



Fuller Industries, LLC

CUSTOM BRUSH

Division



Designer's Guide



About Fuller Custom Brush

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
- Overhead Door
- Construction
- Food Processing
- Woodworking
- Lawn & Turf
- Bakery
- Printing
- Mass Transit
- Door Seals
- Aerospace
- Packaging
- Conveyor Cleaning

We've built our reputation by devising solutions that meet exacting specifications for OEM components, consumer appliances, production parts, manufacturing processes and various manual usages.

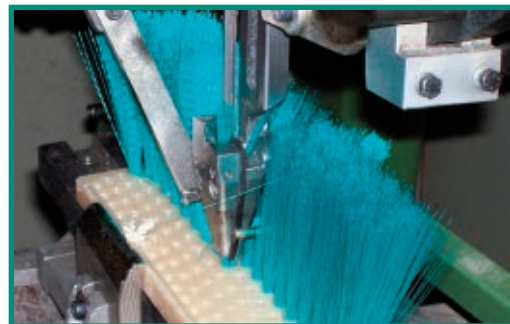
The versatility, efficiency and economy of our Fullergript® brush - the original metal channel strip brush - keeps Fuller at the forefront of custom brush manufacturers worldwide. Fullergript® construction permits brush materials of all types, sizes and shapes to be evenly distributed along the backing 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



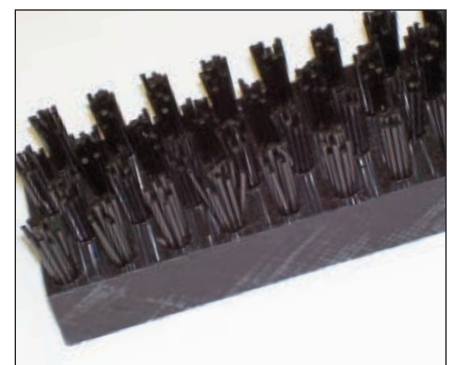
Metal Channel



Twisted Wire



Staple Set



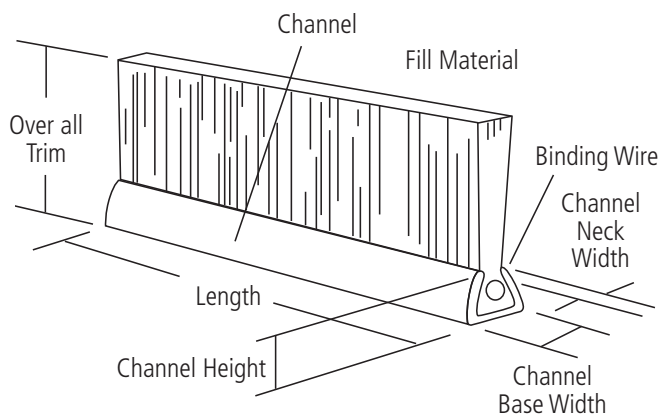


Fullergript® Metal Channel Strip Construction

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

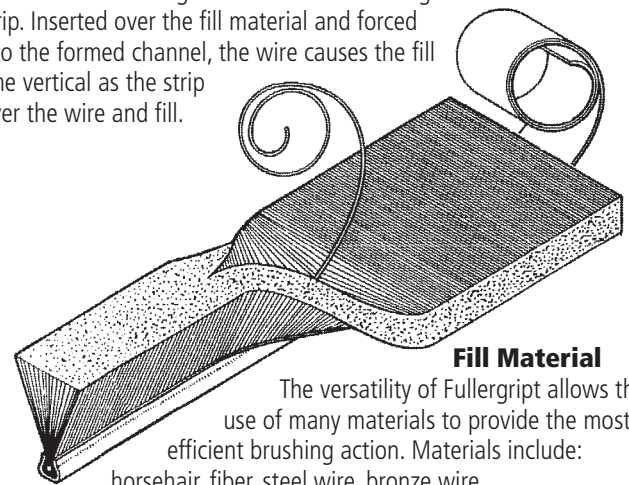
Fuller Custom Brush has been a recognized leader in the brush industry since 1906. Fuller pioneered and developed the principle of the continuous strip.

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 five lists standard channel sizes and basic dimensions of metal strip brushes.



Trim Options

Flat

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

Bevel

Reduces brush resistance and conforms to the surface being brushed.

Shaved End

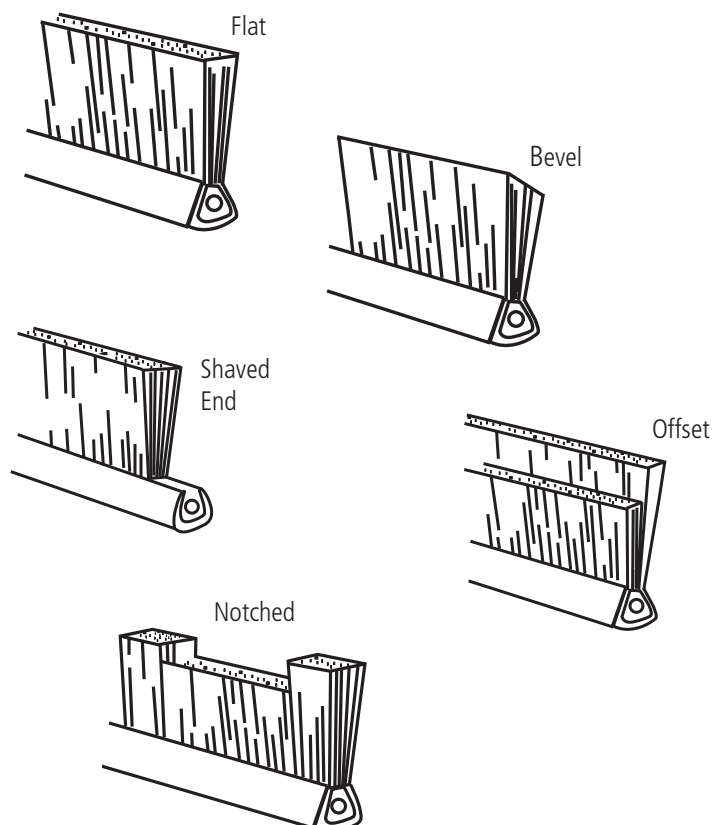
End of strip as a holding area.

Offset

Less density at the surface with back support.

Notched

Uniform brush contact for brushing irregular surfaces.



The following table lists standard channel sizes and basic dimensions of metal strip brushes.

Formed Channel Dimensions							
	Backing #	Backing Size	Base Width	Channel Height	Neck Width	*Standard Strip Material	Standard Shapes
	2	1/4 x .020	.107	.094	.075	CN	Triangular
	2.5	5/16 x .024	.125	.130	.100	GS	Triangular
	3	3/8 x .025	.145	.157	.106	GS, A, SS	Triangular
	4	1/2 x .030	.195	.198	.155	GS, A, SS	Triangular
	5	5/8 x .040	.240	.250	.190	GS, A, SS	Triangular
	5	5/8 x .040	.280	.234	.179	GS	Oval
	6	3/4 x .040	.280	.313	.220	GS, SS	Triangular
	6	3/4 x .040	.255	.261	.212	GS	Oval
	7	7/8 x .050	.315	.352	.240	GS, SS	Triangular
	7	7/8 x .050	.330	.344	.285	GS	Oval
	10	1-1/4 x .040	.460	.500	.370	A	Triangular
	10	1-1/4 x .062	.460	.500	.370	GS, SS	Triangular
*GS(Galvanized Steel) SS(Stainless Steel) A(Aluminum) CN(Cupro-Nickel)							

Note: 1. The #2, #6 and #10 backing sizes are available by special order only.



Custom Brush Stock Program

The following brushes are available to ship within 48 hours. They are trimmed to your overall trim and length specifications. For special order custom brush requests, please call Customer Service at 800-227-2961 or visit www.fullercustomproducts.com. Our technical sales team is ready to serve your custom brush needs.

#2.5 Strip Backing Sizes

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

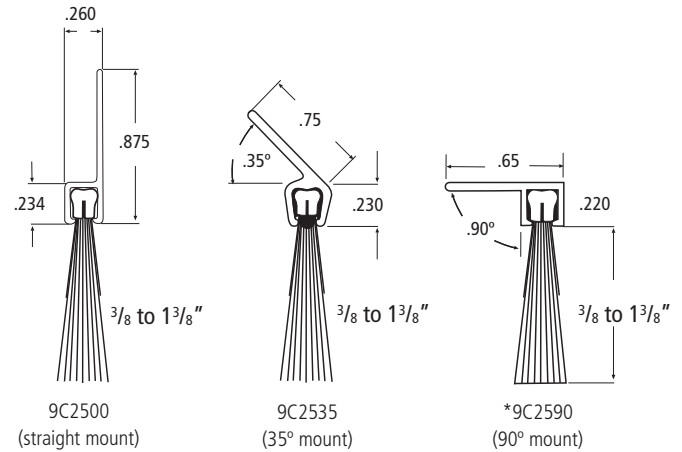
#3 Strip Backing Sizes

Product #	Fill Material	Overall Trim	
		Min.	Max.
Triangular Plated Steel Backing			
Crimp Nylon			
8B9301	.008 Crimp	3/8"	1"
Level Nylon			
8B9302	.006 Black	3/8"	1-1/2"
Triangular Aluminum Backing			
Horsehair			
8B9081	Available in 72" length	3/8"	3-1/4"

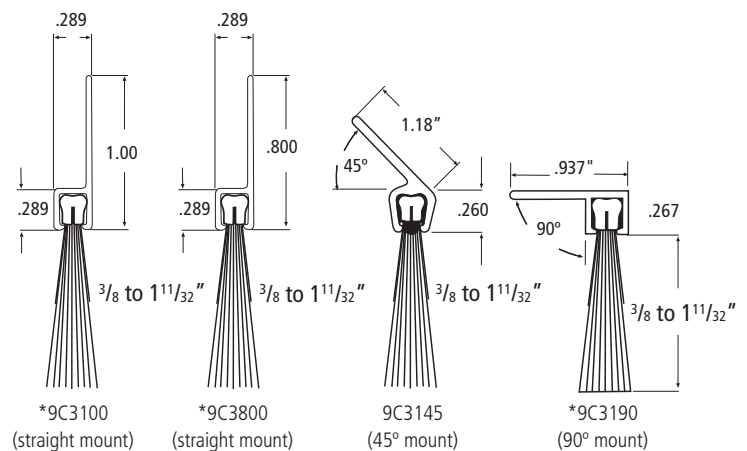
#4 Strip Backing Sizes

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			
8B9078	.010 Black	1/2"	2"
Horsehair			
8B9080	Horsehair	1/2"	2"
Triangular Aluminum Backing			
Crimped Nylon			
8B9079	.005 Black	1/2"	1-1/4"
8B9036	.008 Black	1/2"	2"
Crimped Polypropylene			
8B9943	.010 Black	1/2"	3-14"

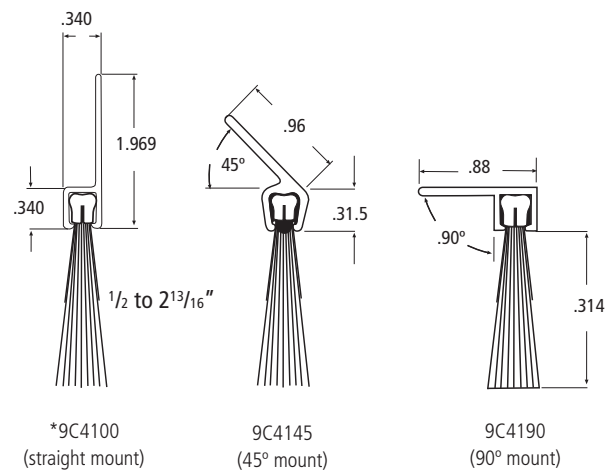
#2.5 Strip Holders – Available in lengths up to 144"



#3 Strip Holders – Available in lengths up to 144"



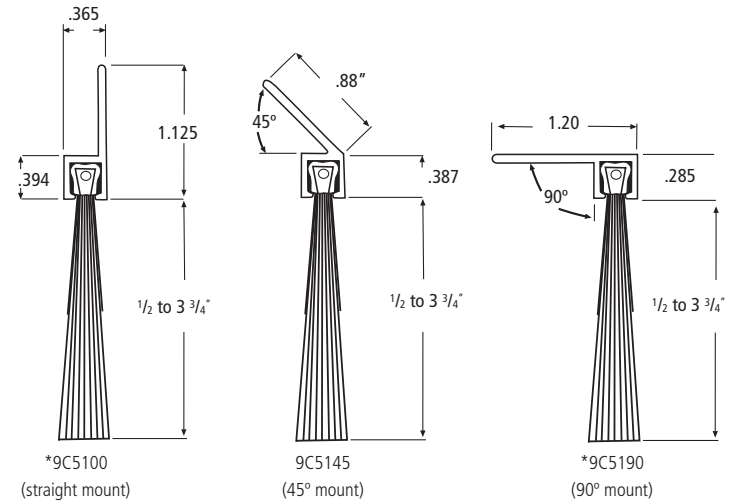
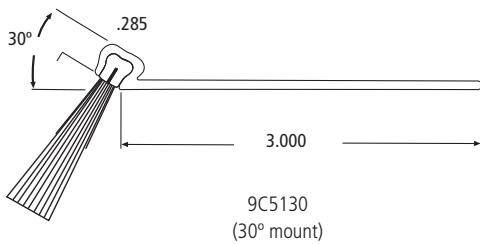
#4 Strip Holders – Available in lengths up to 144"



* Clear Anodized Finish

#5 Strip Backing Sizes

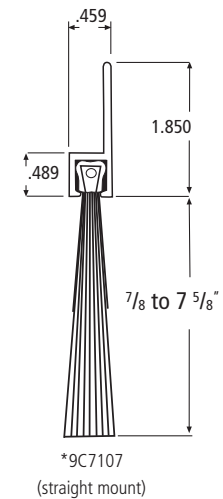
Product #	Fill Material	Overall Trim	
		Min.	Max.
Triangular Plated Steel Backing			
Level Nylon			
8B9503	.012 Black	1/2"	3"
Oval Plated Steel Backing			
Crimped Bronze Wire			
8B9010	.005	1-5/8"	1-5/8"



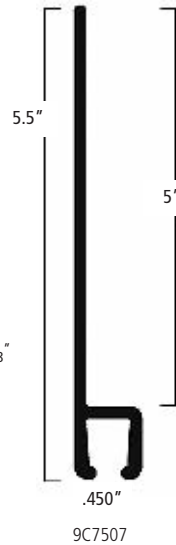
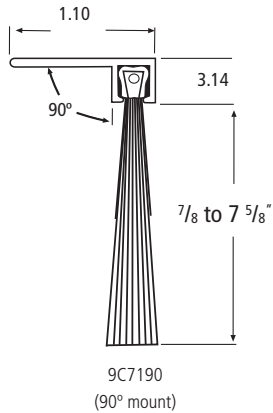
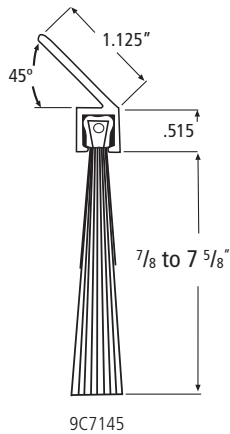
#7 Strip Backing Sizes

Product #	Fill Material	Overall Trim		Product #	Fill Material	Overall Trim	
		Min.	Max.			Min.	Max.
Triangular Plated Steel Backing				Triangular Plated Steel Backing			
Level Nylon				8B9099	.030 White		6 "
8B9703	.014 Black	7/8 "	3 "	8B9104	.040 Black	7/8 "	4 "
8B9704	.018 Black	7/8 "	4 "	8B9108	.040 Black		8 "
8B9705	.024 Black	7/8 "	5 "	Straight Polypropylene			
Crimped Nylon				8B9097	.038 Black	3 "	5 "
8B9054	.005 Black	1 "	2 "	Natural Fibers			
8B9041	.010 Black	7/8 "	1-1/2 "	8B9030	Bassine	1 "	4-1/4 "
8B9042	.010 Black		2 "	8B9033	White Tampico		3 "
8B9043	.010 Black		3 "	8B9034	White Tampico		4 "
8B9052	.014 Black	7/8 "	2 "				
8B9053	.014 Black		3 "	Horsehair			
8B9072	.020 Black	7/8 "	2 "	8B9031	Horsehair		3 "
8B9073	.020 Black		3 "	8B9032	85% Horsehair	7/8 "	2 "
8B9074	.020 Black		4 "		15% .005 Bronze	7/8 "	2 "
8B9062	.028 Black	7/8 "	2 "				
8B9063	.028 Black		3 "	Crimped Oil Tempered Wire			
8B9064	.028 Black		4 "	8B9087	.010	3-3/8 "	3-3/8 "
8B9069	.036 Black	1 "	6 "	Triangular Stainless Steel Backing			
				Crimped Nylon			
Crimped Polypropylene				8B9057	.014	7/8 "	3 "
8B9092	.010 White	7/8 "	2 "	8B9067	.028	7/8 "	4 "
◆ 8B9974	.010 Black	7/8 "	4.350 "	Crimped Polypropylene			
8B9091	.014 Black	7/8 "	3 "	8B9047	.014 White	7/8 "	3 "
◆ 8B9976	.014 Black	7/8 "	6.350 "	Crimped Stainless Steel			
8B9094	.020 Black	7/8 "	3 "	8B9077	.010 Wire	2-1/2 "	2-1/2 "
8B9096	.020 White	7/8 "	4 "				
8B9098	.030 White	1 "	4 "				
8B9100	.030 Black	7/8 "	3 "				

#7 Aluminum Strip Holders

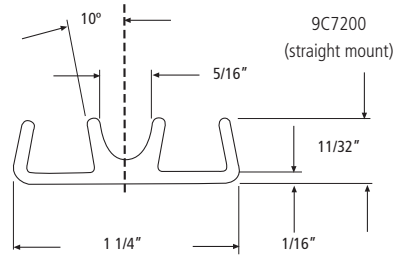
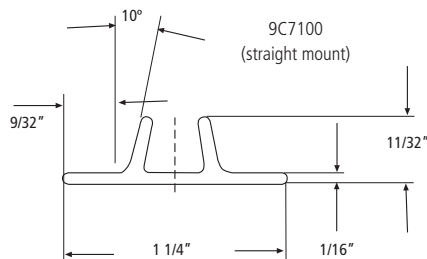


* Clear anodized finish



Paster Brush Holder 9C7150
(Available in lengths up to 75)

Extruded aluminum holder for mounting paster brushes. Holds four strips. Fill with 8B9053 paster brushes.



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. They last longer, conform to surfaces irregularities, and stop 98% of all air infiltration.

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 - #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



Use Fullergript Brush Seals to...

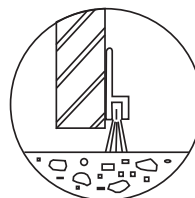
Control Air Flow: provides an effective physical barrier to control heating and cooling

Pest Control: keep insects and rodents outside the facility

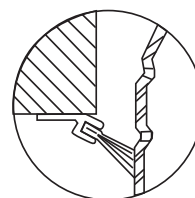
Control Dust: seal buildings, computer rooms, machinery, and filtration systems from dust and dust particles

Control Light: reduce or eliminate light transfer

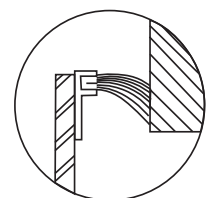
Control Sound: effectively reduce the ill-effects of sound infiltration from manufacturing areas to office areas, test labs, etc.



Straight

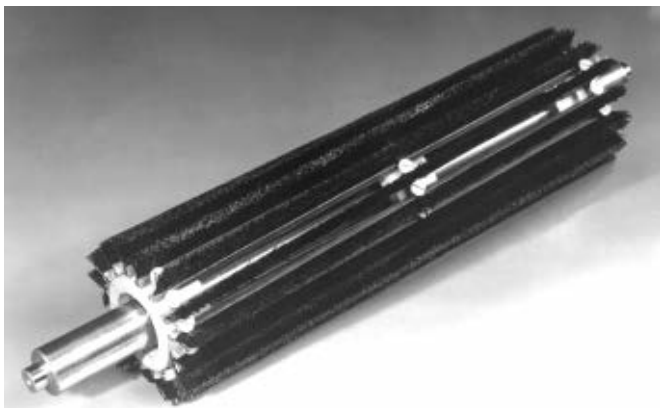


Angled

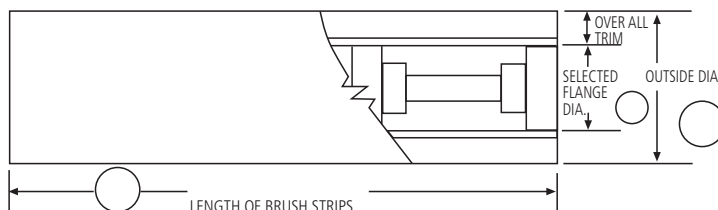


90° Angle

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.

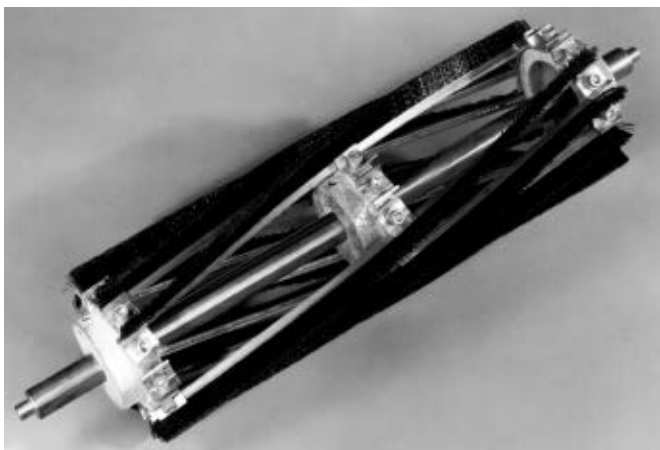
BRUTE features:

- 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

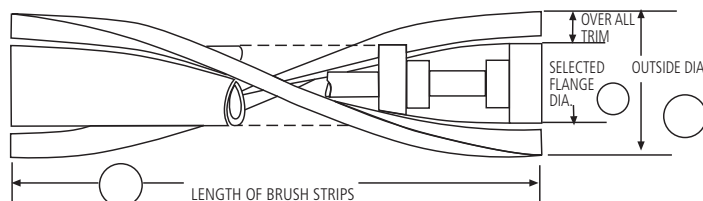
How to Order:

- 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.

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.

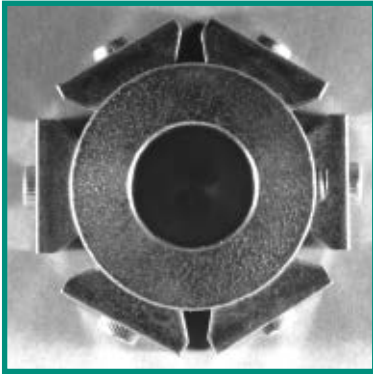
Cylinder Mounting Flanges

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 7.) A variety of flange diameters, arbor hole sizes and

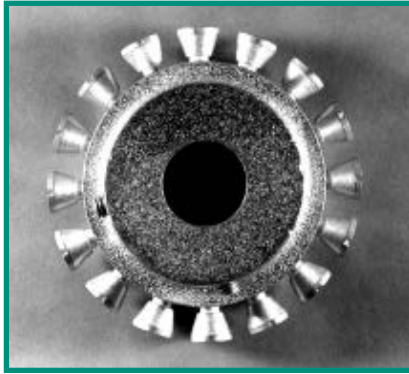
strip capacities are offered. Flanges are complete with all necessary hardware. Design assemblies for light-duty cleaning or full face density, depending on your choice of flanges and number of strips used.

Recommended spacing of flanges is one every eight inches plus one to start. For example, a 24 inch assembly requires four flanges.

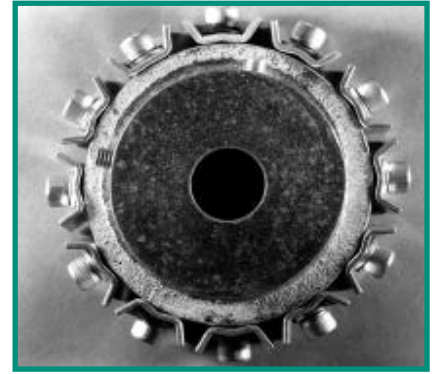
9C9001 - Wedge Type



9C9003 - Screw Type



9C9412 - Wedge Type



Product#	Type	Flange Dia	Arbor Hole Size	Strip Capacity	Strip Type
9C9001	Wedge	2"	1", 1-1/8"	6	Straight/Spiral
9C9003	Screw	3"	1", 1-7/16"	8 or 16	Straight/Spiral
9C9010	Screw	2"	1"	10	Straight/Spiral
9C9412	Wedge	4"	1" to 2-1/4"	12	Straight/Spiral

Note: Larger bore size available by special order.

Cylinder Brush Assembly For Cylinder System

- Place first hub on shaft and lock with set screws at preselected location from one end of shaft.
- Slide remaining hubs on shaft. While still loose, space approximately 8" apart.
- 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.
- 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.
- Equally space remaining center flanges and secure with set screws. Tighten (2) strips into clamps.
- Install balance of strips in groups of (2), into clamps and lock at each flange location.
- Recheck all clamping screws and hub set screws for tightness.

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.

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



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.

Nylon-Conductive

Offers superior performance in static control or conductive brushes. The conductivity is unaffected by humidity. Suitable for uses up to 230°F.

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.

HAIR

Horse Hair

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

Goat Hair

Very fine hair often used for very 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.

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.

FILL MATERIAL COMPARISON GUIDE E=Excellent G=Good F=Fair P=Poor						
Characteristics	Polypropylene	Nylon	Tampico	Bassine	*Horse hair	Polyester
Max Temp Usage	240°F	250°F	250°F	225°F	375°F	250°F
Stiffness When Wet	G	P	P	F	P	E
Bend Recovery	G	E	P	P	F	E
Resistance to Abrasion	G	E	P	P	G	E
Resistance to Taking a Set	F	G	F	F	P	G
CHEMICAL RESISTANCE						
Dilute Acids	E	P	G	G	P	G
Dilute Alkalis	E	E	G	G	P	G
Nonflammable Degreasing Solvents	F	G	G	G	P	G
Gasoline Petroleum Distillates	G	E	G	G	P	E
Alcohols, Vegetable Oils	E	G	G	G	P	E
*Horse hair is an excellent material for fine brushing. Durable, high heat resistance. Generates minimum static electricity. Not recommended for wet conditions.						

Shapes & Applications

Straight

SEALS for temperature control, noise reduction, light filtration;
CONTAINMENT SYSTEMS for conveyors; SHIELDS for paint spray,
parts cleaning, wood/metal chips.

Coiled

CLEANING SYSTEMS for conveyors, sheet metal and glass,
fruits and vegetables; POLISHING metal, leather, etc.;
AUGERING SYSTEMS to move products.

Spiral

AUGERING SYSTEMS to control directional movement;
CLEANING SYSTEMS for conveyors.

Cup

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

Inside Disc

CLEANING outside surface of pipe, tubing, etc; SEALS for
rolled thread based screws, shafts, etc.

Outside Disc

CLEANING and POLISHING systems. May be used individually
or mounted together for wider brush face.

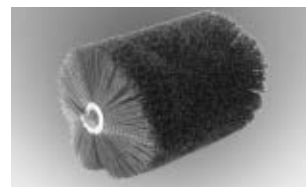
Formed

Per application required.

Straight



Coiled



Spiral



Cup



Inside Disc



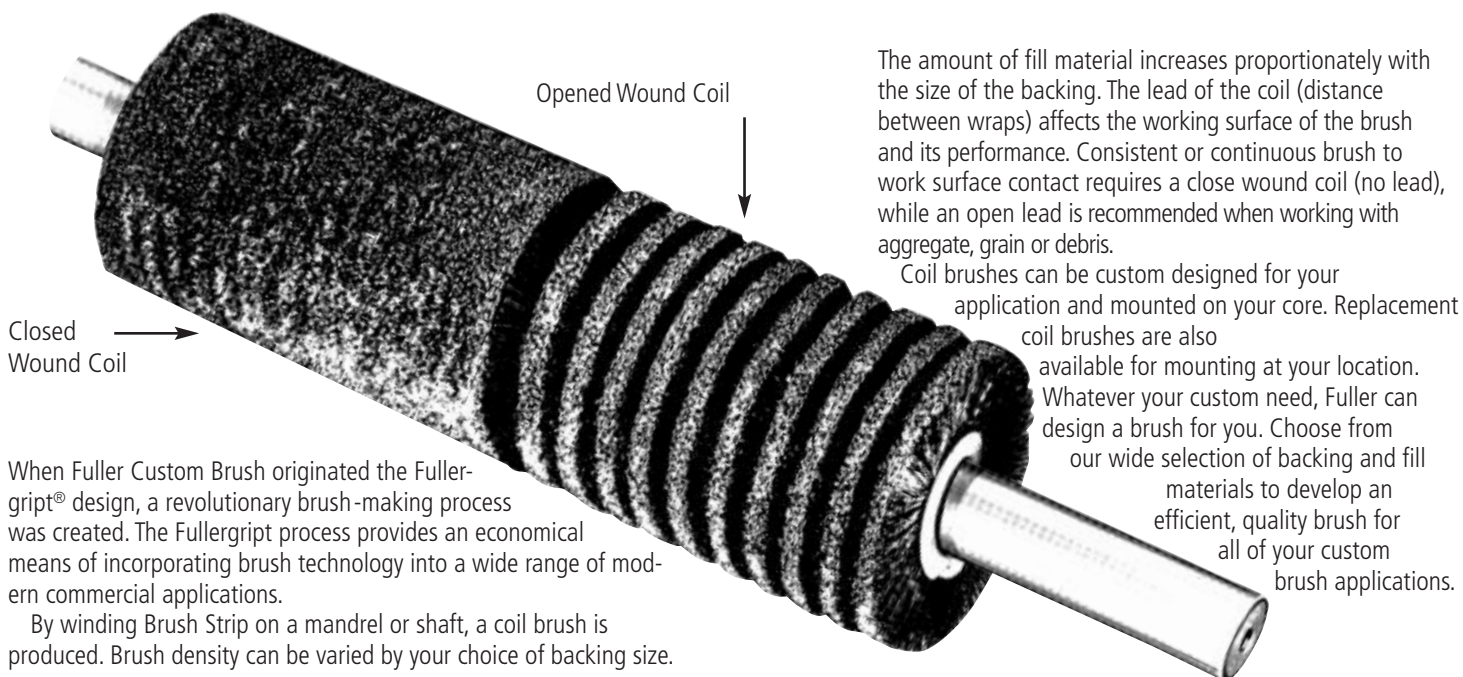
Outside Disc



Formed

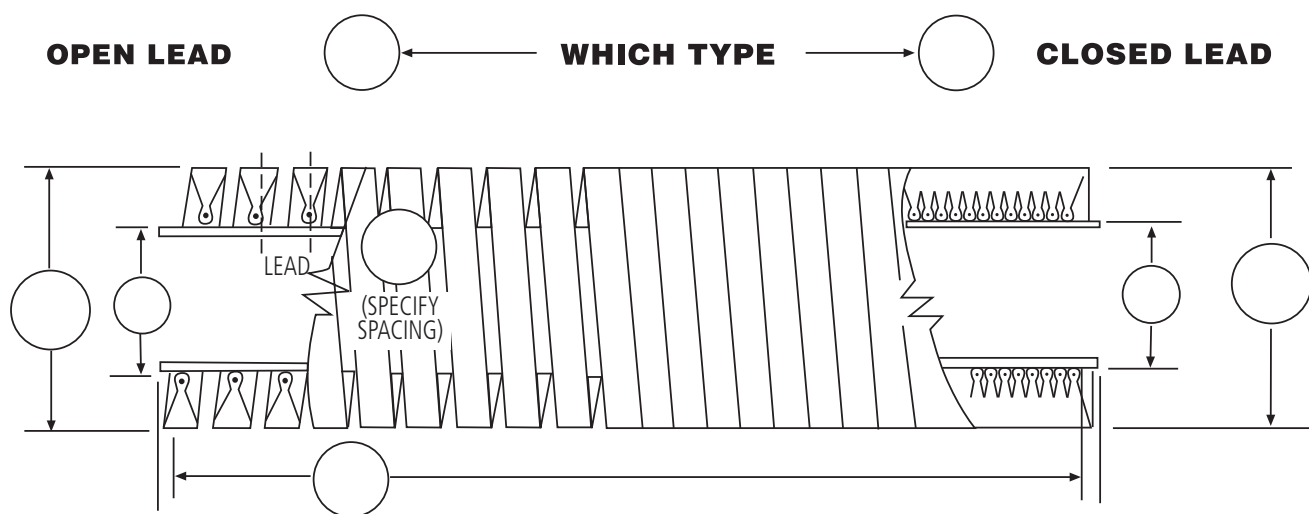


Coil Brush



Available backing materials: Plated steel, stainless steel, aluminum, or brass backing.

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



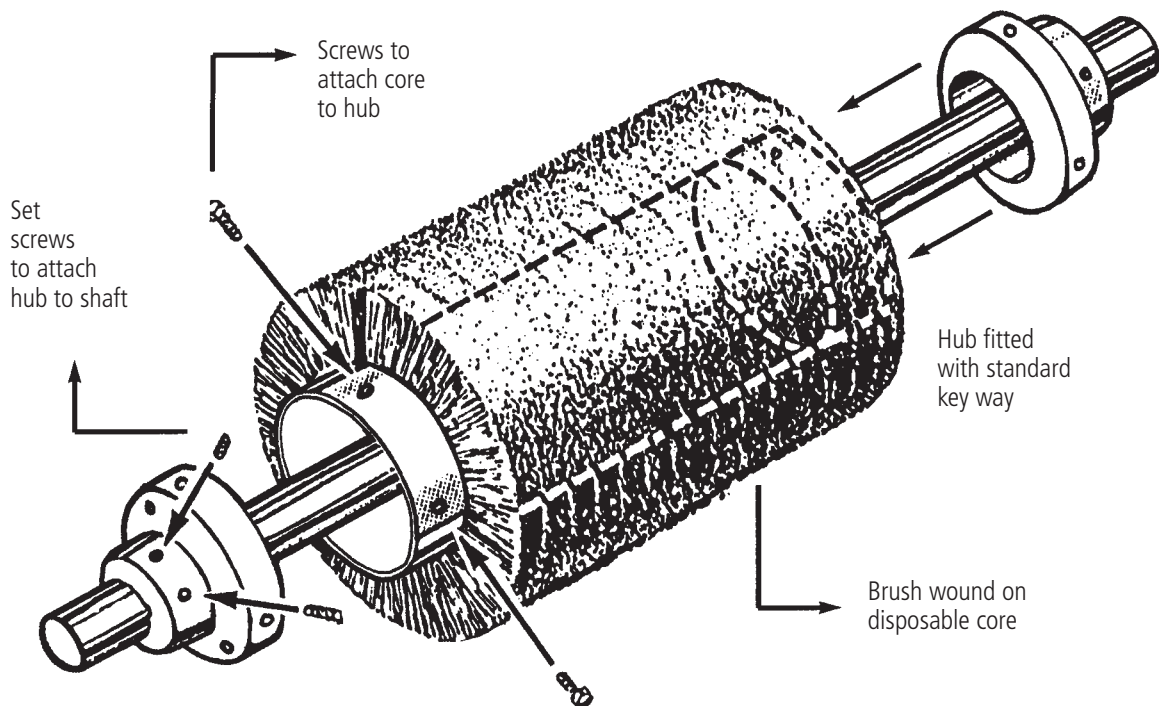
To ensure the best brush product for your application, be sure to include the essential data. Use our "Quick Quote Forms" available at www.fullercustomproducts.com.

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 qual-

ity, 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.

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



Staple Set Custom Brushes

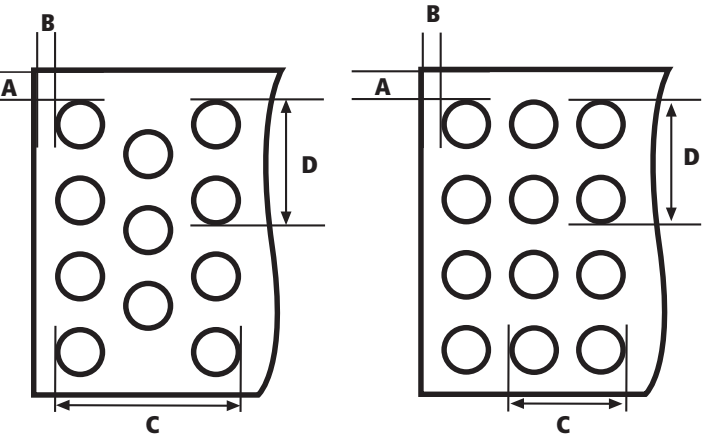
Staple set brushes are manufactured in straight or staggered designs in a variety of fill material. See page 9 for selection. There are many trim shapes to choose from illustrated below depending on the brush application. The block is made of wood or synthetic material.

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.



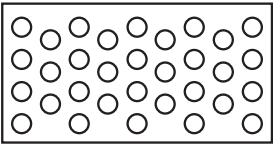
1. Straight
2. Beveled
3. Dome
4. Concave
5. Convex

Custom Staple Set Brush

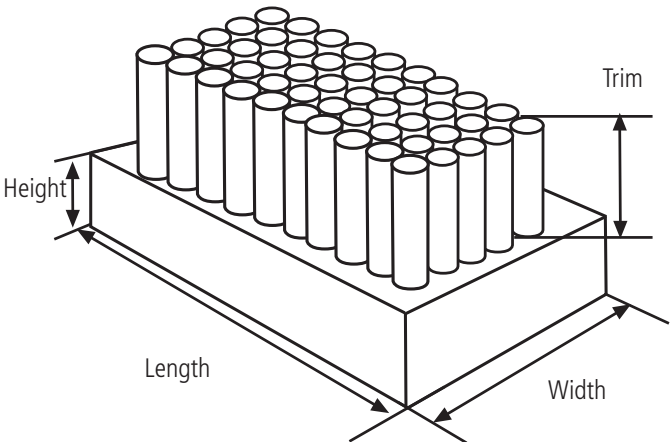
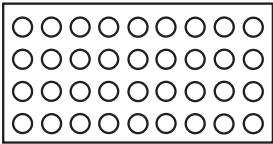


- A. Distance of Row to Edge (Length)
- B. Distance of Row to Edge (Width)
- C. Hole Spacing (Length)
- D. Hole Spacing (Width)

Staggered



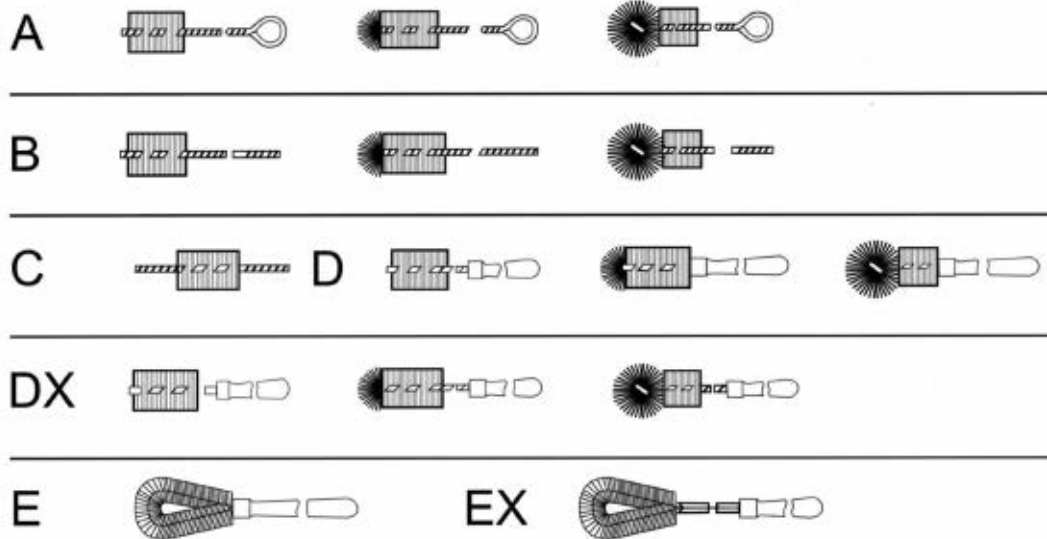
Straight



Twisted-in-Wire Shapes

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.



A = Loop End
B = Cut End
C = Cut both ends
D = No space between handle and brush face

DX = Space between handle and brush face
E = No space between handle and loop brush face
EX = Space between handle and loop brush

TIP STYLES



Cut Tip



Fan Tip



Bottle Tuft



Loop Tip

Twisted Wire Custom Brushes

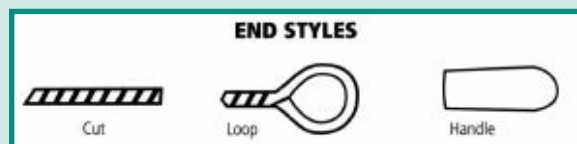
Twisted-in-Wire brushes are manufactured in various types of shapes and fill material.

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. Each brush is made with a certain end style described and illustrated below.

Cut style is the stem cut flat.

Loop style is the end of the stem twisted in a loop shape for ease of use.

Handle style is the end of the stem fixed in a wood or plastic mold.





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