

Dimensions	Tolerance
Under 0.101 (2,6)	± 0.005 (0,15)
0.101 to 0.200 (2,6 to 5,1)	± 0.008 (0,2)
0.201 to 0.300 (5,1 to 7,6)	± 0.010 (0,3)
0.301 to 0.500 (7,6 to 12,7)	± 0.015 (0,4)
Over 0.500 (12,7)	± 0.020 (0,5)

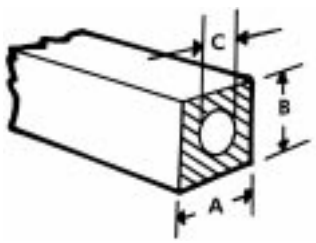
Rectangular Strips

MIL-DTL-85328 Part Number	Part Number	Nominal Dimensions A	Nominal Dimensions B
M83528/009X001	8861-0100	0.063 (1,6)	0.042 (1,1)
	8861-0179	0.079 (2,0)	0.039 (1,0)
	8861-0181	0.079 (2,0)	0.059 (1,5)
M83528/009X002	8861-0105	0.095 (2,4)	0.062 (1,6)
M83528/009X003	8861-0110	0.120 (3,0)	0.075 (1,9)
M83528/009X004	8861-0115	0.125 (3,2)	0.062 (1,6)
	8861-0180	0.126 (3,2)	0.039 (1,0)
	8861-0191	0.126 (3,2)	0.126 (3,2)
M83528/009X005	8861-0120	0.156 (4,0)	0.062 (1,6)
	8861-0121	0.187 (4,8)	0.125 (3,2)
	8861-0167	0.188 (4,8)	0.062 (1,6)
	8861-0193	0.189 (4,8)	0.189 (4,8)
M83528/002X006	8861-0125	0.250 (6,4)	0.062 (1,6)
	8861-0173	0.250 (6,4)	0.125 (3,2)
	8861-0174	0.250 (6,4)	0.188 (4,8)
	8861-0136	0.250 (6,4)	0.200 (5,1)
	8861-0175	0.252 (6,4)	0.031 (0,8)
	8861-0194	0.252 (6,4)	0.252 (6,4)
	8861-0127	0.375 (9,5)	0.375 (9,5)
	8861-0183	0.378 (9,6)	0.063 (1,6)
	8861-0176	0.472 (12,0)	0.031 (0,8)
	8861-0172	0.500 (12,7)	0.020 (0,5)
	8861-0131	0.500 (12,7)	0.042 (1,1)

Rectangular Strips (continued)

MIL-DTL-85328 Part Number	Part Number	Nominal Dimensions A	Nominal Dimensions B
	8861-0182	0.500 (12,7)	0.059 (1,5)
M83528/009X007	8861-0130	0.500 (12,7)	0.075 (1,9)
	8861-0188	0.500 (12,7)	0.094 (2,4)
M83528/009X008	8861-0135	0.500 (12,7)	0.125 (3,2)
M83528/009X009	8861-0140	0.500 (12,7)	0.188 (4,8)
	8861-0177	0.500 (12,7)	0.031 (0,8)
	8861-0190	0.591 (15,0)	0.118 (3,0)
	8861-0185	0.748 (19,0)	0.075 (1,9)
	8861-0142	0.750 (19,1)	0.040 (1,0)
	8861-0141	0.750 (19,1)	0.042 (1,1)
M83528/009X010	8861-0145	0.750 (19,1)	0.062 (1,6)
	8861-0184	0.827 (21,0)	0.071 (1,8)
	8861-0189	0.827 (21,0)	0.094 (2,4)
	8861-0178	0.827 (21,0)	0.031 (0,8)
	8861-0187	0.874 (22,0)	0.091 (2,3)
M83528/009X011	8861-0150	0.880 (22,4)	0.062 (1,6)
	8861-0103	0.984 (25,0)	0.043 (1,1)
	8861-0169	1.00 (25,4)	0.062 (1,6)
	8861-0192	1.00 (25,4)	0.126 (3,2)
M83528/009X012	8861-0155	1.00 (25,4)	0.250 (6,4)
	8861-0186	1.00 (25,4)	0.079 (2,0)
M83528/009X013	8861-0160	1.18 (30,0)	0.062 (1,6)

Figure 2.
Hollow Rectangular Strips

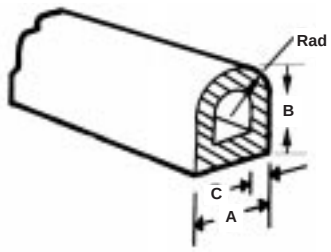


Hollow Rectangular Strips

Part Number	Nominal Dimensions A	Nominal Dimensions B	Nominal Dimensions C
8862-0111	0.060 (1,5)	0.060 (1,5)	0.031 (0,8)
8862-0112	0.125 (3,2)	0.125 (3,2)	0.078 (2,0)
8862-0113	0.200 (5,1)	0.130 (3,3)	0.090 (2,3)
8862-0114	0.250 (6,4)	0.250 (6,4)	0.156 (4,0)
8862-0115	0.303 (7,7)	0.252 (6,4)	0.126 (3,2)
8862-0100	0.330 (8,4)	0.305 (7,7)	0.125 (3,2)
8862-0118	0.350 (8,8)	0.350 (8,9)	0.150 (3,8)
8862-0105	0.375 (9,5)	0.375 (9,5)	0.188 (4,8)
8862-0116	0.375 (9,5)	0.250 (6,4)	0.201 (5,1)
8862-0119	0.375 (9,5)	0.375 (9,5)	0.281 (7,1)
8862-0117	0.375 (9,5)	0.305 (7,7)	0.126 (3,2)
8862-0120	0.402 (10,2)	0.402 (10,2)	0.201 (5,1)
8862-0121	0.413 (10,5)	0.453 (11,5)	0.323 (8,2)
8862-0122	0.425 (10,8)	0.425 (10,8)	0.209 (5,3)

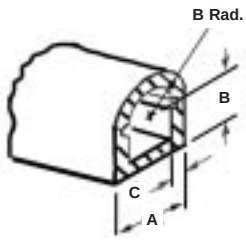
All dimensions shown are in inches (millimeters) unless otherwise specified.

Figure 3a.
Hollow D-Strip



View A

Figure 3b.



View B

Tolerances All Profiles

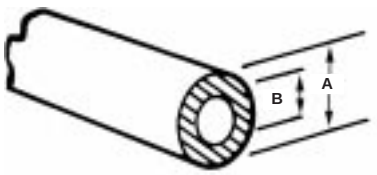
Dimensions	Tolerance
Under 0.101 (2,6)	± 0.005 (0,15)
0.101 to 0.200 (2,6 to 5,1)	± 0.008 (0,2)
0.201 to 0.300 (5,1 to 7,6)	± 0.010 (0,3)
0.301 to 0.500 (7,6 to 12,7)	± 0.015 (0,4)
Over 0.500 (12,7)	± 0.020 (0,5)

Hollow D-Strips

MIL-DTL-83528 Part Number	Part Number	Dimensions				
		A	B	Rad	C	View
	8866-0159	0.059 (1,5)	0.063 (1,6)	0.029 (0,7)	0.012 (0,3)	A
	8866-0080	0.093 (2,4)	0.093 (2,4)	0.046 (1,2)	0.040 (1,0)	A
	8866-0135	0.093 (2,4)	0.093 (2,4)	0.046 (1,2)	0.027 (0,7)	A
	8866-0160	0.098 (2,5)	0.098 (2,5)	0.049 (1,2)	0.020 (0,5)	A
	8866-0130	0.100 (2,5)	0.094 (2,4)	0.050 (1,3)	0.025 (0,6)	A
	8866-0162	0.109 (2,8)	0.125 (3,2)	0.054 (1,4)	0.024 (0,6)	A
	8866-0163	0.146 (3,7)	0.146 (3,7)	0.073 (1,9)	0.016 (0,4)	A
M83528/007X001	8866-0100	0.156 (4,0)	0.156 (4,0)	0.078 (2,0)	0.045 (1,1)	A
	8866-0111	0.156 (4,0)	0.156 (4,0)	0.078 (2,0)	0.027 (0,7)	A
	8866-0161	0.157 (4,0)	0.122 (3,1)	0.078 (2,0)	0.043 (1,1)	A
	8866-0103	0.158 (4,0)	0.240 (6,1)	0.079 (2,0)	0.040 (1,0)	A
	8866-0136	0.160 (4,1)	0.120 (3,0)	0.080 (2,0)	0.025 (0,6)	A
	8866-0164	0.173 (4,4)	0.189 (4,8)	0.086 (2,2)	0.031 (0,8)	A
M83528/007X002	8866-0105	0.187 (4,8)	0.187 (4,8)	0.093 (2,4)	0.050 (1,3)	A
	8866-0165	0.236 (6,0)	0.252 (6,4)	0.012 (0,3)	0.039 (1,0)	A
	8866-0131	0.250 (6,4)	0.145 (3,7)	0.125 (3,2)	0.030 (0,8)	A
	8866-0050	0.250 (6,4)	0.250 (6,4)	0.125 (3,2)	0.050 (1,3)	B
M83528/007X007	8866-0110	0.250 (6,4)	0.250 (6,4)	0.125 (3,2)	0.065 (1,7)	A
	8866-0167	0.295 (7,5)	0.311 (7,9)	0.147 (3,7)	0.039 (1,0)	A
M83528/007X005	8866-0120	0.312 (7,9)	0.312 (7,9)	0.112 (2,8)	0.062 (1,6)	A
M83528/007X004	8866-0116	0.312 (7,9)	0.312 (7,9)	0.156 (4,0)	0.062 (1,6)	B
	8866-0127	0.325 (8,3)	0.575 (14,6)	0.287 (7,3)	0.080 (2,0)	A
	8866-0168	0.358 (9,1)	0.374 (9,5)	0.179 (4,5)	0.039 (1,0)	A
	8866-0166	0.374 (9,5)	0.252 (6,4)	0.187 (4,8)	0.039 (1,0)	A
	8866-0134	0.375 (9,5)	0.250 (6,4)	0.090 (2,3)	0.050 (1,3)	B
	8866-0137	0.375 (9,5)	0.250 (6,4)	0.187 (4,8)	0.032 (0,8)	A
	8866-0169	0.421 (10,7)	0.427 (10,8)	0.210 (5,3)	0.039 (1,0)	A
	8866-0126	0.480 (12,2)	0.335 (8,5)	0.240 (6,1)	0.035 (0,9)	A
M83528/007X006	8866-0125	0.487 (12,4)	0.324 (8,2)	0.244 (6,2)	0.062 (1,6)	A
	8866-0148	0.488 (12,4)	0.312 (7,9)	0.244 (6,2)	0.055 (1,4)	A
	8866-0139	0.488 (12,4)	0.324 (8,2)	0.244 (6,2)	0.063 (1,6)	A
	8866-0129	0.500 (12,7)	0.312 (7,9)	0.250 (6,4)	0.050 (1,3)	A
	8866-0061	0.575 (14,6)	0.325 (8,3)	0.078 (2,0)	0.043 (1,1)	A
	8866-0155	0.625 (15,9)	0.400 (10,2)	0.312 (7,9)	0.057 (1,4)	A

All dimensions shown are in inches (millimeters) unless otherwise specified.

Figure 4.
O-Strip Tubing



Tolerances All Profiles

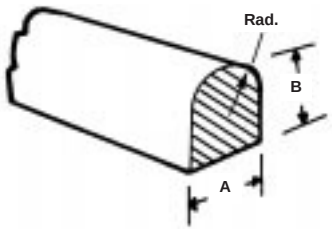
Dimensions	Tolerance
Under 0.101 (2,6)	± 0.005 (0,15)
0.101 to 0.200 (2,6 to 5,1)	± 0.008 (0,2)
0.201 to 0.300 (5,1 to 7,6)	± 0.010 (0,3)
0.301 to 0.500 (7,6 to 12,7)	± 0.015 (0,4)
Over 0.500 (12,7)	± 0.020 (0,5)

O-Strip Tubing

MIL-DTL-85328 Part Number	Part Number	Nominal Dimensions	
		A	B
	8864-0136	0.085 (2,2)	0.035 (0,9)
	8864-0060	0.085 (2,2)	0.040 (1,0)
	8864-0173	0.085 (2,2)	0.050 (1,3)
	8864-0156	0.090 (2,3)	0.040 (1,0)
	8864-0161	0.090 (2,3)	0.045 (1,1)
	8864-0090	0.090 (2,3)	0.050 (1,3)
M83528/011X007	8864-0095	0.103 (2,6)	0.040 (1,0)
	8864-0142	0.103 (2,6)	0.050 (1,3)
	8864-0172	0.110 (2,8)	0.062 (1,6)
	8864-0153	0.115 (2,9)	0.062 (1,6)
M83528/011X001	8864-0100	0.125 (3,2)	0.045 (1,1)
M83528/011X006	8864-0101	0.125 (3,2)	0.062 (1,6)
	8864-0102	0.130 (3,3)	0.062 (1,6)
	8864-0104	0.145 (3,7)	0.070 (1,8)
	8864-0171	0.149 (3,8)	0.125 (3,2)
M83528/011X002	8864-0105	0.156 (4,0)	0.050 (1,3)
	8864-0163	0.156 (4,0)	0.062 (1,6)
	8864-0139	0.168 (4,3)	0.069 (1,8)
	8864-0162	0.177 (4,5)	0.092 (2,3)
M83528/011X008	8864-0143	0.177 (4,5)	0.079 (2,0)
	8864-0168	0.188 (4,8)	0.120 (3,0)
	8864-0147	0.216 (5,5)	0.125 (3,2)
	8864-0167	0.228 (5,8)	0.169 (4,3)
M83528/011X003	8864-0110	0.250 (6,4)	0.125 (3,2)
	8864-0160	0.312 (7,9)	0.188 (4,8)
M83528/011X004	8864-0120	0.312 (7,9)	0.192 (4,9)
	8864-0144	0.330 (8,4)	0.250 (6,4)
	8864-0050	0.375 (9,5)	0.235 (6,0)
M83528/011X005	8864-0125	0.375 (9,5)	0.250 (6,4)
	8864-0127	0.400 (10,2)	0.200 (5,1)
	8864-0170	0.422 (10,7)	0.319 (8,1)
	8864-0166	0.490 (12,4)	0.414 (10,5)
	8864-0140	0.513 (13,0)	0.190 (4,8)
	8864-0135	0.513 (13,0)	0.438 (11,1)
	8864-0055	0.550 (14,0)	0.447 (11,4)
	8864-0159	0.623 (15,8)	0.366 (9,3)
	8864-0053	0.630 (16,0)	0.375 (9,5)

All dimensions shown are in inches (millimeters) unless otherwise specified.

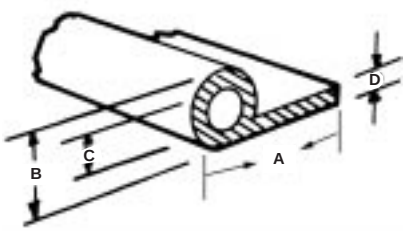
Figure 5.
D-Strips



D-Strips

MIL-DTL-83528 Part Number	Part Number	Dimensions			Recommended Groove Dimensions (±0.002)	
		A	B	Rad	Width	Depth
	8865-0100	0.055 (1,4)	0.064 (1,6)	0.031 (0,8)	0.067 (1,7)	0.053 (1,3)
MB83528/003X001	8865-0105	0.062 (1,6)	0.068 (1,7)	0.031 (0,8)	0.074 (1,9)	0.057 (1,4)
MB83528/003X005	8865-0120	0.062 (1,6)	0.100 (2,5)	0.031 (0,8)	0.076 (1,9)	0.084 (2,1)
MB83528/003X010	8865-0140	0.075 (1,9)	0.178 (4,5)	0.089 (2,3)	0.093 (2,4)	0.150 (3,8)
MB83528/003X004	8865-0116	0.093 (2,4)	0.093 (2,4)	0.047 (1,2)	0.109 (2,8)	0.077 (2,0)
MB83528/003X002	8865-0110	0.094 (2,4)	0.078 (2,0)	0.047 (1,2)	0.109 (2,8)	0.065 (1,7)
MB83528/003X008	8865-0135	0.118 (3,0)	0.156 (4,0)	0.059 (1,5)	0.140 (3,6)	0.131 (3,3)
MB83528/003X007	8865-0130	0.122 (3,1)	0.135 (3,4)	0.061 (1,5)	0.141 (3,6)	0.113 (2,9)
MB83528/003X006	8865-0125	0.150 (3,8)	0.110 (2,8)	0.075 (1,9)	0.165 (4,2)	0.092 (2,3)
MB83528/003X009	8865-0136	0.156 (4,0)	0.156 (4,0)	0.078 (2,0)	0.180 (4,6)	0.131 (3,3)
MB83528/003X003	8865-0115	0.178 (4,5)	0.089 (2,3)	0.039 (1,0)	0.182 (4,3)	0.074 (1,9)
MB83528/003X011	8865-0144	0.188 (4,8)	0.188 (4,8)	0.094 (2,4)	0.220 (5,6)	0.160 (4,1)
MB83528/003X012	8865-0145	0.250 (6,4)	0.250 (6,4)	0.125 (3,2)	0.286 (7,3)	0.212 (5,4)

Figure 6.
P-Strips



P-Strips

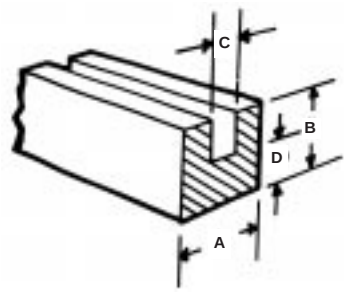
MIL-DTL-83528 Part Number	Part Number	Dimensions			
		A	B	C	D
	8867-0152	0.250 (6,4)	0.125 (3,2)	0.079 (2,0)	0.040 (1,0)
	8867-0149	0.252 (6,4)	0.039 (1,0)	0.028 (0,7)	0.016 (0,4)
	8867-0150	0.252 (6,4)	0.063 (1,6)	0.031 (0,8)	0.016 (0,4)
	8867-0151	0.252 (6,4)	0.079 (2,0)	0.035 (0,9)	0.016 (0,4)
	8867-0136	0.275 (7,0)	0.140 (3,6)	0.085 (2,2)	0.030 (0,8)
	8867-0147	0.290 (7,4)	0.095 (2,4)	0.062 (1,6)	0.025 (0,6)
	8867-0156	0.374 (9,5)	0.252 (6,4)	0.150 (3,8)	0.063 (1,6)
	8867-0153	0.375 (9,5)	0.187 (4,8)	0.131 (3,3)	0.040 (1,0)
	8867-0148	0.375 (9,5)	0.125 (3,2)	0.045 (1,1)	0.062 (1,6)
	8867-0144	0.390 (9,9)	0.200 (5,1)	0.103 (2,6)	0.062 (1,6)
	8867-0128	0.415 (10,5)	0.200 (5,1)	0.060 (1,5)	0.062 (1,6)
	8867-0141	0.425 (10,8)	0.250 (6,4)	0.151 (3,8)	0.050 (1,3)
M83528/008X007	8867-0101	0.475 (12,1)	0.200 (5,1)	0.080 (2,0)	0.062 (1,6)
	8867-0135	0.480 (12,2)	0.200 (5,1)	0.080 (2,0)	0.062 (1,6)
	8867-0154	0.500 (12,7)	0.189 (4,8)	0.126 (3,2)	0.063 (1,6)
	8867-0127	0.500 (12,7)	0.200 (5,1)	0.076 (1,9)	0.062 (1,6)
M83528/008X002	8867-0105	0.500 (12,7)	0.250 (6,4)	0.125 (3,2)	0.062 (1,6)
	8867-0132	0.500 (12,7)	0.250 (6,4)	0.150 (3,8)	0.062 (1,6)
	8867-0157	0.500 (12,7)	0.250 (6,4)	0.194 (4,9)	0.050 (1,3)
	8867-0159	0.563 (14,3)	0.312 (7,9)	0.186 (4,7)	0.063 (1,6)
	8867-0126	0.600 (15,2)	0.250 (6,4)	0.125 (3,2)	0.062 (1,6)
M83528/008X003	8867-0110	0.625 (15,9)	0.250 (6,4)	0.125 (3,2)	0.062 (1,6)
M83528/008X004	8867-0120	0.625 (15,9)	0.250 (6,4)	0.150 (3,8)	0.062 (1,6)
	8867-0161	0.626 (15,9)	0.375 (9,5)	0.295 (7,5)	0.055 (1,4)
	8867-0142	0.630 (16,0)	0.200 (5,1)	0.080 (2,0)	0.062 (1,6)
	8867-0102	0.640 (16,3)	0.208 (5,3)	0.080 (2,0)	0.072 (1,8)
	8867-0155	0.650 (16,5)	0.201 (5,1)	0.079 (2,0)	0.063 (1,6)
	8867-0160	0.748 (19,0)	0.354 (9,0)	0.228 (5,8)	0.063 (1,6)
	8867-0140	0.750 (19,1)	0.250 (6,4)	0.187 (4,8)	0.062 (1,6)
	8867-0158	0.752 (19,1)	0.252 (6,4)	0.189 (4,8)	0.063 (1,6)
	8867-0163	0.752 (19,1)	0.392 (10,0)	0.312 (7,9)	0.045 (1,1)
	8867-0165	0.752 (19,1)	0.437 (11,1)	0.347 (8,8)	0.060 (1,5)
M83528/008X006	8867-0130	0.780 (19,8)	0.360 (9,1)	0.255 (6,5)	0.070 (1,8)
M83528/008X001	8867-0100	0.850 (21,6)	0.200 (5,1)	0.080 (2,0)	0.062 (1,6)
	8867-0166	0.874 (22,2)	0.500 (12,7)	0.400 (10,2)	0.065 (1,7)
M83528/008X008	8867-0137	0.875 (22,2)	0.250 (6,4)	0.125 (3,2)	0.062 (1,6)
M83528/008X005	8867-0125	0.875 (22,2)	0.312 (7,9)	0.187 (4,8)	0.062 (1,6)
	8867-0162	1.000 (25,4)	0.374 (9,5)	0.255 (6,5)	0.063 (1,6)
	8867-0164	1.043 (26,5)	0.433 (11,0)	0.307 (7,8)	0.063 (1,6)

Tolerances All Profiles

Dimensions	Tolerance
Under 0.101 (2,6)	± 0.005 (0,15)
0.101 to 0.200 (2,6 to 5,1)	± 0.008 (0,2)
0.201 to 0.300 (5,1 to 7,6)	± 0.010 (0,3)
0.301 to 0.500 (7,6 to 12,7)	± 0.015 (0,4)
Over 0.500 (12,7)	± 0.020 (0,5)

All dimensions shown are in inches (millimeters) unless otherwise specified.

Figure 7.
Channel Strips



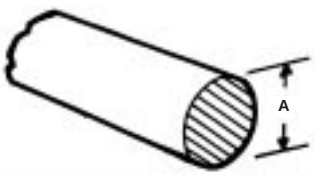
Tolerances All Profiles

Dimensions	Tolerance
Under 0.101 (2,6)	± 0.005 (0,15)
0.101 to 0.200 (2,6 to 5,1)	± 0.008 (0,2)
0.201 to 0.300 (5,1 to 7,6)	± 0.010 (0,3)
0.301 to 0.500 (7,6 to 12,7)	± 0.015 (0,4)
Over 0.500 (12,7)	± 0.020 (0,5)

Channel Strips

MIL-DTL-83528 Part Number	Part Number	Dimensions			
		A	B	C	D
M83528/010X001	8868-0100	0.100 (2,5)	0.100 (2,5)	0.034 (0,9)	0.033 (0,8)
	8868-0076	0.110 (2,8)	0.126 (3,2)	0.026 (0,7)	0.060 (1,5)
	8868-0055	0.114 (2,9)	0.082 (2,1)	0.030 (0,8)	0.026 (0,7)
	8868-0104	0.126 (3,2)	0.078 (2,0)	0.048 (1,2)	0.039 (1,0)
M83528/010X002	8868-0105	0.126 (3,2)	0.110 (2,8)	0.025 (0,6)	0.050 (1,3)
	8868-0077	0.126 (3,2)	0.157 (4,0)	0.053 (1,3)	0.028 (0,7)
M83528/010X003	8868-0110	0.126 (3,2)	0.225 (5,7)	0.020 (0,5)	0.075 (1,9)
	8868-0066	0.140 (3,6)	0.161 (4,1)	0.040 (1,0)	0.081 (2,1)
	8868-0060	0.145 (3,7)	0.090 (2,3)	0.050 (1,3)	0.045 (1,1)
	8868-0056	0.156 (4,0)	0.114 (2,9)	0.030 (0,8)	0.062 (1,6)
M83528/010X004	8868-0115	0.156 (4,0)	0.156 (4,0)	0.062 (1,6)	0.047 (1,2)
	8868-0078	0.156 (4,0)	0.156 (4,0)	0.076 (1,9)	0.046 (1,2)
	8868-0079	0.157 (4,0)	0.189 (4,8)	0.063 (1,6)	0.063 (1,6)
	8868-0080	0.157 (4,0)	0.190 (4,8)	0.059 (1,5)	0.048 (1,2)
	8868-0083	0.157 (4,0)	0.197 (5,0)	0.055 (1,4)	0.091 (2,3)
	8868-0067	0.175 (4,4)	0.500 (12,7)	0.047 (1,2)	0.075 (1,9)
M83528/010X005	8868-0120	0.175 (4,4)	0.156 (4,0)	0.047 (1,2)	0.075 (1,9)
	8868-0081	0.189 (4,8)	0.189 (4,8)	0.063 (1,6)	0.063 (1,6)
	8868-0082	0.189 (4,8)	0.189 (4,8)	0.072 (1,8)	0.070 (1,8)
	8868-0072	0.220 (5,6)	0.158 (4,0)	0.094 (2,4)	0.032 (0,8)
	8868-0084	0.250 (6,4)	0.250 (6,4)	0.062 (1,6)	0.062 (1,6)
	8868-0085	0.252 (6,4)	0.252 (6,4)	0.126 (3,2)	0.063 (1,6)
M83528/010X006	8868-0125	0.327 (8,3)	0.235 (6,0)	0.062 (1,6)	0.115 (2,9)
	8868-0086	0.374 (9,5)	0.374 (9,5)	0.157 (4,0)	0.079 (2,0)
	8868-0070	0.395 (1,0)	0.120 (3,0)	0.275 (7,0)	0.060 (1,5)
	8868-0075	0.530 (13,5)	0.130 (3,3)	0.390 (9,9)	0.060 (1,5)

Figure 8.
O-Strips



O-Strips

MIL-DTL-85328 Part Number	Part Number		Recommended Groove Dimensions (±0.002)	
		A	Width	Height
	8863-0184	0.032 (0,8)	0.036 (0,9)	0.026 (0,7)
M83528/001X001	8863-0100	0.040 (1,0)	0.045 (1,1)	0.032 (0,8)
	8863-0186	0.046 (1,2)	0.050 (1,3)	0.036 (0,9)
M83528/001X002	8863-0105	0.053 (1,3)	0.059 (1,5)	0.042 (1,1)
	8863-0187	0.057 (1,4)	0.062 (1,6)	0.048 (1,2)
M83528/001X003	8863-0110	0.062 (1,6)	0.066 (1,7)	0.050 (1,3)
M83528/001X004	8863-0115	0.070 (1,8)	0.076 (1,9)	0.056 (1,4)
M83528/001X005	8863-0120	0.080 (2,0)	0.086 (2,2)	0.064 (1,6)
M83528/001X006	8863-0125	0.093 (2,4)	0.100 (2,5)	0.074 (1,9)
	8863-0196	0.098 (2,5)	0.105 (2,7)	0.078 (2,0)
M83528/001X007	8863-0130	0.103 (2,6)	0.110 (2,8)	0.082 (2,1)
	8863-0135	0.112 (2,8)	0.119 (3,0)	0.089 (2,3)
M83528/001X008	8863-0140	0.119 (3,0)	0.126 (3,2)	0.095 (2,4)
M83528/001X009	8863-0145	0.125 (3,2)	0.133 (3,4)	0.100 (2,5)
	8863-0150	0.130 (3,3)	0.137 (3,5)	0.104 (2,6)
M83528/001X010	8863-0160	0.139 (3,5)	0.147 (3,7)	0.111 (2,8)
	8863-0165	0.150 (3,8)	0.158 (4,0)	0.120 (3,0)
	8863-0170	0.160 (4,1)	0.168 (4,3)	0.128 (3,3)
	8863-0197	0.186 (4,7)	0.197 (5,0)	0.149 (3,8)
M83528/001X011	8863-0183	0.188 (4,8)	0.200 (5,1)	0.150 (3,8)
	8863-0198	0.194 (4,9)	0.209 (5,3)	0.156 (4,0)
	8863-0199	0.197 (5,0)	0.210 (5,3)	0.158 (4,0)
M83528/001X0012	8863-0175	0.216 (5,5)	0.229 (5,8)	0.173 (4,4)
M83528/001X013	8863-0180	0.250 (6,4)	0.267 (6,8)	0.200 (5,1)
	8863-0200	0.256 (6,5)	0.274 (7,0)	0.205 (5,2)
	8863-0201	0.312 (7,9)	0.337 (8,6)	0.250 (6,4)
	8863-0202	0.374 (9,5)	0.400 (10,2)	0.300 (7,6)

All dimensions shown are in inches (millimeters) unless otherwise specified.