INDUSTRIAL BRUSHES

FLEX-HONE®

MICRO-BRUSHES

MADE IN USA

BRM
BRUSH RESEARCH MANUFACTURING

Flex-Hone® since 1958
specialists in innovation

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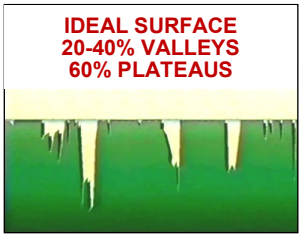
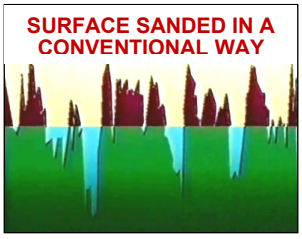
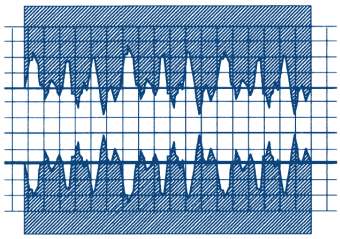
FLEX-HONE®

FLEXIBLE SANDER

Deburring, Radiusing, Finishing, Superfinishing, Roughness Correction







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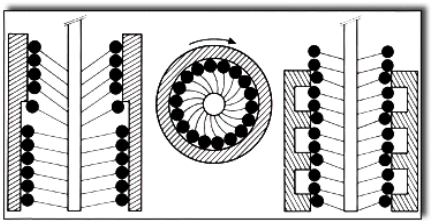

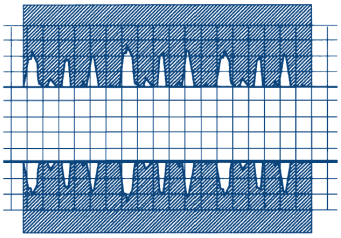

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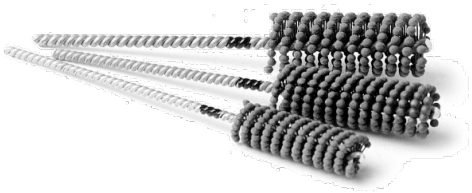


UNIQUE VERSATILITY AND FLEXIBILITY FEATURES

Independent Abrasive Spheres - Self-Centering - Automatic Wear Compensation
Speed and Uniformity of Processing - Surface Finish - Gentle Action at Low Temperature

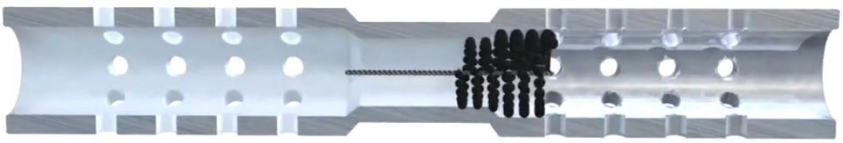
Cuts Peaks and Produces a Cross-Hatch Finish, With Many "Valleys" and few "Peaks" for Better Lubricant Film Retention, Resulting in Significant Benefits in Terms of Wear, Smoothness, and Sealing.

Usable on CNC Machines, Transfer Machines, Column Drills, Hand Drills
After and/or Before Drilling, Boring, Turning, Grinding, Lapping, Rolling, etc.

Successfully Used in the Following Sectors:
General and Precision Mechanical Industry, Automotive Industry, Aerospace, Naval, Hydraulic, Pneumatic, Firearms, Military, etc.

Full Range of Diameters From 4MM to 914MM - 9 Types of Abrasives and 11 Grits
Possibility of Producing Special Flex-Hones

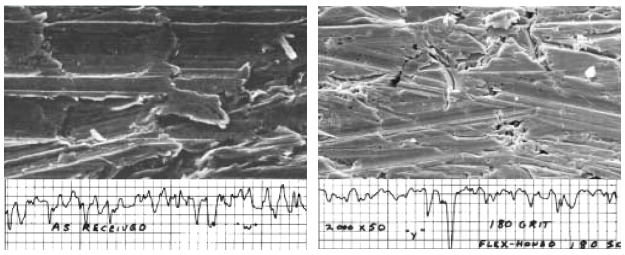
THE RIGHT SOLUTION FOR EVERY PROCESSING NEED



LOW PRESSURE AND TEMPERATURE ABRASIVE PROCESS, WHICH, WITHOUT ALTERATIONS, PRODUCES A LONG-LASTING SURFACE. IT IS A METHOD TO DEVELOP A SURFACE FREE OF FRACTURES, DEFORMITIES, OR FOLDINGS AT THE MICROSTRUCTURE LEVEL OF THE METAL CAUSED BY PREVIOUS PROCESSING.

The Flex-Hone produces a surface finish with characteristics not achievable with other processes. This type of processing involves surface finishing, surface geometry, and metal structure. It achieves a "Plateau" finish with a surface free of ridges, tears, and metal folds. The Flex-Hone also deburrs passage holes while lapping the walls of the bore. In hydraulic or pneumatic applications, it extends the life of sealing gaskets and improves their sealing performance.
The Flex-Hone is a durable and flexible tool with a gentle cutting action. Each of the abrasive balls has independent suspension, allowing the Flex-Hone to be self-centering and self-aligning with respect to the bore and to self-compensate for wear. The Flex-Hone is suitable for all types of bores ranging from 4 to 914 mm in diameter.

Example of processing with a conventional sander
1000x magnification.
Spreadings and material folds on the surface, which will detach during use. Finish with many peaks. Characteristics due to the "rigid" sanding action.



After Flex-Hone® usage
Silicon carbide grit #180
1000x magnification
Uniform cross-hatch pattern. Clean and open appearance with spreadings and material folds removed. Excellent semi-plateau profile, with few peaks and many valleys for lubricant retention.

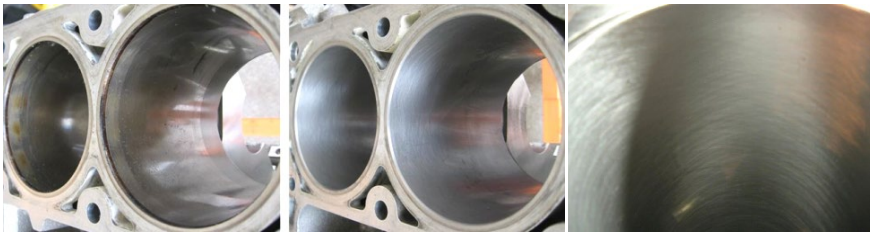
Advantages

- "Plateau" finish over 60%
- Cross-hatch pattern finish
- Better lubricant retention
- Reduction of Ra Rpk and Rvk values
- Increased contact surface
- Lower lubricant consumption
- Reduced Blow-By
- Reduce friction
- Improved surface retention

Processes examples

With the right choice of abrasive and grit from the wide range available, it is possible to achieve:

- ***Polishing-Superfinishing-Surface Roughness Correction*:** it is possible to reduce roughness and obtain a superfinish, achieving values below Ra 0.06 µm even on materials with a hardness exceeding 80Hrc. Alternatively, it is possible to provide the required roughness to a surface that is too smooth, up to values of approximately Ra 2 µm, still obtaining a surface with a cross-hatch "Plateau" finish. It is possible to standardize the surface finish by eliminating the marks from previous processes.
- ***Deburring:*** it is possible to achieve deburring or micro-deburring on the entry/exit edges of holes, intersecting holes, and channels, as well as edges of grooves or O-ring seats after drilling, turning, boring, grinding, lapping, etc.
- ***Radiusing*:** it is possible to round off the sharp edges that remain after boring, drilling, turning, grinding, etc.
- ***Bore post-processing*:** it can be used to uniformly remove material from a few microns or hundredths up to 0.1 mm on a bore without deforming it, and in certain cases, it can correct pre-existing deformations.
- ***Cleaning, descaling*:** thanks to its abrasive action, it is also an excellent tool for cleaning, deoxidizing, descaling, etc.



Some before-after examples

Application sectors

- Air compressors
- Vacuum pumps
- Hydraulic/pneumatic cylinders
- Hydraulic/pneumatic motor housings
- Hydraulic manifolds and cartridges
- Hydraulic and pneumatic control units
- Aeronautic engine components
- Aerospace industry components
- Injection pumps bodies
- Valve guides
- Brake cylinders
- Brake and clutch plungers
- Brake drums and discs
- 2/ 4 strokes engine cylinders/sleeves
- Cranks
- Intersecting holes for oil passage
- Dampeners
- Surface finish of stainless tubes
- Sliding guides for molds
- Various kinds of injectors
- Various kinds of extruders
- Gun components (barrels, chambers)
- Descaling of tubes in nuclear power plant cooling systems
- Golf clubs
- Musical instruments
- Plumbing fixtures, valves
- In lapping machines along with diamond reamers
- Mechanical processing in general
- Deburring/micro-deburring
- Finishing, superfinishing, lapping
- Post-processing and/or roughness correction

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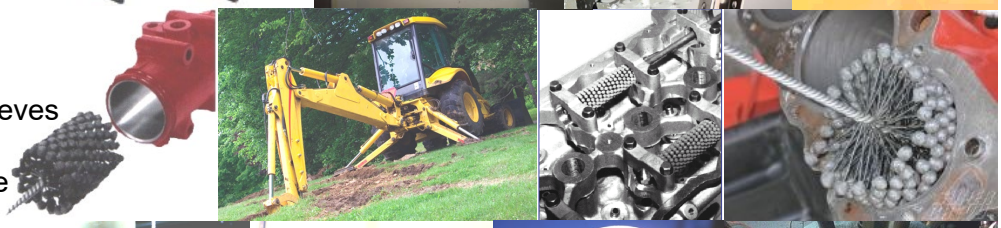
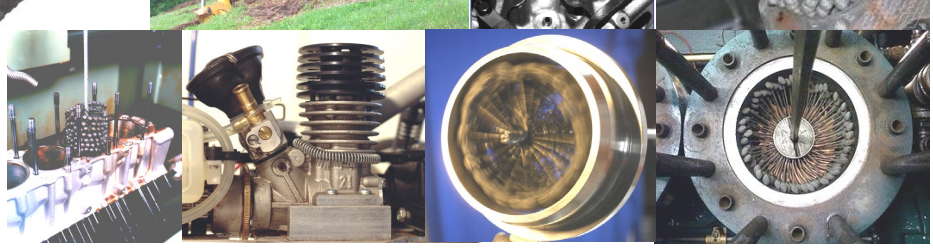
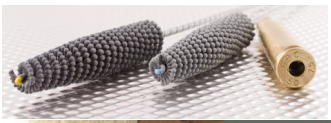
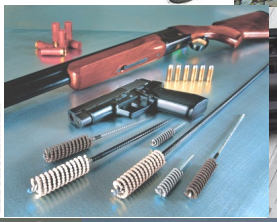
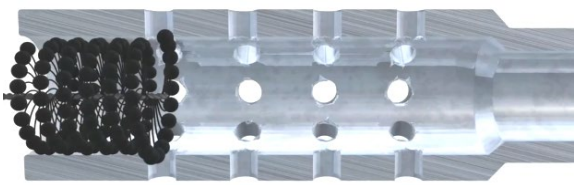
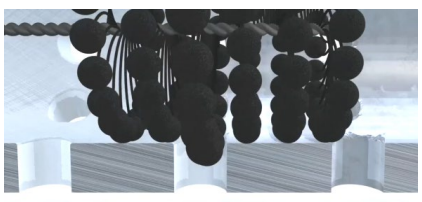
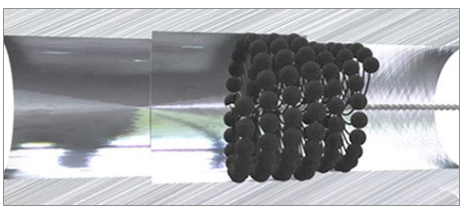









Flex-Hone usage

The Flex-Hone can be used manually with a regular drill, on a column drill, within the processing cycle of CNC machines as a tool, or on transfers for industrial applications, even with high production volumes.

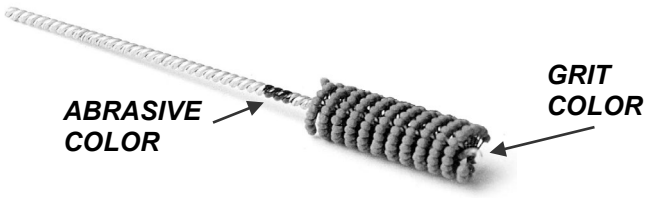
- Using the Flex-Hone dry is not recommended as it significantly reduces its lifespan. It is advised to use whole oil with a viscosity between 10 and 30 or an emulsifiable cutting fluid for mechanical operations. A common spray lubricant can also be used, and when working on brake cylinders, hydraulic brake oil is recommended. Diesel, petroleum, or solvents-containing lubricants can be used but are not recommended as they reduce the Flex-Hone's lifespan by breaking down its abrasive balls more quickly.
- The Flex-Hone works under pressure, so its effective diameter is larger than the bore to be worked on.
- The Flex-Hone MUST enter and exit the bore in rotation.
- The Flex-Hone is NOT balanced; DO NOT spin it at maximum speed before it has entered the bore to be worked on.
- Consult the table for choosing the correct rotation speed in relation to the diameter; however, the rotation speed may vary depending on the application. It is recommended to conduct tests and use the Flex-Hone with the shortest contact time that achieves the desired result to maximize its lifespan. High speeds cause premature wear without achieving appreciable time reductions. DO NOT use high-speed tools. For manual use, use a regular electric drill.
- Operate with rapid reciprocating movements with a frequency of 60 to 120 strokes per minute depending on the rotation speed. Accelerate the alternation of strokes at the end of the operation to achieve a cross-hatch pattern of 30°-45°.
- The processing time should be approximately 20-45 seconds for each cylinder in the case of a motor application, but it may vary depending on the material, application, abrasive, grit, and lubrication.
- Wash the cylinders thoroughly after processing and lubricate with oil.
- The lifespan depends on various factors such as the abrasive used, lubrication, material being worked on, whether it is used with a machine or manually, the length of the bore, contact time, etc. Several hundred to over 1000 pieces can be processed with a single Flex-Hone.

Speeds and feeds

The Flex-Hone is a low-speed, high-feed tool. The rotation speed depends on the diameter and application. Below are indicative values, but some processing tests are still necessary to find the correct speed. The feed rate of the Flex-Hone depends on the diameter, working length, and desired cross-hatch angle in the typical cross-hatch finish. Indicative parameters can range from 2500-3000 mm/min for medium to large diameters up to 6,000 mm/min for small diameters. When used on CNC machines, a maximum indicative value can be taken as 5% of the diameter. Below is a table with some examples.

Flex-Hone	Ø Hole (mm)	Feed (mm/rev)	Rotation (rpm)	Flex-Hone	Ø Hole (mm)	Feed (mm/rev)	Rotation (rpm)	Flex-Hone	Ø Hole (mm)	Feed (mm/rev)	Rotation (rpm)
BC 4mm	4	0.2 0.6	1.000 1.200	BC 20mm	20	1.0 2.4	900 1.000	BC/GBD 3”	76	3.8 4.8	600 900
BC 4.5mm	4.5			BC 7/8”	22			GB/GBD 3-1/4”	83		
BC 3/16”	4.75			BC 15/16”	23.8			GB/GBD 3-1/2”	89		
BC 5mm	5			BC 1”	25.4			GB/GBD 3-3/4”	95		
BC 5.5mm	5.5			BC 1-1/8”	29			GBD 4”	101	4.8 10.0	400 600
BC 6mm	6			BC 1-1/4”	31.8			GB 4-1/8”	105		
BC 6.4mm	6.4			BC 1-3/8”	35			GBD 4-1/4”	108		
BC 7mm	7			BC 1-1/2”	38			GBD 4-1/2”	114		
BC 8mm	8			BC 1-5/8”	41			GB 4-5/8”	118		
BC 9mm	9			BC 1-3/4”	45			GBD 5”	127		
BC 9.5mm	9.5			BC 1-7/8”	47.6			GBD 5-1/2”	140		
BC 10mm	10			BC 2”	51	2.4 3.8	600 900	GBD 6”	152		
BC 11mm	11			BC 2-1/8”	54			GBD 6-1/2”	165		
BC 12mm	12			BC 2-1/4”	57			GBD 7”	178		
BC 1/2”	12.7	0.6 1.0	900 1.000	BC 2-3/8”	60			GBD 7-1/2”	190		
BC 14mm	14			BC 2-1/2”	64			GBD 8”	203		
BC 5/8”	16			BC 2-5/8”	67			GBD 8-1/2” - 11”		-	225-300
BC 18mm	18			BC 2-3/4”	70			GBD 12” - 18”		-	125-200
BC 3/4”	19			BC 2-7/8”	73			GBD 19” - 36”		-	60-120

Abrasive and Grit Coding System



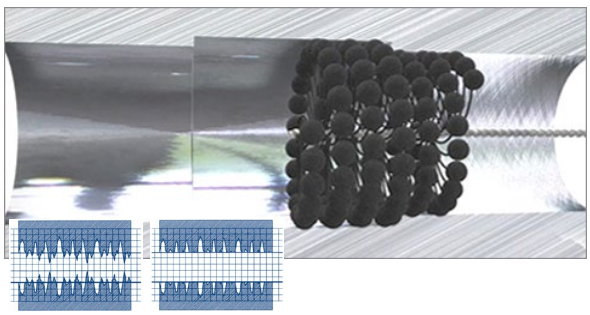
Flex-Hone is available in a complete range of abrasives and grits to meet every processing need. The Flex-Hone has a coding system that allows identification of the abrasive type and grit based on the color on the stem and tip.

Stem Color Abrasive code	Abrasive	Applicazione	Grit / Tip color										
			20	40	60	80	120	180	240	320	400	600	800
SC *No color*	**Silicon Carbide**	Cast iron, ordinary steel, stainless steel	●	●	●	●	⊘	●	●	○	●	●	●
AO *Black*	**Aluminum Oxide**	Non ferrous (aluminum, brass, bronze, soft metals) Stainless steel for food/medical applications Cylinders with Nikasil or similar coating	●	●	●	●	⊘	●	●	○	●	●	●
Z25 *Red*	**Zirconium 25% Alumina 75%**	Low/medium carbon steels, cast iron High-production machining where greater durability than SC and AO is required	/	/	●	●	⊘	●	●	/	/	/	/
Z49 *White*	**Zirconium 40% Alumina 60%**		/	/	/	/	⊘	●	●	/	/	/	/
BC *Gold*	**Boron Carbide**	Medium/high carbon steels Hardened steel ~45/50 Hrc Titanium, Inconel, Monel	●	●	●	●	⊘	●	●	○	●	●	●
LA *White spheres*	**Polished Alumina**	Ultra-fine honing/lapping	● **Extrafine grit only (~#1000)**										
CD *Yellow*	**Diamond**	Hard metal, ceramic, hardened steel Materials with hardness even beyond 70-80 HRC	● **170/200mesh**				● **800mesh**			● **2500 mesh**			
CCBN *Purple*	**C.B.N.**	Superalloys with high nickel content: Monel®, Inconel®, Incoloy®, Invar®, Rene®, Hasteloy®	● **170/200mesh**				● **800mesh**			● **2500 mesh**			
CG *Pink*	**Ceramic**	Special Order Aggressive deburring	● **#60**				⊘ **#120**			● **#220**			

Grit / Finish selection table

The values are for informational purposes only, as the achievable Ra is influenced by multiple factors such as the nature and hardness of metals, type of lubricant used, contact time, previous machining, Ra before Flex-Hone, etc...

Grit	*Ra (µm)*	*Steel Ductile cast Iron*	*Aluminum Stainless steel Grey cast iron Non Ferrous*	*Above 60Hrc*	*Alloy steel*	*Ordinarty steel Ductile cast iron*	*Grey cast iron AVP, Stainless*	*Aluminum Brass*
# 20	3.2 – 6.3							
# 40	1.7 – 3.2							
# 60	1.5 – 2.0							
# 80	1.2 – 1.6	0.8 – 1.0	1.2 – 1.4		0.8	1.0	1.2	1.4
# 120	0.9 – 1.4	0.6 – 0.8	1.0 – 1.2		0.6	0.8	1.0	1.2
# 180	0.7 – 1.0	0.4 – 0.6	0.8 – 1.0	0.8 – 1.0	0.4	0.6	0.8	1.0
# 240	0.6 – 0.8	0.2 – 0.4	0.6 – 0.8		0.2	0.4	0.6	0.8
# 320	0.5 – 0.7	0.1 – 0.2	0.4 – 0.6		0.1	0.2	0.4	0.6
# 400	0.3 – 0.6	0.05 – 0.1	0.2 – 0.4	0.1 – 0.2	0.05	0.1	0.2	0.4
# 600	0.2 – 0.3	<0.05	<0.2		<0.05	0.05	0.1	0.2
# 800	0.05 – 0.2			<0.1		<0.05	0.05	0.1
# 1000	>0.1						<0.05	0.05



Conversion formulas

F = Ra x "Index" **Ra = F / "Index"**

F	Index	F	Index
Rt	8.7	Rp	3.6
Rz	7.2	RPM	2.9
Rz ISO	7.6	RMS(Rq)	1.1
Rmax	8.0		

Flex-Hone choice: Size, Abrasive, Grit

The choice of Flex-Hone diameter is determined by the diameter of the hole to be worked. The Flex-Hone is produced and used in oversized conditions compared to the diameter of the hole being worked on, which generates the right cutting pressure for processing. For example, to work on a 22mm hole, the BC7/8”(22mm) should be chosen, which has an actual diameter of 25mm (oversized). If the hole to be worked does not coincide with one of the standard Flex-Hone sizes because it falls between two of them, the larger one should be chosen. For instance, if the hole to be worked is 23mm, falling between BC7/8”(22mm) and BC15/16”(23.8mm), BC15/16”(23.8mm) should be chosen.

Ask our technicians for the right advice for your specific application; they will guide you to choose the right Flex-Hone to achieve the desired result. For a proper recommendation regarding size, abrasive, and grit to use, it is necessary to have various pieces of information:

- Hole diameter to be worked on
- Type of parts to be worked on
- Issue to be addressed with the Flex-Hone (deburring, finishing, superfinishing, etc.)
- Material (indicate if hardened or with surface treatment, preferably provide hardness information)
- Starting roughness (preferably in Ra) or the last machining operation performed (drilling, boring, reaming, etc.)
- Desired or required final roughness
- Quantity of pieces to be worked on
- Whether or not it is possible to use a lubricant (cutting oil or coolant emulsion)
- Whether it will be used manually, on a column drill, or on a machine (lathe, machining center, grinder, etc.)

The 3 pieces of information, usually sufficient in most cases to determine the choice:

Working diameter

Material to be worked on and its condition IF hardened: approximate indication of hardness IF treated: type of treatment and approximate indication of surface hardness (anodization, NiTemper, etc.)

IF Finishing: Target value in Ra or Rt or RZ to achieve, and starting value, i.e., the current state IF Deburring: Any value of Ra or Rt or Rz not to be altered or exceeded

Sizes & Types of Flex-Hone

Size and type Flex-Hone	Ø Hole (mm)	Working range (mm)	Effective Ø C (mm)	Abrasive L. B (mm)	Tot L. A (mm)
BC 4mm	4	3.5 - 4	4.5	21	152
BC 4.5mm	4.5	4 - 4.5	5	20	152
BC 3/16"	4.75	4.5 - 4.75	5.25	20	152
BC 5mm	5	4.75 - 5	5.5	38	203
BC 5.5mm	5.5	5 - 5.5	6	38	203
BC 6mm	6	5.5 – 6	6.5	38	203
BC 6.4mm	6.4	6 - 6.4	7	38	203
BC 7mm	7	6.4 - 7	8	57	203
BC 8mm	8	7-8	9	57	203
BC 9mm	9	8 - 9	10	57	203
BC 9.5mm	9.5	8.5 – 9.5	10.5	57	203
BC 10mm	10	9 – 10	11	57	203
BC 11mm	11	10 – 11	12	57	203
BC 12mm	12	11 – 12	13	57	203
BC 1/2"	12.7	12 – 12.7	14.5	64	203
BC 14mm	14	12.7 – 14	15.5	64	203
BC 5/8"	16	14 – 16	18	64	203
BC 18mm	18	16 – 18	20	64	203
BC 3/4"	19	18 – 19	21	64	203
BC 20mm	20	19 – 20	22	64	203
BC 7/8"	22	20 – 22	25	76	203
BC 15/16"	23.8	22 – 23.8	27	76	203
BC 1"	25.4	23.8 – 25.4	28	76	203
BC 1-1/8"	29	25.4 – 29	32	76	203
BC 1-1/4"	31.8	29 – 31.8	35	76	203
BC 1-3/8"	35	31.8 – 35	38.5	76	203
BC 1-1/2"	38	35 – 38	41.5	76	203
BC 1-5/8"	41	38 – 41	44.5	76	203
BC 1-3/4"	45	41 – 45	48	76	203
BC 1-7/8"	47.6	45 – 47.6	50.8	76	203
BC 2"	51	47.6 – 51	54	76	203
BC 2-1/8"	54	51 – 54	57.2	76	203
BC 2-1/4"	57	54 – 57	60.5	76	203
BC 2-3/8"	60	57 – 60	63.5	76	203
BC 2-1/2"	64	60 – 64	66.5	76	203
BC 2-5/8"	67	64 – 67	69.9	76	203
BC 2-3/4"	70	67 – 70	73	76	203
BC 2-7/8"	73	70 – 73	76.2	76	203
BC 3"	76	73 – 76	79.5	76	203

DBC 1-1/2"	38	35 – 38	41.5	45	127
DBC 1-3/4"	45	41 – 45	48	45	127
DBC 2-1/8"	54	51 – 54	57.2	45	127
DBC 2-1/2"	64	60 – 64	66.5	45	127
DBC 2-3/4"	70	67 – 70	73	45	127
DBC 3-1/8"	79	74 – 79	82.5	45	127

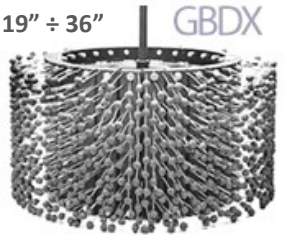
GB 3-1/4"	83	76 – 83	85.5	89	343
GB 3-1/2"	89	83 – 89	92	89	343
GB 3-3/4"	95	89 – 95	98.5	89	343
GB 4-1/8"	105	95 – 105	108	102	343
GB 4-5/8"	118	105 – 118	120.5	102	343

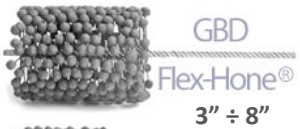
GBD 3"	76	73 – 76	79.5	127	343
GBD 3-1/4"	83	76 – 83	85.5	127	343
GBD 3-1/2"	89	83 – 89	92	127	343
GBD 3-3/4"	95	89 – 95	98.5	152	343
GBD 4"	101	95 – 101	108	152	343
GBD 4-1/4"	108	101 – 108	114.5	152	343
GBD 4-1/2"	114	108 – 114	120.5	152	343
GBD 5"	127	114 – 127	133.5	152	445
GBD 5-1/2"	140	127 – 140	146	152	445
GBD 6"	152	140 – 152	165	159	445
GBD 6-1/2"	165	152 – 165	178	159	445
GBD 7"	178	165 – 178	190.5	178	445
GBD 7-1/2"	190	178 – 190	202	163	445
GBD 8"	203	190 – 203	216	163	445

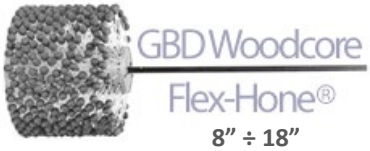
Size and type Flex-Hone	Ø Hole (mm)	Working range (mm)	Effective Ø C (mm)	Drum Ø (in-mm)	HEX Shaft Ø (in - mm)
GBDH 8"	203	190 – 203	216	3" – 76.2	½" - 12.7
GBD 8-1/2"	216	203 – 216	228	3" – 76.2	½" - 12.7
GBD 9"	228	216 – 228	241	3" – 76.2	½" - 12.7
GBD 9-1/2"	241	228 – 241	254	3" – 76.2	½" - 12.7
GBD 10"	254	241 – 254	267	3" – 76.2	½" - 12.7
GBD 10-1/2"	267	254 – 267	280	4" - 101.6	½" - 12.7
GBD 11"	280	267 – 280	292	4" - 101.6	½" - 12.7
GBD 11-1/2"	292	280 – 292	305	4" - 101.6	½" - 12.7
GBD 12"	305	292 – 305	318	4" - 101.6	½" - 12.7
GBD 12-1/2"	318	305 – 318	330	5" - 127	⅝" - 15.9
GBD 13"	330	318 – 330	344	5" - 127	⅝" - 15.9
GBD 13-1/2"	344	330 – 344	355	5" - 127	⅝" - 15.9
GBD 14"	355	344 – 355	368	5" - 127	⅝" - 15.9
GBD 15"	381	355 – 381	394	5" - 127	⅝" - 15.9
GBD 16"	406	381 – 406	419	5" - 127	⅝" - 15.9
GBD 17"	432	406 – 432	444	6" - 203.2	⅝" - 15.9
GBD 18"	452	432 – 452	470	6" - 203.2	⅝" - 15.9

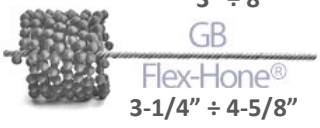
Size and type Flex-Hone	Ø Hole (mm)	Number of Sections	Type of Section	Drum Ø (in-mm)	HEX Shaft Ø (in - mm)
GBDX 19"	483	22	A	11-½"-292	¾"- 19
GBDX 20"	508	22	B	11-½"-292	¾"- 19
GBDX 21"	533	22	C	11-½"-292	¾"- 19
GBDX 22"	559	22	D	11-½"-292	¾"- 19
GBDX 23"	584	29	A	15-½"-394	¾"- 19
GBDX 24"	610	29	B	15-½"-394	¾"- 19
GBDX 25"	635	29	C	15-½"-394	¾"- 19
GBDX 26"	660	29	D	15-½"-394	¾"- 19
GBDX 27"	686	36	A	19-½"-495	1" - 25,4
GBDX 28"	711	36	B	19-½"-495	1" - 25,4
GBDX 29"	737	36	C	19-½"-495	1" - 25,4
GBDX 30"	762	36	D	19-½"-495	1" - 25,4
GBDX 31"	787	36	E	19-½"-495	1" - 25,4
GBDX 32"	813	44	A	24-½"-623	1-¼"-31,75
GBDX 33"	838	44	B	24-½"-623	1-¼"-31,75
GBDX 34"	864	44	C	24-½"-623	1-¼"-31,75
GBDX 35"	889	44	D	24-½"-623	1-¼"-31,75
GBDX 36"	914	44	E	24-½"-623	1-¼"-31,75

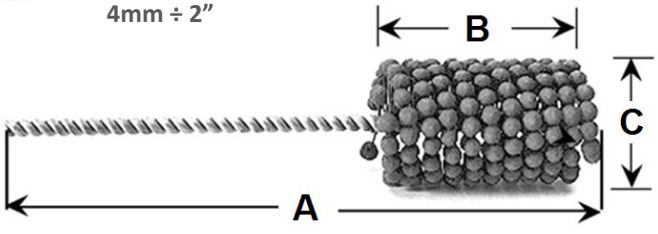
GBDX SECTIONS SPARE PARTS		
Type	inches	mm
GBDX-A	4-1/8"	105
GBDX-B	4-5/8"	118
GBDX-C	5-1/4"	133
GBDX-D	5-3/4"	146
GBDX-E	6-3/8"	162











FLEX-HONE CODE:

TYPE(BC, DBC, GB, GBD, GBDX) + SIZE(mm or inches) + GRIT + ABRASIVE CODE (SC, AO, AL, Z25, Z49, BC, CD, ..)

Diamond Flex-Hone

Ideal for finishing/superfinishing issues, micro-deburring, edge radiusing on hard materials, even beyond 80Hrc, carbide, hard anodizing, sintered materials, ceramics, alloys for aerospace applications, titanium, inconel, quenched steels, molds, etc.

Type	Hole Ø (mm)	Working range (mm)	Final Ø (mm)	Abrasive L. (mm)	Total L. (mm)
Bc 4	4	3.5-4	4.5	20	152
Bc 4,5	4.5	4-4.5	5	20	152
Bc 3/16”	4.75	4.5-4.75	5.25	20	152
Bc 5	5	4.75-5	5.5	38	203
Bc 5,5	5.5	5-5.5	6	38	203
Bc 6	6	5.5-6	6.5	38	203
Bc 1/4"	6.4	6-6.4	7	38	203
Bc 7	7	6.4-7	8	57	203
Bc 8	8	7-8	9	57	203
Bc 9	9	8-9	10	57	203
Bc 9,5	9.5	9-9.5	10.5	57	203
Bc 10	10	9.5-10	11	57	203
Bc 11	11	10-11	12	57	203
Bc 12	12	11-12	13	57	203

Type	Hole Ø (mm)	Working range (mm)	Final Ø (mm)	Abrasive L. (mm)	Total L. (mm)
Bc 1/2"	12.7	12-12.7	14.5	64	203
Bc 14	14	12.7-14	15.5	64	203
Bc 5/8”	16	14-16	18	64	203
Bc 18	18	16-18	20	64	203
Bc 3/4"	19	18-19	21	64	203
Bc 20	20	19-20	22	64	203
Bc 7/8”	22	20-22	25	76	203
Bc 15/16”	23.8	22-23.8	27	76	203
UPON REQUEST					
Bc 1”	25.4	23.8-25.4	28	76	203
Bc 1”1/8	29	25.4-29	32	76	203
Bc 1”1/4	31.8	29-31.8	35	76	203
Bc 1”3/8	35	31.8-35	38.5	76	203
Bc 1”1/2	38	35-38	41.5	76	203

170/200mesh **800mesh** **2500 mesh**

It is possible to achieve a reduction in Ra from 0.7 to 0.05 µm on carbide.

C.B.N. UPON REQUEST

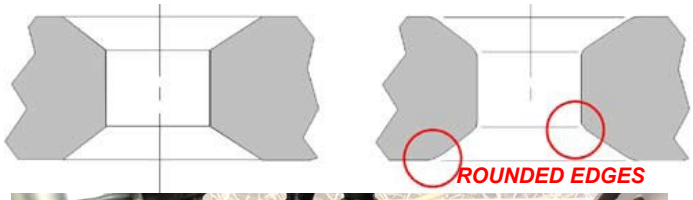
Specifically for high-nickel superalloys: Monel®, Inconel®, Incoloy®, Invar®, Rene®, Hasteloy®

Flex-Hone for Deburring/Micro-Deburring of Chamfers

These Flex-Hones have been specifically designed with a configuration of the abrasive spheres suitable for working on chamfers after deburring and/or chamfering operations done with chip removal tools such as retractable blade tools. The subsequent use of Flex-Hone allows for deburring, micro-deburring, edge radiusing, and cleaning of surfaces, enabling a uniform finish where the total absence of burrs is required, as in aerospace components. They are available as standard in #180 Silicon Carbide grit and can be customized in any abrasive and grit available for Flex-Hone, adapting to the required surface finish and the processing of aerospace alloys such as Titanium, Inconel, Super CVM, stainless steel alloys, etc.

Hole Ø (mm)	Small chamfer 0.12-0.38 (mm)	Medium chamfer 0.38-0.76 (mm)	Large chamfer 0.76-1.27 (mm)
4	CHA4M	CHB4M	CHC4M
4.5	CHA45M	CHB45M	CHC45M
4.75	CHA316	CHB316	CHC316
5	CHA5M	CHB5M	CHC5M
5.5	CHA55M	CHB55M	CHC55M
6	CHA6M	CHB6M	CHC6M
6.4	CHA64M	CHB64M	CHC64M
7	BC7M	CHB7M	CHC7M
8	BC8M	CHB8M	CHC8M
9	BC9M	CHB9M	CHC9M
9.5	BC95M	CHB95M	CHC95M
10	BC10M	CHB10M	CHC10M
11	BC11M	CHB11M	CHC11M
12	BC12M	CHB12M	CHC12M
12.7	BC12	CHB12	CHC12
14	BC14M	CHB14M	CHC14M
16	BC58	BC58	CHC58
18	BC18M	BC18M	CHC18M
19	BC34	BC34	CHC34
20	BC20M	BC20M	CHC20M
22	BC78	BC78	CHC78

SPECIFY GRIT AND ABRASIVE

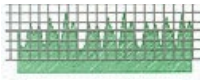


ROUNDED EDGES

Flex-Hone Rotors

The "Flex-Hone for Rotor" utilizes Flex-Hone technology to produce an ideal cross-hatch finish on the surface of brake discs for cars and motorcycles. It can also be used on clutch discs or for any application requiring this type of surface finish..

- Low vibration
- NON-directional finish
- Ideal for either new or refurbished discs
- Abrasive: Zirconium #1525 Grits: 60,120,240



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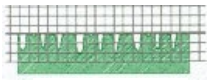
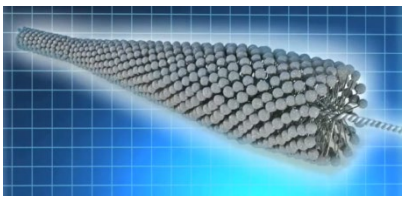


AFTER

Special Flex-Hone

Flex-Hone is produced in a wide variety of sizes, grits, and abrasives. However, it can be supplied in special configurations to address processing challenges that cannot be resolved with the standard range. Custom configurations can be requested by choosing:

- Customized actual diameter
- Length of abrasive part and stem
- Protective coating on the stem
- Stem diameter
- Tubed stem
- Threaded attachment
- Flex-Hone with two or more diameters
- Combination of Flex-Hone + brush
- Conical Flex-Hone
- Semi-spherical Flex-Hone
- Twisted or front-protruding stem
- Distinctive color-coding on the stem
- Sizes of abrasive globules
- Section of suspension wires
- Flex-Hone on PVC drum
- Loose globules with nylon thread for mounting on a self-made support.
- . . . . . .



The possibilities are numerous; consult us. Our technicians are always available to find new configurations that lend themselves to solving your issues.

FLEX-HONE®

For firearms

Dedicated Flex-Hones for firearms. Successfully used by manufacturers, gunsmiths, and hobbyists, these tools allow for improving the characteristics of firearms. Models for chambers, dies, barrels, etc.

BRM
BRUSH RESEARCH
MANUFACTURING

FLEX-HONE®

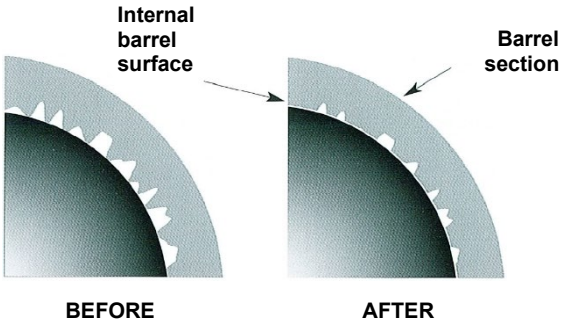
The use of Flex-Hone on firearms

The Flex-Hone quickly and easily creates an optimal "*Plateau*" surface finish on any type and size of cylinder, guide, chamber, magazine tube, or barrel. It has been in use for decades, and its benefits are proven. "Brush Research Manufacturing" produces a complete line of Flex-Hones for various firearm applications.

The Flex-Hone process is a low-temperature, low-pressure abrasive process that produces a long-lasting surface. This method achieves a surface that is free from metal fragments, smears, or folds, stains, and oxidation. The Flex-Hone creates this finish with minimal micron-level material removal, ensuring that the caliber of your firearms remains at the precise required dimensions. It is easily used with a regular hand drill or rotating spindle, is self-centering, and self-aligns with the bore. Using the Flex-Hone improves the performance and extends the life of your firearms.

The metal surface of your firearms contains microscopic "peaks" and "valleys." Corrosion formation is accelerated by residual stresses on the surface. The "Plateau" finish produced by the Flex-Hone refines the "peaks" and reduces surface tension by removing the most stressed areas. The "valleys" produced by the Flex-Hone enhance the surface's ability to retain oil. Many firearm manufacturers use the Flex-Hone for their final finishing needs.

Not only will your firearms be free of microscopic imperfections, but you will also notice the difference of a perfect finish.



Usage instructions

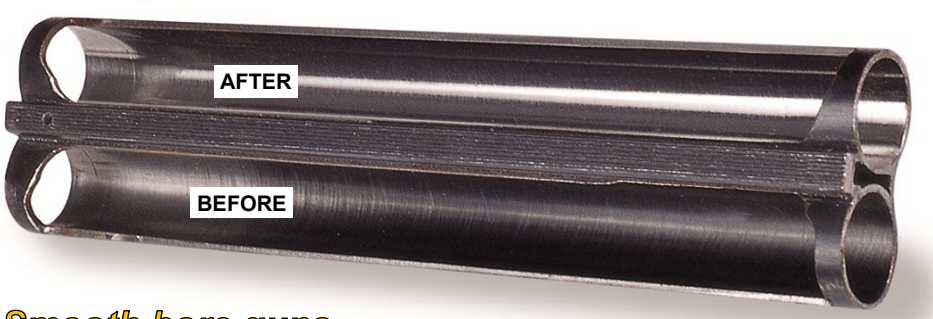
Always ensure that the magazine and chamber are empty before using the Flex-Hone.

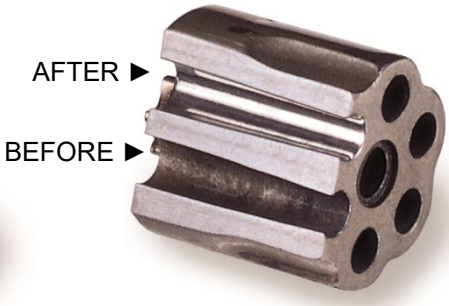
Disassemble the firearm and mount the Flex-Hone on the chuck of a hand drill, a column drill, or a lathe. It is better to use the shortest stem possible compatible with your application.

Always use the Flex-Hone with a high-quality cutting oil or honing fluid to keep heat to a minimum and prevent clogging. We offer an oil specifically formulated for use with the Flex-Hone. However, many lubricants are satisfactory, including water-soluble cutting fluids. We recommend using "Flex-Hone Oil" for a better surface finish and long Flex-Hone life.

Rotate the Flex-Hone before it enters the bore and continue rotating it until it exits the hole being worked on. Advance the Flex-Hone gently at a steady speed. Clean the cylinder using an appropriate cleaner and a cleaning brush. Dry the cylinder and continue wiping it with a lint-free cloth soaked in oil. Continue until the cloth remains clean. Lightly lubricate the surface after cleaning to preserve it.

Flex-Hone is available in various sizes, grits, and abrasives

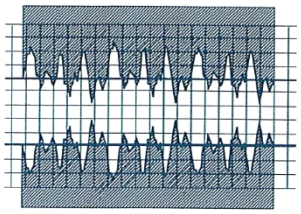




Smooth bore guns

Every bore on your firearms can benefit from a quick treatment with Flex-Hone, including the barrels and chambers of your guns. By using the Flex-Hone, you can rapidly, thoroughly, and safely clean any damage caused by oxidation and corrosion, remove scratches, and eliminate dents that cause plastic fouling.

The Flex-Hone produces a smooth finish that prevents the rapid buildup of plastic or lead fouling. The abrasive spheres suspended on nylon filaments remove accumulated residues and leave a surface with superior accuracy, reduced wear, and extended life for your guns.



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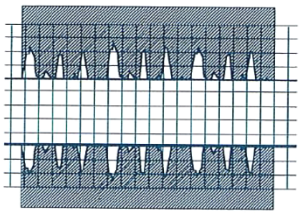
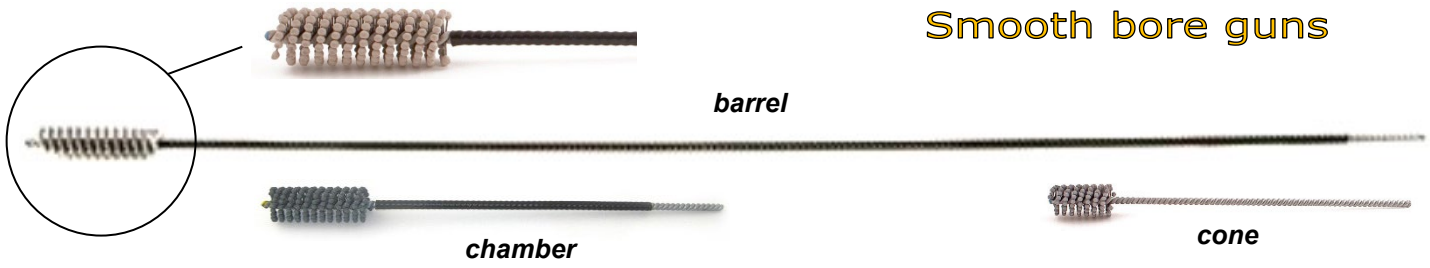


AFTER

Barrels and chambers

Unloading and reloading your shotguns will be smoother and easier after working on the chambers with the Flex-Hone. The improved finish allows cartridges to enter the cylinder more easily and be ejected from the chambers without sticking issues. Reloading will be quicker and smoother without causing scratches.

A bore treated with the Flex-Hone will enable you to clean brass residues more frequently and in less time.
With the Flex-Hone, you can clean and polish the internal surface of your dies or restore damaged dies, ensuring optimal reloading without marking the surface of the casings.



Gauge	BARRELS			CHAMBERS		CONES		
	180SC restoring	400SC honing	800AO polishing	400SC honing	800AO polishing	180SC restoring	400SC honing	800AO polishing
10	00607	08260	00608	08301	00611	-	-	-
12	00048	05397	00049	06459	00054	02985	08004	02986
16	00050	08261	00051	08302	00055	05611	08264	05612
20	00052	08262	00053	08303	00056	05613	08265	05614
24	13518	13519	13520	-	-	-	-	-
28	11000	08362	11641	09828	03341	-	12241	12242
.410	00609	08263	00610	08304	00612	12764	12765	-
.69 17.5mm MUSKET	12030	-	-	-	-	-	-	-
	Abrasive length: 7,5cm Total length: 86cm Stem coated with sheath to prevent scratching the barrel			**Abrasive length: 7,5cm Total length: 30cm Stem coated with sheath to prevent scratching the chamber**		**Abrasive length: 4cm Total length: 25cm Conical abrasive**		

Chamber - Dies

Gauge	400 Grit	800 Grit	Caliber	400 Grit	800 Grit
.17CAL/.22MAG	06380	08305	**30-30 Win**	12764	-
.17 Hornet	11963	11958	**.300 Win Mag**	11396	11471
.204 Ruger	13682	13685	**.300 Win Short Mag**	11899	-
5.56 NATO	09246	09247	**.300 AAC Blackout**	12403	12404
.22 Hornet	09313	11521	**7.62x39 SAAMI**	08949	08960
.22 Long Rifle	12158	12159	**7.62x51 NATO**	09259	09250
.223 Rem	06262	06263	**.303 Savage**	-	13639
.223 Rem AR-15	12256	12257	**.303 British**	-	11934
.243	07643	08306	**.308**	04698	08041
25-06	07647	08307	**.338 Win Mag**	13026	13027
6.5x47 Lapua	-	11906	**.338 Lapua Mag**	09435	09436
6.5 Grendel	12809	12810	**.357 Mag**	08310	03309
6.8 Remington SPC	09478	09479	**.416 Barrett**	09437	09438
.270 Win	08351	08352	**.44 Cal**	06381	08311
.270 Weatherby Mag	13461	13462	**.44 Mag**	08312	03310
7MM Rem Mag	11638	13542	**.45 Colt**	03311	08313
7MM-08 Rem	13686	13687	**.458 SOCOM**	13228	13229
.284 Win	-	11896	**.50 Muzzle Load**	12658	12659
30-06	07409	08308	**.50 BMG**	07410	07411
.30 Carabine	13224	13225			

Available on request for any gauge

Gauge	400 Grit	800 Grit	Gauge	400 Grit	800 Grit
.32 Tamburo revolver	05470	05471	**.41 Mag Revolver drum**	00901	00902
9x18 Makarov	13234	13235	**.44 Mag Revolver drum**	00903	00904
9MM	07584	08309	**.45 Colt Revolver drum**	00907	00908
.357Mag/.38 Tamburo revolver	00899	00900	**.45 ACP**	00905	00906
.380 ACP	13321	13322	**1911 spring housing**	00909	00910
10mm AUTO	12739	12740	**1911 Main Lug Area**	-	BC18M800
.40 S&W	13236	13237	**S&W, Beretta, SIG slide**	-	BC12800

Available on request for any gauge

.68 Paintball	180SC	400AO	600AO	800AO	AL (#1000)
Rear hole	-	00642	00733	-	-
Chamber	00750	-	00733	00734	01199

Other brushes

12 gauge chamber brass brush	06629	**Shotgun Port Ø 3.2mm**	06632
20 gauge chamber brass brush	06630	**Shotgun Port Ø 4.75mm**	06633
Gas ring	06631	**Metal brush, horsehair bristles 9.5mm**	#1
		Metal brush, horsehair bristles 12.7mm	#2

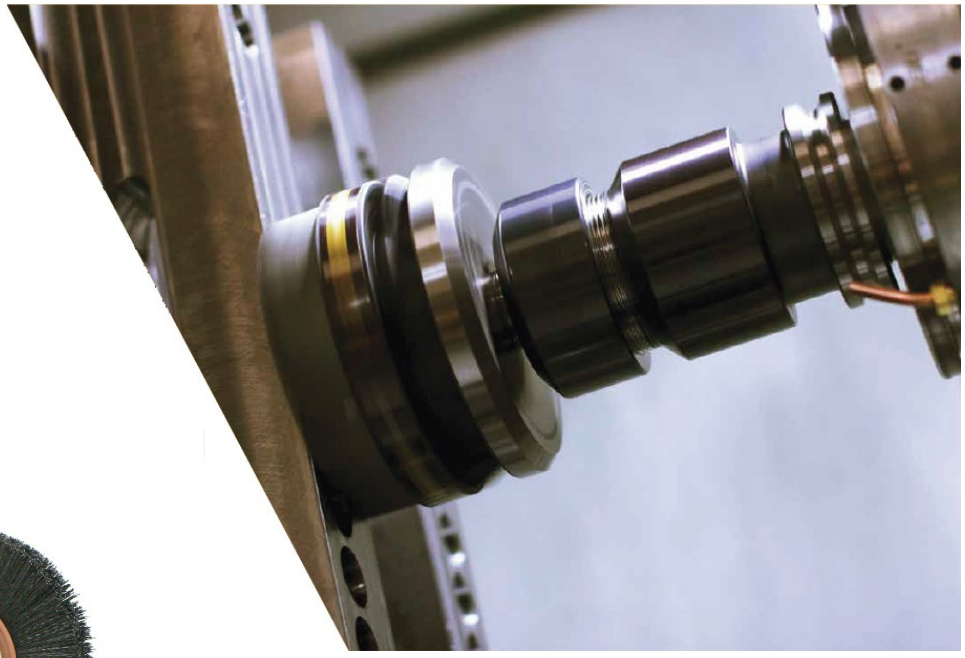
Handle Material	Code	Bristles
Plastic	**93-AP**	.006-0.15mm Stainless
	93-APB	.006-0.15mm Brass
	93-APH	Horse hair
	93-APP	.006-0.15mm Bronze
	93-APN	.012-0.3mm Nylon

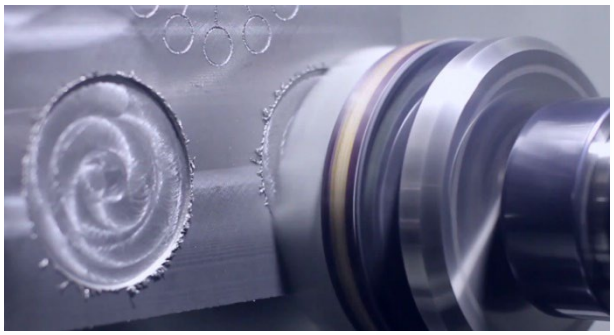
93-AP

Packaging: 12pcs bags

BRM

BRUSH RESEARCH
MANUFACTURING





ROD BRUSHES

Brush diameter

Type in Abrasive Nylon, *coded AY or AD*, are indicated with the nominal working diameter, so the actual diameter is larger as they are designed to work in compression or oversize compared to the bore.
Other types (stainless steel, steel, brass, nylon, bristle) *coded A, S, C, B, N, H, Butterfly* are indicated with the actual diameter of the brush. Any increase in diameter compared to the hole to be worked on must be calculated based on the application. Generally, an increase of around 20% compared to the diameter is recommended.

Threads

In the case of working on threads, the brush diameter should be equal to the maximum diameter of the thread. Therefore, if using Abrasive Nylon, verify the actual diameter and not the nominal one.
For example, for an M8 stainless steel thread, you should choose a brush like 85S312, and for Abrasive Nylon, a brush like 85AY281. The brushes 81A and 85S already have a medium-soft filament up to a diameter of 12.7mm. For larger diameters, the recommended stainless steel brushes are Butterfly or the models 85Sx and 85Sxx with fine and extra-fine wire.

CIRCULAR DISC BRUSHES

Circular disc brushes are often an excellent tool for deburring operations, both manual and with CNC or robots, if the correct choice of diameter and filament is made. For use on CNC, we suggest models C and CY and CG (Ceramics) with adapter stems UA1 and UA4, which allow the installation of two brushes side by side to achieve a higher density of filaments. They can be used on external or internal surfaces or complex surfaces. The working pressure depends on various factors such as the type of operation, the material being worked, the brush diameter, etc. In case of doubts, consult our technicians.

ABRASIVE NYLON BRISTLES

The cross-sectional diameter of the abrasive nylon bristles varies depending on the grit, below are some examples:

Abrasive	**Abrasive Nylon bristle (#grit / diameter)**							
	#800 0.25mm .01”	**#600 0.3mm .012”**	**#500 0.5mm .018”**	**#320 0.6mm .022”**	**#180 0.9mm .035”**	**#120 1.0mm .04”**	**#120 0.6mm .022”**	**#80 1.0mm .04”**
Aluminum Oxide		**o**	**o**	**o**	**o**	**o**		**o**
Silicon Carbide			**o**	**o**	**o**	**o**	**o**	**o**
Ceramic				**o**	**o**	**o**	**o**	**o**
Diamond	**o**							
Silicate	**Extra-fine grit – Bristle Ø 0.2mm .008”**							

BRUSH CHOICE

Steel Cast iron Stainless steel	Deburring	Finish not important	Aggressive brush – Steel or stainless Abrasive nylon brush – coarse grit SC from #80 to #180
		Medium finish	Medium/soft brush – Steel or stainless Abrasive nylon brush – medium grit SC from #180
	Finishing, cleaning	Extra-fine brush – Steel or stainless Abrasive nylon brush – medium/fine grit AO, SC from #180 to #320	
	Superfinishing	Abrasive nylon brush – fine grit AO, Diamond from #600 to #800 or Silicate	
Aluminum Brass Non Ferrous	Deburring	Finish not important	Abrasive nylon brush – coarse grit AO from #80 to #180
		Medium finish	Abrasive nylon brush – medium grit SC from #180 to #320
	Finishing, cleaning	Abrasive nylon brush – medium/fine grit AO, Diamond from #320 to #600/800	
	Superfinishing	Abrasive nylon brush – fine grit AO, Diamond from #600 to #800 or Silicate	

MICROBRUSHES 81 A/B

Deburring, cleaning, finishing

Bristles & Stem Stainless steel

Protruding stem single spiral (through holes)

TYPE	Brush Ø mm	Brush Ø Inches	Bristle Ø mm	Brush length	Stem Ø mm	Total length	Pack. Pcs
81-A .024”	0.6	.024	0.076 .003”	6.4 1/4”	0.4 .015”	76.2mm 3”	12
81-A .032”	0.8	.032	0.05 .002”	15.9 5/8”	0.4 .016”		
81-A 1.0 mm	1.0						
81-A .047”	1.2	.047		19 3/4”	0.7 .026”		
81-A .054”	1.4	.054					
81-A 1.5 mm	1.5			15.9 5/8”			
81-A .063”	1.6	.063	0.076 .003”	19 3/4”	0.9 .034”		
81-A 2.0 mm	2.0						
81-A .079”	2.0	.079			1.1 .043”		
81-A .094”	2.4	.094					
81-A 2.5 mm	2.5				1.4 .055”		
81-A .109”	2.8	.109		25.4 1”			
81-A 3.0 mm	3.0						
81-A .125”	3.2	.125			1.8 .072”		
81-A 3.5 mm	3.5						
81-A .142”	3.6	.142					
81-A .156”	4.0	.156			2.1 .083”		
81-A 4.0 mm	4.0						
81-A .172”	4.4	.172					
81-A 4.5 mm	4.5						
81-A .189”	4.8	.189					
81-A 5.0 mm	5.0						
81-A 5.5 mm	5.5				2.8 .110”		
81-B 7/32”	5.5	.219		38.1 1-1/2”	2.5 .097”		
81-A 6.0 mm	6.0			25.4 1”	2.8 .110”		
81-B 1/4”	6.4	.250		38.1 1-1/2”			
81-A 6.5 mm	6.5			25.4 1”			
81-B 5/16”	7.9	.312	0.1 .004”	38.1 1-1/2”	3.2 .125”		
81-B 3/8”	9.5	.375			3.6 .140”		
81-B 7/16”	11.1	.437					
81-B 1/2”	12.7	.500	0.13 .005”		4.3 .168”		

For holes choose diameter up to +20% larger, for threads choose diameter equal to thread max Ø

81AKIT – 81AYKIT*

.032-.047-.054-.079-.094-.109-.125-.142-.156-.172-.189

81AMMKIT – 81AYMMKIT*

1-1.5-2-2.5-3-3.5-4-4.5-5-5.5-6-6.5

81AKIT – 81AYKIT* .032-.047-.054-.079-.094-.109-.125-.142-.156-.172-.189

81AMMKIT – 81AYMMKIT* 1-1.5-2-2.5-3-3.5-4-4.5-5-5.5-6-6.5

**81AY kits come in #600AO grit*

Abrasive Nylon bristles

Code	Diameter Hole inch	Hole mm	Brush Inch	Brush mm	Silicon Carbide Grit 80	120	180	320	500	Aluminum Oxide Grit 80	120	180	320	500	600	Diamond Grit 800	Silicate Grit 1000	Brush length mm	Total length mm	Stem Ø mm	Max rotation speed Rpm
81AY032	.032	0.8	.035	0.9												●	●	15.9 5/8”	76.2 3”	0.40 .016”	800
81AY 1.0		1.0	.043	1.1												●	●				
81AY047	.047	1.2	.052	1.3					●					●	●	●	●	19 3/4”		0.7 .026”	
81AY054	.054	1.4	.059	1.5					●					●	●	●	●				
81AY 1.5		1.5	.065	1.7												●	●	15.9 5/8”			
81AY063	.063	1.6	.069	1.8				●	●				●	●	●	●		19 3/4”		0.9 .034”	
81AY 2.0		2.0	.079	2.2					●				●	●	●	●					
81AY079	.079	2.0	.087	2.2				●	●				●	●	●	●				1.1 .043”	
81AY094	.094	2.4	.103	2.6				●	●				●	●	●	●					
81AY 2.5		2.5	.108	2.7				●	●				●	●	●	●				1.4 .055”	
81AY109	.109	2.8	.120	3.0			●	●	●			●	●	●	●	●					
81AY 3.0		3.0	.130	3.3			●	●	●			●	●	●	●	●		25.4 1”			
81AY125	.125	3.2	.138	3.5			●	●	●			●	●	●	●	●					
81AY 3.5		3.5	.152	3.8			●	●	●			●	●	●	●	●					
81AY142	.142	3.6	.156	3.9			●	●	●			●	●	●	●	●				1.8 .072”	
81AY156	.156	4.0	.172	4.4			●	●	●			●	●	●	●	●					
81AY 4.0		4.0	.173	4.4			●	●	●			●	●	●	●	●					
81AY172	.172	4.4	.189	4.8			●	●	●			●	●	●	●	●				2.1 .083”	
81AY 4.5		4.5	.195	5.0	●	●	●	●	●	●	●	●	●	●	●	●				1.8 .072”	
81AY189	.189	4.8	.208	5.3	●	●	●	●	●	●	●	●	●	●	●	●				2.1 .083”	
81AY 5.0		5.0	.217	5.5	●	●	●	●	●	●	●	●	●	●	●	●				1.8 .072”	
81AY 5.5		5.5	.238	6.0	●	●	●	●	●	●	●	●	●	●	●	●				2.8 .110”	
81AY7/32	.219	5.6	.241	6.1	●	●	●	●	●	●	●	●	●	●	●	●		38.1 1-1/2”		2.5 .097”	
81AY 6.0		6.0	.260	6.6	●	●	●	●	●	●	●	●	●	●	●	●		25.4 1”		2.8 .110”	
81AY1/4	.250	6.4	.275	7.0	●	●	●	●	●	●	●	●	●	●	●	●		38.1 1-1/2”			
81AY 6.5		6.5	.281	7.1	●	●	●	●	●	●	●	●	●	●	●	●		25.4 1”			
81AY5/16	.312	7.9	.344	8.7	●	●	●	●	●	●	●	●	●	●	●			38.1 1-1/2”		3.2 .125”	
81AY3/8	.375	9.5	.413	10.5	●	●	●	●	●	●	●	●	●	●	●					3.6 .140”	
81AY7/16	.438	11.1	.481	12.2	●	●	●	●	●	●	●	●	●	●	●						
81AY1/2	.500	12.7	.550	14.0	●	●	●	●	●	●	●	●	●	●	●					4.3 .168”	
Package:					**12pcs**											**6pcs**	**12pcs**				

For holes choose the specified hole diameter, for threads choose effective brush diameter equal to thread max Ø

● **Standard** ● **Semi-Standard** ● **Upon request**

SERIES 85 BRUSHES – Blind holes and through holes

Single spiral twisted stem (blind holes)
Deburring, cleaning, finishing, also suitable for honing machines
Standard: short
Upon request: With ring handle (RH) or wooden handle (WH)

Stainless steel – Carbon steel – Brass 80/20 – Nylon 6-12 bristles

Stainless steel 302	Bristle Ø mm	Carbon steel	Bristle Ø mm	Brass 80/20	Brass bristle Ø mm	Nylon 6-12	Nylon bristle Ø mm	Natural bristle	Brush Ø mm	Brush Ø inches	Brush length mm	Total length mm	Package pcs
85-S2-125	0.05 .002"	/	/	/	/	/	/		**3.2**	1/8	25.4 1"	101.6 4"	12
85-S3-125	0.076 .003"	/	/	**85-B125**	0.076 .003"	**85-N125**	0.13 .005"	**85-H125**	**3.2**	1/8			
85-S156		/	/	**85-B156**		**85-N156**		**85-H156**	**4.0**	5/32			
85-S187		/	/	**85-B187**		**85-N187**		**85-H187**	**4.8**	3/16			
85-S219		/	/	**85-B219**		**85-N219**		**85-H219**	**5.6**	7/32			
85-S250	0.1 .004"	**85-C250**	0.15 .006"	**85-B250**	0.13 .005"	**85-N250**	0.2 .008"	**85-H250**	**6.4**	1/4	31.6 1-1/4"	114.3 4-1/2"	
85-S281		**85-C281**		**85-B281**		**85-N281**		**85-H281**	**7.1**	9/32			
85-S312		**85-C312**		**85-B312**		**85-N312**		**85-H312**	**7.9**	5/16			
85-S344		**85-C344**		**85-B344**		**85-N344**		**85-H344**	**8.7**	11/32			
85-S375		**85-C375**		**85-B375**		**85-N375**	0.25 .010"	**85-H375**	**9.5**	3/8			
85-S406		**85-C406**		**85-B406**		**85-N406**		**85-H406**	**10.3**	13/32			
85-S437		**85-C437**		**85-B437**		**85-N437**	0.3 .012"	**85-H437**	**11.1**	7/16			
85-S469	0.13 .005"	**85-C469**		**85-B469**		**85-N469**		**85-H469**	**11.9**	15/32			
85-S500		**85-C500**		**85-B500**		**85-N500**		**85-H500**	**12.7**	1/2	38.1 1-1/2"	127 5"	6
85-S562	0.15 .006"	**85-C562**		**85-B562**		**85-N562**	0.35 .014"	**85-H562**	**14.3**	9/16			
85-S625	0.2 .008"	**85-C625**	0.2 .008"	**85-B625**	0.2 .008"	**85-N625**		**85-H625**	**15.9**	5/8			
85-S687		**85-C687**		**85-B687**		**85-N687**		**85-H687**	**17.5**	11/16			
85-S750		**85-C750**		**85-B750**		**85-N750**	0.43 .017"	**85-H750**	**19.1**	3/4			
85-S812	0.25 .010"	**85-C812**	0.25 .010"	**85-B812**	0.25 .010"	**85-N812**		**85-H812**	**20.6**	13/16		152.4 6"	
85-S875		**85-C875**		**85-B875**		**85-N875**		**85-H875**	**22.2**	7/8			
85-S937		**85-C937**		**85-B937**		**85-N937**		**85-H937**	**23.8**	15/16			
85-S1000		**85-C1000**		**85-B1000**		**85-N1000**		**85-H1000**	**25.4**	1	50.8 2"		
85-S1250		**85-C1250**		**85-B1250**		**85-N1250**	0.56 .022"	/	**31.8**	1-1/4	63.5 2-1/2"	165.1 6-1/2"	
85-S1500		**85-C1500**		**85-B1500**		**85-N1500**		/	**38.1**	1-1/2			
85-S1750	0.3 .012"	**85-C1750**	0.3 .012"	**85-B1750**	0.3 .012"	**85-N1750**		/	**44.5**	1-3/4	76.2 3"	177.8 7"	3
85-S2000		**85-C2000**		**85-B2000**		**85-N2000**		/	**50.8**	2		203.2 8"	
85-S2500		**85-C2500**		**85-B2500**		**85-N2500**	0.63 .025"	/	**63.5**	2-1/2	88.9 3-1/2"	228.6 9"	
85-S3000		**85-C3000**		**85-B3000**		**85-N3000**		/	**76.2**	3	101.6 4"	254.0 10"	

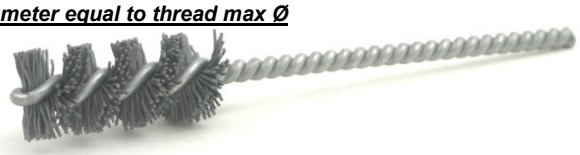
For holes choose diameter up to +20% larger, for threads choose diameter equal to thread max Ø

Abrasive Nylon bristles

Code	Diameter Hole Inches	Diameter Hole mm	Diameter Brush mm	Silicon Carbide Grit 80	120	180	320	500	Aluminum Oxide Grit 80	120	180	320	500	600	Pack. Pcs	Diamond Grit 400	800	Brush length mm	Total length mm	Stem Ø mm
85AY 125	.125	3.2	3.5			●	●	●			●	●	●	●	12		●	25.4 1"	101.6 4"	1.9 .073"
85AY 156	.156	4.0	4.4			●	●	●			●	●	●	●			●			2.5 .097"
85AY 187	.187	4.7	5.2	●	●	●	●	●	●	●	●	●	●	●		●	●			2.9 .112"
85AY 219	.219	5.6	6.1	●	●	●	●	●	●	●	●	●	●	●		●	●			
85AY 250	.250	6.4	7.0	●	●	●	●	●	●	●	●	●	●	●		●	●	31.8 1-1/4"	114.3 4-1/2"	3.2 .125"
85AY 281	.281	7.1	8.0	●	●	●	●	●	●	●	●	●	●	●		●	●			3.6 .140"
85AY 312	.312	7.9	8.7	●	●	●	●	●	●	●	●	●	●	●		●	●			
85AY 344	.344	8.7	9.6	●	●	●	●	●	●	●	●	●	●	●		●	●			
85AY 375	.375	9.5	10.5	●	●	●	●	●	●	●	●	●	●	●		●	●			
85AY 406	.406	10.3	11.3	●	●	●	●	●	●	●	●	●	●	●		●	●			4.3 .168"
85AY 437	.437	11.1	12.2	●	●	●	●	●	●	●	●	●	●	●		●	●			
85AY 469	.469	11.9	13.0	●	●	●	●	●	●	●	●	●	●	●		●	●			
85AY 500	.500	12.7	14.0	●	●	●	●	●	●	●	●	●	●	●		●	●			
85AY 562	.562	14.3	15.7	●	●	●	●	●	●	●	●	●	●	●	6			38.1 1-1/2"	127 5"	4.8 .190"
85AY 625	.625	15.9	17.5	●	●	●	●	●	●	●	●	●	●	●						
85AY 687	.687	17.4	19.2	●	●	●	●	●	●	●	●	●	●	●						5.6 .220"
85AY 750	.750	19.1	21.0	●	●	●	●	●	●	●	●	●	●	●						
85AY 812	.812	20.6	22.7	●	●	●	●	●	●	●	●	●	●	●					152.4 6"	
85AY 875	.875	22.2	24.4	●	●	●	●	●	●	●	●	●	●	●						
85AY 937	.937	23.8	26.2	●	●	●	●	●	●	●	●	●	●	●						
85AY1000	1.000	25.4	28.0	●	●	●	●	●	●	●	●	●	●	●				50.8 2"		
85AY1250	1.250	31.8	35.0	●	●	●	●	●	●	●	●	●	●	●				63.5 2-1/2"	165.1 6-1/2"	6.2 .245"
85AY1500	1.500	38.1	42.0	●	●	●	●	●	●	●	●	●	●	●						
85AY1750	1.750	44.5	49.0	●	●	●	●	●	●	●	●	●	●	●	3			76.2 3"	177.8 7"	7.4 .292"
85AY2000	2.000	50.8	56.0	●	●	●	●	●	●	●	●	●	●	●					203.2 8"	
85AY2500	2.500	63.5	70.0	●	●	●	●	●	●	●	●	●	●	●				88.9 3-1/2"	228.6 9"	
85AY3000	3.000	76.2	84.0	●	●	●	●	●	●	●	●	●	●	●				101.6 4"	254 10"	

For holes choose the specified hole diameter, for threads choose effective brush diameter equal to thread max Ø

● **Standard** ● **Semi-Standard** ● **Upon request**



SERIES 83 BRUSHES– Through holes

Single spiral protruding stem (though holes)

Stainless steel – Carbon steel – Brass – Nylon bristles

Stainless steel	Bristle Ø mm	Carbon steel	Bristle Ø mm	Brass 80/20	Bristle Ø mm	Nylon 6-12	Bristle Ø mm	Brush Ø mm	Brush Ø inch	Brush length mm	Total length mm	Pack. pcs
83-S250	0.1 .004"	83-C250	0.13 .005"	83-B250	0.13 .005"	83-N250	0.2 .008"	6.4	1/4	38.1 1-1/2"	114.3 4-1/2"	12
83-S312		83-C312		83-B312		83-N312	0.25 .010"	7.9	5/16			
83-S375	0.13 .005"	83-C375		83-B375		83-N375		9.5	3/8		127 5"	
83-S437		83-C437		83-B437		83-N437		11.1	7/16			
83-S500	0.15 .006"	83-C500		83-B500		83-N500		12.7	1/2			
83-S562		83-C562		83-B562		83-N562		14.3	9/16			6
83-S625	0.2 .008"	83-C625	0.2 .008"	83-B625	0.2 .008"	83-N625	0.3 .012"	15.9	5/8	44.5 1-3/4"		
83-S750		83-C750		83-B750		83-N750	0.35 .014"	19.0	3/4			
83-S875		83-C875		83-B875		83-N875		22.2	7/8	50.8 2"	152.4 6"	
83-S1000		83-C1000		83-B1000		83-N1000	0.43 .017"	25.4	1			
83-S1250	0.25 .010"	83-C1250	0.25 .010"	83-B1250	0.25 .010"	83-N1250	0.56 .022"	31.8	1-1/4	63.5 2-1/2"		
83-S1500		83-C1500		83-B1500		83-N1500		38.1	1-1/2			
83-S1750		83-C1750		83-B1750		83-N1750		44.5	1-3/4	76.2 3"	177.8 7"	
83-S2000	0.3 .012"	83-C2000	0.3 .012"	83-B2000	0.3 .012"	83-N2000	0.71 .028"	50.8	2			

For holes choose diameter up to +20% larger, for threads choose diameter equal to thread max Ø

SERIES 84 BRUSHES – Long

Single spiral protruding stem (though holes)

Stainless steel – Carbon steel – Brass – Nylon bristles

Stainless steel 302	Bristle Ø mm	Carbon stee	Bristle Ø mm	Brass 80/20	Bristle Ø mm	Nylon 6-12	Bristle Ø mm	Natural bristle	Brush Ø mm	Brush Ø pollici	Brush length mm	Total length mm	Pack. pcs
84-S125	0.076 .003"	84-C125	0.076 .003"	84-B125	0.076 .003"	84-N125	0.13 .005"	84-H125	3.2	1/8	31.8 1-1/4"	203.2 8"	12
84-S187		84-C187		84-B187		84-N187		84-H187	4.8	3/16	38.1 1-1/2"		
84-S250	0.1 .004"	84-C250	0.15 .006"	84-B250	0.13 .005"	84-N250	0.2 .008"	84-H250	6.4	1/4	50.8 2"		
84-S312		84-C312		84-B312		84-N312		84-H312	7.9	5/16			
84-S375		84-C375		84-B375		84-N375	0.25 .010"	84-H375	9.5	3/8			
84-S437		84-C437		84-B437		84-N437	0.3 .012"	84-H437	11.1	7/16	63.5 2-1/2"	254 10"	
84-S500	0.13 .005"	84-C500		84-B500		84-N500		84-H500	12.7	1/2			6
84-S562	0.15 .006"	84-C562		84-B562		84-N562	0.35 .014"	84-H562	14.3	9/16			
84-S625	0.2 .008"	84-C625	0.2 .008"	84-B625	0.2 .008"	84-N625		84-H625	15.9	5/8			
84-S750		84-C750		84-B750		84-N750	0.43 .017"	84-H750	19.0	3/4			
84-S875	0.25 .010"	84-C875	0.25 .010"	84-B875	0.25 .010"	84-N875		84-H875	22.2	7/8	76.2 3"	304.8 12"	
84-S1000		84-C1000		84-B1000		84-N1000		84-H1000	25.4	1			
84-S1125		84-C1125		84-B1125		84-N1125		84-H1125	28.6	1-1/8			
84-S1250		84-C1250		84-B1250		84-N1250	0.56 .022"	84-H1250	31.8	1-1/4			
84-S1375		84-C1375		84-B1375		84-N1375		84-H1375	34.9	1-3/8			
84-S1500		84-C1500		84-B1500		84-N1500		84-H1500	38.1	1-1/2			
84S-1625		84-C1625		84-B1625		84-N1625		84-H1625	41.3	1-5/8	88.9 3-1/2"	457.2 18"	3
84-S1750	0.3 .012"	84-C1750	0.3 .012"	84-B1750	0.3 .012"	84-N1750		84-H1750	44.5	1-3/4			
84-S2000		84-C2000		84-B2000		84-N2000		84-H2000	50.8	2			
84-S2250		84-C2250		84-B2250		84-N2250	0.63 .025"	84-H2250	57.2	2-1/4	101.6 4"		
84-S2500		84-C2500		84-B2500		84-N2500		84-H2500	63.5	2-1/2			
84-S2750		84-C2750		84-B2750		84-N2750		84-H2750	69.9	2-3/4			
84-S3000		84-C3000		84-B3000		84-N3000		84-H3000	76.2	3			

For holes choose diameter up to +20% larger, for threads choose diameter equal to thread max Ø

SERIES 90 AY BRUSHES

Double twisted stem - double spiral

Abrasive Nylon bristle

TYPE	Diameter Hole Inches	Diameter Hole Mm	Diameter Brush mm	Abrasive Silicon Carbide 80	120	180	320	500	Aluminum Oxide 80	120	180	320	500	600	Brush length mm	Stem Ø mm	Total length mm	Pack. pcs
90-AY 750	0.750	19.1	21	●	●	●	●	●	●	●	●	●	●	●	38.1 1-1/2"	7.1 .280"	152.4 6"	6
90-AY 875	0.875	22.2	24.5	●	●	●	●	●	●	●	●	●	●	●				
90-AY 1000	1.000	25.4	28	●	●	●	●	●	●	●	●	●	●	●	50.8 2"	7.9 .310"	203.2 8"	
90-AY 1250	1.250	31.8	35	●	●	●	●	●	●	●	●	●	●	●				
90-AY 1500	1.500	38.1	42	●	●	●	●	●	●	●	●	●	●	●				
90-AY 1750	1.750	44.5	49	●	●	●	●	●	●	●	●	●	●	●				
90-AY 2000	2.000	50.8	56	●	●	●	●	●	●	●	●	●	●	●	76.2 3"		254 10"	3
90-AY 2250	2.250	57.2	63	●	●	●	●	●	●	●	●	●	●	●				
90-AY 2500	2.500	63.5	70	●	●	●	●	●	●	●	●	●	●	●				
90-AY 2750	2.750	69.9	77	●	●	●	●	●	●	●	●	●	●	●				
90-AY 3000	3.000	76.2	84	●	●	●	●	●	●	●	●	●	●	●	101.6 4"			
90-AY 3500	3.500	88.9	98	●	●	●	●	●	●	●	●	●	●	●				

For holes choose the specified hole diameter, for threads choose effective brush diameter equal to thread max Ø

BUTTERFLY SERIES – Thread cleaning

Adapters: brushes BR-8H 2.4mm(3/32") stem / brushes BR-12H 3.2mm(1/8") stem

Stainless steel – Carbon steel – Brass – Nylon bristle

Stainless steel	Bristle Ø mm	Carbon steel	Bristle Ø mm	Brass 80/20	Bristle Ø mm	Nylon 6-12	Bristle Ø mm	Brush Ø mm	Brush Ø Inch	Brush length mm	Stem Ø mm	Pack. pcs
BS 250		BR 250	0.076 .003"	BB 250	0.076.003"	BN 250		6.4	1/4			
		BR 281						7.2	9/32			
BS 312		BR 312	0.15 .006"	BB 312	0.076 .003"			7.9	5/16			
		BR 344						8.8	11/32			
BS 375		BR 375		BB 375	0.13 .005"	BN 375		9.5	3/8	14.3 9/16"	2.4 3/32"	
		BR 406	0.076 .003"					10.3	13/32			
BS 437		BR 437		BB 437	0.13 .005"			11.1	7/16			
		BR 469	0.15 .006"					11.9	15/32			
BS 500		BR 500		BB 500	0.13 .005"	BN 500		12.7	1/2			
BS 562		BR 562	0.2 .008"					14.3	9/16			
BS 625	0.13 .005"	BR 625					0.25 .010"	15.9	5/8			12
BS 750		BR 750				BN 750		19.0	3/4			
BS 875		BR 875		BB 875	0.13 .005"	BN 875		22.2	7/8			
		BR 937	0.15 .006"					23.8	15/16			
BS 1000		BR 1000						25.4	1			
		BR 1063						27.0	1-1/16	15.9 5/8"	3.2 1/8"	
		BR 1125	0.2 .008"					28.6	1-1/8			
		BR 1188						30.2	1-3/16			
BS 1250		BR 1250						31.8	1-1/4			
		BRR 375	0.15 .006"					9.5	3/8			
		BRR 437						11.1	7/16			
		BRR 500						12.7	1/2			

For holes choose diameter up to +20% larger, for threads choose diameter equal to thread max Ø

SERIES 90 BRUSHES

Quattro fili – double spiral – Available with or without threaded adapter:
½" to 3/4" brush → 1/8" external thread
7/8" brush and above → 1/4" external thread
Provided with threaded attachment unless otherwise specified

Stainless steel 302	Bristle Ø mm	Stainless steel	Bristle Ø mm	Carbon steel	Bristle Ø mm	Brass 80/20	Bristle Ø mm	Nylon 6-12	Bristle Ø mm	Brush Ø mm	Brush Ø Inches	Brush length mm	Total length mm
90-SS500	0.2 .008"	90-S500	0.2 .008"	90-C500	0.2 .008"	90-B500	0.2 .008"	90-N500		12.7	1/2		
90-SS625		90-S625		90-C625		90-B625		90-N625	0.4 .016"	15.9	5/8	101.6 4"	177.8 7"
90-SS750	0.25 .010"	90-S750	0.25 .010"	90-C750	0.25 .010"	90-B750	0.25 .010"	90-N750		19.0	3/4		
90-SS875		90-S875		90-C875		90-B875		90-N875		22.2	7/8		
90-SS1000		90-S1000		90-C1000		90-B1000		90-N1000	0.56 .022"	25.4	1		
90-SS1250		90-S1250		90-C1250		90-B1250		90-N1250		31.8	1-1/4		
90-SS1500		90-S1500		90-C1500		90-B1500		90-N1500	0.7 .028"	38.1	1-1/2		
90-SS1750	0.3 .012"	90-S1750	0.3 .012"	90-C1750	0.3 .012"	90-B1750	0.3 .012"	90-N1750		44.5	1-3/4		
90-SS2000		90-S2000		90-C2000		90-B2000		90-N2000		50.8	2	114.3 4-1/2"	190 7-1/2"
90-SS2250		90-S2250		90-C2250		90-B2250		90-N2250		57.2	2-1/4		
90-SS2500		90-S2500		90-C2500		90-B2500		90-N2500	0.8 .032"	63.5	2-1/2		
90-SS2750		90-S2750		90-C2750		90-B2750		90-N2750		69.9	2-3/4		
90-SS3000	0.35 .014"	90-S3000	0.35 .014"	90-C3000	0.35 .014"	90-B3000		90-N3000		76.2	3		
90-SS3500		90-S3500		90-C3500		90-B3500	0.46 .018"	90-N3500	1.1 .045"	88.9	3-1/2		
90-SS4000	0.4 .016"	90-S4000	0.4 .016"	90-C4000	0.4.016"	90-B4000		90-N4000		101.6	4	127 5"	203.2 8"

SERIES 92 BRUSHES 8-32 threaded adapter

Stainless steel	Carbon steel	Brass 80/20	Nylon 6-12	Brush Ø mm	Brush Ø Inch	Pack. pcs
92-S312	92-C312	92-B312	92-N312	7.9	5/16	
92-S344	92-C344	92-B344	92-N344	8.7	11/32	
92-S375	92-C375	92-B375	92-N375	9.5	3/8	
92-S437	92-C437	92-B437	92-N437	11.1	7/16	12
92-S500	92-C500	92-B500	92-N500	12.7	1/2	
92-S562	92-C562	92-B562	92-N562	14.3	9/16	
92-S594	92-C594	92-B594	92-N594	15.0	19/32	

SPECIAL UPON REQUEST

SERIES 86

SERIES 87

SERIES 88

SERIES 89

SERIES 85Sx – 85Sxx

Code	Stainless steel 302	Bristle Ø mm	Brush Ø mm	Brush Ø Inches	Brush length mm	Total length mm	Pack. pcs
08409	85Sx562	.004 0.1mm	14.3	9/16	1" 25.4mm	4" 101.6mm	6
11275	85Sx625		15.9	5/8			
11276	85Sx687		17.5	11/16			
08410	85Sx750		19.1	3/4			
08411	85Sx812		20.6	13/16			
08412	85Sx875		22.2	7/8			
08413	85Sx937		23.8	15/16			
08414	85Sx1000		25.4	1			
08163	85Sx1125	.005 0.13mm	29	1-1/8			
09917	85Sx1250		31.8	1-1/4			
09918	85Sx1500		38.1	1-1/2			
14197	85Sx1750		44.5	1-3/4			
12443	85Sxx562	.003 0.075mm	14.3	9/16	38mm	127mm	
16460	85Sxx750		19.1	3/4			
12442	85Sxx1000		25.4	1	51mm	152mm	
16655	85Sxx1125		28.5	1-1/4			
07636	85Sxx1500		38.1	1-1/2	76mm	165mm	
03656	85Sxx2000		50.8	2	76mm	203mm	

Brushes with high-density filling of Fine (Sx) and Extra Fine (Sxx) Stainless Steel wire. Soft but compact, excellent for cleaning residues from heat treatments, galvanizing, or other processes. Polish surfaces and threads on ferrous materials, steel, and cast iron. They have a more aggressive cutting action than abrasive nylon brushes but less aggressive than traditional steel brushes. Their longer lifespan is due to the higher filament density. They provide excellent results in light deburring applications where a medium surface finish is also required. Upon request, different diameters and sizes can be provided, with finer or coarser filling wire sections, and wire made of different materials.

For holes choose diameter up to +20% larger, for threads choose diameter equal to thread max Ø

SERIES 85Sb

Stainless steel 302	Bristle Ø .003 0.076mm	Bristle Ø .005 0.13mm	Brush Ø mm	Stem Ø mm	Brush length mm	Total length mm	Pack. pcs
85-Sb6M	11100	11026	6	1/8" 3.2mm	1" 25.4mm	3-1/2" 89mm	6
85-Sb8M	09867	11027	8				
85-Sb10M	11101	11102	10				
85-Sb13M	11093	10031	13				
85-Sb14M	-	10032	14				
85-Sb16M	11061	13492	16				
85-Sb18M	-	13493	18				
85-Sb22M	-	11431	22				

Similar to the 85Sx brushes but with lower density, the front part is designed to reach the bottom of blind holes. Different diameters and/or finer or coarser filling wire sections can be provided upon request.

For holes choose diameter up to +20% larger, for threads choose diameter equal to thread max Ø

SERIES RF-AY Rectangular bristle

Abrasive Nylon bristle

Code #120 SC	Code #320 SC	Diameter Hole min	Diameter Hole max	Diameter Brush inches	Diameter Brush mm	Brush length mm	Total length mm
14691	14650	32	45	2	51	51mm - 2"	254mm 10"
14692	14693	45	57	2-1/2	64		
14694	14695	57	70	3	76	76mm - 3"	
14696	14697	64	76	3-1/2	89	101mm - 4"	356mm 14"
14639	14698	76	89	4	101		
14637	14699	89	101	4-1/2	114		
14635	14700	101	114	5	127	127mm - 5"	
14701	14702	114	127	5-1/2	140		

Blind holes

Code Steel bristles	Code #120SC	Code #320AO	Diameter inches	Diameter mm	Total length inches	Total length mm	Body
DEB-1	12012	12013	1/4"	6.4	4"	101	Brass tube
DEB-2	12014	12015	3/8"	9.5	6"	152	Brass tube
DEB-5	12016	12017	1/2"	12.7	2-1/2"	64	Spring
-	14119	-	1/2"	12.7	-	-	Short version

DEB-1/2 the bristles extend for the whole length of the body.
Cut the worn part to expose a fresh section.

Code	Diameter inches	Diameter Mm	Features
SB-1	1/4"	6.4	SB-1 L.220mm Stainless steel bristles
SB-2	5/16"	7.9	SB-2 L.220mm Stainless steel bristles
16487	1/4"	6.4	SB-1 L.150mm Reinforced stem
16488	5/16"	7.9	SB-2 L.150mm Reinforced stem
FB-5	1/2"	12.7	FB-5 SS bristles 0.13mm.005" handle
FB-75	3/4"	19	FB-75 SS bristles 0.13mm.005" handle
16485	1/2"	12.7	FB-1 L.150mm No handle
16486	3/4"	19	FB-2 L.150mm No handle

CY – NY Circular

Abrasive Nylon (ceramic upon request)

Cod	Brush Ø mm	Hole Ø mm	Silicon Carbide Grit					Aluminum Oxide Grit						Bristles length		Brush width	Max Rotation speed	Pcs
			80	120	180	320	500	80	120	180	320	500	600	mm	Inches	mm	rpm	
CY1”	25.4	9.5 3/8”	●	●	●	●	●	●	●	●	●	●	●	3.2	1/8”	7	20.000	6
CY1 ¼”	31.8		●	●	●	●	●	●	●	●	●	●	●	6.4	1/4”			
CY1 ½”	38.1		●	●	●	●	●	●	●	●	●	●	●	9.5	3/8”			
CY2”	50.8	12.7 1/2”	●	●	●	●	●	●	●	●	●	●	●	12.7	1/2”			
CY2 ½”	63.5		●	●	●	●	●	●	●	●	●	●	●	19.0	3/4”			
CY3”	76.2		●	●	●	●	●	●	●	●	●	●	●	25.4	1”			
CY3 ½”	88.9	12.7 1/2”	●	●	●	●	●	●	●	●	●	●	●	30.2	1-3/16”			
CY4”	101.6	15.9 5/8”	●	●	●	●	●	●	●	●	●	●	●	36.5	1-7/16”			
NY6”	152.4	50.8 2”	●	●	●	●	●	●	●	●	●	●	●	38.1	1-1/2”	½” 12.7	6.000	1
NY8”	203.2	82.6 3-1/4”	●	●	●	●	●	●	●	●	●	●	●	47.6	1-7/8”		5.000	

● *Standard* - ● *Upon request*

Adapters Page 38

CY

NY

BMC – BMF Circular with stem

***Abrasive Nylon* Max rotation speed: 25.000 rpm**

Code	Brush Ø		Stem Ø	Silicon Carbide Grit					Aluminum Oxide Grit						Bristles length	
	mm	inches	mm	80	120	180	320	500	80	120	180	320	500	600	mm	inches
BMC 12 AY	31.8	1-1/4”	6.4 1/4”	●	●	●	●	●	●	●	●	●	●	●	3.2	1/8”
BMC 13 AY	34.9	1-3/8”		●	●	●	●	●	●	●	●	●	●	●	4.8	3/16”
BMC 14 AY	38.1	1-1/2”		●	●	●	●	●	●	●	●	●	●	●	6.4	1/4”
BMC 16 AY	44.5	1-3/4”		●	●	●	●	●	●	●	●	●	●	●	9.5	3/8”
BMC 20 AY	50.8	2”		●	●	●	●	●	●	●	●	●	●	●	12.7	1/2”
BMC 25 AY	63.5	2-1/2”		●	●	●	●	●	●	●	●	●	●	●	17.5	11/16”
BMC 30 AY	76.2	3”		●	●	●	●	●	●	●	●	●	●	●	20.6	13/16”
BMF 14 AY	38.1	1-1/2”	6.4 1/4”	●	●	●	●	●	●	●	●	●	●	●	6.4	1/4”
BMF 16 AY	44.5	1-3/4”		●	●	●	●	●	●	●	●	●	●	●	9.5	3/8”
BMF 20 AY	50.8	2”		●	●	●	●	●	●	●	●	●	●	●	12.7	1/2”
BMF 25 AY	63.5	2-1/2”		●	●	●	●	●	●	●	●	●	●	●	17.5	11/16”
BMF 30 AY	76.2	3”		●	●	●	●	●	●	●	●	●	●	●	20.6	13/16”

● *Standard* - ● *Upon request*

BMC

BMF

BNS - Brush

***Abrasive Nylon* Max rotation speed: 20.000 rpm**

Code	Brush Ø		Stem Ø	Silicon Carbide Grit					Aluminum Oxide Grit						Bristles length
	mm	Inch	mm	80	120	180	320	500	80	120	180	320	500	600	mm
BNS 4 AY	12.7	1/2”	6.4 1/4”	●	●	●	●	●	●	●	●	●	●	●	22.2 7/8”
BNS 6 AY	19	3/4”		●	●	●	●	●	●	●	●	●	●	●	
BNS 10 AY	25.4	1”		●	●	●	●	●	●	●	●	●	●	●	

● *Standard* - ● *Upon request*

BNS

BNH - Cup

Abrasive Nylon

Code	Effective Diameter		Stem Ø	Silicon Carbide Grit					Aluminum Oxide Grit						Bristles length	Max rotation speed.
	mm	Inches	mm	80	120	180	320	500	80	120	180	320	500	600	mm	rpm
BNH16AY	44.5	1-3/4”	6.4 1/4”	●	●	●	●	●	●	●	●	●	●	●	12.7 1/2”	10.000
BNH26AY	69.9	2-3/4”		●	●	●	●	●	●	●	●	●	●	●	19 3/4”	8.000

● *Standard* - ● *Upon request*

BNH

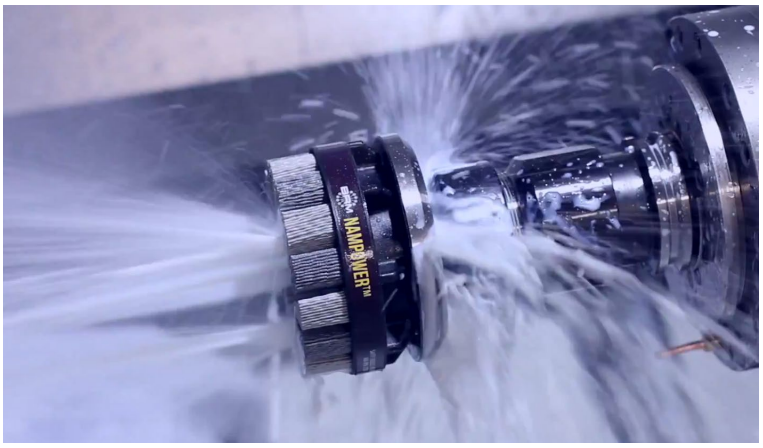
NAMPOWER CERAMIC FRONTAL BRUSHES

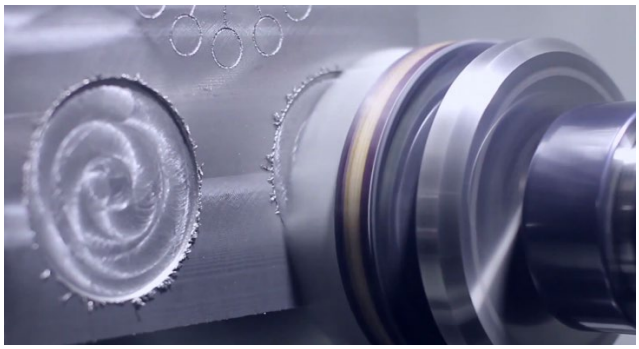
Ideal for use on CNC machines in applications with high production volumes

Available in 50, 60, 80, 100, 125, 150mm diameters – Abrasive Nylon 50% SC – 50% Ceramic

Dot Style: *General use for light edge deburring and surface finishing in reduced cycle times. Dot Style brushes are very flexible and allow for easy deburring of edges in small holes or recesses.*

Turbine Style: *Ideal for medium to heavy deburring applications. The combination of silicon carbide and ceramic filaments allows for extremely fast cutting action and minimal wear.*





Code		Grit	Diameter	Bristles length	Max rotation speed
DOT	**TURBINE**				
ADD501880	**ADT501880**	80	50mm	18mm	6.500 rpm
ADD5018120	**ADT5018120**	120			
ADD5018180	**ADT5018180**	180			
ADD5018320	**ADT5018320**	320			
ADD601880	**ADT601880**	80	60mm		5.500 rpm
ADD6018120	**ADT6018120**	120			
ADD6018180	**ADT6018180**	180			
ADD6018320	**ADT6018320**	320			
ADD801880	**ADT801880**	80	80mm		4.000 rpm
ADD8018120	**ADT8018120**	120			
ADD8018180	**ADT8018180**	180			
ADD8018320	**ADT8018320**	320			
Stem Code		Stem Ø		Stem type	
ADH16P		Ø16mm		Cilindrico	
14258		Ø10mm		Cilindrico	
Fornibili a richiesta altre tipologie di gambo					

DOT STYLE

TURBINE STYLE

ADH16P
Ø 16mm cylindrical stem
Internal coolant passage

Code		Grit	Diameter	Bristles length	Max rotation speed
DOT	**TURBINE**				
ADD1001880	**ADT1001880**	80	100mm	18mm	2.200 rpm
ADD10018120	**ADT10018120**	120			
ADD10018180	**ADT10018180**	180			
ADD10018320	**ADT10018320**	320			
ADD1003880	**ADT1003880**	80		38mm	
ADD10038120	**ADT10038120**	120			
ADD10038150	**ADT10038150**	180			
ADD10038320	**ADT10038320**	320			
ADD1251880	**ADT1251880**	80	125mm	18mm	2.000 rpm
ADD12518120	**ADT12518120**	120			
ADD12518180	**ADT12518180**	180			
ADD12518320	**ADT12518320**	320			
ADD1253880	**ADT1253880**	80		38mm	
ADD12538120	**ADT12538120**	120			
ADD12538180	**ADT12538180**	180			
ADD12538320	**ADT12538320**	320			
ADD1501880	**ADT1501880**	80	150mm	18mm	1.800 rpm
ADD15018120	**ADT15018120**	120			
ADD15018180	**ADT15018180**	180			
ADD15018320	**ADT15018320**	320			
ADD1503880	**ADT1503880**	80		38mm	
ADD15038120	**ADT15038120**	120			
ADD15038180	**ADT15038180**	180			
ADD15038320	**ADT15038320**	320			
Stem code		Stem Ø		Stem type	
ADHLWMSL		25mm		Weldon	
Other types of stems available upon request					

DOT STYLE

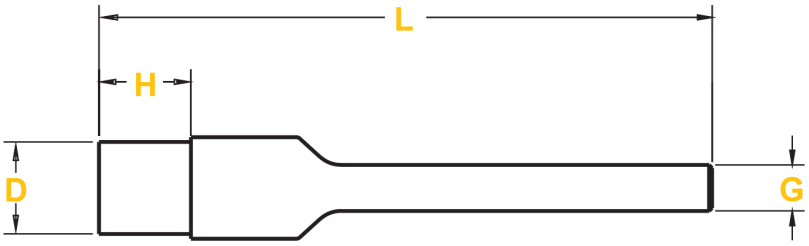
TURBINE STYLE

ADHLWMSL
W25
Internal coolant passage

NAMPOWER CERAMIC FRONTAL BRUSHES

Ideal for use on CNC machines and robots in applications with high production volumes.
Maximum density, 100% Ceramic Abrasive Nylon.

Code	Grit	A Brush diameter	B Bristles length	C Total length	D Stem diameter
AEB125880	#80	1/2” 12.7mm	5/8” 16mm	4.88” 124mm	3/8” 9.5mm
AEB1258120	#120				
AEB1258180	#180				
AEB1258320	#320				
AEB343480	#80	3/4" 19mm	3/4” 19mm	5” 127mm	3/8” 9.5mm
AEB3434120	#120				
AEB3434180	#180				
AEB3434320	#320				
AEB1003480	#80	1” 25.4mm	3/4” 19mm	5” 127mm	3/8” 9.5mm
AEB10034120	#120				
AEB10034180	#180				
AEB10034320	#320				
AEB11210080	#80	1-1/2” 38mm	1” 25.4mm	5-1/4” 133.4mm	1/2” 12.7mm
AEB112100120	#120				
AEB112100180	#180				
AEB112100320	#320				
AEB20010080	#80	2” 51mm	1” 25.4mm	5-1/4” 133.4mm	1/2” 12.7mm
AEB200100120	#120				
AEB200100180	#180				
AEB200100320	#320				



NAMPOWER HEX DRIVE FRONTAL BRUSHES

For use on automatic and semi-automatic machines, NC, CNC, robotic systems.
The Hex-Drive design allows the tool to rotate in both directions for a 360° finish.
Typical applications include deburring, rounding edges, and general surface finishing.

Code	External Ø		Stem		Silicon Carbide bristle			Max Rotation speed
	inch	Mm			Ø mm	Grit	L. mm	
AHX 2046	2	50.8	6.4mm 1/4"		1.5 .060"	46	25.4 1"	10.000 rpm
AHX 2060					1.2 .045"	60		
AHX 2080					1.0 .040"	80		
AHX 2120					0.7 .028"	120		
AHX 2180					0.9 .035"	180		
AHX 3046	3	76.2	AHXD 250 6.4mm 1/4"	AHXD 375 9.5mm 3/8"	1.5 .060"	46		
AHX 3060					1.2 .045"	60		
AHX 3080					1.0 .040"	80		
AHX 3120					0.7 .028"	120		
AHX 3180					0.9 .035"	180		
AHX 4060	4	101.6			1.2 .045"	60		6.000 rpm
AHX 4080					1.0 .040"	80		
AHX 4120					0.7 .028"	120		
AHX 4180					0.9 .035"	180		
AHX 5060	5	127	/		1.2 .045"	60		
AHX 5080					1.0 .040"	80		
AHX 5120					0.7 .028"	120		
AHX 5180					0.9 .035"	180		

Stem for AHX3 AHX4 AHX5	Code	Shaft diameter	Max external Ø	Max Rotation speed
	AHXD250	¼" – 6.4mm	4"	10.000 rpm
	AHXD375	3/8" – 9.5mm	5"	10.000 rpm

AHX2 Integrated stem

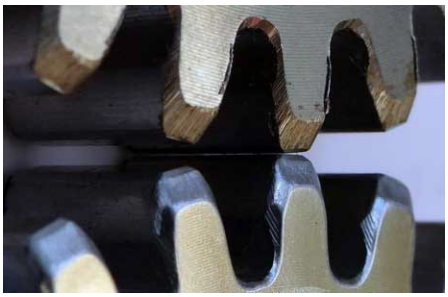
AHXD250 AHXD375

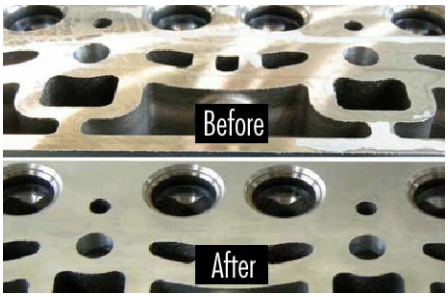
AHX3 - AHX4 - AHX5 Separate stem

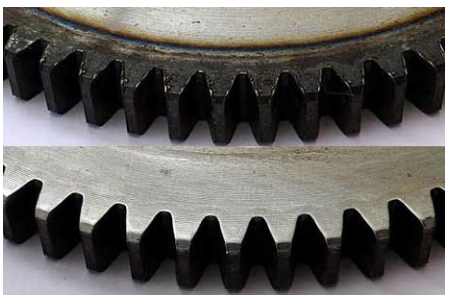
Nampower brushes can be used both wet and dry, and the rotation speed depends on the burrs and the material being worked on. At low speeds, there is a greater brushing effect. Start the process by setting a depth of 0.8mm.

APPLICATION	GRIT				
	#46	#60	#80	#120	#180
Deburring		◆	◆	◆	
Rust removal	◆	◆	◆	◆	
Gasket cleaning/removal	◆	◆	◆		
Roughing	◆	◆	◆	◆	◆
Finishing before painting or coating			◆	◆	◆
Glue residue removal, etc	◆		◆	◆	◆
Mold cleaning	◆		◆		
Finishing	◆		◆	◆	◆
Surface roughness improvement				◆	◆
Weld cleaning	◆		◆	◆	
Fiberglass cleaning				◆	◆
Plastic parts for automotive industry	◆		◆		

Fast machining
No clogging
Follows the contours of surfaces
Does not alter the geometry of the parts
Safe - abrasive filaments do not break off
Does not cause oxidation
Does not react with metals
Clean action
Long-lasting







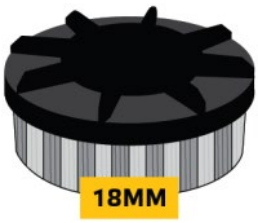
Brushes for deburring, edge rounding, surface finishing. Ideal for use on CNC machines, transfer machines, automatic machines, robotic cells... Shank with cylindrical or Weldon attachment and internal cooling

Bristles configuration

Dot
Generic use in deburring and finishing

Turbine
Applications for medium to heavy deburring

Bristles length



18mm bristles
Less flexibility, higher aggressiveness

38mm bristles
More flexibility, lower aggressiveness

The choice of filament configuration and length is determined by the size of the burrs, shape and geometry of the parts to be deburred, required radius, and desired finish.

Grit

Grit	*Starting Ra*
80	*1.3-1.5*
120	*1.0-1.3*
180	*0.8-1.0*
320	*0.5-0.8*

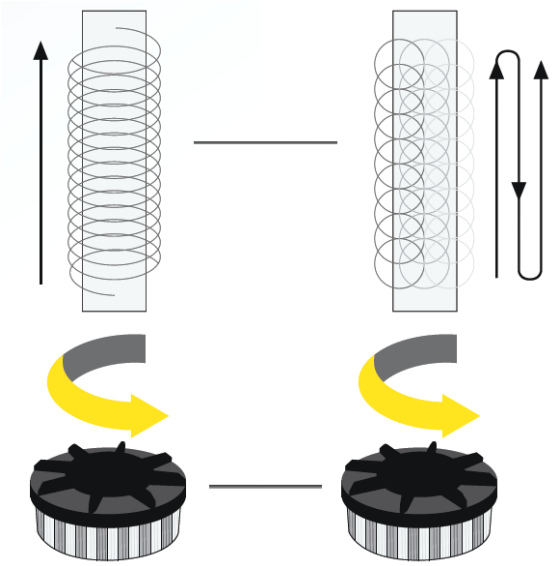
The choice of grit depends on the required finish value. The general rule is to choose the coarsest grit that can maintain the required finish. Using a fine grit on a surface with a high starting finish (Ra) produces a worse result than using a coarse grit followed by a fine one. Coarse grits are recommended for heavy deburring where an extremely low Ra surface finish is not required.

Brush Diameter

Surface coverage
The brush should ideally be approximately 25mm larger than the part being worked on. If a smaller brush is required due to space constraints, the centerline of the brush should be aligned with the edge to be deburred with a minimum of 35-40mm overlap between passes.

Tool path
The brush should start rotating immediately at the working speed given for its diameter, and it should begin and end the path completely outside of the part.

Rotation direction
The brush should rotate in the opposite direction of the cutting tool that created the burr.



Recommended and Maximum Working Speeds

Diameter mm	Grit - rpm				Max rpm
	#80	#120	#180	#320	
50	6.500	6.250	4.000	3.500	6.500
60	5.500	5.000	4.000	2.750	5.500
80	4.500	4.250	3.500	2.500	4.500
100	1.850	1.800	1.750	1.700	2.200
125	1.600	1.550	1.500	1.450	2.000
150	1.350	1.300	1.250	1.200	1.800

The brushes should be used at a lower speed than the maximum indicated to prevent overheating and melting of the nylon on the working surface. It is recommended to stay below 760 m/min for dry use and below 1,070 m/min for wet use. A 150 mm diameter brush used at 1,400 rpm is more effective than the same brush used at 2,800 rpm. Excessive speed, especially with a long filament length, causes deformation and bouncing of the filaments. Typically, brushes are used at higher speeds to prioritize aggressiveness and at lower speeds to prioritize the brush's adaptation to the surface's contour.

Cutting pressure

The cutting pressure should be adjusted to 10% of the bristle length for small-section (#320) and no more than 5% for larger-section bristles (#80-120-180). The higher the cutting pressure, the lower the rotation speed should be so that the filaments can adapt to the shape of the part.

DOT	*TURBINE*
0.4-3.8 mm	0.1-2.4 mm

Feed rate

Material	m/min
Non Ferrous	2.00 m/min
Cast iron	1.50 m/min
Ductile steel	1.25 m/min
Stainless and alloyed steel	0.75 m/min
Titanium and alloys with high Nichel content	0.75 m/min

The feed rate depends on various factors such as the size of the burrs, material, surface contour, and required finish. Flat surfaces are processed at high speed and low cutting pressure, while curved surfaces with variations in level are processed at low speed and high cutting pressure. The recommended feeds are a starting point, but the most effective feed depends on the application and should be determined through processing trials.

Wear compensation

Some machines allow monitoring the spindle load and adjusting the cutting pressure to maintain a constant value. In most CNC machines, there is an automatic increment determined by wear detected in processing trials or through brush height control or manual adjustment.

Suggestions

More aggressiveness
- Short bristles
- Larger brush diameter
- Coarser grit
- Higher bristle density
- Higher rotation speed
- Higher cutting pressure

Less aggressiveness
- Long bristles
- Smaller brush diameter
- Finer grit
- Lower bristle density
- Lower cutting pressure

Non planar surface
- Long bristles
- Finer grit
- Lower bristle density
- Higher cutting pressure

High finish required
- Use coolant
- Long bristles
- Higher rotation speed

No finish required
- Use dry
- Coarser grit
- Smaller brush diameter
- Lower rotation speed

To prevent melting of the bristles
- Use coolant
- Smaller brush diameter
- Lower rotation speed
- Lower cutting pressure

NAMPOWER CIRCULAR BRUSHES

Silicon Carbide Abrasive Nylon

For use on brushing machines or for manual deburring.
Also used for honing the cutting edges and finishing the blades of HSS and WIDIA tools.
Advantages: high filament density, greater durability, reduced processing times, increased aggressiveness, and fewer bristles breaks, greater useful width, and constant density across the entire width. Balanced.
Maximum rotation speed: 3200 rpm.

Code	Grit	Bristle Ø	Diameter	Width	Bristle L.	Hole Ø
CW61280SC	80	.040" - mm1	6" 152.4mm	½" 12.7mm	1-1/2" 38.1mm	2" 50.8mm
CW612022120SC	120	.022" – mm0.56				
CW612040120SC	120	.040" - mm1				
CW612180SC	180	.035 – mm0.89				
CW612320SC	320	.022" – mm0.56				
CW612500SC	500	.018" – mm0.46				
CW6180SC	80	.040" - mm1	6" 152.4mm	1" 25.4mm		
CW61022120SC	120	.022" – mm0.56				
CW61040120SC	120	.040" - mm1				
CW61180SC	180	.035 – mm0.89				
CW61320SC	320	.022" – mm0.56				
CW61500SC	500	.018" – mm0.46				
CW81280SC	80	.040" - mm1	8" 203.2mm	½" 12.7mm	2-1/2" 63.5mm	
CW812022120SC	120	.022" – mm0.56				
CW812040120SC	120	.040" - mm1				
CW812180SC	180	.035 – mm0.89				
CW812320SC	320	.022" – mm0.56				
CW812500SC	500	.018" – mm0.46				
CW8180SC	80	.040" - mm1	8" 203.2mm	1" 25.4mm		
CW81022120SC	120	.022" – mm0.56				
CW81040120SC	120	.040" - mm1				
CW81180SC	180	.035 – mm0.89				
CW81320SC	320	.022" – mm0.56				
CW81500SC	500	.018" – mm0.46				

NAMPOWER DIAMOND CIRCULAR BRUSHES

Used for honing the cutting edges and finishing the blades of WIDIA tools.
Used in finishing and deburring operations on hardened steels, superalloys, glass, ceramics.

Code	Grit	Diameter	Width	Bristle L.	Hole Ø
DW100X5X600	# 600	100	5	12.7	20
DW150X10X600		150	10	19	3-1/4"
DW150X15X600		150	15		
DW200X10X600		200	10		
DW200X15X600		200	15		
DWA314-20MM	Adapter from 3-1/4" to 20mm hole				

Adapters for CW

Code	*External Ø*	*Internal Ø*	*Code*	*External Ø*	*Internal Ø*
CWA2-12	2" 50.8mm	1/2" – 12.7mm	***CWA2-78***	2" 50.8mm	7/8" – 22mm
CWA2-58		5/8" – 16mm	***CWA2-1***		1" – 25.4mm
CWA2-34		3/4" – 19mm	***CWA2-114***		1-1/4" – 31.8mm
CWA2-20MM		20mm	***CWA2-112***		1-1/2" – 38.1mm

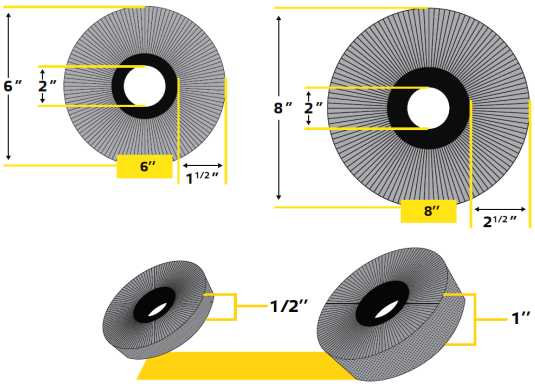
Circular abrasive nylon brushes for use in machines or manually.

Deburring, finishing, rounding edges.

In choosing a circular brush, one must consider the diameter, width, and length of the bristles. The width should be sufficient to cover a broad surface area but thin enough to allow access to all parts to be worked on. The Nampower brushes are available with a width of ½" - 12.7mm or 1" - 25.4mm. The choice of grit also affects the flexibility of the brush; the larger the grit, the larger the diameter of the bristles.

Diameter choice

Nampower circular brushes are available in 6" (152.4mm) and 8" (203.2mm). The larger the diameter, the greater the flexibility and the lower the aggressiveness. Brushes with a smaller diameter are stiffer and more aggressive. The choice of diameter depends on the size of the burrs, the shape of the parts, the required finish, the extent of the edge rounding required, and the type of machine on which the brush will be installed.



Rotation speed

It is preferable to stay below 760 m/min for dry use and 1060 m/min for use with coolant.

Brush Ø	Rpm		
	Dry	Coolant	Nominal
4" - 100mm	3400	2400	2800
6" - 152.4mm	1500	2250	1750
8" - 203.2mm	1250	1650	1500

Cutting pressure

The cutting pressure should be adjusted to 10% of the length of the bristles for small section sizes and not exceed 5% for larger section sizes.

Grit	Bristle Ø	Cutting pressure		
		Ø 4" 100mm	Ø 6" 152.4mm	Ø 8" 203.2mm
600		1.3mm	1.8mm	2.8mm
500	.018"		3.8mm	3.8mm
320	.022"			
120	.022"			
180	.035"		1.9mm	1.9mm
80	.040"			
120	.040"			

Grit

The choice of grit depends on the required finish value. The general rule is to choose the coarsest grit that can still achieve the desired finish level. Using a fine grit on a surface with a high starting Ra finish yields worse results than using a coarse grit followed by a fine one. Coarse grits are recommended for heavy deburring where an exceptionally low Ra finish is not required.

Grit	Starting Ra
80	1.3-1.5
120	1.0-1.3
180	0.8-1.0
320	0.5-0.8

Feed rate

Once all the other parameters are determined, the optimal feed rate is established through a processing test, as it depends on various variables. As a general rule, it is advisable to apply the fastest feed rate that still achieves the required finishing and/or deburring result.

Suggestions

The correct balance of all working parameters allows achieving the desired result and, at the same time, ensures a satisfactory brush life. Low speeds and working pressures make the brush last longer, but sometimes increase the time needed to achieve the result. If high speeds and working pressures are required to achieve the result, choose a more aggressive brush that allows working more lightly. It is always advisable to use a coolant, especially when working at high speeds and pressures, as the heat produced significantly affects the lifespan and performance of the nylon bristles.

BRUSHES FOR OVERHAUL AND MAINTENANCE OF DIESEL ENGINES

CUMMINS SERIES

Code	Bristle Ø	Major Ø mm	Brush L. mm	Total L. mm
NH1	.005" 0.13 Inox	29.9 1.175"	38 1-1/2"	368 14-1/2"
V861	.006" 0.15 Inox	29.2 1.155"	54 2-1/8"	267 10-1/2"
JC1		30.5 1.200"		
L1		52.0 2.050"	92 3-5/8"	305 12"
NH2		41.3 1.625"	108 4-1/4"	254 10"
V862		28.6 1.125"	54 2-1/8"	
JC2		34.3 1.350"	86 3-3/8"	
L2		57.2 2.250"	165 6-1/2"	305 12"
NH3N	.005" 0.13 Inox	29.9 1.175"	38 1-1/2"	216 8-1/2"
L3N	.008" 0.2 Inox	54.0 2.125"	45 1-3/4"	254 10"
V863	.010" 0.25 Acc.	31.8 1.250"	54 2-1/8"	
JC3	.012" 0.3 Acc.	38.1 1.500"	83 3-1/4"	
L30		63.5 2.500"	165 6-1/2"	305 12"
PTD1	.006" 0.15 Inox	24.8 0.975"	51 2"	267 10-1/2"
PTD2	.005" 0.13 Inox	7.9 0.312"	25.4 1"	165 6-1/2"
PTB1		9.5 0.375"	32 1-1/4"	
PB400	Nylon	10.2 .400"	/	/
PB450		11.4 .450"		
PB500		12.7 .500"		
PB550		13.4 .550"		
PB850		21.6 .850"		
PB1000		25.4 1.000"		

Injector seat cleaning
Handle for manual use

NH-1

V8 & 6-1

J & C-1

L-1

Injector seat cleaning
Without handle, for use with an electric drill for thorough seat cleaning

NH-2

V8 & 6-2

J & C-2

L-2

Injector seat cleaning
For a perfect seal of the seat

NH-3
New Style

L3
New Style

V8 & 6-3

J & C-3

L-3 Old Style

PTD-1 Cleaning of the injector locking cup

PTD-2 Cleaning of the PTD injector cup
Brass ring 7.9mm diameter

PTB-1 Cleaning of the PTB injector cup
Brass ring 9.5mm diameter

PB Cleaning of the pump cylinder

DETROIT DIESEL SERIES

Code	Bristle Ø	Major Ø mm	Brush L. mm	Total L. mm
DD1(149)	.006" 0.15 Inox	35.8 1.400"	70 2-3/4"	267 10-1/2"
DD1(53/71/92)		25.4 1.000"	54 2-3/16"	
DD2(149)		41.3 1.625"	120 4-3/4"	254 10"
DD2(53/71/92)		30.5 1.200"	95 3-3/4"	
DD3N	.012" 0.3 Acc.	/	/	/
DD3(149)		41.3 1.675"	127 5"	254 10"
DD3(53/71/91)		33 1.300"	92 3-5/8"	

Injector seat cleaning
Handle for manual use

DD-1 /(149)

DD-1 /(53/71/92)

Injector seat cleaning
Without handle, for use with an electric drill for thorough seat cleaning

DD-2 /(53/71/92)

DD-2 /(149)

Injector seat cleaning
For a perfect seal of the seat

DD-3 New Style

DD-3 /(53/71/92)

DD-3 /(149)

CATERPILLAR SERIES

Code		Bristle Ø	Major Ø mm	Brush L. mm	Total L. mm
	Direct injection. Pre-chamber cleaning 1693, 333, 342, 346, 348, 353				
CAT-1		.005" 0.13 Inox	22.9 .900"	22 7/8"	267 10-1/2"
CAT-2			15.9 .625"	16 5/8"	

INJECTOR CAVITIES

To clean the sealing area of the gasket.
Stainless steel bristles, brass ring

SB-1 ***¼"-6.4mm diameter - Brush length ½"-12.7mm***
SB-2 ***5/16"-7.9mm diameter - Brush length 5/8"-16mm***

INTERNATIONAL HARVESTER – *Stainless steel bristle*

FB-5 ***Flat brush, 1/2"-12.7mm diameter, Stainless steel bristle .005"-0.13 diameter***
FB-75 ***Flat brush, 3/4"-19mm diameter, Stainless steel bristles .005"-0.13 diameter***

CRANKSHAFT LUBRICATION HOLES

CSN Set 2 Nylon brushes 6-12 5/16"-7.9mm and 7/32"-5.6mm diameter
Brush length 2"-50mm, total length 10"-254mm
CSS Set 2 Stainless steel brushes, same dimensions as CSN

VALVE GUIDE BRUSHES

Code	Bristle Ø	Brush Ø mm	Brush L. mm	Total L. mm
VGC312	.008" 0.2mm Acc.	7.9 5/16"	63.5 2-1/2"	241.3 9-1/2"
VGC344		8.7 11/32"		
VGC375		9.5 3/8"		
VGC438		11.1 7/16"		

EXTRA-LONG BRUSHES

For cleaning oil passages and channels in general

Code	Diameter inches	Diameter Mm	Brush L. mm	Total L. mm	Pack. pcs	Description	Bristle
1	1/4	6.4	50 2"	254 10"	12	Small rigid brush for channels	Nylon 6-12
1a					12	Same as #1, but thinner bristles and flexible stem	
2	5/16	7.9	64 2-1/2"	305 12"	12	Rigid, for channels, crankshaft and valve guides	
2a					12	Same as #2, but thinner bristles and flexible stem	
3	3/8	9.5			12	Same as #2	
4	5/8	15.9	76 3"	864 34"	6	Channels	
5				305 12"	6	Same as #4, but extra-long	
6	3/4	19		864 34"	6	Tappet rod channels	
7				1016 40"	6	For main oil passages	
8				356 14"	6		
9	1-1/8	28.6		864 34"	6	Tappet rod channels	
38	3/8	9.5		305 12"	6	Oil passages	
41	1/2	12.7	64 2-1/2"	864 34"	12	Valve guides	
42				305 12"	6	Main oil passages	
44N					12	Same as #41, but thinner bristles and flexible stem	
46	1-1/4	31.8	102 4"		6	Conical pins	
47N	11/32	8.8	64 2-1/2"		12	Valve guides	
48N	13/32	10.3			12		
49N	7/16	11.1			12		
6C	3/4	19	76 3"	305 12"	6	Tappet rod channels	Acciaio
7C				864 34"	6	Main oil passages	
8C				1016 40"	6		
11C	1/4	6.4	50 2"	254 10"	12	Same as #1	
13C	5/16	7.9	64 2-1/2"	305 12"	12	Cams oil passages and valve guides	
14C	3/8	9.5			12		
15	5/8	15.9	76 3"		6	Tappet rod channels	
16				762 30"	6	Oil passages	
18	1-1/8	28.6		356 14"	6	Tappet rod channels	
38C	3/8	9.5		305 12"	6	Oil passages	
44C	1/2	12.7	64 2-1/2"		12	Valve guides	
45				864 34"	6	Main oil passages	
46C	1-1/4	31.8	102 4"	305 12"	6	Conical pins	
47C	11/32	8.8	64 2-1/2"		12	Valve guides	
48C	13/32	10.3			12		
49C	7/16	11.1			12		

KIT 1E:

1, 1a, 2, 2°……..3pz per tipo
3……6pz
4, 5, 6, 7, 8, 9, 38, 41, 42, 46, 10a(5"-127mm)..1pz per tipo
Totale: 29 spazzole

KIT VGNK:

1, 2, 3, 44N, 47N, 48N, 49N……..……1pz per tipo

KIT VGCK:

11C, 13C, 14C, 44C, 47C, 48C, 49C….1pz per tipo

OIL LINE KIT:

1……1pz
2……2pz
3……6pz

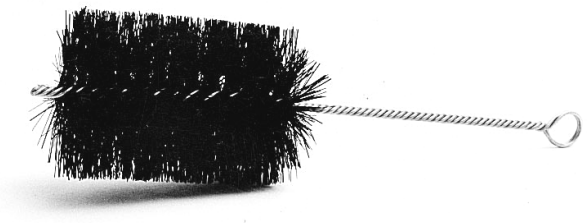
OIL GALLERY KIT:

5, 7, 8, 38, 42…….1pz per tipo

NYLON ROD BRUSHES

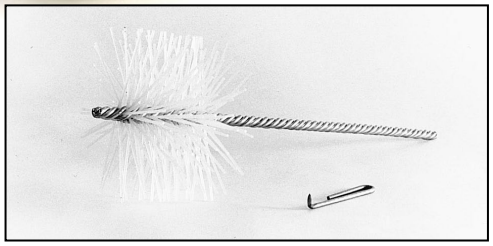
Nylon 6-12, available in diameters up to 14" (355mm)
Cylinder cleaning after processing with Flex-Hone

Code	Diameter inch	Diameter mm
03390	2"	50.8
03391	2-1/2"	63.5
02640	3"	76.2
10A312	3-1/2"	88.9
10A4	4"	101.6
10A412	4-1/2"	114.3
10A5	5"	127.0
10A512	5-1/2"	139.7
10A6	6"	152.4
10A612	6-1/2"	165.1



BRUSH WITH HANDLE

Code: SPOKE
Diameter 3" – 76mm



O-R SEATS IN MONOBLOCK CLEANING

Code: 10-SJD
Diameter 5-1/2"-140mm - Extra-hard Nylon bristles .079"-2mm diameter
Supplied with stainless steel O-R removal and seat scraping tool.
(John Deere) Different measurements available upon request.

CIRCULAR BRUSHES

CARBON STEEL & STAINLESS STEEL BRISTLES

Small diameter, possibility of stack mounting, capable of high rotational speeds.
Deburring, chamfering of sharp edges, rust removal, surface preparation for bonding, finishing.
Max rotational speed: 20.000 rpm

Code	Brush diameter		Hole diameter mm	Bristle diamater (mm)						Pack. Pcs
	mm	inch		0.15 .006"	0.2 .008"	0.25 .0104"	0.3 .0118"	0.35 .014"	0.5 .020"	
C 1-1/4	31.8	1-1/4	3/8" - 9.5	● ●						12
C 1-3/8	34.9	1-3/8		● ●						
C 1-1/2	38.1	1-1/2		● ●						
C 2	50.8	2	½" - 12.7	● ●	● ●	● ●	● ●	● ●	●	6
C 2-1/2	63.5	2-1/2	½" - 12.7 o 5/8"-15.9	● ●		● ●	● ●	● ●	●	
C 3	76.2	3		● ●	● ●		● ●	● ●	●	
C 3-1/2	88.9	3-1/2	½" - 12.7	● ●	● ●	● ●	● ●	● ●	●	
C 4	101.6	4	½" - 12.7 o 3/8"-15.9	● ●	● ●	● ●	● ●	● ●	●	

TAMPICO BRISTLES

Code	Effective diameter		Hole diameter mm	Brush width mm	Max Rotational speed rpm	Pack. Pcs
	mm	Inches				
CT 2	50.8	2	½" 12.7mm	3/8" 9.5mm	20.000	6
CT 2-1/2	63.5	2-1/2				
CT 3	76.2	3				
CT 3-1/2	88.9	3-1/2		½" - 12.7		
TWA 6	152.4	6	2" - 50.8	17/32" 13.4mm	6.000	1
TWA 8	203.2	8	3-1/4"-82.5		5.000	
TWA 10	254	10			4.500	

NYLON BRISTLES

Code	Effective diameter		Hole diameter mm	Bristles Ø (mm)				Brush width	Max Rotational speed rpm	Pack. Pcs
	mm	Inches		0.15 .006"	0.25 .010"	0.4 .016"	0.5 .020"			
CN 1	25.4	1	¼"-6.4mm	●				¼" 6.4mm	20.000	12
CN 1-3/8	34.91	1-3/8	¼"-6.4mm 3/8"-9.5		●					
CN 1-1/2	38.1	1-1/2								
CN 1-3/4	44.45	1-3/4								6
CN 2	50.8	2	½"-12.7 5/8"-15.9	●	●	●				
CN 2-1/2	63.5	2-1/2						3/8"-9.5mm		
CN 3	76.2	3						½" 12.7mm		
CN 3-1/2	88.9	3-1/2		●	●	●	●			
CN 4	101.6	4								
NWA 6	152.4	6	2" - 50.8	●		●	●		6.000	1
NWA 8	203.2	8							4.800	

Adapters Page 38

CIRCULAR BRUSHES WITH STEM

Max rotational speed: 25.000 rpm

Code	Diameter mm	Diameter Inches	Stem Ø mm	Bristles diameter (mm) 0.15 .006"	0.2 .008"	0.25 .0104"	0.3 .0118"	0.35 .014"	Brush width Mm
BMC-12	31.8	1-1/4	¼" 6.4mm	● ●	● ●				3/16" 4.8mm
BMC-13	34.9	1-3/8		● ●	● ●	● ●			
BMC-14	38.1	1-1/2		● ●	● ●	● ●			¼" 6.4
BMC-16	44.8	1-3/4		● ●	● ●	● ●	● ●	●	5/16" 7.9mm
BMC-20	50.8	2		● ●	● ●	● ●	●	●	
BMC-25	63.5	2-1/2			●	●	●	●	
BMC-30	76.2	3			●	●	●	●	
BMF-14	38.1	1-1/2		● ●	● ●	● ●			/
BMF-16	44.8	1-3/4		● ●	● ●		● ●	●	
BMF-20	50.8	2		● ●	● ●	● ●	●	●	
BMF-25	63.5	2-1/2			●	●	●	●	
BMF-30	76.2	3			●	●	●	●	

● **Steel bristles** - ● **Stainless steel bristles**

BMF

BMC

FRONTAL BRUSHES WITH STEM

Max rotational speed: 20.000 rpm

Code	Effective Ø mm	Effective Ø Inch	Stem Ø mm	Bristles diameter (mm) 0.15 .006"	0.25 .0104"	0.35 .014"	0.5 .02"	Bristle L. Mm
BNS-4	12.7	1/2	¼" 6.4mm	● ●	● ●	● ●	● ●	7/8" 22mm
BNS-6	19	3/4						
BNS-10	25.4	1						
BNS-4T	12.7	1/2						
BNS-6T	19	3/4						
BNS-10T	25.4	1						
BNS-4C	12.7	1/2						
BNS-6C	19	3/4						
BNS-10C	25.4	1						
BNH-6	19	3/4		/	/			
BNH-12	28.5	1-1/8						
BNH-6T	19	3/4						
BNH-12T	28.5	1-1/8						

Also available in Nylon6-12 and Brass

● Steel bristles - ● Stainless steel bristles

BNS-C **BNS-** **BNH-T** **BNH** **BN** **BNH-C**

FLARED BRUSHES WITH STEM

Code	Brush Ø mm	Brush Ø inch	Bristles diameter (mm) 0.15 .006"	0.2 .008"	0.25 .0104"	0.35 .014"	0.5 .020"	Max rpm
BNF-10	25.4	1	● ●	● ●			●	20.000
BNF-12	31.8	1-1/4	● ●	●			●	
BNF-14	38.1	1-1/2	● ●	● ●		●	● ●	
BNF-26	70.0	2-3/4		● ●		●	●	15.000
BNF-30	76.2	3	● ●	● ●	●	●	● ●	
BNF-40	101.6	4		● ●				

● Filo Acciaio - ● Filo Inox

BNF

CUP BRUSHES WITH STEM

Code	Brush diameter mm	Brush diameter inch	Stem diameter mm	Bristles diameter mm 0.15 .006"	0.25 .0104"	0.3 .0118"	Max Rotational speed Rpm
BNH-16	44,5	1-3/4	¼" 6.4mm	● ●	●	● ●	10.000
BNH-26	70.0	2-3/4				●	8.000

● Steel bristles - ● Stainless steel bristles

BNH-16

GUIDED BRUSHES

For cleaning paint, dirt, rust around screw or rivet holes, ensuring a clean contact.

Code	Pin Ø mm	Pin Ø Inch	Brush Ø	Bristle Ø mm	Bristle length	Stem Ø	Max rpm
06721	2.4	3/32	½" 12.7mm	0.13 .005" Inox	3/8" 9.5mm	¼" 6.4mm	20.000
06741	3.2	1/8					
06761	4	5/32					
06781	4.8	3/16					
06801	6.4	1/4					

ENCAPSULATED BRUSHES

Highly aggressive brushing action for rapid burr removal and uniform processing. Wire encapsulation provides the brush with exceptional aggressiveness with minimal pressure.

Type	Code	Brush Ø		Steel bristle diameter					Hole Ø mm	Brush width mm	Max Rotational speed rpm
		mm	inch	0.2 .008"	0.25 .0104"	0.3 .0118"	0.35 .014"	0.5 .020"			
Frontal	BNS-6E	19	3/4		●			●	Gambo ¼"-6.4	11.2	20.000
Circular	BDM-6E	152.4	6		●				5/8"-15.9 1/2"-12.7	/	6.000
	CE-1-1/2	38.1	1-1/2	●		●			3/8"-9.5	7.2	20.000
	CE-2	50.8	2		●		●		1/2"-12.7		
	CE-3	76.2	3			●	●		5/8"-15.9	9.5	

CUP BRUSHES

Code	Brush diameter		Bristles diameter (mm)				Attachment	Bristles length mm	Max Rotational speed rpm
	mm	inch	0.3 .0118"	0.35 .014"	0.5 .020"	0.65 .025"			
BUC-3	76.2	3		● ●			5/8"-11 thread	1" 25.4mm	14.000
BUC-4	101.6	4	●	● ●	●			1-1/4" 32mm	9.000
BUC-5	127	5		● ●	●				
BUC-6	152.4	6		● ●	●			1-3/8" 35mm	6.600
BUS-3	76.2	3		●				7/8" 22mm	14.000
BUS-4	101.6	4	● ●	● ●	●			1-1/4" 32mm	9.000
BUS-5	127	5		● ●	●				7.000
BUS-6	152.4	6		● ●	●	●		1-3/8" 35mm	6.600
BUSC-3	70	2-3/4			● ●			1" 25.4mm	14.000
BUDX-4	101.6	4	●		● ●			1-1/4" 32mm	9.000

● Steel bristles - ● Stainless steel bristles

MINI-GRINDER SERIES

Angle grinder brushes. Threaded reduction available.

Code	Brush diameter		Bristles Ø (mm)		Threaded attachment	Bristles length mm	Max Rotational speed rpm
	mm	inches	0.35 .014"	0.5 .020"			
BUSC-3	69.85	2-3/4		●	5/8-11	1" 25.4	14.000
BUC-3	76.2	3	● ●				
BTS-4	101.6	4	● ●			13/16" 21	20.000
				● ●			
BTC-4	101.6	4	● ●				
				● ●		7/8" 22	
BSTCM-102	101.6	4		● ●			
BSTCM-115	114.3	4-1/2		●		13/16" 21	12.500

● Steel bristles - ● Stainless steel bristles

DESCALING

Hardened cobalt steel balls, welded at the ends of stainless steel aircraft cables.

DEB-3 *3 Cables, heavy-duty use.*
Use at low rpm. Excellent for removing heavy carbon deposits, etc.
For diameters up to 1-1/2" – 38mm.

DEB-4 *5 Cables, light use.*
Use at 2.000 rpm for the removal of rust and scale deposits from pipes.
For diameters up to 5" - 127mm. Can also work in curved pipes.

DEB-3x *Same as DEB-3, but with longer cables for tubes of diameter up to 4" – 101mm.*
Use at 2.000 rpm for rust removal

DEB-4x *Same as DEB-4, but with longer cables for tubes of diameter up to 7" - 177mm*

CIRCULAR BRUSHES

Code	Brush diameter		Bristles diameter mm							Hole diameter	Bristle length mm	Brush width mm	Max Rotational speed rpm
	mm	Inches	0.3 .0118"	0.35 .014"	0.4 .016"	0.5 .020"	0.6 .023"	0.65 .025"	0.75 .030"				
BTS-3	76.2	3	● ●	● ●		● ●				3/8" - 9.5mm 1/2" - 12.7mm	1/2" 12.7mm	7/16" 11mm	20.000
BTS-4	101.6	4	● ●	● ●	● ●	● ●				3/8" - 9.5mm 1/2" - 12.7mm Filetto 5/8"-11	13/16" 21mm	1/2" 12.7mm	
BTS-6	152.4	6	● ●	● ●	● ●		●		●	1/2" - 12.7mm 5/8" – 16mm	1-7/16" 37mm	5/8" 16mm	8.000
BTS-7	177.8	7		●	●				●		1-11/16" 43mm		
BTS-8	203.2	8	● ●	● ●	● ●		●		●	1/2" - 12.7mm 5/8" - 16mm 3/4" - 19mm		3/4" 19mm	6.000
B-462	152.4	6			●					1" – 25.4mm + 2 chiavette			8.000
B-464	203.2	8			●								6.000
TW-8	203.2	8	●		●			●		2" 50.8mm	1-3/4" 45mm	1-1/8" 29mm	6.000
TW-10	254	10	●		●						2-1/4" 58mm	1-3/8" 35mm	4.500
BTC-4	101.6	4		● ●		● ●				3/8" - 9.5mm 1/2" - 12.7mm 5/8" - 16mm Filetto 5/8"-11	13/16" 21mm	3/8" 9.5mm	20.000
BTC-6	152.4	6					● ●		● ●	1/2" - 12.7mm 5/8" - 16mm	1-7/16" 37mm	7/16" 11mm	8.000
BTC-7	177.8	7					●		●		1-11/16" 43mm	1/2" 12.7mm	7.000
BTC-8	203.2	8					●		●	1/2" - 12.7mm 5/8" - 16mm 3/4" - 19mm		9/16" 15mm	6.000
BSTCM-102	101.6	4				● ●				Filetto 5/8-11	7/8" 22mm	3/16" 5mm	20.000
BSTCM-115	114.3	4-1/2				●					13/16" 21mm		12.500
BSTCM-170	174.6	6-7/8				● ●					1-1/4" 32mm		9.000

● Steel bristles - ● Stainless steel bristles

BTS

B-464

TW

BSTCM

BTC

BDM

Code	Brush diameter		Bristles diameter mm							Hole diameter	Bristle length mm	Brush width mm	Max Rotational speed rpm
	mm	Inches	0.13 .005"	0.15 .006"	0.2 .008"	0.25 .0104"	0.3 .0118"	0.35 .014"	0.5 .020"				
BDM-3	76.2	3		● ●		●	● ●			3/8" - 9.5mm 1/2" - 12.7mm	1/2" 12.7mm	3/8" 9.5mm	6.000
BDM-4	101.6	4		● ●	● ●	● ●	● ●	● ●			7/8" 22mm		
BDM-6	152.4	6		● ●	● ●	● ●	● ●	● ●		2" - 50.8mm	1-1/8" 29mm	1/2" 12.7mm	4.500
BDM-6B	152.4	6	●							1/2" - 12.7mm 5/8" – 16mm	1-1/16" 27mm		6.000
BDM-8	203.2	8		● ●	●	● ●	●	● ●		2" - 50.8mm	1-1/2" 38mm		4.500
BDA-6	152.4	6		● ●	● ●	●	● ●	● ●			1-1/8" 29mm	7/8" 22mm	4.500
BDA-7	177.8	7		●			●	● ●			1-5/8" 42mm		
BDA-8	203.2	8		● ●		● ●	● ●	● ●			1-1/2" 38mm		
BDA-10	254	10		● ●		●	●	● ●	●		2" 50.8mm	1-1/8" 29mm	3.600
BDA-12	304.8	12					●	●	●		3" 76mm	1-1/4" 32mm	3.000
BDH-6	152.4	6		● ●	●	●	● ●	● ●			1-1/8" 29mm	1-3/8" 35mm	4.500
BDH-7	177.8	7					●	●			1-5/8" 42mm		
BDH-8	203.2	8		● ●		● ●	●	●	●		1-1/2" 38mm		
BDH-10	254	10				●		●	●		2-1/8" 63mm	1-3/4" 45mm	3.600
BDH-12	304.8	12					●	●	●		3" 76mm	2" 50.8mm	3.000

● Steel bristles - ● Stainless steel bristles - ● Brass bristles

BDM

BDA

BDH

MINI SERIES

	Code	Diameter inches	Diameter Mm	Bristles	Hole Ø
82A	82A-401	3/4	19	Medium	1/8" 3.2mm
	82A-401-1	1	25.4		
	82A-402-1			Hard	
	82A-402-125	1-1/4	31.8		

	Code	Diameter inches	Diameter Mm	Bristles	Stem Ø Inches	Stem Ø mm
82B	82B-403	9/16	14.2	.005"-0.13 Crimped steel	3/32	2.4
	82B-404	1/2	12.7	.003"-0.08 Crimped steel		
	82B-405	5/8	14.2	.003"-0.08 Straight steel	1/8	3.2
	82B-407-1	9/16	14.2	Hard	1/8	3.2
	82B-407-3	1/2	12.7	Hard	3/32	2.4

	Code	Diameter Inches	Diameter mm	Bristle Ø mm	Bristle	Shaft Ø inch	Shaft Ø mm	Thickness
82C	82C-408	3/4	19	.003" 0.08	Steel	1/8	3.2	Single
	82C-411	1	25.4			3/32	2.4	Single
	82C-412					1/8	3.2	
	82C-413			.005" 0.13		3/32	2.4	
	82C-414					1/8	3.2	
	82C-415	3/4	19	.003" 0.08	Brass	3/32	2.4	
	82C-416			.005" 0.13		1/8	3.2	
	82C-417	1	25.4	.003" 0.08		3/32	2.4	
	82C-418			.005" 0.13				Double
	82C-419					1/8	3.2	Single
	82C-420	3/4	19	/	Hair	3/32	2.4	
	82C-421			/		1/8	3.2	
	82C-422	1	25.4	/		3/32	2.4	
	82C-427	3/4	19	.005" 0.13	Stainless	1/8	3.2	
	82C-428	1	25.4					Double

	Code	Diameter inches	Diameter mm	Bristle	Stem Ø Inches	Stem Ø mm	Length mm
82D	82D-429	3/16	4.5	.003"-0.08 Steel	1/8	3.2	2" 50.8
	82D-430			.003"-0.08 Brass			
	82D-431			Hair			
	82D-432			Soft			

12pcs packages

Bristle type	Ø5x6	Ø6x8	Ø8x10	Ø20x2	Ø25x2	Ø30x2	Ø10x7	Ø15x8
Horsehair	AFB-H5A	AFB-H6A	AFB-H8A	AFB-H20T	AFB-H25T	AFB-H30T	AFB-H10F	AFB-H15F
Natural	AFB-P5A	AFB-P6A	AFB-P8A	AFB-P20T	AFB-P25T	AFB-P30T	AFB-P10F	AFB-P15F
Wool	AFB-F5A	AFB-F6A	AFB-F8A	AFB-F20T	AFB-F25T	AFB-F30T	AFB-F10F	AFB-F15F
Brass	AFB-C5A	AFB-C6A	AFB-C8A	AFB-C20T	AFB-C25T	AFB-C30T	AFB-C10F	AFB-C15F
Stainless steel	AFB-S5A	AFB-S6A	AFB-S8A	AFB-S20T	AFB-S25T	AFB-S30T	AFB-S10F	AFB-S15F
Abrasive Nylon	AFB-N5A	AFB-N6A	AFB-N8A	AFB-N20T	AFB-N25T	AFB-N30T	AFB-N10F	AFB-N15F

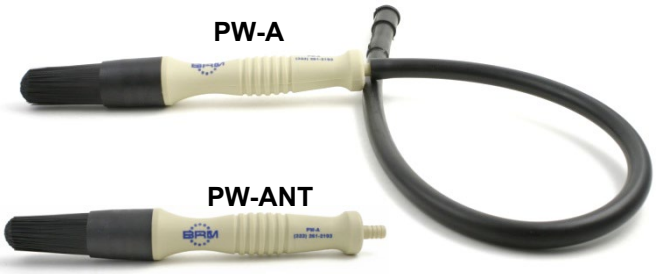
3mm STEM

BRUSHES FOR WASHING

Handle made of polypropylene, bristles composed of synthetic material to withstand the majority of solvents and detergents. Designed for use with both petroleum-based and water-based cleaning solutions. All metal parts are made of stainless steel or brass to resist corrosion. The tubes are designed to adapt to the most common recirculating washing systems. The ergonomics of the handles reduce wrist fatigue and allow for greater pressure during cleaning.

Code	Features
PW-A	With liquid passage hole and tube
PW-ANT	With liquid pssage hole, without tube
PW-C	Without liquid passage hole
PW-6P	With liquid passage hole and tube
PW-6PNT	With liquid pssage hole, without tube
PW-1P	With liquid passage hole, valve and tube
PW-1PNT	With liquid passage hole and valve, without tube
PW-4P	With liquid passage hole and tube
PW-4PNT	With liquid passage hole and valve, without tube
PW-3/4	¾ -9.5mm aluminum handle and scraper attachment

PW-A



PW-ANT

PW-4P with tube

PW-4PNT

PW-34

PW-1P with tube

PW-1PNT

FLEX-HONE THREADED ATTACHMENTS AND EXTENSIONS

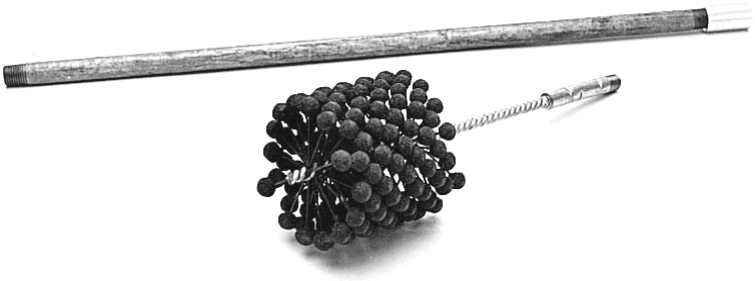
Available separately or, if specified in the order, Flex-Hones can be provided with the threaded attachment pre-mounted.

Threadedattachments

Code	Thread	Flex-Hone size
832A	8-32	7mm - 11mm
18NPT	1/8”	12mm - 3”
14NPT	1/4”	3” - 5-1/2”
38NPT	3/8”	6” - 8”
12NPT	1/2”	8” - 12”
34NPT	3/4”	12-1/2” - 18”

Extensions

Code	Thread	Length
18x18	1/8”	18” – 457mm
18x36		36” - 914mm
14x18	1/4”	18” – 457mm
14x36		36” - 914mm



ADAPTERS

Code	Brush hole		Shaft Ø	Max brush Ø	
	mm	inches		mm	inches
AT1	12.7	½	6.4mm ¼”	102	4”
UA1					
UA4	9.5	3/8			
UA2					
UA3	6.4	¼		50.8	2”
1300	12.7	½		102	4”

Code	Diameter	Shaft hole		Compatible brushes
		mm	Inches	
AL 1/2	50.8mm 2”	12.7	½	***BDM 6”-8”*** ***BDA 6”-8”***
AL 5/8		15.9	5/8	
AL 5/8 1/2		15.9 - 12.7	5/8 - 1/2	
AL 3/4		19	¾	
AL 7/8		22	7/8	
AL 1		25.4	1	
AL 1-1/4		31.8	1-1/4	
AL 1-1/2		38	1-1/2	
AL12A	50.8mm 2”	12.7	½	***10”-12”*** ***BDH 10”-12”*** ***TWA 6”, TW 8”-10”,*** ***NWA 6”-18”, NY 6”***
AL1A		25.4	1	
AL34A		19	¾	
AL5812A		15.9 - 12.7	5/8 - 1/2	
AL58A		15.9	5/8	
AL78A		22	7/8	

For Tampico and abrasive Nylon brushes

Code	External Ø		Standard shaft Ø	Max shaft Ø upon request
	mm	Inches		
MA3	82.5	3-1/4	5/8” - 15.9mm	2” - 50.8mm

Plastic reductions for circular brushes

Code	External Ø		Shaft Ø	
	mm	Inches	mm	inches
SA-1214	12.7	½	6.4	¼
SA-1238			9.5	3/8
SA-5812	15.9	5/8	12.7	½

Threaded adapters

Code	External thread	Internal Thread
TNA-3824	5/8”-11	3/8”-24
TNA-10125		M10x1.25
TNA-10150		M10x1.5

81 series micro-brushes adapters

Code	Type	Max brush stem Ø	Max brush Ø
PV-460	Double	.109” – 2.8mm	7/32” – 5.6mm
PV-467	Single rotating	.125” – 3.2mm	5/16” – 7.9mm

BRUSHES FOR ACIDS

Metal handle, horsehair bristles

Code	Width	Total length
#1	9.5mm – 3/8”	6” 152mm
#2	12.7mm – ½”	

TOUCH-UP BRUSHES

Code	Description
4843	Size ¼” camel hair flat brush
1091	Size 1 camel hair brush

BRUSHES

Code	Size	Length	Width	Pack.
601W	1/2"-12.7mm	1-3/4"-44.5mm	5-1/6"-7.9mm	36
	3"-76mm	1-11/16"-42.9mm		24
	4"-101mm	2"-50.8mm	11/16"-17.5mm	6
601G	1/2"-12.7mm	1-1/2"-38.1mm	1/4"-6.4mm	36
	1"-25.4mm	1-5/8"-41.3mm	5-1/6"-7.9mm	36
	1-1/2"-38.1mm			36
	2"-50.8mm			36
	2-1/2"-63.5mm	1-3/4"-44.5mm	3/8"-9.5mm	12
	3"-76mm			12
	4"-101mm			12

BRUSHES FOR ELECTRONICS

Nylon .003”-0.08mm bristles - Stainless steel 1/8”(3.2mm) handle – Delrin handle

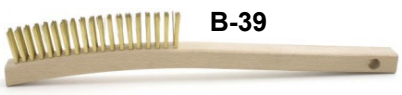
Code	Description
5130-2	90° Execution

BRUSHES

Code	Size	Bristles	Bristle length	
622-S/H	5”x 5” 127x127	Plastic Prolene	2” 50.8mm	Short handle
622-L/H				Long handle
King-8	8” – 203mm	Horse hair	2-1/2” – 63.5mm	

VARIOUS BRUSHES

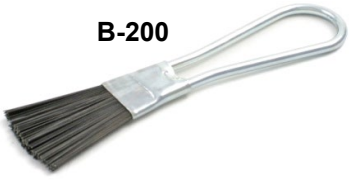
Code	Bristle type	Rows	Width mm	Total L.. mm	Bristle L. mm
B-40	Steel	3x19	1”-25.4	13-3/4”-350	1-1/8”-29
B-41		4x19	1-1/8”-29		
B-47 scraper		4x19		14”-355	
B-740	Stainless	3x19	1”-25.4	13-3/4”-350	
B-741		4x19	1-1/8”-29		
B-840	Bronze	3x19	1”-25.4		
BN-49	Nylon	4x19	1-1/8”-29		1”-25.4
BT-49	Tampico	4x18			
B-49S	Thin stainless 0.15	4x19		14”-355	
B-46S		4x16		10”-254	
B-39B	Thin brass 0.15	3x19	/	13-3/4”-350	1-1/8”-29
B-49B		4x19			
B-46B		4x16		/	
B-44	Steel	4x16	1-1/8”-29	10-1/4”-260	
B-52		2x17	½”-12.7	10”-254	1-1/4”-32
B-844	Bronze	4x16	1-1/8”-29	10-1/4”-260	1-1/8“-29
B-210	Thin brass	4x11		3-1/4”-83	9/16”-14.3
B-61	Brass	9x10	2-5/8”-67	8-7/8”-225	5/8”-16
B-200	Steel Chips removal	/	1-1/4”-32	5-1/2”-140	1-1/2”-38



B-39

B-44

B-61



B-200

SMALL BRUSHES

Handle Material	Handle width	Rows	Code and bristle type		
			Stainless .006 0.15mm	Nylon .018 0.45mm	Brass .006 0.15mm
Plywood	3/8” – 9.5mm	2	93A-S250	93A-N250	93A-B250
	7/16” – 11.1mm	3	93A-S375	93A-N375	93A-B375
	½” – 12.7mm	4	93A-S500	93A-N500	93A-B500

93-A

Handle material	Code	Bristle
Plastic	93-AP	.006-0.15mm Stainless
	93-APB	.006-0.15mm Brass
	93-APH	Horse hair
	93-APP	.006-0.15mm Bronzo
	93-APH	Horse hair
	93-APN	.012-0.3mm Nylon

93-AP