

Conductive Elastomer Waveguide Gaskets



WAVEGUIDE GASKETS

Parker Chomerics offers a selection of EMI gasket materials that provide effective EMI shielding and pressure sealing for choke, cover and contact flanges. Parker Chomerics waveguide gaskets ensure low insertion loss, low flange leakage, maximum heat transfer and minimum out gassing. Made from CHO-SEAL 1239 and 1212 conductive elastomers, the gaskets are reusable and will not scar flanges.

Cover flange and flat contact flange gaskets are die-cut from silver-plated copper filled silicone CHO-SEAL 1239 sheet stock 0.027 in. (0.69 mm) thick, ± 0.005 in. (0.13 mm). Containing an expanded metal reinforcement to eliminate cold flow, these gaskets can be supplied with a slightly raised lip around the iris opening for high-pressure, high-power applications.

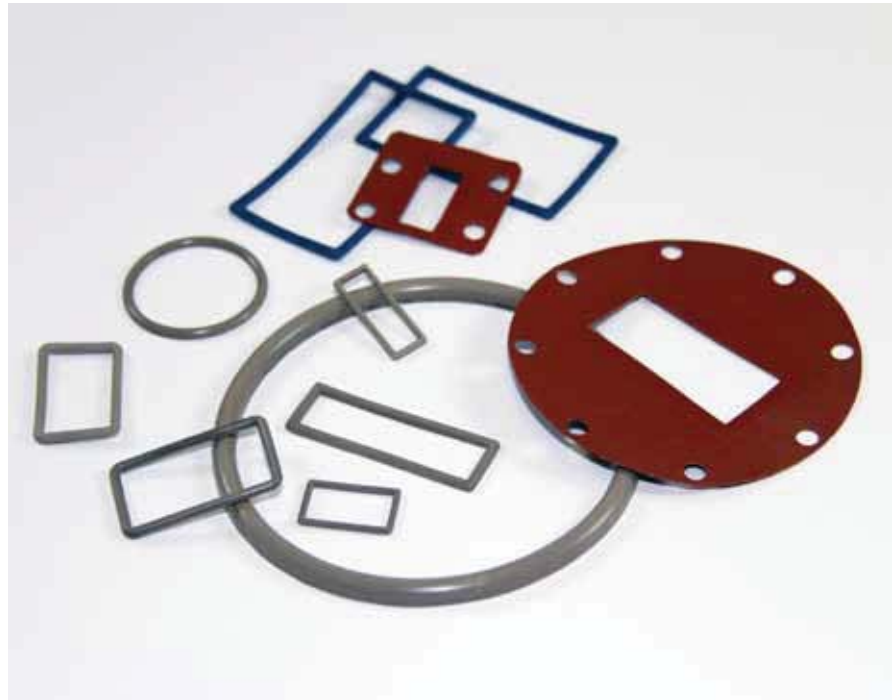
Choke flange and grooved contact flange gaskets are molded from CHO-SEAL 1212 silver-filled silicone elastomer material, and are available with O- or D-cross sections. Properties of CHO-SEAL 1212 and 1239 materials are shown in Table 1. For applications in outdoor environments, contact Parker Chomerics Applications Engineering to discuss other materials, e.g., CHO-SEAL 1285 or 6502.

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STANDARD WAVEGUIDE GASKETS

The gaskets listed in the following tables will fit the standard UG, CPR, and CMR flanges shown. The number 1 through 6 listed in the "gasket configuration" column of the tables indicate the style of gasket, as follows:

- 1 - Die-Cut rectangular
- 2 - Die-Cut circular
- 3 - Molded rectangular, with "O" cross section
- 4 - Molded circular, with "O" cross section (O-rings)
- 5 - Molded circular, with "D" cross section (D-rings)
- 6 - Molded rectangular, with "D" cross section

Gaskets can also be custom designed to meet special requirements or less frequently used waveguide sizes (from WR 10 to WR 2300) and double-ridged waveguide.

Waveguide Gasket - Product Information

Table 1

SPECIFICATIONS			CHO-SEAL 1212	CHO-SEAL 1239	
Type (Ref: MIL-DTL-83528)			K	G	
Volume Resistivity ohm-cm, max) as supplied (without pressure-sensitive adhesive)			0.005	0.007	
Hardness (Shore A ±7)			85	80	
Specific Gravity			3.5 ±0.45	4.75 ±0.75	
Tensile Strength, psi (Mpa), min.			400 (2.76)	600 (4.14)	
Elongation (percent, min/max)			100 / 300	20 / NA	
Tear Strength, lb/in. (kN/m), min.			40 (7.00)	70 (12.25)	
Compression Set, 70 hrs. @ 100°C, % max.			35	Not Tested	
Low Temperature Flex, TR10, °C, min.			-45	Not Tested	
Maximum Continuous Use Temperature, °C			125	125	
Shielding	200 kHz (H Field)		dB, min.	70	70
	100 MHz (E Field)			120	110
	500 MHz (E Field)			120	110
	2 GHz (Plane Wave)			120	110
	10 GHz (Plane Wave)			120	110
Electrical Stability	Heat Aging		ohm-cm, max.	0.010	0.010
	Vibration Resistance	During		0.010	0.007
		After		0.005	NA
	Post Tensile Set Volume Resistivity			0.010	NA
EMP Survivability (kA per in. perimeter)			>0.9	>0.9	

NA = Not Applicable

Typical materials shown here, contact Parker Chomerics Applications Engineering for others.

ORDERING PROCEDURE

For standard gaskets, select the part number from Tables 2-8. For custom configurations, gasket and waveguide flange drawings must be provided, and part numbers will be assigned by Parker Chomerics.

Waveguide Gasket - Product Information

Refer to Tables 3-8 on the following pages for Waveguide Gasket dimensions.

Table 2 Use Table 2 to select part numbers.

WAVEGUIDE GASKETS										
Frequency Range (GHz)	Band	EIA Waveguide Size	JAN Designation	Flange Description			Flange Type	Gasket Configuration*	Chomerics Part Number	Mil P/N: [†] M83528/ 013 []-()
				UG	CPR	CMR				
26.5 → 40.0	Ka	WR28	RG-96/U (Silver)	UG-599/U			Cover	1	20-01-5000-1239**	[G]-{001}
				UG-600A/U			Choke	5	20-02-6510-1212	[K]-{002}
18.0 → 26.5	K	WR42	RG-53/U (Brass) RG-121/U (Aluminum)	UG-595/U UG-597/U			Cover	1	20-01-5005-1239**	[G]-{003}
				UG-596A/U UG-598A/U			Choke	5	20-02-6515-1212	[K]-{004}
12.4 → 18.0	Ku	WR62	RG-91/U (Brass) RG-107/U (Silver)	UG-419/U			Cover	1	20-01-5010-1239**	[G]-{005}
				UG-541A/U			Choke	5	20-02-6520-1212	[K]-{006}
10.0 → 15.0		WR75					Cover Choke	1 5	20-11-1683-1239 20-02-6525-1212	[G]-{007} [K]-{008}
							Cover	1	20-11-5015-1239	[G]-{009}
8.2 → 12.4	X	WR90	RG-52/U (Brass) RG-67/U (Aluminum)	UG-39/U UG-135/U			Cover	1	20-11-5015-1239	[G]-{009}
				UG-1736/U UG-1737/U	CPR-90F		Flat Contact	1	20-01-5115-1239**	[G]-{010}
				UG-136A/U UG-40A/U			Choke	5	20-02-6531-1212	[K]-{011}
				UG-136B/U UG-40B/U			Choke	5	20-02-6530-1212	[K]-{012}
				UG-1360/U UG-1361/U	CPR-90G		Contact	3	20-03-6630-1212	[K]-{013}
7.0 → 11.0		WR102		UG-149A/U			Choke	5	20-02-6535-1212	[K]-{014}
7.05 → 10.0	X _i	WR112	RG-51/U (Brass) RG-68/U (Aluminum)	UG-51/U UG-138/U			Cover	1	20-11-5020-1239	[G]-{015}
				UG-1734/U UG-1735/U	CPR-112F		Flat Contact	1	20-01-5120-1239**	[G]-{016}
				UG-52B/U UG-137B/U			Choke	5	20-02-6540-1212	[K]-{017}
				UG-1358/U UG-1359/U	CPR-112G CPR-112G/F		Contact Choke/Flat	3 6	20-03-6635-1212 20-03-3686-1212	[K]-{018} —
5.85 → 8.2	X _b	WR137	RG-50/U (Brass) RG-106/U (Aluminum)	UG-344/U UG-441/U			Cover	2	20-11-5025-1239	[G]-{019}
				UG-1732/U UG-1733/U	CPR-137F		Flat Contact	1	20-01-5125-1239**	[G]-{020}
						CMR-137	Flat Contact	1	20-01-5225-1239**	[G]-{021}
				UG-343B/U UG-440B/U			Choke	4	20-02-6545-1212	[K]-{022}
				UG-1356/U UG-1357/U	CPR-137G CPR-137G/F		Contact Choke/Flat	3 6	20-03-6645-1212 20-03-3731-1212	[K]-{023} —

* Number corresponds to configuration type, Tables 3-8

** This gasket will seal a maximum pressure of 20 psi. For systems pressurized above this limit, a high-pressure (raised-lip) version is available. To specify, change 3rd digit in Part Number from 0 to 1.

[†] Letter in bracket is MIL-DTL-83528 material type (G or K). Number in parentheses is MIL-DTL-83528 dash number. Insert them (without brackets or parentheses) to complete MIL P/N.

[‡] Modified "O" cross section

[¶] Modified "D" cross section

Waveguide Gasket - Product Information

Table 2 (continued)

WAVEGUIDE GASKETS										
Frequency Range (GHz)	Band	EIA Waveguide Size	JAN Designation	Flange Description			Flange Type	Gasket Configuration*	Chomerics Part Number	Mil P/N: [†] M83528/ 013 []-()
				UG	CPR	CMR				
4.9 → 7.05		WR159		UG-1730/U UG-1731/U	CPR-159F		Flat Contact	1	20-01-5130-1239**	[G]-(024)
						CMR-159	Flat Contact	1	20-01-5230-1239**	[G]-(025)
					CPR-159G		Choke	3	20-03-L767-1212	—
					CPR-159G/F		Choke/Flat	6	20-03-3980-1212	—
3.95 → 5.85	C	WR187	RG-49/U (Brass)	UG-149A/U UG-407/U			Cover	2	20-11-5035-1239	[G]-(026)
				UG-1728/U UG-1729/U	CPR-187F		Flat Contact	1	20-01-5135-1239**	[G]-(027)
			RG-95/U (Aluminum)			CMR-187	Flat Contact	1	20-01-5235-1239**	[G]-(028)
				UG-148C/U UG-406B/U			Choke	4	20-02-6555-1212	[K]-(029)
				UG-1352/U UG-1353/U	CPR-187G		Contact	3	20-03-6655-1212	[K]-(030)
					CPR-187G/F		Choke/Flat	6 ^{†††}	20-03-3561-1212	—
3.30 → 4.90		WR229		UG-1726/U UG-1727/U	CPR-229F		Flat Contact	1	20-01-5140-1239**	[G]-(031)
						CMR-229	Flat Contact	1	20-01-5240-1239**	[G]-(032)
					CPR-229G		Choke	3	20-03-L768-1212	—
2.6 → 3.95	S	WR284	RG-48/U (Brass)	UG-53/U UG-584/U			Cover	2	20-01-5045-1239**	[G]-(033)
				UG-1724/U UG-1725/U	CPR-284F		Flat Contact	1	20-01-5145-1239**	[G]-(034)
			RG-75/U (Aluminum)			CMR-284	Flat Contact	1	20-01-5245-1239**	[G]-(035)
				UG-54B/U UG-585A/U			Choke	5	20-02-6565-1212	[K]-(036)
				UG-1348/U UG-1349/U	CPR-284G		Contact	3	20-03-6665-1212	[K]-(037)
2.2 → 3.3		WR340	RG-112/U (Brass) RG-112/U (Aluminum)	UG-533/U UG-554/U			Flat Contact	1	20-01-5050-1239**	[G]-(038)
					CPR-340F		Flat Contact	1	20-01-5150-1239**	[G]-(039)
1.7 → 2.6	W	WR430	RG-104/U (Brass) RG-105/U (Aluminum)	UG-435A/U UG-437A/U			Flat Contact	1	20-01-5055-1239**	[G]-(040)
					CPR-430F		Flat Contact	1	20-01-5155-1239**	[G]-(041)
					CPR-430G		Choke	3 ^{††}	20-03-1560-1212	—
					CPR-430G/F		Choke/Flat	6 ^{†††}	20-03-6685-1212	—
1.12 → 1.7	L	WR650	RG-69/U (Brass) RG-103/U (Aluminum)	UG-417A/U UG-418A/U			Flat Contact	1	20-01-5060-1239**	[G]-(042)

* Number corresponds to configuration type, Tables 3-8

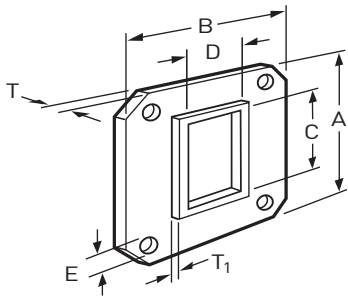
** This gasket will seal a maximum pressure of 20 psi. For systems pressurized above this limit, a high-pressure (raised-lip) version is available. To specify, change 3rd digit in Part Number from 0 to 1.

[†] Letter in bracket is MIL-DTL-83528 material type (G or K). Number in parentheses is MIL-DTL-83528 dash number. Insert them (without brackets or parentheses) to complete MIL P/N.

^{††} Modified "O" cross section

^{†††} Modified "D" cross section

Waveguide Gasket - Product Information



Note: Raised portion will have a nominal width of 0.187 in. [4.75 mm]. Thickness [T₁] is 0.004 in. [0.10 mm] ± 0.002 in. [0.05 mm]. This raised area applies only to part number with a third digit of "1"

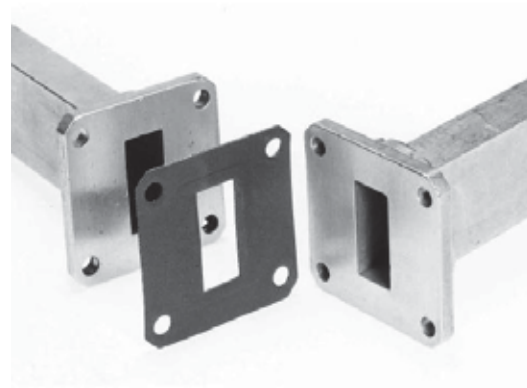


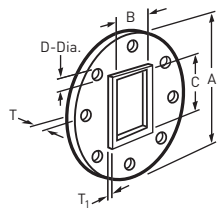
Table 3

CONFIGURATION 1 - DIE-CUT RECTANGULAR							
Dimensions inches (mm)						MIL P/N: [†] M83528/ 013G-()	Chomerics P/N**
A	B	C	D	E*	T		
±0.015 (0.38)	±0.015 (0.38)	±0.015 (0.38) - 0.000		±0.010 (0.25)	±0.003 (0.08)		
1.496 (38.00)	1.496 (38.00)	0.760 (19.30)	0.385 (9.78)	0.155 (3.94)	0.027 (0.69)	007	20-11-1683-1239
0.750 (19.05)	0.750 (19.05)	0.145 (3.68)	0.285 (7.24)	0.116 (2.95)	0.027 (0.69)	001	20-01-5000-1239
0.875 (22.23)	0.875 (22.23)	0.175 (4.45)	0.425 (10.80)	0.116 (2.95)	0.027 (0.69)	003	20-01-5005-1239
1.313 (33.35)	1.313 (33.35)	0.630 (16.00)	0.320 (8.13)	0.140 (3.56)	0.027 (0.69)	005	20-01-5010-1239
1.625 (41.28)	1.625 (41.28)	0.905 (22.99)	0.405 (10.29)	0.169 (4.29)	0.027 (0.69)	009	20-01-5015-1239
1.875 (47.63)	1.875 (47.63)	1.130 (28.70)	0.505 (12.83)	0.180 (4.57)	0.027 (0.69)	015	20-11-5020-1239
3.750 (92.25)	5.440 (138.18)	1.710 (43.43)	3.410 (86.61)	0.264 (6.71) 0.250 (6.35)	0.027 (0.69)	038	20-01-5050-1239
4.188 (106.38)	6.344 (161.14)	2.160 (54.86)	4.310 (109.47)	0.266 (6.76) 0.281 (7.14)	0.027 (0.69)	040	20-01-5055-1239
5.438 (138.13)	8.688 (220.68)	3.260 (82.80)	6.510 (165.35)	0.250 (6.35) 0.328 (8.33)	0.027 (0.69)	042	20-01-5060-1239
1.594 (40.49)	2.094 (53.19)	0.405 (10.29)	0.905 (22.99)	0.169 (4.29)	0.027 (0.69)	010	20-01-5115-1239
1.750 (44.45)	2.500 (63.50)	0.505 (12.83)	1.130 (28.70)	0.171 (4.34)	0.027 (0.69)	016	20-01-5120-1239
1.937 (49.20)	2.687 (68.25)	0.633 (16.08)	1.380 (35.05)	0.206 (5.23)	0.027 (0.69)	020	20-01-5125-1239
2.438 (61.93)	3.188 (80.98)	0.805 (20.45)	1.600 (40.64)	0.257 (6.53)	0.027 (0.69)	024	20-01-5130-1239
3.500 (88.90)	2.500 (63.50)	1.880 (47.75)	0.880 (22.35)	0.266 (6.76)	0.027 (0.69)	027	20-01-5135-1239
2.750 (69.85)	3.875 (98.43)	1.155 (29.34)	2.300 (58.42)	0.270 (6.86)	0.027 (0.69)	031	20-01-5140-1239
4.50 (114.30)	3.000 (76.20)	2.850 (72.39)	1.350 (34.29)	0.266 (6.76)	0.027 (0.69)	034	20-01-5145-1239
3.750 (95.25)	5.438 (138.13)	1.710 (43.43)	3.410 (86.61)	0.266 (6.76)	0.027 (0.69)	039	20-01-5150-1239
6.344 (161.14)	4.188 (106.38)	4.310 (109.47)	2.160 (54.86)	0.266 (6.76)	0.027 (0.69)	041	20-01-5155-1239
1.531 (38.89)	2.281 (57.94)	0.632 (16.05)	1.382 (35.10)	0.150 (3.81)	0.027 (0.69)	021	20-01-5225-1239
1.750 (44.45)	2.500 (63.50)	0.800 (20.32)	1.600 (40.64)	0.160 (4.06) 0.150 (3.81)	0.027 (0.69)	025	20-01-5230-1239
1.784 (45.31)	2.781 (70.64)	0.882 (22.40)	1.882 (47.80)	0.156 (3.96) 0.141 (3.58)	0.027 (0.69)	028	20-01-5235-1239
2.000 (50.80)	3.156 (80.16)	1.155 (29.34)	2.300 (58.42)	0.150 (3.81)	0.027 (0.69)	032	20-01-5240-1239
3.844 (37.64)	2.344 (59.54)	2.850 (72.39)	1.350 (34.29)	0.172 (4.37) 0.188 (4.78)	0.027 (0.69)	028	20-01-5245-1239

* Hole locations conform to holes in standard waveguide flanges identified in Table 2. Where two hole diameters are given, flange has hole of two different diameters.

[†] Number in parentheses is MIL-DTL-83528 dash number, which should be inserted (without parentheses) at end of MIL P/N.

Waveguide Gasket - Product Information



Note: Raised portion will have a nominal width of 0.187 in. (4.75 mm). Thickness (T₁) is 0.004 in. (0.10 mm) ±0.002 in. (0.05 mm). This raised area applies only to part number with a third digit of "1".

Table 4

CONFIGURATION 2 - DIE-CUT CIRCULAR						
Dimensions inches (mm)					MIL P/N: M83528/ 013G () ¹	Chomerics P/N
A	B	C	D	T		
±0.015 (0.38)	±0.015 (0.38) - 0.000	±0.010 (0.38)	±0.003 (0.08)			
3.125 (79.38)	0.632 (16.05)	1.382 (35.10)	0.234 (5.94)	0.027 (0.69)	019	20-11-5025-1239
3.625 (92.08)	0.882 (22.40)	1.882 (47.80)	0.234 (5.94)	0.027 (0.69)	026	20-11-5035-1239
5.312 (134.93)	1.350 (34.29)	2.850 (72.39)	0.290 (7.37)	0.027 (0.69)	033	20-01-5045-1239

* Hole locations conform to holes in standard waveguide flanges identified in Table 2.

¹ Number in parentheses is MIL-DTL-83528 dash number, which should be inserted (without parentheses) at end of MIL P/N.

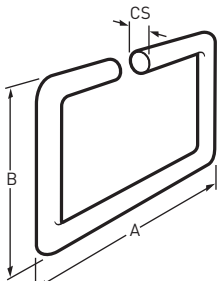


Table 5

CONFIGURATION 3 - MOLDED RECTANGULAR WITH "O" CROSS SECTION					
Dimensions inches (mm)				MIL P/N: M83528/ 013K-() ¹	Chomerics P/N
A	B	CS	H		
1.368 (34.75)	0.868 (22.05)	0.103 (2.62)	—	013	20-03-6630-1212
1.616 (41.05)	0.991 (25.17)	0.103 (2.62)	—	018	20-03-6635-1212
1.866 (47.40)	1.116 (28.35)	0.103 (2.62)	—	023	20-03-6645-1212
2.449 (62.20)	1.449 (36.80)	0.139 (3.53)	—	030	20-03-6655-1212
3.451 (87.66)	1.951 (49.56)	0.139 (3.53)	—	037	20-03-6665-1212
2.167 (55.04)	1.372 (34.85)	0.139 (3.53)	—	NA	20-03-L767-1212
2.867 (72.82)	1.722 (43.74)	0.139 (3.53)	—	NA	20-03-L768-1212
5.160 (131.06)	3.010 (76.45)	0.250 (6.35)	0.144 (36.58)	NA	20-03-1560-1212*

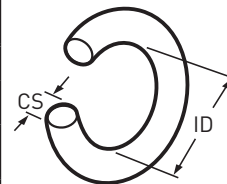
¹ Number in parentheses is MIL-DTL-83528 dash number, which should be inserted (with out parentheses) at end of MIL P/N.

*Modified "O" Cross Section.

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Table 6

CONFIGURATION 4 - MOLDED CIRCULAR WITH "O" CROSS SECTION			
Dimensions inches (mm)		MIL P/N: M83528/ 013K-() ¹	Chomerics P/N
ID	CS		
2.011 (51.08)	0.123-0.153 (3.12-3.89)	022	20-02-6545-1212
2.683 (68.15)	0.115 (2.92)	029	20-02-6555-1212



¹ Number in parentheses is MIL-DTL-83528 dash number, which should be inserted (with out parentheses) at end of MIL P/N.

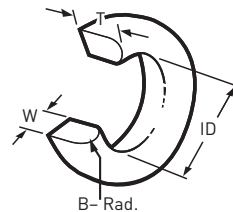


Table 7

CONFIGURATION 5 - MOLDED CIRCULAR WITH "D" CROSS SECTION					
Dimensions inches (mm)				MIL P/N: M83528/ 013K-() ¹	Chomerics P/N
T	B	ID	W		
0.056 (1.42)	0.041 (1.04)	0.410 (10.41)	0.082 (2.08)	002	20-02-6510-1212
0.048 (1.22)	Full Rad. —	0.587 (14.91)	0.078 (1.98)	004	20-02-6515-1212
0.125 (3.18)	Full Rad. —	0.885 (22.48)	0.155 (3.94)	006	20-02-6520-1212
0.065 (1.65)	0.49 (1.24)	1.122 (28.50)	0.099 (2.51)	008	20-02-6525-1212
0.077 (1.96)	Full Rad. —	1.310 (33.27)	0.115 (2.92)	012	20-02-6530-1212
0.088 (2.24)	Full Rad. —	1.340 (34.04)	0.095 (2.41)	011	20-02-6531-1212
0.085 (2.16)	Full Rad. —	1.392 (35.36)	0.095 (2.41)	014	20-02-6535-1212*
0.078 (1.78)	Full Rad. —	1.550 (39.37)	0.105 (2.68)	017	20-02-6540-1212
0.188 (4.76)	Full Rad. —	3.910 (99.31)	0.240 (6.10)	036	20-02-6565-1212

¹ Number in parentheses is MIL-DTL-83528 dash number, which should be inserted (with out parentheses) at end of MIL P/N.

* Contact Parker Chomerics Application Engineering for groove analysis

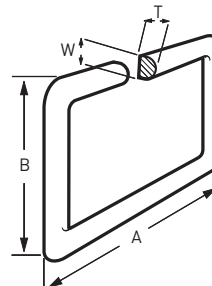


Table 8

CONFIGURATION 6 - MOLDED RECTANGULAR WITH "D" CROSS SECTION				
Dimensions inches (mm)				Chomerics P/N
A	B	W	T	
1.616 (41.05)	0.991 (25.17)	0.103 (2.62)	0.053 (1.35)	20-03-3686-1212
1.866 (47.40)	1.116 (28.35)	0.103 (2.62)	0.053 (1.35)	20-03-3731-1212
2.167 (55.04)	1.372 (34.85)	0.120 (3.05)	0.060 (1.52)	20-03-3980-1212
2.449 (62.20)	1.449 (36.80)	0.139 (3.53)	0.070 (1.78)	20-03-3561-1212
5.160 (131.06)	3.010 (76.45)	0.250 (6.35)	0.074 (1.88)	20-03-6685-1212*

*Modified "D" Cross Section.