

**MATERIAL  
SELECTION  
GUIDE  
INDUSTRIAL  
APPLICATIONS**



For product designers and engineers, Rogers Corporation is the elastomeric materials solutions partner of choice when quality, innovation, and collaborative support are critical to design optimization and product functionality.

Rogers' materials are designed into products and applications in segments where high reliability and mission-critical performance are essential: automobiles, aerospace, mass transit, electronics, protective gear, footwear, medical products, and much more.

With unrivaled technical support, we foster successful customer relationships through a dedication to technical know-how, application expertise, and global support.



For further information on Rogers' portfolio of elastomeric material solutions, please contact the Rogers' facility closest to you or visit [rogerscorp.com](http://rogerscorp.com).



**BISCO® Silicone Materials** are the unrivaled long-lasting solution for product designers and engineers addressing mission-critical sealing, shock and vibration challenges across many applications and industries.

## PRODUCT OVERVIEW

The BISCO portfolio offers a wide range of silicone buns, cellular foams, sponges, solids, and specialty materials in roll stock as well as a variety of firmness, thickness, and color options.

These specially engineered materials maintain high performance in extreme conditions and meet stringent safety requirements.

All materials come with the support of our experienced Technical Service Team.

- 1 BUNS**  
Block form of silicone foam with key properties of low density, softness, and excellent acoustic absorption and vibration isolation properties.
- 2 CELLULAR FOAMS**  
Open-cell silicone foams with key properties of durability, conformability, and excellent sealing for long-term protection.
- 3 SPONGES**  
Closed-cell silicone sponges with key properties of good tensile strength and elongation, durability, and good sealing with relatively low compression.
- 4 SOLIDS**  
Solid form of silicones available in industrial and performance grades with various key properties including tight thickness tolerances, high tear strength, and superior FST performance.
- 5 SPECIALTY**  
Variety of specialty materials addressing unique challenges including heat management, sound blocking, electrical conductivity, and more.

## KEY BENEFITS

- ✔ **Superior Flame Ratings**  
Meets the highest UL, railway and aerospace standards.
- ✔ **Low Flame, Smoke, and Toxicity**  
During combustion.
- ✔ **Excellent Performance**  
At extreme high and low temperatures.
- ✔ **Superior Resistance to Compression Set**  
At ambient and elevated temperatures.
- ✔ **Natural Resistance to UV and Ozone**
- ✔ **Good Sealability with Low Compression**
- ✔ **Product Consistency**  
Quality manufacturing resulting in reliable and consistent material properties.
- ✔ **Broad Product Offering**  
Wide range of firmness, density, thickness and color options available.
- ✔ **Quality Service**  
All products are supported by knowledgeable Rogers Sales and Applications Engineers, Technical Service and Customer Service Representatives.

## MATERIAL SAMPLES BISCO® SILICONES

### Cellular Foams

---



**BF-2000**



**BF-1000**



**HT-870**



**HT-800**



**HT-820**



**HT-840**

### Specialty with Substrate



**FPC**



**IF-200**



**RF-120**



**MF1®-55**

### Bun

### Solids

---

#### 1200 series



**HT-1240**



**HT-1250**



**HT-1260**



**HT-1270**

#### 6000 series



**HT-6220**



**HT-6210**



**HT-6135**



**HT-6240**



**HT-6360**

#### Specialty



**HT-200**



**EC-2130**



**PRODUCT DATA**  
 Typical values shown unless otherwise noted. Refer to datasheet for specification values.

For more BISCO® product information visit the BISCO® Product Properties Guide or www.rogerscorp.com.

		BUNS			CELLULAR FOAMS						SPONGES						SOLIDS										SPECIALTY													
		OPEN-CELL, BLOCK FORM			OPEN-CELL, SOFTEST OF FOAMS		OPEN-CELL, HIGHLY VERSATILE				CLOSED-CELL, FIRE RESISTANT				CLOSED-CELL, INDUSTRIAL GRADE		AEROSPACE AND MILITARY SPECIFICATION GRADE				PERFORMANCE GRADE						MEDICAL GRADE				VARIES BY PRODUCT									
		MF1 Series			BF Series		HT-800 Series				RS-800 Series				RS-700 Series		HT-1200 Series				HT-6000 Series						MS-1600 Series				Specialty Series									
		MF1-35	MF1-55	MF1-75	BF-2000	BF-1000	HT-870	HT-800	HT-820	HT-840	RS-870	RS-800	RS-820	RS-840	RS-720	RS-750	RS-770	HT-1240	HT-1250	HT-1260	HT-1270	HT-6210	HT-6220	HT-6135	HT-6240	HT-6360	MS-1640	MS-1650	MS-1660	MS-1670	HT-1500	EC-2130	EC-2265	HT-200	FPC	RF-120	IF-200			
Product	Standard	Soft Medium Firm			Ultra Soft	Extra Soft	Soft	Medium	Firm	Extra Firm	Soft	Medium	Firm	Extra Firm	Soft	Medium	Firm	Compliant with A-A-59588				Extra Soft	Soft	Tight Tolerance	Medium	Fire-Safe	Compliant with USP Class VI				Press Pad	EMI Shielding	Electrically Conductive	Sound Block	Flame Barrier	Heat Shield	Abrasion Resistant			
Physical Properties	Standard	White			Black	White, Gray, Black	Red, Black	Black, Gray, Red	Gray	Gray	Gray				Fog Gray	Steel Gray	Charcoal Gray	Red, Black, Gray, White				Gray	Black	Cream	Transparent	Black	Translucent				Red	Dark Gray	Black	Black	White	White	White			
Thickness mm (in)		6.35 - 203.20 (0.250 - 8.00)	6.35 - 203.20 (0.250 - 8.00)	6.35 - 152.4 (0.250 - 6.00)	3.18-12.70 (0.125-0.500)	1.59-25.40 (0.063-1.000)	1.59-12.70 (0.063-0.500)	0.79-12.70 (0.031-0.500)	0.79-12.70 (0.031-0.500)	1.59-6.35 (0.063-0.250)	2.4-12.7 (0.094-0.500)	1.6-12.7 (0.063-0.500)		3.2-12.7 (0.125-0.500)	2.4-12.7 (0.094-0.500)	2.4-12.7 (0.094-0.500)	0.79-3.18 (0.031-0.125)				0.250-3.18 (0.010-0.125)	0.250-3.18 (0.013-0.125)	0.250-1.59 (0.010-0.063)	0.250-3.18 (0.010-0.125)	0.50-3.18 (0.020-0.125)	0.254-12.7 (0.010-0.500)				0.0787-3.175 (0.031-0.125)	1.60-3.20 (0.063-0.125)	0.5-6.35 (0.020-0.250)	HT-200 defined by areal density	1.59-6.35 (0.063-0.250)	2.50, 5.00 (0.098, 0.197)	5.00 (0.197)				
Density		80 (5.0)	96 (6.0)	112 (7.0)	175 (11)	192 (12)	240 (15)	352 (22)	384 (22)	448 (28)	256 (16)	400 (25)	481 (30)	280 (17.50)	384 (24)	465 (29)																								
Density, kg/m³ (lb./ft³)																																								
Areal Density, kg/m² (lb./ft²)																																								
Specific Gravity Internal Method (g/cc)																		1.1	1.16	1.23	1.29	1.07	1.08	1.22	1.07	1.71	1.14	1.15	1.17	1.21										
Firmness																																								
Compression Force Deflection, kPa (psi)	typical values specification values	ASTM D1056 @ 25% Deflection	4.85 (0.7) 1.4-8.3 (0.2-1.2)	5.5 (0.80) 2.8-10.3 (0.4-1.5)	8.25 (1.2) 4.1-12.4 (0.6-1.8)	10 (1.5) 0.17 (0-2.5)	16.5 (2.4) 7-35 (1-5)	26 (3.8) 7-48 (1-7)	67 (9.7) 41-97 (6-14)	106 (15.3) 82-138 (12-20)	142 (20.6) 110-179 (16-26)	34 (5) 13.8 - 48 (2-7)	79 (11.5) 41 - 97 (6-14)	155 (22.5) 110 - 193 (16-28)	34.5-82.7 (5-12)	41.4-96.5 (6-14)	82-138 (12-20)																							
Durometer, Shore A, except HT-6210 Shore OO		ASTM D2240																40 ± 5	50 ± 5	60 ± 5	70 ± 5	62 ± 4	22 ± 5	35 ± 5	40 ± 5	65 ± 5	40 +/- 5	50 +/- 5	60 +/- 5	70 +/- 5	70 ± 10	30 ± 5	65 +/- 5							
Compression Set (%)	typical values specification values	ASTM D1056 @ 100°C (212°F)	1.5 < 5			6.9 < 12	1.7 < 5	1.6 < 5	2.4 < 5	2.6 < 5	1.8 < 5	3.5 < 5	4 < 5		< 15	< 20	< 15																							
		ASTM D395 @ 150°C (302°F)																≤25				<25				<35														
		ASTM D395 @ 175°C (347°F)																																						
Tensile Strength, kPa (psi)		ASTM D412				140 (20)	262 (38)	240 (35)							5200 (75)	6200 (90)	7600 (110)	7650 (1110)	7110 (1030)	6095 (1010)	7200 (1050)	3300 (480)	4400 (640)	5520 (800)	7170 (1040)	1720 (250)	6890 (1000)	8270 (1200)												
HT-1500 Tensile Fill/Tensile Warp, kN/m (ppi)		ASTM D751	86 (12.5)		93 (13.5)	172 (20)	140 (20)	207 (30)																																
Tensile Elongation (%)		ASTM D412	45		35	60	86	20		45							175	135	130	≥240	≥ 200	≥150	≥125	565	580	580	325	>125	700	600				50	260					
Water Absorption (%)					1.4 < 15%	1.4 < 10%	0.5 < 10%	0.5 < 5%							1.0 < 5				< 3																					
Tear Resistance (ppi)		ASTM D624	>2.0																								140	150												
Flammability																																								
Flame Resistance	UL 94 (File E83967) V-0																																							
Flame Spread Index (1s)	ASTM E162, Flaming Mode <35																																							
Smoke Density (Ds)	ASTM E662 Flaming Mode @ 1.5 min, <100 Flaming Mode @ 4.0 min, <200		Meets			Meets	Meets				Meets																													
Burn Length	FMVSS 302, <100mm/min																																							
Outgassing																																								
Toxic Gas Emissions Rating	SMP-800-C @ 1.5/4.0 min	Meets			Meets		Meets																																	
Total Mass Loss (%)	ASTM E595 @ (4x10⁴ Torr)				3.81	3.46	1.19	0.98	2.11	2.08																														
Collected Volatile Condensable Materials (CVCM) (%)	ASTM E595 @ (4x10⁴ Torr)				1.14	1.12	0.34	0.25	0.63	0.57																														
Water Vapor Regain (%)	ASTM E595 @ (4x10⁴ Torr)				0.07	0.04	0.02	0.03	0.02	0.01																														
Temperature Resistance																																								
Recommended Constant Use		-55 to +200°C (-67 to +392°F)			-55 to +200°C (-67 to +392°F)		-55 to +200°C (-67 to +392°F)				-55 to +200°C (-67 to +392°F)				-55 to +205°C (-67 to +401°F)		-62 to +218°C (-80 to +425°F)				-55 to +200°C (-67 to +392°F)						-62 to +232°C (-80 to +450°F)				-55 to +200°C (-67 to +392°F)	-62 to +200°C (-80 to +392°F)	-62 to +225°C (-80 to +437°F)	-55 to +200°C (-67 to +392°F)						
Thermal Conductivity (W/m *K)	ASTM C518	0.043	0.037	0.036	0.048		0.076	0.09		0.037					0.07 (0.48)	0.08 (0.57)																								
Low Temperature Flex	ASTM D1056 @ -55°C (-67°F)	Meets			Meets		Meets				Meets				Meets		Meets																							
Low Temperature Brittleness	ASTM D746 @ -55°C (-67°F)	Meets			Meets		Meets				Meets				Meets		Meets																							
	ASTM D2137 @ -62°C (-80°F)	Meets			Meets		Meets				Meets				Meets		Meets																							
Electric																																								
Dielectric Strength (Volts/mil)	ASTM D149	45			48	72	65	75	66	57																														
Dielectric Constant (1 kHz)	ASTM D150	1.4			1.5	1.5	1.7		1.8																															
Dissipation Factor (1kHz)	ASTM D150	0.003			0.004	0.005		0.006																																
Dry Arc Resistance (Seconds)	ASTM D495	86			123	125		174		149																														
Volume Resistivity (Ohm-cm)	ASTM D257	7.0 x 10¹³			10¹⁴		10¹⁴																																	
EMI Shielding (dB) & Electrical Conductivity (Ohm-cm)	MIL G83528, ASTM D991	Refer to Technical Data Sheets			Refer to Technical Data Sheets		Refer to Technical Data Sheets				Refer to Technical Data Sheets				Refer to Technical Data Sheets		Refer to Technical Data Sheets				Refer to Technical Data Sheets						Refer to Technical Data Sheets													

Product	Standard
Physical Properties	Standard
Firmness	
Standard Color	
Thickness mm (in)	
Density	
Density, kg/m³ (lb./ft³)	
Areal Density, kg/m² (lb./ft²)	
Specific Gravity Internal Method (g/cc)	
Firmness	
Compression Force Deflection, kPa (psi)	typical values specification values
Durometer, Shore A, except HT-6210 Shore OO	ASTM D2240
Compression Set (%)	typical values specification values
Tensile Strength, kPa (psi)	ASTM D412
HT-1500 Tensile Fill/Tensile Warp, kN/m (ppi)	ASTM D751
Tensile Elongation (%)	ASTM D412
Water Absorption (%)	
Tear Resistance (ppi)	ASTM D624
Flammability	
Flame Resistance	UL 94 (File E83967) V-0
Flame Spread Index (1s)	ASTM E162, Flaming Mode <35
Smoke Density (Ds)	ASTM E662 Flaming Mode @ 1.5 min, <100 Flaming Mode @ 4.0 min, <200
Burn Length	FMVSS 302, <100mm/min
Outgassing	
Toxic Gas Emissions Rating	SMP-800-C @ 1.5/4.0 min

## DESIGN TOOLS

### Product Properties Guide

The Product Properties Guide filters BISCO® product information by various criteria, providing several material options based on your application requirements.

**Example - Filters**  
 // Groups: Flammability and Outgassing  
 // Product Category: Silicone Materials

Product	Results					
	BF-2000	BF-1000	HT-870	HT-800	HT-820	HT-840
<b>Flamability and Outgassing</b>						
UL94 V-0 (Pass/Fail)	Pass	Pass	Pass	Pass	Pass	Pass
Burn Rate FMVSS302 (Pass/Fail)	Pass	Pass	Pass	Pass	Pass	Pass
Flame Resistance @ 12 Sec FAR 25.853 (Pass/Fail)	Pass	Pass	Pass	Pass	Pass	Pass
Flame Resistance @ 60 Sec FAR 25.853 (Pass/Fail)	Pass	Pass	Pass	Pass	Pass	Pass
Smoke Density (D <sub>s</sub> ) @ 1.5 min ASTM E 662	<100	<100	<100	<100	<100	<100
Smoke Density (D <sub>s</sub> ) @ 4.0 min ASTM E 662	<200	<200	<200	<200	<200	<200
Toxic Gas Emissions Rating SMP-800C (Pass/Fail @ 1.5/4.0 min)	Pass	Pass	Pass	Pass	Pass	Pass
Total Mass Loss ASTM E 595 (%)	3.81	3.46	1.19	0.98	2.11	2.08
Collected Volatile Condensable Materials ASTM E 595 (%)	1.14	1.12	0.34	0.25	0.63	0.57
Water Vapor Regain ASTM E595 (%)	0.07	0.04	0.02	0.03	0.02	0.01

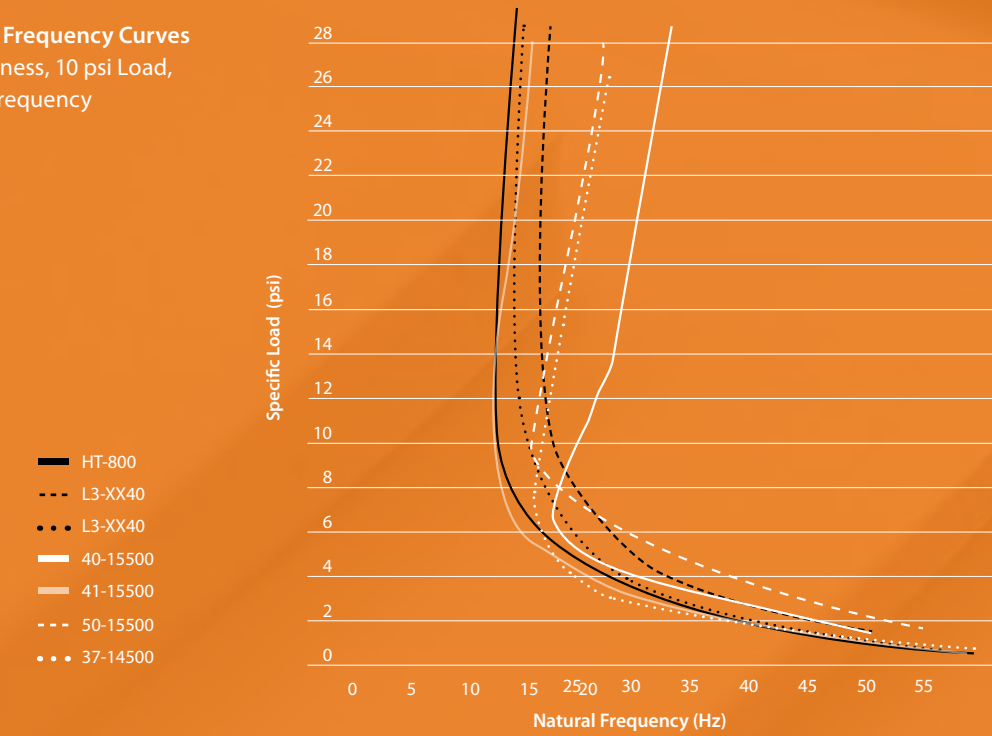


<http://tools.rogerscorp.com/ems/products/bisco-properties/index.aspx>

### Vibration Isolation Tool

The Vibration Isolation Tool recommends the proper PORON® Polyurethane and BISCO® Silicone materials for your vibration mitigation applications. This tool uses your specifications to calculate the isolation efficiency of our materials, and provides the most effective material option.

**Example - Natural Frequency Curves**  
 // 0.50 in Pad Thickness, 10 psi Load,  
 // 100 Hz Forcing Frequency



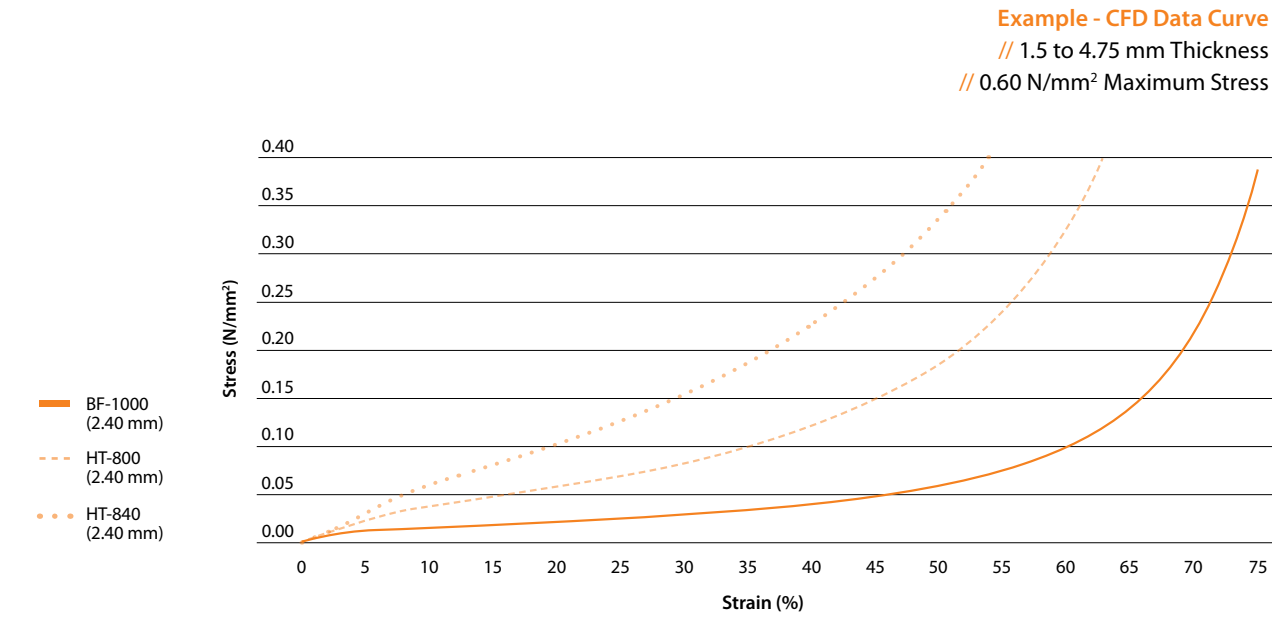
Product	BISCO® Silicones		PORON® Polyurethanes			
	HT-800	L3-XX40	40-15500	41-15500	50-15500	37-14500
Thickness mm (in)	12.70 (0.500)	12 (0.472)	12.70 (0.500)	12.70 (0.500)	12.70 (0.500)	12.70 (0.500)
Isolation Efficiency (%)	> 97.00	> 94.00	> 97.00	> 96.00	> 95.00	> 94.00
Natural Frequency (Hz)	12	17	19	12	16	16



<http://tools.rogerscorp.com/ems/vibration/index.aspx>

### Compression Force Deflection (CFD) Tool

Using stress-strain data, the CFD Curve Tool helps in the identification of the BISCO® or PORON® material(s) that meet your engineering requirements.



### Elastomeric Material Solutions Application Design Tool

The Elastomeric Material Solutions Application Design Tool assists in the identification of PORON® Polyurethane and BISCO® Silicone materials that best meet your design requirements and provides material options based upon your application requirements.

**PORON® Polyurethanes**  
 // PORON® 4701-40  
 // PORON® Dura-Shape® Foams

**BISCO® Silicones**  
 // BISCO® HT-800

**Example - Configuration**  
 // Application: EV/HEV Battery Pads & Cushions  
 // 5.1 - 15.0 mm Thickness  
 // Medium Compressibility



<http://tools.rogerscorp.com/ems/products/msg/index.aspx>

## STANDARDS

Industry	Standard
Aerospace	ABS 5006
	ABS 5026
	ABS 5708
	ABS 5789
	AIMS04-14-002A
	AMS 3195
	AMS 3196
	BMS 1-23
	BMS 1-60
	BMS 1-68
	CMS-RB-202
	CMS-RB-209
DMS 1980 GR2 CL2	
DMS 1980 GR1 CL1	
DMS 1980 GR1 CL2	
DMS 1980 GR3 CL1	
DMS 1980 GR 3 CL2	
Automotive	Chrysler MS-AY556 GMW16392
Rogers Internal	BISCO Standard
Food	21 CFR 177.2600
Rail	49 CFR 238
	EN 45545-2 NFPA 130
UL	UL 50
	UL 50E
	UL 157
	UL 508

# TIPS FOR MATERIAL SELECTIONS

- // Acrylic one or two sides of material
- // Silicone one side only

## Material Slitting

- // Ability to slit minimum width of 6.35 mm (0.250")
- // Width of slit must be greater or equal to thickness
- // Material can be slit with or without adhesive applied
- // Maximum roll diameter is 355.6 mm (14")

Applications	Aerospace	Communications	Rail	Automotive	Energy	Lighting
Flame, Smoke & Toxicity	●×	●×	●×	●×	●×	●×
UL Rated Material		●×			●×	●×
Vibration Reduction	●×	●×	●×	●○×	●○×	
Acoustic Performance	●×		●×	●○×		
Softness	●○×	●○×	●○×	●○×	●○×	●○×
Firmness	●○×	●○×	●○×	●○×	●○×	●○×
EMI Shielding		×				
Moisture Resistant	●○×	●○×	●○×	●○×	●○×	●○×
Heat Shielding	×	×	×	×	×	×
Insulating		●	●	●	●	●

## LEGEND

- BISCO Cellular Silicones
- BISCO Solid Silicones
- × BISCO Specialty Silicones



For more information please visit us at:  
[www.rogerscorp.com/ems/bisco/index.aspx](http://www.rogerscorp.com/ems/bisco/index.aspx)



For more information visit [rogerscorp.com/ems](http://rogerscorp.com/ems)

### World Class Performance

Rogers Corporation (NYSE:ROG) is a global leader in engineered materials to power, protect, and connect our world. With more than 180 years of materials science experience, Rogers delivers high-performance solutions that enable clean energy, internet connectivity, and safety and protection applications, as well as other technologies where reliability is critical. Rogers delivers Power Electronics Solutions for energy-efficient motor drives, vehicle electrification and alternative energy; Elastomeric Material Solutions for sealing, vibration management and impact protection in mobile devices, transportation interiors, industrial equipment and performance apparel; and Advanced Connectivity Solutions for wireless infrastructure, automotive safety and radar systems.

Headquartered in Arizona (USA), Rogers operates manufacturing facilities in the United States, China, Germany, Belgium, Hungary, and South Korea, with joint ventures and sales offices worldwide.

[www.rogerscorp.com](http://www.rogerscorp.com)

### North America

Elastomeric Material Solutions  
BISCO Silicone Foams  
Carol Stream, IL, USA  
Tel: 630.784.6200  
Fax: 860.928.3906  
Toll Free: 800.935.2940  
[solutions@rogerscorp.com](mailto:solutions@rogerscorp.com)

Rogers Taiwan, Inc.  
New Taipei City, Taiwan  
Tel: 886.2.8660.9056  
Fax: 886.2.8660.9057

Rogers Technologies Singapore Inc.  
Singapore  
Tel: 65.6747.3521  
Fax: 65.6747.7425

### Europe

Rogers BVBA  
Evergem, Belgium  
Tel: 32.9.2353611  
Fax: 32.9.2353658

Rogers Technologies, Co.  
Shanghai, China  
Tel: 86.21.6217.5599  
Fax: 86.21.6267.7913

### Asia

Rogers Japan, Inc.  
Tokyo, Japan  
Tel: 81.3.5200.2700  
Fax: 81.3.5200.0571

Rogers Technologies, Co.  
Shenzhen, China  
Tel: 86.755.8236.6060  
Fax: 86.755.8236.6123

Rogers Korea, Inc.  
Gyonggido, Korea  
Tel: 82.31.360.3622  
Fax: 82.31.360.3623

Rogers Technologies, Co.  
Beijing, China  
Tel: 86.10.8559.7599  
Fax: 86.10.8559.7585



Rogers is committed to producing quality products in a safe environment manufactured with robust management systems certified to industry standards.