Industrial Applications Designer's Guide



CUSTOM BRUSH

Fuller Industries, LLC CUSTON BRUSH Division



In industrial and institutional markets, Fuller's Custom Brush division has long set the standard for superior design, exceptional quality and outstanding customer service.

As our name implies, we are experts in the design and manufacture of customized brush products for a diverse range of industries including:

- Automotive
- Material Handling
- Agriculture
- Machine Tool
- Lawn & Turf Bakery

Woodworking

- Printing
- Overhead Door Construction
- Food Processing Mass Transit • Door Seals
 - Aerospace
 - Packaging
 - Conveyor Cleaning

We've built our reputation by designing solutions that meet exacting specifications for OEM components, consumer appliances, production parts, manufacturing processes and various manual usages. The versatility, efficiency and economy of our Fullergript® brush the original metal channel strip brush - keeps Fuller at the forefront of custom brush manufacturers worldwide. Fullergript® construction permits brush materials of all types, sizes and shapes to be evenly distributed along the backing in heavy, medium or light densities. Strong as steel...workable as wire.

We also excel at Staple Set and Twisted-in-Wire. These brushes are custom manufactured to your specification requirements.

It is the policy of Fuller Industries, LCC and its employees to seek continuous improvements in every process performed, every product produced and every service provided. Our goal is to meet or exceed our organizational goals and our customer's expectations with regard to quality, performance and value.

For more information, please contact our Customer Service Department at info@fullercustomprodcuts.com or by telephone at 800-227-2961.

Quality Management System ISO 9001:2008 + AS9100C









Twisted-in-Wire



Metal Channel



Staple Set





Why FULLER CUSTOM BRUSH?

Brushes provide a unique solution for a wide range of industrial and commercial challenges because they can be designed with different filaments, shapes, and sizes. Whether the application requires a delicate effect or a more demanding heavy duty action, a brush can be customized to meet each customer's needs.

The following information represents a general guideline of brush shapes and the different types of applications that are typically achieved with each. For assistance on selecting the best design and materials, contact Fuller Technical Sales 800-227-2961.

Straight



Coiled / Cylinder



Spiral



Cup



Inside Disc



Outside Disc



Formed



Tapered



Lag / Block



SEALS for temperature control, noise reduction, light filtration, pest management; CONTAINMENT SYSTEMS and GUIDING for conveyors; SHIELDS for paint spray, parts cleaning, wood/metal chips; SPREADING materials across wide spaces.

CLEANING SYSTEMS for conveyors, sheet metal and glass, fruits and vegetables; POLISHING metal, leather, etc.; AUGERING and GUIDING products; CLEANING inside of tubular surfaces.

AUGERING and GUIDING products to control directional movement; CLEANING SYSTEMS for conveyors.

SEALS for dust control in vacuum systems, liquid, wood and metal chip containment.

CLEANING outside surface of pipe, tubing, etc.; SEALS for rolled thread based screws, shafts, etc.; POSITIONING and GUIDING tubes, wire, and pipe. May be individual or multiple rings for increased effectiveness.

CLEANING and POLISHING systems; CONVEYING products over bi-level surfaces; May be used individually or mounted together for wider brush face.

SHIELDING and GUIDING materials per unique design application.

GUIDING materials; FILLING angled openings.

CLEANING SYSTEMS for conveyors, sheet metal and glass, fruits and vegetables; POLISHING metal, leather, etc.; SPREADING and APPLYING materials; GUIDING products in directional movement; CONVEYING products while protecting fine surfaces; SHIELDS for paint spray, parts cleaning, wood/metal chips.



Fullergript® Metal Channel Strip Brush Profiles

STANDARD CHANNEL SHAPES

TRIANGULAR



	FORMED CHANNEL DIMENSIONS								
Backing #	Channel Shape	Backing Size	X-Base Width	Y-Channel Height	Strip Material	Availability			
2T	Triangular	1/4	.107	.094	CN Cupro Nickel	Special Order			
2.5T	Triangular	5/16	.125	.130	GS Galvanized Steel	Standard			
					GS Galvanized Steel	Standard			
3T	Triangular	3/8	.145	.157	SS 304 Stainless Steel	Standard			
					A Aluminum	Standard			
					GS Galvanized Steel	Standard			
4T	Triangular	1/2	.195	.198	SS 304 Stainless Steel	Standard			
					A Aluminum	Standard			
					GS Galvanized Steel	Standard			
5T	Triangular	5/8	.240	.250	SS 304 Stainless Steel	Standard			
					A Aluminum	Standard			
50	Oval	5/8	.280	.234	GS Galvanized Steel	Standard			
					GS Galvanized Steel	Special Order			
6T	Triangular	3/4	.280	.313	SS 304 Stainless Steel	Special Order			
	Qual	2/4	255	261	GS Galvanized Steel	Special Order			
60	Oval	3/4	.255	.261	SS 304 Stainless Steel	Special Order			
					GS Galvanized Steel	Standard			
7T	Triangular	7/8	.315	.352	SS 304 Stainless Steel	Standard			
					A Aluminum	Standard			
70	Oval	7/8	.330	.344	GS Galvanized Steel	Standard			
					GS Galvanized Steel	Special Order			
10T	Triangular	1-1/4	.460	.500	SS 304 Stainless Steel	Special Order			
					A Aluminum	Special Order			
1) T	Triangular	1 1/0	400	E 10	GS Galvanized Steel	Special Order			
12T	Indiiguidi	1-1/2	.480	.510	A Aluminum	Special Order			



Fullergript® Metal Channel Strip Construction

If you need a custom designed brush in your operation...you need Fuller Custom Brush on your team!

Fuller Custom Brush has been a recognized leader in the brush industry since 1906. Fuller pioneered and developed the principle of the continuous strip.

This patented brush construction firmly anchors brush filaments in place, thus providing greater density, uniformity and durability when compared to staple tufted brushes. A Fullergript strip can be used as a straight strip, coiled, spiraled, or formed into almost any shape.



Center Wire

Strong, durable steel locking wire runs the entire length of the strip. Inserted over the fill material and forced down into the formed channel, the wire causes the fill to become vertical as the strip closes over the wire and fill.

Fill Material

The versatility of Fullergript allows the use of many materials to provide the most efficient brushing action. Materials include: horsehair, fiber, steel wire, bronze wire, stainless steel, nylon, polypropylene and other synthetics – as well as mixtures of these materials.

Backing

Strip metal (steel, stainless steel, or aluminum) forms the indestructible backing for Fullergript brushes. The fill material is laid over the heavy gauge metal which is being formed into a U-shaped channel. The table on page 3 lists standard channel sizes and basic dimensions of metal strip brushes.

Trim Options





Flat The industry's standard, and our most common trim.

Beveled Reduces brush resistance and conforms to the surface being brushed.



Notched Uniform brush contact for brushing irregular surfaces.



Shaved End End of strip as a holding area.



Tapered Trim Guiding material or filling angled openings.



Custom Brush Stock Program

The following brushes are available to ship within 48 hours. They are trimmed to your overall specifications. For special order custom brush requests, please call Customer Service at 800-227-2961 or visit www.fullercustomproducts.com. Available in lengths up to 144" except as noted. All Holders are Mill Finished Aluminum unless noted by * which indicates Clear Anodized Finish.

#2.5 Strip Backing Sizes and Holders

Product #	Product # Fill Material					
		Min.	Max.			
Triangular Plated Steel Backing						
Level Nylon	Level Nylon					
8B9201	.006 Gray	1/4"	1"			
8B9202	.006 Black	1/4"	1-1/2"			

#3 Strip Backing Sizes and Holders

Product #	Fill Material	Overall Trim			
		Min.	Max.		
Triangular Plated Steel Backing					
Level Nylon					
8B9302	.006 Black	1-1/2"			
Crimped Nylon					
8B9301	.008 Black	3/8"	1"		
	Triangular Aluminum Backir	ng			
Natural Fiber					
8B9081	Horse Hair Available up to 72" length	3/8"	3-1/4"		

#4 Strip Backing Sizes and Holders

Product #	Fill Material	Overall Trim			
		Min.	Max.		
Triangular Plated Steel Backing					
Level Nylon					
8B9402	.006 Black	1/2"	1-1/2"		
8B9403	.010 Black	1/2"	3"		
Crimped Nylon	imped Nylon				
8B9078	.010 Black	1/2"	2"		
Natural Fiber					
8B9080	Horse Hair Available up to 72" length	1/2"	2"		
	Triangular Aluminum Back	ing			
Crimped Nylon					
8B9079	.005 Black	1/2"	1-1/4"		
8B9036	.008 Black	1/2" 2"			
Crimped Polyp	ropylene				
8B9943	.010 Black	1/2"	3-1/4"		

#5 Strip Backing Sizes and Holders

Product #	Fill Material	Overal	l Trim		
		Min.	Max.		
Triangular Plated Steel Backing					
Level Nylon					
8B9503	1/2"	3"			







45°

9C4145

(45° mount)

0

9C5145 (45° mount)



*9C4100 (straight mount)

9C4190 (90° mount)

.252



1.20 .285 .387

(straight mount)

*9C5190 (90° mount)



#7 Strip Backing Sizes and Holders

Product #	Fill Material	Overall Min.	Trim _{Max.}
Triang	ular Plated Steel Backing	IVIIII.	iviax.
Level Nylon			
8B9703	.014 Black	7/8"	3"
8B9704	.018 Black	7/8"	4"
8B9705	.024 Black	7/8"	5"
Crimped Nylon	.024 Didek	//0	5
8B9054	.005 Black	1 1"	2"
8B9041	.010 Black	7/8"	1-1/2"
8B9042	.010 Black		2"
8B9043	.010 Black		3"
8B9052	.014 Black	7/8"	2"
8B9053	.014 Black		3"
8B9072	.020 Black	7/8"	2"
8B9073	.020 Black		3"
8B9074	.020 Black		4"
8B9062	.028 Black	7/8"	2"
8B9063	.028 Black		3"
8B9064	.028 Black		4"
8B9069	.036 Black	1"	6"
Level Polypropylene	•		•
8B9097	.038 Black	3"	5"
Crimped Polypropyle	ene		
8B9092	.010 White	7/8"	2"
◆8B9974	.010 Black	7/8"	4.350"
8B9091	.014 Black	7/8"	3"
◆8B9976	.014 Black	7/8"	6.350"
8B9094	.020 Black	7/8"	3"
8B9096	.020 White	7/8"	4"
8B9098	.030 White	1"	4"
8B9100	.030 Black	7/8"	3"
8B9099	.030 White	2″	6"
8B9104	.040 Black	7/8"	4"
8B9108	.040 Black		8"
Natural Fibers			
8B9030	Bassine	1"	4-1/4"
8B9033	White Tampico	7/8"	3"
8B9031	Horse Hair Available up to 72" length	7/8″	3"
8B9032	85% HH - 15% .005 Bronze	7/8"	2"
Wire			
8B9087	.010 Oil Tem;pered Crimped Wire	1"	3-3/8"
	Triangular Stainless Steel Backing	g	
Crimped Nylon		1 "	1
8B9057	.014 White - FDA Approved	7/8"	3"
8B9067	.028 White - FDA Approved	7/8"	4"
Crimped Polypropyle	ene		1
8B9047	.014 White	7/8"	3"
Wire		1	1
8B9077	.010 Stainless Crimped Wire	2-1/2"	2-1/2"

The following brushes are available to ship within 48 hours. They are trimmed to your overall specifications. For special order custom brush requests, please call Customer Service at 800-227-2961 or visit

www.fullercustomproducts.com. Available in lengths up to 144" except as noted. All Holders are Mill Finished Aluminum unless noted by * which indicates Clear Anodized Finish.



(45° mount)



*9C7507 (straight mount)

(90° mount)



◆ Fuller Custom Brush - #7 Polypropylene Brush is Classified to U.S. and Canadian standards by Underwriters Laboratories, Inc. for application to hollow metal, steel covered composite, rolling steel and passenger elevator type fire doors rated up to three hours only. R25265



Cylinder Straight Strip



The workhorse in the industry for powered conveyor cleaning. For general cleaning and applications where liquids are used. Excellent for use on all types of belts requiring power rotation. Quality construction provides longer brush life and lower replacement frequency. Wide variety of fill materials and mounting flanges for cleaning versatility.



To ensure the best brush product for your application, be sure to include the essential dimensions.

How to Order:

- Outside diameter will equal the flange diameter plus two times the brush strip's overall trim.
- Select the flange diameter, type and arbor hole size.
- Determine overall length and outside diameter of required brush assembly.
- Select brush strip and overall trim.
- Order sufficient number of flanges based on assembly length.

BRUTE features:

- Wide variety of fill materials
- Lengths up to 144 inches, cut to your specifications
- 6 to 16 strips within 360 degrees
- Refillable design
- Flanges and brush strips available from stock
- Increase productivity and lower maintenance costs

Cylinder Spiral Strip



Designed for higher speeds and vibration free use. Spiral brush concept provides continuous brush contact to the cleaning surface at a fraction of the cost of a full face brush. Continuous contact promotes efficient cleaning and uniform abrasive action. Provides many hours of service, while protecting the integrity of your products.



To ensure the best brush product for your application, be sure to include the essential data.

HUSTLER features:

- Wide variety of fill materials
- Lengths up to 144 inches, cut to your specifications
- 6 to 16 strips within 360 degrees
- Refillable design
- Flanges and brush strips available from stock
- Increase productivity and lower maintenance costs

How to Order:

- Outside diameter will equal the flange diameter plus two times the brush strip's overall trim.
- Select the flange diameter, type and arbor hole size.
- Determine overall length and outside diameter of required brush assembly.
- Select brush strip and overall trim.
- Order sufficient number of flanges based on assembly length.
- Determine degree of spiral. A 30° spiral per foot of brush strip is recommended.



Cylinder Mounting Flanges

To complement the BRUSH STRIP program, Fuller offers a wide selection of mounting flanges to ensure proper brush installation and operation. All flanges are designed to accommodate brush strips with No. 7 backing (see page 6.) A variety of flange diameters, arbor hole sizes and strip capacities are offered. Flanges are complete with all necessary hardware. Design assemblies for light-duty cleaning or full face density, depending on your choice of flanges and number of strips used. Recommended spacing of flanges is one every eight inches plus one to start. For example, a 24 inch assembly requires four flanges. Since hubs become permanent fixtures of your shaft, replacement of worn strips with new refills is a simple operation - but for BEST and FAST results, remove and assemble in groups of (2) strips for every clamp around perimeter of hub.

CAUTION: Spacing between hubs should never exceed 9" from face to face of adjacent hub.

Thread locking adhesive can be used to hold screws more securely if your application requires it.

STANDARD FLANGE STYLES							
		THE REAL PROPERTY OF					
Part Ref	9C9001	9C9003	9C9010	9C412			
Туре	Solid Wedge	Screw	Screw	Open Wedge			
Flange Dia.	2"	3"	2"	4"			
Arbor Hole Size	1" or 1-1/8"	1" or 1-7/16"	1"	1" to 2-1/4"			
Strip Capacity	6	8 or 16	10	12			
Strip Style	Straight or Spiral	Straight or Spiral	Straight or Spiral	Straight or Spiral			

Custom bore sizes available - contact Fuller Sales for assistance.

RECOMMENDED SHAFT SIZES					
Shaft Dia.	Max. Length				
1"	54"				
1-1/16"	58"				
1-1/8"	62"				
1-3/16"	66"				
1-1/4"	70"				
1-5/16"	74"				
1-3/8"	78"				
1-7/16"	82"				
1-1/2"	86"				

Assembly Instructions

- A . Place first hub on shaft and lock with set screws at preselected location from one end of shaft.
- B. Slide remaining hubs on shaft. While still loose, space approximately 8" apart.
- C. Insert two (2) preformed strips into clamps on all hubs, make certain wedge devices rest above and between strips. Only fasten strips at first hub (end of strip flush with face of hub) which is already secured to shaft.
- D. Allow spiral in strips to set brush helix. Move last loose hub to opposite end of the temporarily installed two strips - keep ends flush with face of hub - tighten strips into clamp. Check brush length and adjust hub laterally as needed. Lock hub in place with set screws.
- E. Equally space remaining center flanges and secure with set screws. Tighten (2) strips into clamps.
- F. Install balance of strips in groups of (2), into clamps and lock at each flange location.
- G. Recheck all clamping screws and hub set screws for tightness.





Available backing materials: Galvanized steel, stainless steel or, aluminum backing.

Available fill materials: Nylon, polypropylene, horse hair, tampico, bassine, steel wire, stainless steel wire, or bronze wire. Additional material available upon request.



To ensure the best brush product for your application, be sure to include the essential data. Use our "Quick Quote Forms" available at www.fullercustomproducts.com.



Disposable Coil

A continuous metal back strip brush coiled on and welded to a light wall steel tube. Completely disposable, no core to return. Designed for many hours of trouble free service. This brush is custom made to fit your process.

PRODUCT #	DESCRIPTION
8D8104	4 inch I.D. with 3 inch O.A.T TOTAL BRUSH O.D. 10 INCHES
8D8126	6 inch I.D. with 3 inch O.A.T TOTAL BRUSH O.D. 12 INCHES

PRODUCT #	DESCRIPTION
9C8104-23	HUB SET: 4 INCH O.D. WITH 1-7/16 INCH BORE
9C8126-31	HUB SET: 6 INCH O.D. WITH 1-15/16 INCH BORE



Brush face should be wide enough to overlap each side of the belt surface by 1" to ensure complete coverage. Brush lengths available from 12"-144".

Disposable Coil Brush Assemblies are designed for many hours of trouble-free service. Easy to install, eliminates down time, improves

Note: Brushes can be made with various sizes and types of fill material upon request.

quality, productivity and safe operating. Brushes are mounted to a thin wall steel core available in 4" or 6" diameter. Hub sets are available to fit the core. Let Fuller Brush help custom design the brush to fit your application.

Call 800-227-2961 for assistance on your brush design.



Staple Set Custom Brushes

Staple set brushes are manufactured in straight or staggered designs in a variety of fill material. There are many trim shapes to choose from illustrated below depending on the brush application. The block is made of wood or synthetic material. The manufacturing of a staple set brush is unique. A wooden or synthetic block is put on the stapling machine and a programmed hole pattern is drilled into the block. When the drilling is complete, each hole is filled with a tuft of fill material secured in place with a staple. The staple is made out of steel, stainless steel, or brass.









A. Distance of Row to Edge (Length)B. Distance of Row to Edge (Width)

C. Hole Spacing (Length) D. Hole Spacing (Width)



Staggered



Straight







Twisted-in-Wire Custom Brushes

Twisted-in-Wire brushes are manufactured in various types of shapes and fill material. The fill material is twisted between two coated or stainless steel wires which create a single-stem, single-spiral construction. The brush face can be manufactured up to 50 inches. Twisted-in-Wire brushes are designed in the various shapes and tip styles illustrated below. The brush tip selection depends on the specific application and fill material. For further assistance, please call our technical sales representatives or fill out an online design form with your specifications.







			TIP STYLES					
			CUT TIP	TAPERED CUT TIP	FAN TIP	BOTTLE TUFT	LOOP TUFT	
	A LOOP END		ио аз 2як анк) A-CT	a ar ann an	A-FN	A-BT	NOT AVAILABLE	
E	B CUT to the second sec	ю се срит он. B-TCT	B-FN	B-BT	в-Е			
END STYLES	с	CUT BOTH ENDS C-CT C-TCT	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE			
	D	NO SPACE BETWEEN HANDLE AND BRUSH FACE	D-CT	D-TCT	D-FN	D-BT	D-E	
	DX	SPACE BETWEEN HANDLE AND BRUSH FACE						
		BRUSH FACE	DX-CT	DX-TCT	DX-FN	DX-BT	DX-EX	

Brush Seals

The safe and effective way to provide superior barriers. Thousands of bristles in the brush strip conform to irregularities in most surfaces far better than vinyl or rubber strips. Brushes last longer and conform to a variety of surfaces.

Brush seals are available in a wide variety of bristle lengths and strip sizes for almost any application. Mounting extrusions complete the package and are available in straight, angled, or 90 degree configurations. These aluminum extrusions provide a continuous holder for the brush strips and assure that the seal will remain in place.

Fuller Custom Brush also offers special polypropylene filaments that are classified to U.S. and Canadian standards by Underwriters Laboratories, Inc. for application to hollow metal, steel covered composite, rolling steel and passenger elevator type fire doors rated up to 3 hours only. R25265

Use Fullergript Brush Seals to...

Control Air Flow: provides an effective physical barrier to control heating and cooling **Pest Control:** keep insects and rodents outside the facility

Control Dust: seal buildings, computer rooms, machinery, and filtration systems from dust and dust particles

Control Light: reduce or eliminate light transfer **Control Sound:** effectively reduce the ill-effects of sound infiltration from manufacturing areas to office areas, test labs, etc.



SELECT THE BEST HOLDER DESIGN FOR OPTIMUM SEALING PERFORMANCE



Straight



Angled



90° Angle





Filament Selection Guide

SYNTHETIC

Nylon-Type 6.0

Good bend recovery, abrasion resistance, flex fatigue resistance, and chemical resistance.

Nylon-Type 6.6

Similar properties as 6.0 nylon, but better bend recovery and wet stiffness. High heat deflection temperature.

Nylon-Type 6.12

Highest quality nylon with excellent bend recovery. Used in applications that require a low water absorption.

Polypropylene

Versatile filament for a variety of applications. Excellent wet stiffness. Good bend recovery, but will take a set more easily than other material. **Polyester**

An economical substitute for Nylon-Type 6.6 and 6.12. Ideal for wet applications since its water absorption is very low. Also excellent bend recovery and solvent resistance.

Abrasive Nylon

Nylon monofilament impregnated with either silicone carbide or aluminum oxide. Long wearing material available in several filament diameters and grit sizes.

STATIC DISSIPATIVE

Nylon-Conductive

Offers excellent performance in static control or conductive brushes. The conductivity is unaffected by humidity.

Thunderon®

Specialty acrylic filament bonded with copper sulfide treatment for extremely high level of conductivity. Soft filaments do not abrade surfaces. May be mixed with other materials for increased stiffness.

ANIMAL / PLANT FIBER

Tampico

Derived from the Agave plant grown in Mexico. Natural creamy white color. Unsurpassed in applications requiring liquid retention, scrubbing, and surface finishing.

Bassine

Dark brown bassine is a coarse dyed fiber from palm trees grown in India. Bassine is an excellent material for heavy-duty scrub brushes.

Horse Hair

Black or grey in color. Very good durability. Soft to slightly stiff texture gives scratchless cleaning for highly polished surfaces. Generates minimum static electricity

Goat Hair

Very fine hair often used for short trim soft brushes.

WIRE

Steel

High carbon wire with excellent fatigue resistance.

Stainless Steel-Type 304

Highly resistant to corrosion and higher temperatures. Often effective in contamination areas and after-rust areas.

Stainless Steel-Type 316

Superior for high corrosion resistance and more effective in highly contaminated applications.

Brass

Non-ferrous and softer wire compared to steel or stainless steel. Effective for reducing heavy static in a concentrated area.

Phosphorous Bronze

Non-ferrous wire. Better temper than brass with non-corrosive properties.

FILL MATERIAL COMPARISON GUIDE E=Excellent G=Good F=Fair P=Poor										
Characteristics Nylon 6.0 Nylon 6.6 Nylon 6.12 Polypropylene Polyester Tampico Bassine Horse Hair										
Max Temp Usage	230° F	250° F	230° F	240° F	250° F	250° F	225° F	375° F		
Stiffness When Wet	Р	Р	F	G	E	Р	F	Р		
Bend Recovery	G	E	E	G	E	Р	Р	G		
Resistance to abrasion	E	E	E	G	E	Р	Р	G		
Resistance to Taking a Set	G	G	G	F	G	F	F	Р		
		•	CHEMICAL R	ESISTANCE	•			•		
Dilute Acids	Р	Р	Р	E	G	G	G	Р		
Dilute Alkalis	E	E	E	E	G	G	G	Р		
Nonflammable Degreasing Solvents	G	G	G	F	G	G	G	Р		
Gasoline Petroleum Distillates	E	E	E	G	E	G	G	Р		
Alcohols, Vegetable Oils	G	G	G	E	E	G	G	Р		





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