

Waveguide Gaskets

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For effective EMI shielding and pressure sealing for choke, cover and contact flanges, Chomerics' waveguide gaskets ensure low insertion, low flange leakage, maximum heat transfer and minimum outgassing. 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 CHO-SEAL 1239 sheet stock 0.027 in. (0.69 mm) thick, ± 0.003 in. (0.08 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.

RF/pressure seals for waveguide cover flanges are also available in Gask-O-Seal™ form. Gask-O-Seal waveguide gaskets consist of thin metal retainers which incorporate elastomer seals on each side, and raised knurls which bite into flange surfaces to provide good electrical contact. *For more information on Gask-O-Seal products, contact Parker Hannifin, Cleveland, OH, 1-800-272-7537 and ask for Gask-O-Seal catalog #OSD-6411A.*

Choke flange and grooved contact flange gaskets are molded from CHO-SEAL 1212 material, and are available with O- or D-cross sections.

Properties of CHO-SEAL 1212 and 1239 materials are shown at right.

Standard Waveguide Gaskets

The gaskets listed in the following tables will fit the standard UG, CPR, and CMR flanges shown. The numbers 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). CHO-SEAL 1239 material is not available in sheet form.

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 Chomerics.*

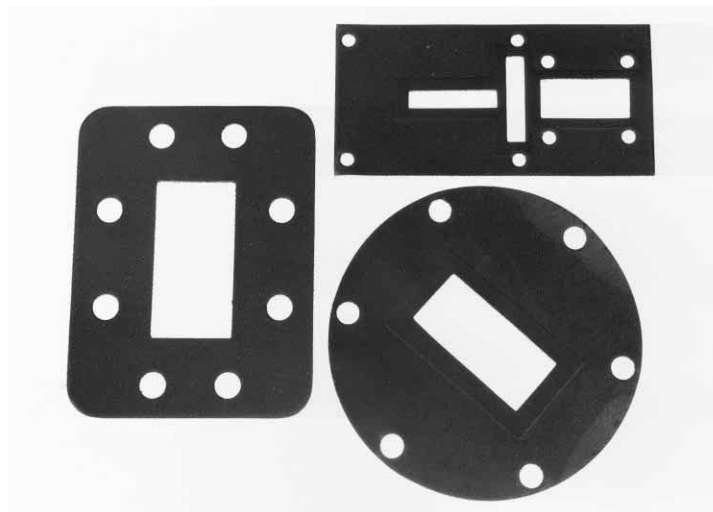


Table 1

SPECIFICATIONS		CHO-SEAL 1212	CHO-SEAL 1239	
Type (Ref: MIL-G-83528)		K	G	
Volume Resistivity (ohm-cm, max) as supplied (without pressure-sensitive adhesive)		0.005	0.007	
Hardness (Shore A ± 5)		80	80	
Specific Gravity (± 0.25)		3.5	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	NA	
Low Temperature Flex, TR10, °C, min.		-45	NA	
Maximum Continuous Use Temperature, °C		125	125	
Shielding Effectiveness	200 kHz (H Field)	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	0.010	0.010	
	Vibration Resistance	During	0.010	0.010
		After	0.005	0.007
	Post Tensile Set Volume Resistivity	0.010	NA	
EMP Survivability (kA per in. perimeter)		>0.9	>0.9	

NA = Not Applicable Refer to Table 3, page 32 for Test Procedures

Table 2 Use Table 2 to select part numbers. Refer to Tables 3-8 on following pages for Waveguide Gasket dimensions.

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 [I-()
				UG	CPR	CMR				
26.5 → 40.0	K _a	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)	UG-595/U			Cover	1	20-01-5005-1239**	[G]-(003)
			RG-121/U (Aluminum)	UG-597/U			Choke	5	20-02-6515-1212	[K]-(004)
12.4 → 18.0	K _u	WR62	RG-91/U (Brass)	UG-419/U			Cover	1	20-01-5010-1239**	[G]-(005)
			RG-107/U (Silver)	UG-541A/U			Choke	5	20-02-6520-1212	[K]-(006)
10.0 → 15.0		WR75					Cover	1	20-11-1683-1239	[G]-(007)
							Choke	5	20-02-6525-1212	[K]-(008)
8.2 → 12.4	X	WR90	RG-52/U (Brass) RG-67/U (Aluminum)	UG-39/U			Cover	1	20-11-5015-1239	[G]-(009)
				UG-135/U			Flat Contact	1	20-01-5115-1239**	[G]-(010)
				UG-1736/U	CPR-90F		Choke	5	20-02-6531-1212	[K]-(011)
				UG-136A/U			Choke	5	20-02-6530-1212	[K]-(012)
				UG-40A/U			Contact	3	20-03-6630-1212	[K]-(013)
7.0 → 11.0		WR102		UG-136B/U			Choke	5	20-02-6530-1212	[K]-(012)
				UG-40B/U			Contact	3	20-03-6630-1212	[K]-(013)
7.0 → 11.0		WR102		UG-1360/U	CPR-90G		Contact	3	20-03-6630-1212	[K]-(013)
				UG-1361/U			Choke	5	20-02-6535-1212	[K]-(014)
7.05 → 10.0	X ₁	WR112	RG-51/U (Brass) RG-68/U (Aluminum)	UG-51/U			Cover	1	20-11-5020-1239	[G]-(015)
				UG-138/U			Flat Contact	1	20-01-5120-1239**	[G]-(016)
				UG-1734/U	CPR-112F		Choke	5	20-02-6540-1212	[K]-(017)
				UG-1735/U			Contact	3	20-03-6635-1212	[K]-(018)
5.85 → 8.2	X _b	WR137	RG-50/U (Brass) RG-106/U (Aluminum)	UG-52B/U			Choke	5	20-02-6540-1212	[K]-(017)
				UG-137B/U			Contact	6	20-03-3686-1212	—
				UG-1358/U	CPR-112G		Choke/Flat	6	20-03-3686-1212	—
				UG-1359/U	CPR-112G/F		Cover	2	20-11-5025-1239	[G]-(019)
				UG-441/U			Flat Contact	1	20-01-5125-1239**	[G]-(020)
4.9 → 7.05		WR159		UG-1732/U	CPR-137F		Flat Contact	1	20-01-5125-1239**	[G]-(020)
				UG-1733/U		CMR-137	Flat Contact	1	20-01-5225-1239**	[G]-(021)
				UG-343B/U			Choke	4	20-02-6545-1212	[K]-(022)
				UG-440B/U			Contact	3	20-03-6645-1212	[K]-(023)
4.9 → 7.05		WR159		UG-1356/U	CPR-137G		Choke/Flat	6	20-03-3731-1212	—
				UG-1357/U	CPR-137G/F		Flat Contact	1	20-01-5130-1239**	[G]-(024)
				UG-1730/U	CPR-159F		Flat Contact	1	20-01-5230-1239**	[G]-(025)
				UG-1731/U		CMR-159	Flat Contact	1	20-01-5230-1239**	[G]-(025)
4.9 → 7.05		WR159					Choke	3	20-03-L767-1212	—
					CPR-159G		Choke/Flat	6	20-03-3980-1212	—
4.9 → 7.05		WR159					Choke	3	20-03-L767-1212	—
					CPR-159G/F		Choke/Flat	6	20-03-3980-1212	—

* 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 to 1.

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

(mm dimensions in parentheses)

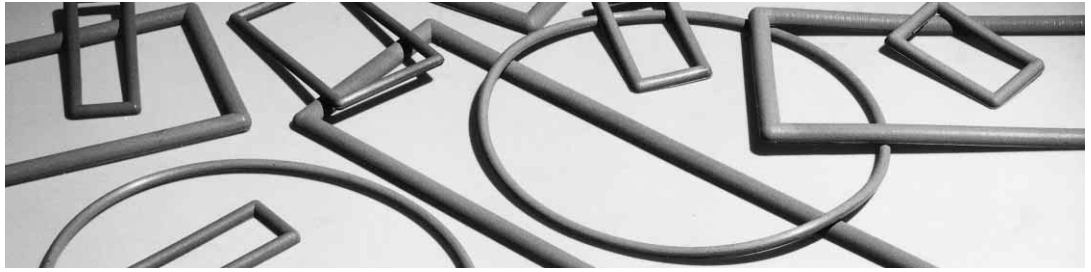


Table 2

continued Use Table 2 to select part numbers. Refer to Tables 3-8 on following pages for Waveguide Gasket dimensions.

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				
3.95 → 5.85	C	WR187	RG-49/U (Brass) RG-95/U (Aluminum)	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)
						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)
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) RG-75/U (Aluminum)	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)
						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			Flat Contact	1	20-01-5060-1239**	[G]-(042)
				UG-418A/U						

* Number corresponds to configuration type, Tables 3-8.

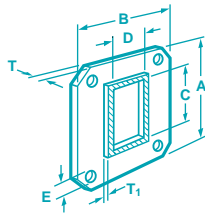
** This gasket will seal a maximum pressure of 20 psi. For systems pressurized above this limit, a high-pressure (raised-lip) version is available. To specify, change 3rd digit in Part Number to 1.

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

^{††} Modified "O" cross section. ^{†††} Modified "D" cross section.

continued

(mm dimensions in parentheses)



Note: Raised portion will have a nominal width of 0.187 in. (4.75 mm). Thickness (T_1) is 0.004 in. (0.10 mm) \pm 0.002 in. (0.05 mm). This raised area applies only to part numbers with a third digit of "1".

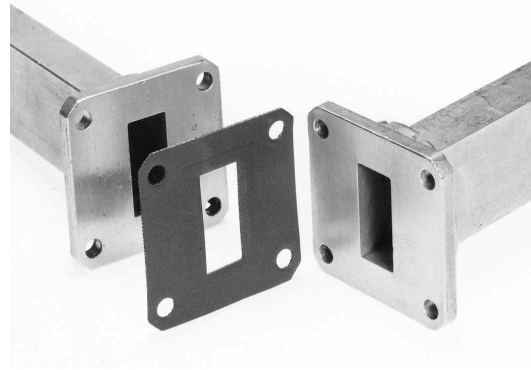


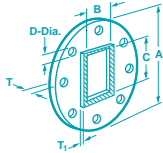
Table 3

CONFIG.1 - DIE-CUT RECTANGULAR						
Dimensions						Chomerics P/N** MIL P/N: M83528/ 013G-()
A	B	C	D	E*	T	
± 0.015 (0.38)	± 0.015 (0.38)	$+0.015$ (0.38) – 0.000		± 0.010 (0.25)	$\pm .003$ (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)	20-11-1683-1239 (007)
0.750 (19.05)	0.750 (19.05)	0.145 (3.68)	0.285 (7.24)	0.116 (2.95)	0.027 (0.69)	20-01-5000-1239 (001)
0.875 (22.23)	0.875 (22.23)	0.175 (4.45)	0.425 (10.80)	0.116 (2.95)	0.027 (0.69)	20-01-5005-1239 (003)
1.313 (33.35)	1.313 (33.35)	0.630 (16.00)	0.320 (8.13)	0.140 (3.56)	0.027 (0.69)	20-01-5010-1239 (005)
1.625 (41.28)	1.625 (41.28)	0.905 (22.99)	0.405 (10.29)	0.169 (4.29)	0.027 (0.69)	20-01-5015-1239 (009)
1.875 (47.63)	1.875 (47.63)	1.130 (28.70)	0.505 (12.83)	0.180 (4.57)	0.027 (0.69)	20-11-5020-1239 (015)
3.750 (95.25)	5.440 (138.18)	1.710 (43.43)	3.410 (86.61)	0.264 (6.71) 0.250 (6.35)	0.027 (0.69)	20-01-5050-1239 (038)
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)	20-01-5055-1239 (040)
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)	20-01-5060-1239 (042)
1.594 (40.49)	2.094 (53.19)	0.405 (10.29)	0.905 (22.99)	0.169 (4.29)	0.027 (0.69)	20-01-5115-1239 (010)
1.750 (44.45)	2.500 (63.50)	0.505 (12.83)	1.130 (28.70)	0.171 (4.34)	0.027 (0.69)	20-01-5120-1239 (016)
1.937 (49.20)	2.687 (68.25)	0.633 (16.08)	1.380 (35.05)	0.206 (5.23)	0.027 (0.69)	20-01-5125-1239 (020)
2.438 (61.93)	3.188 (80.98)	0.805 (20.45)	1.600 (40.64)	0.257 (6.53)	0.027 (0.69)	20-01-5130-1239 (024)
3.500 (88.90)	2.500 (63.50)	1.880 (47.75)	0.880 (22.35)	0.266 (6.76)	0.027 (0.69)	20-01-5135-1239 (027)
2.750 (69.85)	3.875 (98.43)	1.155 (29.34)	2.300 (58.42)	0.270 (6.86)	0.027 (0.69)	20-01-5140-1239 (031)
4.500 (114.30)	3.000 (76.20)	2.850 (72.39)	1.350 (34.29)	0.266 (6.76)	0.027 (0.69)	20-01-5145-1239 (034)
3.750 (95.25)	5.438 (138.13)	1.710 (43.43)	3.410 (86.61)	0.266 (6.76)	0.027 (0.69)	20-01-5150-1239 (039)
6.344 (161.14)	4.188 (106.38)	4.310 (109.47)	2.160 (54.86)	0.266 (6.76)	0.027 (0.69)	20-01-5155-1239 (041)
1.531 (38.89)	2.281 (57.94)	0.632 (16.05)	1.382 (35.10)	0.150 (3.81)	0.027 (0.69)	20-01-5225-1239 (021)
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)	20-01-5230-1239 (025)
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)	20-01-5235-1239 (028)
2.000 (50.80)	3.156 (80.16)	1.155 (29.34)	2.300 (58.42)	0.150 (3.81)	0.027 (0.69)	20-01-5240-1239 (032)
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)	20-01-5245-1239 (035)

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

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

(mm dimensions in parentheses)



Note: Raised portion will be a nominal of 0.187 in. (4.75 mm) wide. Thickness (T_1) is 0.004 in. (0.10 mm) ± 0.002 in. (0.05 mm). This raised area applies only to part numbers with a third digit of "1".

Table 4

CONFIG.2 - DIE-CUT CIRCULAR					Chomerics P/N MIL P/N: M83528/ 013G-() [†]
Dimensions					
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)	20-11-5025-1239 (019)
3.625 (92.08)	0.882 (22.40)	1.882 (47.80)	0.234 (5.94)	0.027 (0.69)	20-11-5035-1239 (026)
5.312 (134.93)	1.350 (34.29)	2.850 (72.39)	0.290 (7.37)	0.027 (0.69)	20-01-5045-1239 (033)

* Hole locations conform to holes in standard waveguide flanges identified in Table 2 on pages XX-XX.

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

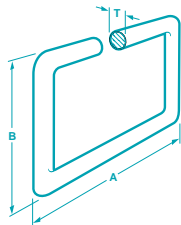


Table 5

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

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

* Modified "O" Cross Section. A and B dimensions shown for this part number are measured from the inside wall.

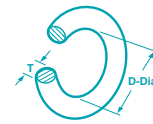


Table 6

CONFIG.4 - MOLDED CIRCULAR WITH "O" CROSS SECTION		
Dimensions		Chomerics P/N MIL P/N: M83528/ 013K-() [†]
D (I.D.)	T	
2.011 (51.08)	0.123-0.153 (3.12-3.89)	20-02-6545-1212 (022)
2.683 (68.15)	0.115 (2.92)	20-02-6555-1212 (029)

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

Table 7

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

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

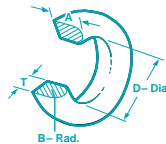


Table 8

CONFIG.6 - MOLDED RECTANGULAR WITH "D" CROSS SECTION				Chomerics P/N
Dimensions				
A	B	T(dia.)	H	
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
5.160 (131.06)	3.010 (76.45)	0.250 (6.35)	0.074 (1.88)	20-03-6685-1212*

* Modified "D" Cross Section. A and B dimensions shown for this part number are measured from the inside wall.

(mm dimensions in parentheses)